Camera orientation

The angle of position (horizontal or vertical), the distance and angle to the path of travel (perpendicular versus other angles) and the relationship to the camera trap sensor height must be documented for all camera traps in a survey. Cameras are commonly positioned horizontally, i.e. the lens and camera/sensors are perpendicular to the ground, although a vertical orientation, i.e. lens and camera/sensor parallel to the ground and facing the ground, is increasingly being used (see De Bondi et al. 2010; Smith and Coulson 2012 (Fig. 1); Welbourne 2013). Clearly stating the orientation will have important implications for the interpretation of studies that use the random encounter models (Rowcliffe et al. 2008) because a vertical orientation allows the area of coverage to be accurately estimated. In a vertical placement, the height of the sensor from the ground must remain constant, and authors should clearly articulate how the placement was achieved. When describing a horizontal orientation, the angle along the longitudinal plane towards the expected 'hot-spot of detection', and any angling of the camera trap on the latitudinal plane should be stated.

Direction relative to animal passage

Like other passive survey techniques such as sand padding (Engeman 2005) otherwise known as track plots, track pads or track-pads, camera trap surveys are commonly undertaken along pads, paths and trails, in order to increase the probability of encountering species of interest (Sanderson and Trolle 2005; Tobler et al. 2008). When study sites are relatively inaccessible to researchers, e.g. due to dense or inhospitable vegetation, roads, trails and animal pads may offer the only feasible locations for camera trap placement. Although narrow trails may focus movements of target animals toward camera traps, this does not guarantee that animals are always detected when they pass the trap. Indeed, there is some evidence that the orientation of camera traps may significantly affect the probability of detection for some models of camera trap. Ballard et al. (unpub. data) have found significant differences in detection probabilities for dogs (*Canis lupus ssp.*), between different angles of incidence to the trail and between direction of travel (towards or away from the camera).

Despite the predominant direction of travel by study animals being less important than the angle of orientation to the trail or path being monitored, there may be some situations where travel direction can bias survey results. It is for this reason that documenting how camera traps were positioned in relation to expected animal passage is important.

Habitat modification

In many cases, habitat modification is needed to optimise the performance of camera traps. Removing vegetation may be necessary, especially in very dense vegetation and in studies where bait stations are used (Claridge et al. 2004; Nelson and Scroggie 2009; Claridge et al. 2010; Meek 2010; Paull et al. 2011; Meek et al. 2012b; Zewe et al. 2014), because plants can completely block the field of view and make detection impossible. Additionally, wind-blown vegetation can trigger camera traps thereby creating numerous blank images. Reporting whether vegetation was removed or modified during camera placement may seem trivial, but is important when this activity has the potential to modify habitat, change

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behaviour and effect detection probabilities. Here, the scale and extent of vegetation cleared may be important to define.

Lures, bait, bait type, delivery and no bait

Detection rates and species detected may vary considerably between camera trap stations with and without bait, and the aims of the study should be carefully considered when choosing which type to use (Larrucea et al. 2007, Gerber et al. 2012).

Baits, including lures and attractants, are used widely in association with camera traps to increase the probability of detecting a target species or a suite of species. Their use may lead to differential behavioural responses of individuals within and between species. In white-tailed deer, for example, the use of baits can lead to biases in the age class and sex structure of individuals visiting camera trap sites (Roberts et al. 2006; McCoy et al. 2011). This may be problematic if accurate or representative information about population demographics is required. Differential behavioural responses to baits may also violate the equal catchability assumption of many population models and species richness estimators, resulting in biased estimates of abundance and diversity (Tobler et al. 2008; Wilson et al. 2011). Despite this, the use of baits is not given enough consideration in studies where camera traps are used to establish population parameters for some species; for example see Larrucea et al. (2007) and Guil et al. (2010).

Where lures are used, authors should provide sufficient detail of the type of lure (olfactory, visual, audio), what baits were comprised of, how far and at what height they were placed from the camera. We also recommend stating clearly if and how lures were protected from consumption or removal by target and non-target animals and in the case of food lures, how often the bait was replaced or refreshed, because bait can deteriorate in wet weather and olfactory intensity may vary over time.

Camera trap settings

Camera trap models vary considerably in the range of settings available to the practitioner. 'Low-end' camera traps may have relatively fewer settings and functionality than 'top-end' models. The choice of which setting to use depends on the objectives of the study and the animals being studied. Although it is usually not necessary to report all camera trap settings, it is important to describe those which may directly affect the results in terms of animal detections.

Video, still or time-lapse

Typical camera trap mode options include still images, video, or both options. Still images provide distinct points-in-time data that can be coded and analysed more easily than video, although still images can be extracted from video files. Video footage is commonly used in bird nest research and in studying animal behaviour (Kross and Nelson 2011) and predation (Reif and Tornberg 2006). The form of image data recording used, the settings and how data were coded for analysis should be clearly described in the methods section of manuscripts.

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White flash or infra-red illumination

There is an increasing number of lighting options available for camera traps, and many of the major manufacturers now offer a range of options, sometimes in the same unit. Although there is not a comprehensive account of species responses to different types of illumination, there is some evidence to suggest that lighting can influence detectability in some species (Séquin et al. 2003; Wegge et al. 2004; Larrucea et al. 2007; Schipper 2007; Meek Unpub. data.), and may also impact the ability of technicians to identify species or individuals. As such, researchers should report the type of illumination used (e.g., infrared, xenon white flash or LED white flash).

Capture delay period

Most camera traps have a programmable setting called the 'trigger delay' or a related term i.e. 'capture delay', which is defined as the minimum time between the first image taken of a detected animal and the next image. For example, if an animal remains in the detection zone after it is initially detected, the camera will only take subsequent images if programmed to do so (burst mode); otherwise, it will wait until a pre-set amount of time has passed before the animal can trigger it to take another image. Most camera traps allow the user to set the delay but the interval options may vary (e.g. 30 s, 1 min or 1 h, etc.). Delays can be convenient because they reduce the number of images of a single animal or group. However, they can also reduce the likelihood of capturing multiple animals and can make identification ambiguous. Reporting the delay period between triggers is important in assessing the independence of the data collected. In mark-recapture studies it may reassure readers that sufficient time has passed between animal observations so as not to confound the analysis. Moreover, because image data are not collected during the trigger delay interval, reporting the delay time period is essential for study repeatability and retrospective comparisons.

Images per trigger and event

The number of images that can be taken by a camera trap once the sensor is activated varies among models. Some allow continuous images to be taken so long as the subject continues to trigger the device. Others take a set number of images following the first trigger. It is important to report the number of images the user has set the camera trap to take per trigger as this may affect the overall results. Where small, fast moving or nocturnal animals are being studied, one image is often insufficient to confirm identification and taking more improves the likelihood of a positive detection. Information about numbers of images taken per trigger is also pertinent where authors present results in terms of the number of images recorded, or the number of images per event that may be different from the number per trigger (see below).

Trigger speed

Trigger speed is defined as the length of time between an animal entering the detection zone of the camera trap to when a image is taken. It can vary considerably between models,

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from 1/5 of a second (Reconyx PC850) to greater than 1 s (Cuddeback Capture). If the average trigger time is greater than the time it takes for a target animal to pass through the field of view of the camera, the animal will either not be detected or a partial image of an animal is recorded. Relatively fast moving animals, such as weasels and foxes, require a faster trigger speed than slow animals or those that travel in groups (e.g. echidnas or goats). Reporting the trigger speed enables readers to assess whether false negatives were related to slow trigger speeds or another artefact of camera trapping. This is especially relevant where surveys were unexpectedly unsuccessful.

Analysis

Statistical analyses of camera trap data can be complex and can vary according to study objectives and resulting data. Although recommendations for analysing camera trap data are beyond the scope of this article, we outline basic reporting requirements that will assist readers to understand how analyses of camera trapping data have been conducted.

Data coding format

In order to analyse images it is normal to assign some unique identifier or code to the image; some camera traps routinely assign metadata with the image according to a standard coding convention. When humans manually code image sequences and image events they can be unconventional, particularly when developing naming conventions or in the coding of multiple individuals or species within single images. In general, when species identification is important, naming conventions should, at a minimum, include the genus and species. When multiple individuals are in a single image, the total number of individuals in the image should be recorded or the image should be coded once for each individual. When multiple species occur in an image, the image is usually coded once for each species in the image. Describing in brief how coding is undertaken is useful for readers to understand the methods used in relation to the results.

Definition of event

The term "event" typically refers to the presence of an animal, on a single occasion in a location, as detected by a sensor and documented by a camera. Two factors can determine the precise definition of a camera trap event and should be clarified by the investigators: independence interval between successive images or sequences of consecutive images (i.e. video or pseudo video) initiated by a trigger. Although the optimal independence interval has never been empirically estimated from camera traps, it typically ranges from 10 to 60 min (although 1–5 min has been used for small mammals), and the researcher should report on the criteria used to set the interval. However, for some analyses such as occupancy modelling, capture-recapture analyses, or movement patterns, the interval can be one or even multiple days; in any case, the statistical independence of "events" in wildlife research has received considerable attention in the literature and will likely be important in camera trap studies. Some authors use a sequence of consecutive images, or a video clip, as their event, and combine consecutive sequences of the same species into one longer clip based on an independence interval, sometimes including or in recognition of the direction of travel of animals. When more than one camera trap is placed at one location and an

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animal is detected by both cameras simultaneously, this should be considered one event, not two. The exact criteria used to create sequences should be described as it can affect estimates of species detection rates and group size.

Data management and software used

It is mandatory to describe the analysis of data in scientific manuscripts and often authors will provide a brief statement describing how data were managed. In camera trap studies there are a few analytical approaches and databases that have been developed specifically for the purpose of managing (Fegraus et al. 2011; Tobler 2013; Sanderson and Harris 2014) and analysing camera trap data (Efford 2009; O'Brien et al. 2010; Gopalaswamy et al. 2012). In reporting how data were analysed, the management of data and, if applicable, which software program was used should be described.

Results

Study duration

The duration of camera trapping studies will vary depending on the complexity of the questions being investigated and the trapping rates of the target species. The year, season, time of year, and in detail, the duration and number of survey days and nights should be documented to enable readers to fully understand the survey design, constraints and actual time afforded in data collection.

Number of images and events

It is important to report the total number of images taken per camera per site and the total number of images taken in the study; likewise the number of events (see definition) should be presented when necessary to enable readers to review the quality and quantity of data in the study. Presentation of the number of images and events per camera per species may be best presented in a table, appendix or supplementary material. It may also be necessary to provide data on photographic rate (Rovero and Marshall 2009) to enable a greater understanding of survey effort and results.

Blank images

Camera trap deployments often produce a large number of images, many of which do not contain visible images of animals. Questions arise about how such images should be categorised and subsequently reported. For definition purposes, a blank image is a frame or sequence of frames that do not contain animals. These 'empty' frames may arise when a camera sensor triggers in response to heat in motion in the field of view that is not related to an animal (i.e., waving grasses), or when a camera sensor triggers in response to an animal, but the response is too slow to capture the animal in the camera's field of view. Empty frames in response to heat in motion usually result in long sequences of images, whereas empty frames in response to a slow animal trigger usually result in a single sequence of images equal to the number of frames per trigger event. Sometimes it can be

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difficult or impossible to distinguish between these very different events. Either way, reporting on the number of blank images, and number of blank events relative to the number of images that contain animals, may be useful in defining how efficient camera trap surveys are. Providing a reader with evidence to support claims of robust survey design and effective use of equipment i.e. camera traps, is fundamental to the rigours of science. When an excessive number of blank images are reported by an author, the reader can justifiably challenge the reasons and make informed judgements on the robustness of the research and validity of the findings. Reporting blank images may not always be necessary or possible but authors should consider whether such information is important to present.

False positives and false negatives

Following Royle and Link (2006), we define false positives in camera trapping as incorrectly reporting a species as detected when it does not actually occur. Typically, false positives in a dataset of images result from misidentification and can arise when images are being classified by observers with varying skill levels, or when there are multiple species that are similar in appearance. In contrast, a false negative may also be recorded: we adopt the convention of MacKenzie et al. (2002) that a false negative is the failure to detect an animal when the animal is actually captured on the image. This can arise from missing an animal in the frame during cataloguing of images, or when the image is too poorly defined to be identified; the latter should be recorded as 'unknown". To this end, false negatives can sometimes be difficult to differentiate from blank images. A database with all images, including those that are apparent "blanks", provides opportunity for multiple observers to check all images to ensure that no animals were missed (false negatives). Although we admit that keeping huge numbers of blank images indefinitely may not always be desirable. Providing details of the number of blank images and whether they were false negatives may be important to report albeit not always achievable.

Camera trap days or nights

Camera trap days or nights are calculated by summing the days (24 h period) each camera or camera trap site was operational. Generally this is described as a period from 0:00 to 24:00 h. Number of trap days (or nights) gives a quick overview of the total survey effort. Camera trap days should be calculated exactly by excluding days when cameras were not functional because of technical problems, because they were moved so they could not take pictures, or because they were stolen or damaged. In principle, the number of trap nights, numbers of cameras and even numbers stolen or damaged cameras can easily be presented in a standard table and we recommend this practice for consistency in reporting (see example in Table 1).

Discussion

Standard reporting protocols for scientific studies are a fundamental aspect of science. In many fields, basic standards are taught in undergraduate science and reiterated in the styles and guides to authors of every peer-reviewed scientific journal. However, although authors, reviewers and editors all have input into what is finally reported in methods and results sections, there are occasionally gaps in reporting that often make it difficult, and sometimes impossible, for other researchers to replicate studies that are important for conservation and

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Table 1 An example of a table of camera trapping effort from Rovero and Marshall (2009)

	Matundu		Mwanihana			Uzungwa scarp
	Ruipa	Lumemo	Campsite 3	Mwanihana	Sanje	
Camera trapping days	1,163	548	466	443	109	255
Mean trapping days per camera	72.7	78.3	28.6	35.5	21.8	51.0
Successful cameras	16	7	5	5	5	5
Cameras broken/stolen	0	1	1	0	1	1

other societal goals. In the relatively new and evolving field of camera trapping this is especially true. Consequently, we believe it is timely to encourage improvements in how we report scientific endeavours in this field. The number of published studies using camera traps has increased since 2006 with an average of 100 new papers published annually during 2010–2011 (Rovero et al. 2013). The exact methods used in investigations are as variable as the subject matter and when attempting to repeat or critique the research, failure to report fundamental methodological information is common.

The information presented in these guidelines aim to help improve the reporting of the methods used in camera trap studies so that the actions described can easily be repeated (Cassey and Blackburn 2006) and evaluated. In a recent influential paper, Sutherland et al. (2010) provide a solid rationale for proposing standard reporting in reintroduction projects; their goal was to encourage the scientific community to collect credible data and assess both the timing and causes of success as well as failures. We anticipate that, much like in the design of reintroduction programs, future designs of camera trap surveys will similarly improve.

In this paper it was not our intent to dictate or explain the use of specific camera trap methods or approaches. Such information should be distilled from some of the seminal publications on camera trapping (Karanth 1995; Karanth and Nichols 1998; Cutler and Swann 1999; Claridge et al. 2004; Swann et al. 2004; Kays and Slauson 2008; Rowcliffe et al. 2008; Silver et al. 2004a; Tobler et al. 2008; Rovero and Marshall 2009; O'Brien et al. 2010; O'Connell et al. 2011; Bengsen et al. 2011; Rovero et al. 2013; Tobler and Powell 2013). However, we anticipate that these guidelines will positively influence how camera trap research is designed and reported, in turn leading to improved conservation and land management practices. Finally, we encourage all wildlife scientists involved in camera trapping studies to publish their research insights wherever possible, so that this field of endeavour continues on its already positive path.

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Appendix

List of standard camera trap terms (from Meek et al. 2012a; Rovero et al. 2013) with additional definitions

Alignment	Term used to describe the placement of a camera and the cardinal direction, it can be two dimensional thus a

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	horizontal (standard placement—lens perpendicular to the ground) or vertical (lens facing downwards at the ground) alignment as well as a horizontal-cardinal direction
Burst mode	A camera trap setting that allows continuous images to be taken following a trigger event, see also rapidfire
Camera trap	A term used to describe a camera that captures images of wildlife using heat and motion sensing, time lapse, mechanical, seismic sensors or an active infra red sensor system
Camera trap set	Connotation of a trap 'set' which describes the immediate area where camera/s are placed, can be more than one camera per set
Camera trap array	The number of camera traps set in a certain pattern and defined location, referring to more than one camera trap at a study area
CF card	The acronym for Compact Flash cards, a mass storage device used by older camera traps, virtually all new models (at the time of publication) now use SD cards
Covert surveillance	Use of cameras set to catch illegal actions by people
Delay	A program function available on some models. This setting has many forms but typically allows the user to set a period of time where the camera trap is inactive or 'hibernating' before or between images
Depth of field	This refers to the aperture setting and its effect on the focus of objects in the front and rear of the image. Not often adjustable in camera traps
Detection zone	The area in which a camera trap is able to detect the heat signature and motion of a target
Event	The period of time between independent triggers of distinct individuals, regardless of the number of images, to the last image in a sequence
False Positive	Incorrectly detecting an animal or species when none is present
False Negative	Failure to detect an animal or species when in fact it is present
Focal point	Usually the centre of the image (if the image is composed correctly), the subject of interest, the lure, pathway or track centre or bait device
Field of view	The area captured in a image, usually between 35° and 45°
Fresnel lens	A lens used by camera traps to direct infrared energy onto the passive infrared (PIR) sensor. These lenses are commonly seen in lighthouses and cause refraction of light
Incandescent	A white flash (xenon) used by some camera traps, now mostly superseded by white LED
LED	An abbreviation for light-emitting diode, a form of light source used in modern white flash cameras
Lures	A generic term referring to an attractant used to encourage animals to investigate a specific point within the detection

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	zone. Lures may be auditory, olfactory, visual, or some combination of these in nature
Night Mode	This setting is available in some camera traps and allows the device to be set to maximise clarity at night by reducing the illumination power and increasing the speed of the shutter, thus reducing blur
PIR sensor	Passive detectors of infrared light
Rapidfire	A camera trap setting that allows images to be taken continuously following a trigger event—see also burst mode
SD card	The acronym for Secure Digital cards. A removable digital storage medium that is currently the standard in camera traps
Sensitivity	A setting, often adjustable, that reflects the camera's response to heat in motion for PIR sensors. Higher sensitivity is associated with more images, and lower sensitivity with fewer images. Increased sensitivity, however, does not guarantee detection of a target
Sequence	A series of still images or video taken in rapid succession but separated by a time interval less than the set independence interval and forming an animated record of a triggering event
Time lapse	A program function available on some camera traps. The time-lapse function, or similar function, typically allows a user to prescribe times of day and/or night when the camera is inactive, regardless of activity within the detection zone. Some time-lapse cameras do not have a PIR and, instead, capture images at prescribed times or intervals
Time lapse camera	Camera traps that do not have a PIR sensor and can be programmed to take images at predetermined times throughout the day regardless of any triggers
Time to first trigger	The speed of the camera from detection by the PIR sensor to the first image captured
Trigger or Capture speed	The time difference between detecting heat in motion and capturing an image. Also known as response time. Slower trigger speed (i.e. more time elapsing between trigger and image capture) may decrease the likelihood of capturing a target
Walk test	A program function available on some camera traps. Walk test, or similar, can be used to identify where a camera will respond to heat in motion. Consequently, it can be used to 'focus' the camera's detection zone, as desired
White LED	A white flash consisting of white LED's in an array similar to an infra red array that illuminates the subject at night in full colour and is faster than xenon flash technology
Xenon flash	An incandescent or white flash that illuminates the subject at night in full colour

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Synonyms for camera traps	Remote camera, remotely activated monitoring camera, trail camera, spy camera, wildlife camera, camera trap, remote-sensing camera, sensor camera, remote sensing camera, remotely-triggered camera, game camera, photo-trapping, sensor camera, heat-and-motion sensing camera

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GGNRA192614

Message

From: Wakamiya, Sarah [sarah_wakamiya@nps.gov]
Sent: 8/12/2014 1:04:44 PM
To: Townsend, Rachel [rachel_k_townsend@partner.nps.gov]
CC: Merkle, William [bill_merkle@nps.gov]
Subject: Re: Snowy Plover Database work

Hi Rachel,

Joining you guys for a survey would be great - may help me better understand how you're collecting data - are you going out next Monday? It may be easier to tallk about the end times issue in person. I'll be at GOGA thursday if you'll be around.

Thanks,

Sarah

Sarah Wakamiya
Data Manager/Ecologist
San Francisco Bay Area Network
National Park Service
Fort Cronkhite, Bldg. 1063
Sausalito, CA 94965
415-289-1853

On Tue, Aug 12, 2014 at 12:32 PM, Townsend, Rachel <rachel_k_townsend@partner.nps.gov> wrote:
Sarah,

We only enter end times for each half of the beach (so, start and end time for south half and then start and end times for the north half). Also, if you ever want to join us on a survey, let me know. We will be going out again next week.

Rachel

On Tue, Aug 12, 2014 at 12:13 PM, Wakamiya, Sarah <sarah_wakamiya@nps.gov> wrote:
Thanks for getting back to me Bill. Are you guys currently entering end times into the database? The only table I see having a place for this is the Snowy plover table and it doesn't show a place to put end time on the form. The other tables (eg. for other shorebirds., etc) doesn't even have a field for end times. I'm assuming this needs to be created and populated with legacy data?

I'm not sure I completely understand the north and south beach issue, but I will stop by on Thursday and maybe Rachel can show me what you mean.

I will pass on the metric data. Thanks!

Sarah Wakamiya
Data Manager/Ecologist
San Francisco Bay Area Network
National Park Service
Fort Cronkhite, Bldg. 1063
Sausalito, CA 94965
415-289-1853

On Tue, Aug 12, 2014 at 11:07 AM, Merkle, William <bill_merkle@nps.gov> wrote:
The start and end times refer to the sectors where we count plovers, other shorebirds, people and dogs and ravens. Typically the start time of the next sector is the end time for the previous sector--I would say except when we switch from south end of beach to north end of the beach--where we would use the end time for the survey of that entire half of the beach. (Rachel may need to clarify).

I made a pdf of the reporting section of the protocol to help indicate the metrics that we would like calculated. Note that Ocean Beach and Crissy Field data are always calculated and reported separately.

So, we need:
1.) spreadsheet with the number of plovers observed for each survey date (Fields: survey date, number of plovers) for the monitoring year for Ocean Beach and Crissy Field. Generates Figure SOP 5.1.

2.) Speadsheet with average snowy plover count by month for all survey years, current survey year, and 1994 through current survey year -1 (Fields: Month, avg. num of plovers for all survey years, avg. num of plovers for current survey year, avg. number of plovers for 1994 through current survey year -1 (=1994 through 2013 for this year) for Ocean Beach and Crissy Field. Generates Figure SOP 5.2.

3.) Spreadsheet with survey year, maximum number of plovers, median number of plovers, winter (November through February) avg. num. of plovers, and winter (Nov. thru Feb.) median number of plovers for both Ocean Beach and Crissy Field. Generates Figure SOP 5.3.

4.) Spreadsheet with cumulative percentage of snowy plovers observed by sector for all years, for current survey year, and for 1994 through current survey year - 1. This is just for Ocean Beach. Generates Figure SOP 5.4

5.) Spreadsheet with avg. number of snowy plovers observed per survey for sectors 5, 6, 7, 8, and 9 by survey year. This is just for Ocean Beach. Generates Figure SOP 5.5

6.) Spreadsheet with date of first completed survey, first date plovers observed, number of plovers observed on first plover observation, date of last complete survey, number of plovers observed on last survey for each year for Ocean Beach and Crissy Field. Generates Table SOP 5.2

7.) Spreadsheet with median number of people per hour only for sectors 4-12 (Snowy Plover Protection Area) by year at Ocean Beach. Generates Figure SOP 5.6

8.) Spreadsheet with median number of people per hour only for sectors 1-2 (Wildlife Protection Area) by year at Crissy Field. Generates Figure SOP 5.6 equivalent for Crissy Field.

8.) Spreadsheet with median number of dogs per hour, and median percentage of dogs unleashed for sectors 4-12 (Snowy Plover Protection Area) by year for Ocean Beach. Note that surveys must be between July 1 and May 15 (this is current period when dogs are required to be on leash--outside those dates dogs can legally be off-leash). To calculate percentage dogs unleashed, can use formula (1 - (Dogs leashed/total dogs))*100; the number of unleashed dogs is a little tricky as this is the sum of dogs unleashed, roaming, and chasing shorebirds and chasing plovers. Generates Figure SOP 5.7.

9.) Spreadsheet with median number of dogs per hour, and median percentage of dogs unleashed for sectors 1-2 (Snowy Plover Protection Area) by year for Crissy Field. Note that surveys must be between July 1 and May 15 (this is current period when dogs are required to be on leash--outside those dates dogs can legally be off-leash). To calculate percentage dogs unleashed, can use formula (1 - (Dogs leashed/total dogs))*100; the number of unleashed dogs is a little tricky as this is the sum of dogs unleashed, roaming, and chasing shorebirds and chasing plovers.

10). Spreadsheet of avg. rate of dogs chasing shorebirds and plovers per hour only for sectors 4-12 (Snowy Plover Protection Area) at Ocean Beach by year. Generates Figure SOP 5.8.

11.) Spreadsheet of avg. rate of dogs chasing shorebirds and plovers per hour only for sectors 1-2 (Snowy Plover Protection Area) at Crissy Field.

I will see if Rachel has ideas or comments.

-Bill

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

On Tue, Aug 12, 2014 at 9:03 AM, Wakamiya, Sarah <sarah_wakamiya@nps.gov> wrote:
Hi Bill,

The Central Support Office in Ft. Collins is beginning work on the snowy plover database. Would you mind sending me the metrics you would like the database to calculate for reports so I can pass them on to the developer?

For the start time/end time issue, I don't actually see end time on the snowy plover form, though I do see it in the table. How are you currently entering end times? Does end time only get entered for snowy plovers, not Shorebirds, etc.?

We probably only have the developers for 2 weeks so the sooner we can get stuff moving the better.

Thanks!

Sarah

Sarah Wakamiya
Data Manager/Ecologist
San Francisco Bay Area Network
National Park Service
Fort Cronkhite, Bldg. 1063
Sausalito, CA 94965
415-289-1853

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Rachel Townsend
Biological Technician
Golden Gate National Parks Conservancy
office:415-289-1848
cell:563-343-7707

Message

From: Merkle, William [bill_merkle@nps.gov]
Sent: 8/14/2014 12:14:47 PM
To: Alison Forrestel [Alison_Forrestel@nps.gov]
Subject: feedback on funston

Hi,

Mike is trying to finalize dog maps for Funston this week.

Craig said he will send something for us to react to.

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

Message

From: Merkle, William [bill_merkle@nps.gov]
Sent: 8/19/2014 8:43:02 AM
To: Craig Scott [craig_scott@nps.gov]
Subject: Fwd: Crissy fence stuff

that's scary

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

---------- Forwarded message ----------
From: **Michael Savidge** <michael_j_savidge@nps.gov>
Date: Mon, Aug 18, 2014 at 5:43 PM
Subject: Re: Crissy fence stuff
To: "Merkle, William" <bill_merkle@nps.gov>
Cc: Craig Scott <craig_scott@nps.gov>, Daphne Hatch <Daphne_Hatch@nps.gov>, Kristen Ward <Kristen_Ward@nps.gov>

Thanks, Bill! We are on same sheet of music then ! Mike

Sent from my iPhone

> On Aug 18, 2014, at 4:19 PM, "Merkle, William" <bill_merkle@nps.gov> wrote:
>
> Hi Mike,
>
> Went to field check on fencing at Crissy field and had brief discussion with Daphne.
>
> Craig is on the same page--and has location information.
>
> Eastern fence for WPA:
> Existing fence should be moved to second sand ladder to the east. This would fit text description in SEIS of "approximately 900 ft. east of Coast Guard Station", maps, and line up with where we placed off shore buoy. Fence should run about N-S to line up with sand ladder. Need to decide which side of sand ladder to fence: if we do west side, then would only need gate in fencing. If we do east side, then would need to fence and gate the sand ladder too.
> Need to put fencing and gate on sand ladder between existing fence and new fence location too.
>
> Western edge of inlet: I also talked to Kristen Ward about this. We are thinking that this access just west of the inlet should remain open to dog walkers. We should fence ROLA on upland edge on western side of inlet, and straight out to bay from rip-rap groin.
>

> -Bill
>
> Bill Merkle, Ph.D.
> Wildlife Ecologist
> Golden Gate National Recreation Area
> 415-289-1843

Message

From: Fong, Darren [darren_fong@nps.gov]
Sent: 10/10/2014 9:06:17 AM
To: William Merkle [bill_merkle@nps.gov]
Subject: Dog disturbance

Bill, there was a off leash dog without owner in sight at Rodeo Lagoon this past Mon. Visitor reported it to me- also apparently flushed and almost caught a brown pelican roosting. Flushed birds (in air in photo). Found owner. Photos are on network

M:\Divisions\Natural Resources\Natural_&_Social_Sciences (N)\N14-Animal_and_Plant_Life_(Observations_&_Studies)\Wildlife Disturbance\RodeoLagoon-Dog

D

Darren Fong
Aquatic Ecologist
Golden Gate National Recreation Area
Bldg 1061, Fort Cronkhite
Sausalito, CA 94965
415-289-1838 (phone)
415-331-0851 (fax)

Message

From: Merkle, William [bill_merkle@nps.gov]
Sent: 11/14/2014 2:47:35 PM
To: Rachel Townsend [rachel_k_townsend@partner.nps.gov]; Rebecca Acosta [rebecca_acosta@partner.nps.gov]
Subject: Fwd: plover present

also should say that we are working with City of SF and other stakeholders on long range plan for Ocean Beach--hopefully this will lead to reduced emphasis on placing hardened structures in the intertidal zone as emergency actitons.

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

---------- Forwarded message ----------
From: **Merkle, William** <bill_merkle@nps.gov>
Date: Fri, Nov 14, 2014 at 2:45 PM
Subject: Re: plover present
To: "Townsend, Rachel" <rachel_k_townsend@partner.nps.gov>

I wouldn't worry about dog graph--just leave out.

- 2013 (July-May 2014) was an average year for snowy plovers at Ocean Beach in GGNRA. Numbers climbed slightly from 2012 to an average of just above 25 plovers/survey during the winter season (Figure 1). Snowy plovers remained toward the northern end of the snowy plover protection area, where the beach was wider

Crissy #'s summary? Also note that dune habitat continuing to spread and improve at Crissy--this seems to be the result of fencing the area (many dog walkers turn around at fence and gate rather than leash their dogs). Project to extend the storm outfall on Crissy WPA beach so that we don't have heavy equipment on the beach every time it rains will occur summer 2015.

we can say we still have about 60-70% of dogs off leash in our leash control areas.

Dog Management Plan Update: We have taken final comments on our Supplemental EIS. We are in the process of rulemaking to establish the regulations at each site--this will have public comment period. Probably about 1.5 year away from roll out. Plan establishes no dog zones for snowy plover areas at Ocean Beach and Crissy Field.

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

On Fri, Nov 14, 2014 at 2:21 PM, Townsend, Rachel <rachel_k_townsend@partner.nps.gov> wrote:
So I switched out the graph and am quickly trying to update the dogs graph...Is there anything you would like to add about the current status of the dog management plan? I realize I haven't really kept myself in the loop on everything. I put everything in bold that needs to be changed. Let me know if there are any comments or info you would like me to include.

On Fri, Nov 14, 2014 at 11:49 AM, Townsend, Rachel <rachel_k_townsend@partner.nps.gov> wrote:
Ok. Do you potentially have one from last year that I can update?

On Fri, Nov 14, 2014 at 11:45 AM, Merkle, William <bill_merkle@nps.gov> wrote:
we should put together 1 page handout

5 min target is great

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

On Fri, Nov 14, 2014 at 11:04 AM, Townsend, Rachel <rachel_k_townsend@partner.nps.gov> wrote:
So, this is pretty brief. I could probably talk for about five minutes. Is that OK/expected? Any suggestions?

Thanks,

R

On Thu, Nov 13, 2014 at 10:10 AM, Merkle, William <bill_merkle@nps.gov> wrote:

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

Rachel Townsend
Biological Technician
Golden Gate National Parks Conservancy
office:415-289-1848
cell:563-343-7707

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Message

From: Townsend, Rachel [rachel_k_townsend@partner.nps.gov]
Sent: 11/24/2014 11:19:41 AM
To: Merkle, William [bill_merkle@nps.gov]
Subject: Re: CF plover stats

Should we combine sectors 1 and 2 or leave them separate?

On Mon, Nov 24, 2014 at 11:01 AM, Merkle, William <bill_merkle@nps.gov> wrote:
yes, it really is leashed and all the rest is unleashed (unleashed, roaming, and chasing shorebirds or plovers).

Note that dogs only required to be on leash in sectors 1 and 2, within the WPA, and only from July 1--May 15.

-Bill

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

On Mon, Nov 24, 2014 at 10:52 AM, Townsend, Rachel <rachel_k_townsend@partner.nps.gov> wrote:
Hey,

I am looking at the before/after WPA fencing on Crissy Field and % off leash dogs. Do you want me to just look at unleashed dogs? Or should I combine the roaming, chasing, etc?

Thanks,

R

--
Rachel Townsend
Biological Technician
Golden Gate National Parks Conservancy
office:415-289-1848
cell:563-343-7707

--
Rachel Townsend
Biological Technician

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cell:563-343-7707

Message

From: Beltrano, Kathleen [katie_beltrano@nps.gov]
Sent: 9/7/2016 8:05:54 AM
To: Merkle, William [bill_merkle@nps.gov]
CC: Michael J Savidge [Michael_J_Savidge@nps.gov]
Subject: Re: dog walkers on Rifle Range

Hi Bill.

To my knowledge, there are no explicit restrictions for this area currently, that I could find in the 1979 policy, and the nearby trails allow dogs.

Thanks for the heads up.

Katie Beltrano

Golden Gate National Recreation Area
201 Fort Mason - San Francisco, CA 94123
Phone: (415) 561-4373
Fax: (415) 561-4305
Special Park Use Permit applications and other information:
http://www.nps.gov/goga/planyourvisit/specialparkuses.htm

On Tue, Sep 6, 2016 at 2:47 PM, Merkle, William <bill_merkle@nps.gov> wrote:
Hi,

Was just out at the Rifle Range this afternoon and saw two groups of "pro" dog walkers.

Are they supposed to be there?

Just wondering.

Thank you, Bill

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843



Message

From: Daniel Bucko [buckosan@g exemption 6
Sent: 8/30/2016 8:28:43 AM
To: Merkle, William [bill_merkle@nps.gov]
Subject: Re: Message about off-leash dogs at Ocean Beach

Hello Mr. Merkle,

Thank you for your response. My apologies for my snarky remark about staff sitting in a truck. Good luck with your plan exclude dogs on that section of Ocean Beach. As an urban planner I once ran meetings for the Rec and Parks Dept. in SF for dog use areas in SF community parks. It was an unpleasant experience. If I can help in any way let me know.

Regards,

Daniel Bucko

On Mon, Aug 29, 2016 at 5:41 PM, Merkle, William <bill_merkle@nps.gov> wrote:
Hi Mr. Bucko,

Thank you for your message about off-leash dogs disturbing snowy plovers on Ocean Beach.

We recommend that you call our park dispatch at 415-561-5505 when you see something like this happening, so that our law enforcement is aware of the situation and can prioritize a response.

We know that we have poor compliance with our pets on leash regulation from Stairwell 21 to Sloat Blvd. at Ocean Beach. We are nearing completion of a dog management rulemaking process and associated Environmental Impact Statement. The park's proposal is to exclude dogs from this area (largely because of the rich shorebird habitat and federally threatened western snowy plovers, as well as to provide for a dog free beach experience). Implementation of the final rule would be complemented by more outreach and hiring additional staff for enforcement.

Typically, the only trucks on our beach would be our lifeguards. Their primary task is public safety for people in or near the water, including keeping any eye on ocean conditions. When they have time and can safely do so, they will attempt to inform the public about park regulations.

If you have additional questions about this matter please get back in touch with me.

Sincerely,
Bill Merkle

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843



--

DANIEL BUCKO
exemption 6

Message

From: Savidge, Michael [michael_j_savidge@nps.gov]
Sent: 9/29/2016 1:42:03 PM
To: Jules Evens [avocetra@ Exemption 6
CC: William Merkle [Bill_Merkle@nps.gov]
Subject: Re: Monitoring Team Contract

Jules,

What time in AM works for you tomorrow to further discuss this?

Mike

On Thu, Sep 29, 2016 at 9:20 AM, Savidge, Michael <michael_j_savidge@nps.gov> wrote:
Jules,

Thanks for your consideration of this. Because of the breadth of your background, we were looking to keep you involved as key subconsultant on birds and in collaboration with Bill Merkle, NR lead for this project. Can you serve that role in telcons, one field visit here in either after Thanksgiving week or in January, one trip to participate in mgt staff discussion on indicators and standards in March or April, and 3 public mtgs in one week next summer. Can discuss what will work for timeframe and hours.

Mike

On Thu, Sep 29, 2016 at 8:53 AM, Jules Evens <avocetra@ Exemption 6 wrote:
Michael,

Sorry to have missed you call yesterday. I'll be in the field today (Thursday) and unavailable, but we can talk tomorrow (Friday). I've reviewed the materials you sent. Thank you. I could participate in most of the tasks, but I'm hesitant to commit to the workshop or the public meetings (Tasks 5 & 6). I'm living in Portland, OR now and trying to extricate myself form Bay Area work as I try to finesse "retirement." I do come down here there, for specific jobs, but less-and-less. It would be helpful to have some idea of the timeframe and dates for these tasks as I do have other work and travel plans in place through 2016. Sorry to be so difficult to pin-down, but that is my reality these days.

As I think we discussed last year, if I can not attend, Jim Estep has worked on these issues before and would be an excellent substitute and is probably more available than i am. I discussed participation with him during the last iteration of this project and he expressed a willingness to participate.

Regards,

Jules

Jules Evens
avocetra@ Exemption 6
Exemption 6

On Sep 28, 2016, at 12:18 PM, Savidge, Michael <michael_j_savidge@nps.gov> wrote:

Jules,

Wanted to get you this before we talk today as food for thought. You role and responsibilities would be from lit review update on impacts of dogs on birds and wildlife, ann 1 day field visit to SF sites to inform broader team on bird/shorebird impacts, issues and potential indicators to draft inputs for monitoring matrix on ecological impacts and indicators and fleshing those out more with protocols and input on sampling for draft monitoring and sampling report. It would also include serving as subject matter expert in staff and public meetings. Attached is draft of costs based on your non-profit or govt rate of $99 for our discussion today.

Are you available at 1PM to discuss?

MIke
(415)561-4725

On Tue, Sep 27, 2016 at 6:01 PM, Jules Evens <avocetra@ Exemption 6 wrote:
Mike,

No need to apologize. I'll be in-and-out tomorrow afternoon, so please try to reach me on my cell: Exemption 6

Jules
.
On Sep 27, 2016, at 5:05 PM, Savidge, Michael <michael_j_savidge@nps.gov> wrote:

Jules,

Sorry to be out of touch so long. Much happening to finalize our FEIS and rule.

On a positive note, Troy Hall at Oregon State University has agreed to lead our monitoring & mgt research project. She is a Professor & Department Head for their Forest Ecosystems & Society Department.

We are revamping our focus, and had hoped that you could join on a consulting bases for indicators and standards discussions and review, as well as subject matter expert for the (3) public meetings. We could talk about it tomorrow, if you are available in the PM.

Thanks,

Mike Savidge
GGNRA
(415)561-4725

On Fri, Sep 18, 2015 at 4:52 PM, Jules Evens <avocetra@ Exemption 6 > wrote:
Michael,

Thanks for the update. We'll stand by for more news.

Jules

Sent by magic

> On Sep 18, 2015, at 9:47 AM, Savidge, Michael <michael_j_savidge@nps.gov> wrote:
>
> Hi Jules,
>
> Wanted to follow up with you following our unsuccessful negotiations with RSG on the overall cost of the prime contract, not in any way related to your work and time.
>
> I am still pursuing a mechanism to engage you as one of our "experts" on the team, and will have resolved that within the next month(as we straddle fiscal years and all contracting work has been halted until mid-October).
>
> I expect that I will have an avenue to contract your efforts in support of the development of a monitoring and protocol report and guide for GGNRA by that second week, so that we can continue to plan for discussions in late October and site visits in November based on common schedules.
>
> We look forward to getting this work underway and working collaboratively with you on developing this exciting program!
>
> Thanks for your patience and continued interest!
>
> Mike
> (415)561-4725
>
> PS. Feel free to contact me with any questions or concerns

<16DogmgtMonitoringteam 2016revisedMJS.xlsx>

Message

From: Merkle, William [bill_merkle@nps.gov]
Sent: 9/29/2016 1:50:26 PM
To: Jim Estep [jim.estep@ Exemption 6
Subject: Fwd: need ecologist for support on dog mgt. monitoring plan

Hi Jim,

Hope you are well!

Wondering if I can talk to you this afternoon or tomorrow morning about potentially being involved with developing our dog management monitoring plan?

I am on my cell this afternoon 415-755-3307

Thanks, Bill

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843



---------- Forwarded message ----------
From: **Jules Evens** <avocetra@ Exemption 6 >
Date: Fri, Jun 24, 2016 at 11:53 AM
Subject: Re: need ecologist for support on dog mgt. monitoring plan
To: "Merkle, William" <bill_merkle@nps.gov>
Cc: Jim Estep <jim.estep@ Exemption 6

Hi Bill,

Yes, Mike Savage spoke to me some time ago (2015). I may be interested, although I'd need to see a scope to figure out if I have enough time to cover the tasks. I've attached a rather complex task order that I found in my files. Is this still relevant? Jim Estep (copied on this email) and I had worked on a budget together (attached). Jim would be excellent and probably more available than I am. If neither of us is available, how about Allen Fish? He may be willing, able, and qualified.

Thanks,

Jules

Jules Evens, Principal

Avocet Research Associates, LLC
P.O. Box 839
Point Reyes Station, CA 94956-0839
Telephone 415/706-3318
U.S. Fish and Wildlife Endangered Species Permit: TE 786728-4
California Department of Fish and Game Collecting Permit # 801092-04
Federal Bird Marking and Salvage Permit: # 09316-AN

On Jun 23, 2016, at 3:04 PM, Merkle, William <bill_merkle@nps.gov> wrote:

Hi Jules,

I think Mike Savidge might already be in contact with you on this.

For our dog management process, we will be developing a montoring plan. We are looking for a consultant/contractor who could cover the NR/ecology side. If you are not interested, do you have some ideas of folks who might be?

Some more info:
Want someone with a good idea about park resources.
Monitoring is not going to be monitoring natural resources (e.g. setting up veg. plots or counting animals), it is going to be compliance based.
We do want someone who can get up at public meetings and speak about natural resources in the park and the monitoring plan.

I don't seem to have your number but we could do this in a short phone call.

-Bill

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843



Message

From: Merkle, William [bill_merkle@nps.gov]
Sent: 10/4/2016 7:50:48 PM
To: Nathan Sargent [hale_sargent@nps.gov]
Subject: Re: Marin Headlands Coyote

Hale,

Those are great!!! Seth Riley their biologist used to work up here. They have a long running carnivore study going at SAMO on lions, coyotes, and bobcats--so Seth really knows his stuff.

No reason that coyotes behave differently down there than up here.

-b

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843



On Tue, Oct 4, 2016 at 7:43 PM, Nathan Sargent <hale_sargent@nps.gov> wrote:
Thx Bill,

SAMO has extensive coyote info on its website here:
https://www.nps.gov/samo/learn/nature/coyotes.htm

and here: https://www.nps.gov/samo/learn/management/support-coyotes.htm

can I use the SAMO info for some social media posts/tips about encountering coyotes at GGNRA? Any difference bw SoCal & NorCal coyotes?

I do see we have this blurb on our own site:

Coyotes: *Coyotes are small and rarely pose a threat to humans. However, coyotes may harm or even kill your dog. Always keep your dog on leash unless in a zone specified for off-leash dog walking*

Nathan Hale Sargent
Public Affairs Specialist
Golden Gate National Recreation Area
415-561-4732
415-786-8021 cell

On Oct 4, 2016, at 7:02 PM, Merkle, William <bill_merkle@nps.gov> wrote:
Hi,

There is a coyote that has been hanging around Fort Cronkhite the last few weeks. Several people have provided observations of this coyote being fed or approaching/begging from vehicles. I just got the coyote to move from the beach lot and it ran out onto the beach and starting begging from a couple having a picnic. I did get it to move off to the Lagoon area (where it started hunting, and caught some sort of small mammal).

If you work at the Marin Headlands, I would like to seek your support in helping keep this animal wild.

- **Only if you are comfortable**, if you see the coyote around Fort Cronkhite, please chase it off aggressively by shouting, clapping, stamping your feet as you move towards it. Make sure you get the coyote to move off, or else it learns to just ignore these actions from others.
- Watch for and discourage people from feeding the coyote! Food conditioned coyotes are dangerous because they closely approach people and expect to be fed. Typically, the only way to manage coyotes once they are food conditioned is to remove them.
- Please contact me with observations about this coyote.

We have placed windmaster signs about Not Approaching or Feeding Coyotes on Bunker Road and right before the beach parking lot to alert visitors.

If you don't work at the Marin Headlands, these are good wildlife lessons too:
Feeding wildlife is illegal in National Parks; and feeding wildlife usually doesn't end well for the animal.

Thank you, Bill

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843



Message

From: Merkle, William [bill_merkle@nps.gov]
Sent: 10/5/2016 11:49:21 AM
To: Camilla Fox, Project Coyote [cfox@projectcoyote.org]
CC: Cindy Machado [CMACHADO@marinhumanesociety.org]
Subject: Re: FW: Coyote at Rodeo Beach

Hi Camilla,

We just put up two windmaster (36" x 24) signs last week, one along the road to the beach and one right at the start of the beach parking.

I have observed this coyote too--and gotten reports of feeding. I am working with our staff to try to move it out of developed area when they see it and also to be aware of people approaching or attempting to feed the coyote.

Will keep you posted.

-Bill

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843



On Wed, Oct 5, 2016 at 11:43 AM, Camilla Fox, Project Coyote <cfox@projectcoyote.org> wrote:
Sharing this from a colleague who volunteers at MMPC each week; we've had several calls about this coyote.

Bill- any chance we can get some of our signs up there? Attaching several here (and we can always add NPS logo). Sandwich board signs would be good too.

Please let us know how we can help.

Thanks!

Camilla

—

CAMILLA H. FOX | **FOUNDER & EXECUTIVE DIRECTOR**
PROJECT COYOTE | P.O. Box 5007 Larkspur, CA 94977
Phone: 415.945.3232 | **ProjectCoyote.org**
FACEBOOK: ProjectCoyote | TWITTER: @ProjectCoyote

From: Susan Kamprath <skamprath@earthisland.org>
Date: Wednesday, October 5, 2016 at 10:56 AM

To: Camilla Fox <cfox@projectcoyote.org>
Subject: Coyote at Rodeo Beach

Camilla - this may already be on your radar, but I was at Rodeo Beach Saturday evening — a lone coyote was wandering the parking lot, exploring the beach, and sunning itself in close proximity to lots of people and dogs. I made an attempt at chasing it off and flagged down a park police officer who said they'd been hazing it for a number of days with no luck. His feeling was that people were feeding it.

That said, I didn't see any educational signs about interactions with wildlife in the beach area...might be a good idea.

Hope you're well. Thanks - Susan

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Earth Island Institute, a 501(c)(3) organization, provides fiscal sponsorship, resources, training, technical assistance, and peer relationships to environmental activists looking for an organizational home and institutional leverage for their work. Our goals are to strengthen the capacity of each project to effectively address environmental issues, create synergy between activists working on similar topics, and allow project directors to focus their energy on their campaigns and programs. For more information about our Project Support Program, please go to our web site at: www.earthisland.org
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

SUSAN KAMPRATH
Director of Project Support

Earth Island Institute
2150 Allston Way, Suite 460
Berkeley, CA 94704-1302
510-859-9100 ext 107
510-859-9107 Direct
510-859-9091 Fax
skamprath@earthisland.org
www.earthisland.org

Golden Gate National
Recreation Area

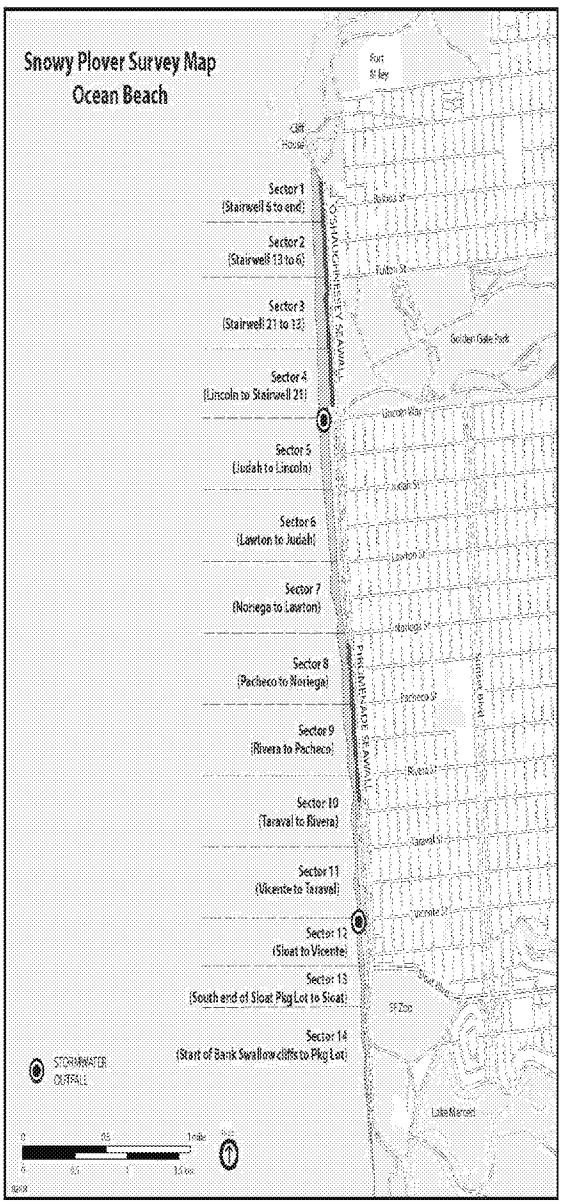
GOGA Snowy Plover Monitoring



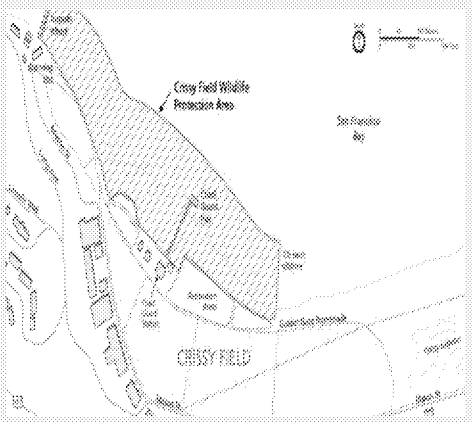
(S) LW YY!

Golden Gate National

Plover Sites



Crissy Field WPA



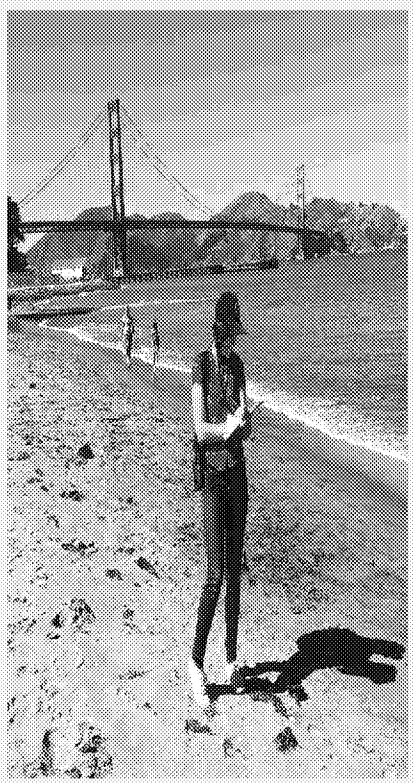
Briefly describe two sites…OB is over three miles of beach stretching from cliffs below fort funston to the Cliff House. There is a snowy plover protection area from stairwell 21 to Sloat Blvd, dogs on leash from July 1 to May 15.
Crissy Field, one mile stretch of beach, wildlife protection area fenced in

Golden Gate National Recreation Area

Surveys from July 2015 through late May 2016

38 surveys

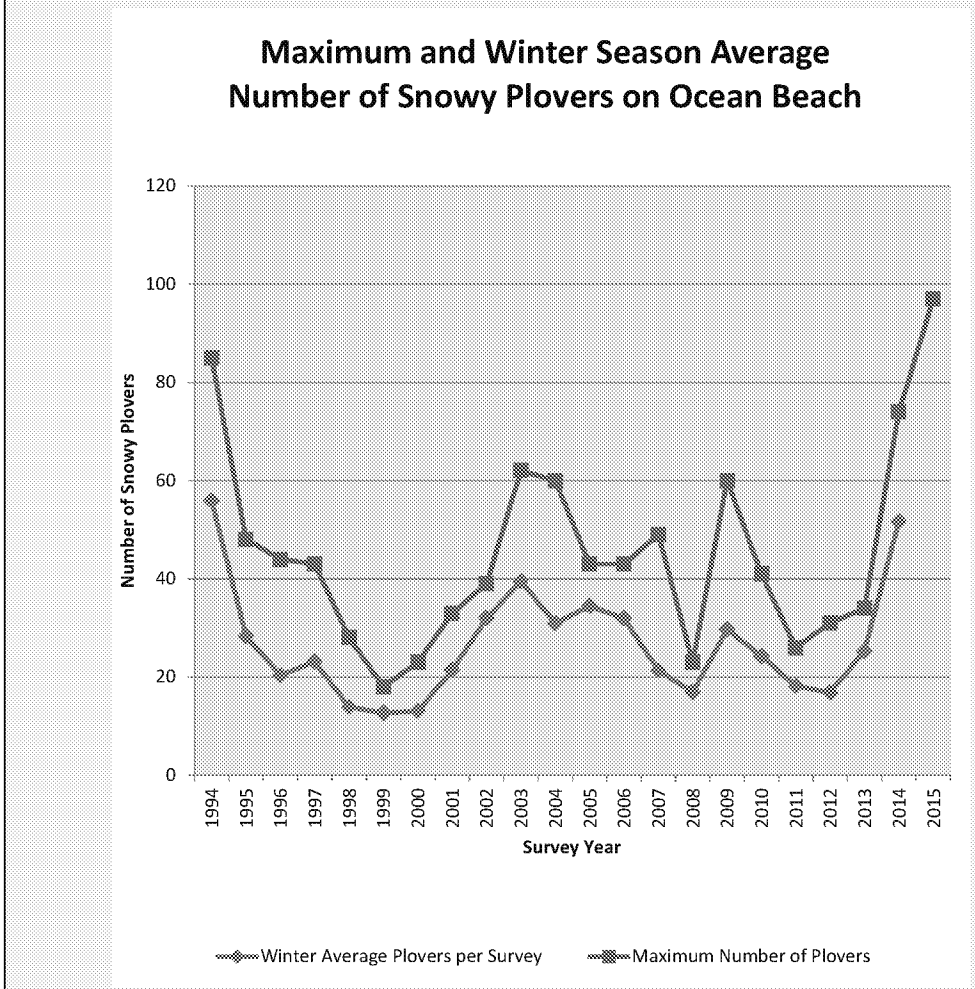
Surveys led by biological technician and wildlife interns, with volunteer assistance



Briefly describe methods: done twice a week, biweekly, Wednesday morning to capture “calm” beach hours, Saturday afternoon to capture peak beach usage time

Golden Gate National Recreation Area

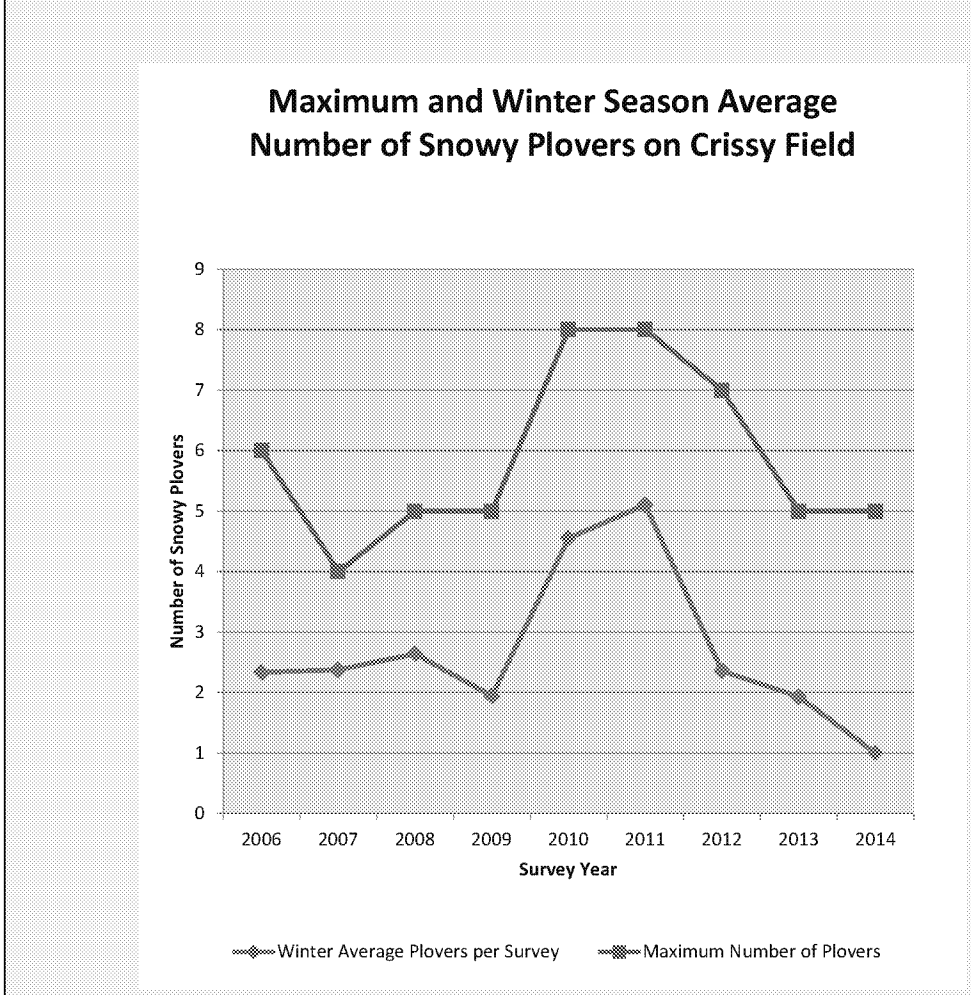
Plover Monitoring



Monitoring questions—what we want to know; numbers have fluctuated somewhat, remained around 30 plovers for ten years, had high count last season. Included this season's max so far as it is highest count observed since monitoring began.

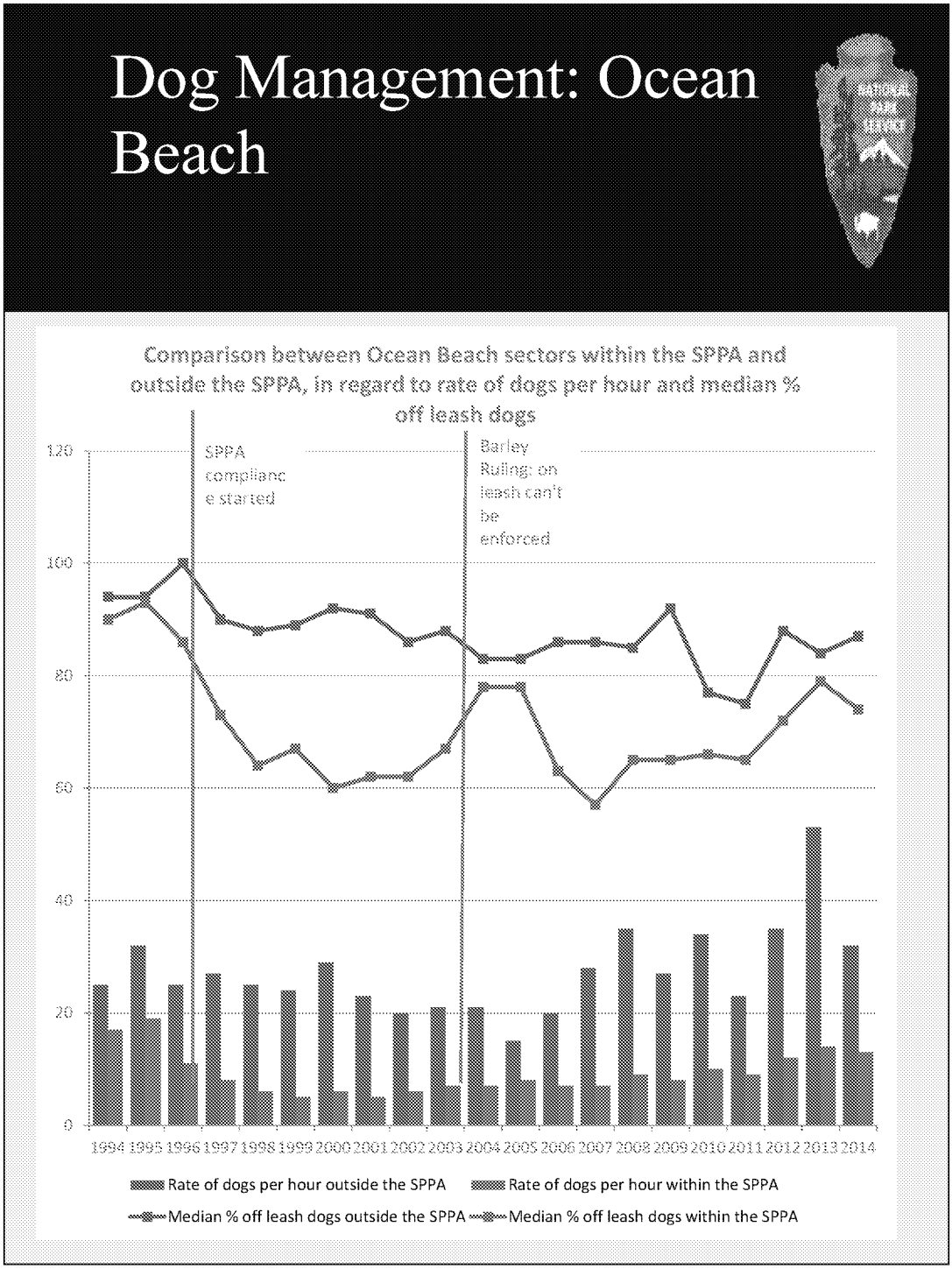
Golden Gate National Recreation Area

Crissy Field



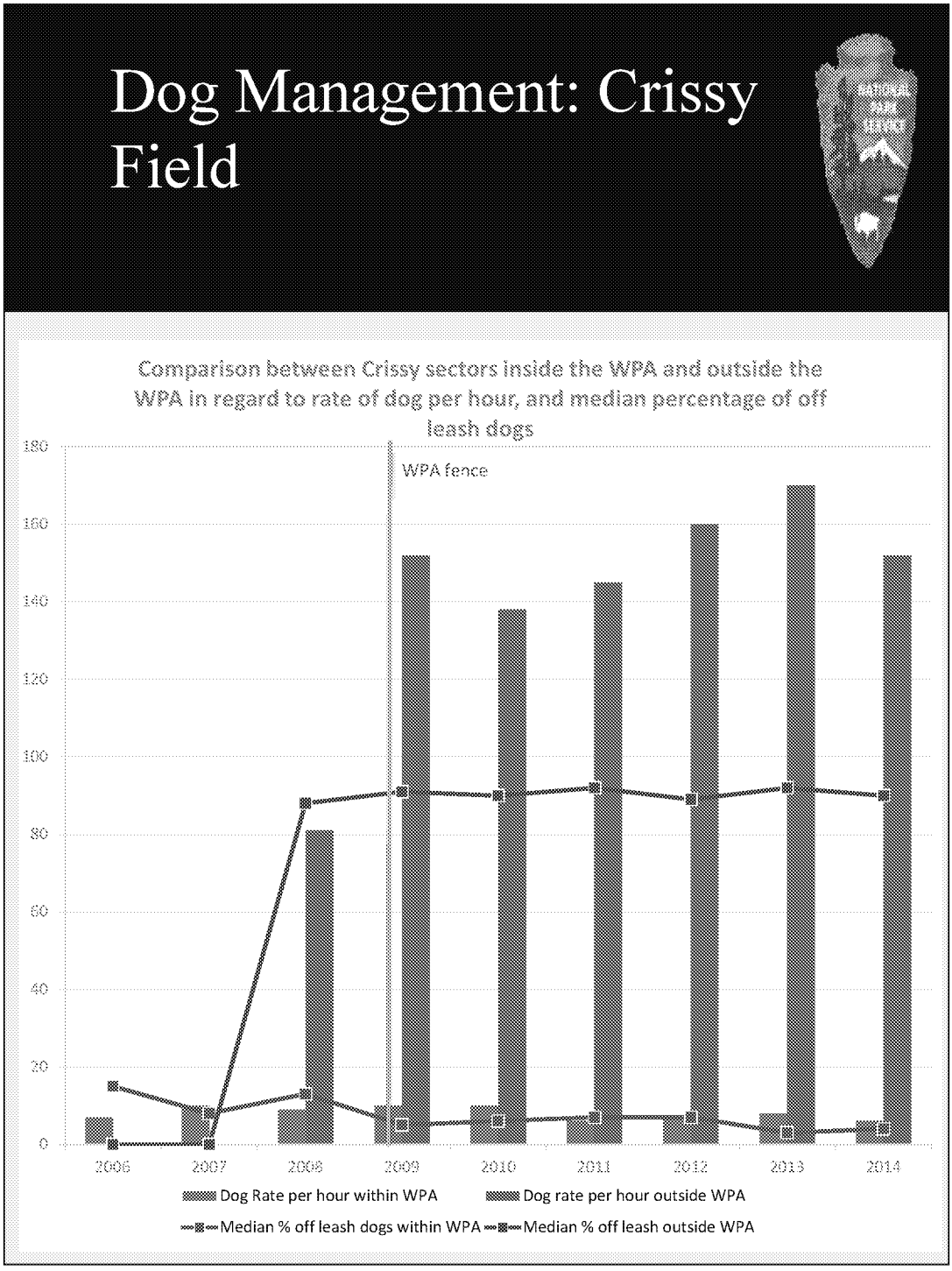
Crissy Field: Fewer years of data, plovers first showed up occasionally in 2004? Regular monitoring began 2006. Average fairly stable, last year lower. This season have seen three so far on two surveys.

Dog Management: Ocean Beach



Explain graph, why we used dog rate per hour. Nice drop in off leash dogs when the leash law was enacted in 1997. Barley ruling was when park was sued, we were unable to enforce the leash law which likely explains the jump in % off leash dogs in 2004. Having a snowy plover protection area seems to help (fewer dogs per hour, fewer off leash) but we could use more signage.

Dog Management: Crissy Field



Explain graph. WPA fence installed in January 2010, middle of 2009 season. Looks to be effective, fewer dogs per hour, fewer of those are off leash. Outside of WPA is an off leash dog haven…

Golden Gate National Recreation Area

Highlights

- Recorded a record high count of 104 snowy plovers on a survey on Ocean Beach in January (featured in SF Chronicle)
- Completed work on updates to snowy plover database.
- Dog Management Plan





Anything else you want to add for highlights? Also, Thanks Lizzy for all of your database help!

Message

From: Merkle, William [bill_merkle@nps.gov]
Sent: 10/12/2016 2:10:05 PM
To: Townsend, Rachel [rachel_k_townsend@partner.nps.gov]
Subject: Re: October 13 SFAN I&M Annual Round-Up Agenda

I think it looks really good.

For Crissy dog figure, is it possible to show % dogs unleash scale? It doesn't show on the right. Or is that the same as the dogs per hour scale??

One other item of interest: it would be interesting just for us to see what a regression line looks like on the OB plover numbers--you shouldn't change figure.

I think you should plan to get through this quickly, maybe target 8-10 minutes, and I can mention dog mgt. real quick, and then have time for questions.

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843



On Wed, Oct 12, 2016 at 2:01 PM, Townsend, Rachel <rachel_k_townsend@partner.nps.gov> wrote:
Thoughts now? Main change is updated figures.

Rachel Townsend
Biological Technician
Golden Gate National Parks Conservancy
office:415-289-1848
cell:563-343-7707



On Tue, Oct 11, 2016 at 4:30 PM, Merkle, William <bill_merkle@nps.gov> wrote:
my comments:

- keep methods really short, maybe 1 minute, at most 2. I think most of the people know what we are doing
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Bill Merkle, Ph.D.
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Thanks

R

Rachel Townsend
Biological Technician
Golden Gate National Parks Conservancy
office:415-289-1848
cell:563-343-7707



On Tue, Oct 11, 2016 at 12:36 PM, Merkle, William <bill_merkle@nps.gov> wrote:
just want to check in on plover talk and how that is coming together

Bill Merkle, Ph.D.
Wildlife Ecologist

Golden Gate National Recreation Area
415-289-1843



---------- Forwarded message ----------
From: **George, Daniel** <daniel_george@nps.gov>
Date: Tue, Oct 11, 2016 at 11:20 AM
Subject: Fwd: October 13 SFAN I&M Annual Round-Up Agenda
To: Angie Pincetich <angela_pincetich@nps.gov>, Brentley McNeill <brentley_mcneill@partner.nps.gov>, "Carlisle, Sarah" <sarah_carlisle@partner.nps.gov>, Cindy Denn <marie_denn@nps.gov>, Elizabeth Edson <Elizabeth_Edson@partner.nps.gov>, Eric Wrubel <eric_wrubel@nps.gov>, Katie Wallitner <katie_wallitner@nps.gov>, Michael Reichmuth <Michael_Reichmuth@nps.gov>, Sarah Codde <sarah_codde@nps.gov>, Sarah Wakamiya <sarah_wakamiya@nps.gov>, Benjamin Becker <Ben_Becker@nps.gov>, Dave Press <dave_press@nps.gov>, "Fernando_Villalba@nps.gov" <Fernando_Villalba@nps.gov>, Paul Johnson <paul_johnson@nps.gov>, William Merkle <bill_merkle@nps.gov>, Darren Fong <Darren_Fong@nps.gov>, Lorraine Parsons <lorraine_parsons@nps.gov>, Sarah Allen <Sarah_Allen@nps.gov>, Taylor Ellis <taylor_ellis@nps.gov>, Matthew Lau <matt_lau@partner.nps.gov>, Mark Dettling <mdettling@pointblue.org>, Rachel Townsend <rachel_k_townsend@partner.nps.gov>

Hey Folks,

Just sending this out again to make sure everyone has it. See you all soon.

Thanks,

Daniel

Daniel George
Inventory & Monitoring Program Manager
San Francisco Bay Area Network
Fort Cronkhite, Bldg. 1063
Sausalito, CA 94965
(415) 289-1850

Hello,

Please see the attached agenda for next week's annual round-up. I've included notes on logistics and meeting objectives within the document.

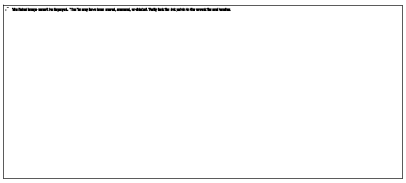
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Thanks,

Daniel

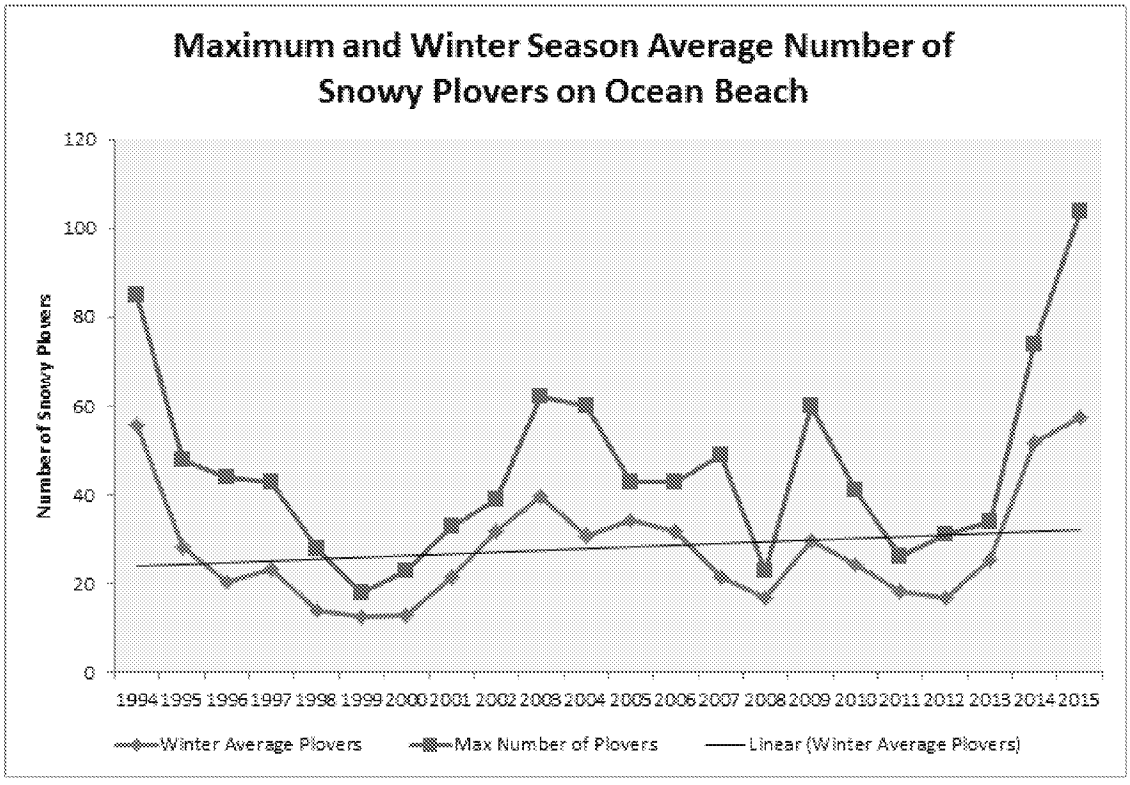
Daniel George
Inventory & Monitoring Program Manager
San Francisco Bay Area Network
Fort Cronkhite, Bldg. 1063
Sausalito, CA 94965
(415) 289-1850



11:20 AM 10/11/2016

Message

From: Townsend, Rachel [rachel_k_townsend@partner.nps.gov]
Sent: 10/12/2016 2:32:21 PM
To: Merkle, William [bill_merkle@nps.gov]
CC: Taylor Ellis [taylor_ellis@nps.gov]
Subject: Re: October 13 SFAN I&M Annual Round-Up Agenda



Rachel Townsend
Biological Technician
Golden Gate National Parks Conservancy
office:415-289-1848
cell:563-343-7707

On Wed, Oct 12, 2016 at 2:30 PM, Merkle, William <bill_merkle@nps.gov> wrote:
fine to not have separate scale on figure if they are the same.

Taylor, can you provide info on how to add a regression line to an excel figure?

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843



On Wed, Oct 12, 2016 at 2:24 PM, Townsend, Rachel <rachel_k_townsend@partner.nps.gov> wrote:
For Crissy the scale is the same which is why I didn't add another axis. It seems crazy that 0% are offleash, I know, but it's because we are using median %. So all of the surveys that we had 0 dogs are skewing the data. Do you think I should a right axis?

I'm having a hard time figuring out how to add a regression line? Can you explain it? Google is not helpful.

I plan on running through it pretty quick and I will reference you at the end to explain dog management.

Rachel Townsend
Biological Technician
Golden Gate National Parks Conservancy
office:415-289-1848
cell:563-343-7707



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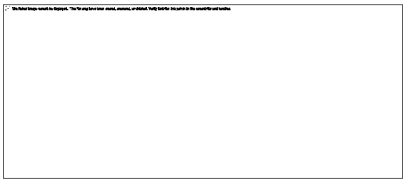
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Fort Cronkhite, Bldg. 1063
Sausalito, CA 94965
(415) 289-1850



11:20 AM 10/11/2016

Message

From: Michelle Reilly [mlr326@nau.edu]
Sent: 10/31/2016 9:21:29 AM
To: Merkle, William [bill_merkle@nps.gov]
Subject: Re: Effects of recreation on mammals in the BAY

Hi Bill,
I've attached to MS. It's in the 2nd round of reviews and I hope to hear back soon. You can share the findings but please don't circulate the MS yet.
Thanks!

On Mon, Oct 31, 2016 at 10:07 AM, Merkle, William <bill_merkle@nps.gov> wrote:
Hi Michelle,

Yes, will you please send me the manuscript for your disseration?

This would be helpful in communicating with our public. Interesting at that meeting there were many folks railing on mtn. bikes--though in discussion, several other folks asked about how to increase access for mtn. bikes. Also, the GGNRA is making a last push to get our dog mgt. plan through.

The other interesting side of this is that providing for a variety of recreational uses and balancing types of use is probably very important in how we designate trails too.

Best, Bill

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843



On Sat, Oct 29, 2016 at 10:30 AM, Michelle Reilly <mlr326@nau.edu> wrote:
Hi Bill,

Aviva Rossi contacted me this afternoon and suggested that I contact you after attending the Ecology and Management of Mt. Tam conference and hearing comments about lack of research on effects of recreation. I thought that you received my dissertation in Dec 2015 when I completed it but maybe not. Just as a refresher, I conducted research on the impacts of 4 types of non-motorized recreation on 10 species of mammals in 8 Bay area counties from 2012-2014. 87 protected areas were included, over 250 research sites were set, and over 20,000 camera trapping days were completed. I currently have a manuscript in review that discusses our results on both spatial and temporal responses of wildlife.

If you'd like to read the MS let me know and I can pass it along. In short, our results show that most species occurrence is more highly related to environmental covariates than to recreation. Habitat use of mountain lions and opossums was negatively associated with the presence of domestic dogs. We did not find associations between wildlife occupancy and any other recreation type (hiking, mountain biking, equestrians). Temporal shifts of coyotes, deer, and skunks were associated with protected areas that had human recreation.
I am happy to talk over the phone if you'd like to hear more about the research that I completed.
Thank you and please don't hesitate to contact me.

--
Michelle L. Reilly, Ph.D.- Wildlife Ecology
Northern Arizona University- School of Forest Science
Beier Lab of Wildlife Ecology and Conservation Biology
http://michellereillywildlifecameratrap.weebly.com/index.html
(775) 443- 5118

--
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http://michellereillywildlifecameratrap.weebly.com/index.html
(775) 443- 5118

Message

From: Merkle, William [bill_merkle@nps.gov]
Sent: 11/17/2016 4:01:48 PM
To: Savidge, Michael [michael_j_savidge@nps.gov]
Subject: Re: revised NOI and SSJ for GOGA CESU TA

Hi Mike,

In terms of the sole source justification, I think it looks good. Only other thought is to add something like:

The park is required to develop a monitoring plan that will be implemented as an important component of ensuring success of our dog management planning and rulemaking effort. This task requires some unique skills related to understanding recreational ecology, especially as it relates to monitoring dog walkers and developing a monitoring plan covering 22 different areas within the GGNRA. The team assembled represents a unique combination of recreational ecologists, some of whom have direct experience developing dogwalking monitoring plans for other jurisdictions, as well as scientists with direct experience working in the GGNRA, with one of these having experience working on the GGNRA dog management plan.

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843



On Wed, Nov 16, 2016 at 1:08 PM, Savidge, Michael <michael_j_savidge@nps.gov> wrote:
Chris,

Attached are:
1. NOI
2. Sole Source Justification with professional experience and publications

Am also attaching CVs for background and citations.Only one for Jules Evens is not available since he is on leave out of area.

I am working on finalizing FEIS now per Director's request to get it thru WASO and published by early-mid December if possible. Could use any help you or Sarah can provide to tighten any of my submission up based on the information provided.

Thanks,

Mike
(415)561-4725

On Wed, Nov 16, 2016 at 8:34 AM, Lauver, Christopher <chris_lauver@nps.gov> wrote:
Hi Mike,

Could you please update me on where you are or send me a draft NOI (template attached) with the revised single source justification for the potential GOGA TA with OSU? This document will help us determine how we might proceed on this TA.

Thanks,
Chris
****

Chris Lauver, PhD
Senior Science Advisor, Pacific West Region, National Park Service
Pacific Northwest CESU & Great Basin CESU

Affiliate Associate Professor, School of Environmental and Forest Sciences
Box 352100, University of Washington
Seattle, WA 98195

Email: Chris_Lauver@nps.gov
Phone: 206-685-7404
Web sites: http://coenv.washington.edu/faculty/chris-lauver/
http://depts.washington.edu/pnwcesu/

Message

From: Merkle, William [bill_merkle@nps.gov]
Sent: 4/19/2013 11:49:32 AM
To: Smith, Shirwin [shirwin_smith@nps.gov]
Subject: Re: GGAS blog post on unleashed dog attack on goslings at Crissy Field

No, this is first I have heard of this.

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

On Fri, Apr 19, 2013 at 11:17 AM, Smith, Shirwin <shirwin_smith@nps.gov> wrote:
Do you know if a report was taken?

Shirwin Smith
Management Assistant
Golden Gate National Recreation Area
Ft. Mason, Building 201
San Francisco, CA 94123
415-561-4947 (o)
415-716-9999 (c)

On Fri, Apr 19, 2013 at 11:10 AM, Merkle, William <bill_merkle@nps.gov> wrote:

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

---------- Forwarded message ----------
From: **Michael Lynes** <mlynes@goldengateaudubon.org>
Date: Fri, Apr 19, 2013 at 11:06 AM
Subject: GGAS blog post on unleashed dog attack on goslings at Crissy Field
To: frank_dean@nps.gov, howard_levitt <Howard_Levitt@nps.gov>, "Bill_Merkle@nps.gov" <Bill_Merkle@nps.gov>, Daphne Hatch <daphne_hatch@nps.gov>
Cc: Ilana DeBare <idebare@goldengateaudubon.org>, Noreen Weeden <nweeden@goldengateaudubon.org>

Superintendent Dean and GGNRA Staff:

On Wednesday, one of our members reported to us that three unleashed dogs attacked goslings at Crissy Field, killing two. I have called Howard about this, but not yet heard back.

We've decided to post a blog piece about it at http://www.goldengateaudubon.org/blog-posts/two-goslings-gone-in-the-jaws-of-unleashed-dogs/. We are also reaching out to local press, though given the Chronicle's biased reporting in favor of off-leash dogs in the past, we don't expect much follow-up.

As you well know, this is just an example of what goes on every day in the GGNRA without sensible regulation of off-leash dogs or enforcement. This time, it just happened to be one of our members (herself, a dog walker) who witnessed it. NPS' own incident reports--which are only a fraction of events occurring in the park--indicate that these sorts of events are common.

As is common in events such as these, the owners fled the scene before they could be held responsible for their actions--a further demonstration that the dog-owning community in San Francisco does not take responsibility for the environmental impacts of their actions.

Some may dismiss this because these are Canada Geese, which many perceive as a pest. But we know that other, less "pesky" wildlife are constantly harassed by wildlife in your park--to say nothing of other park visitors. Our member was very traumatized by seeing this occur--as were other onlookers--and their experience of the park has been severely degraded.

This is also inhumane. Goslings--or adult birds--should be torn to shreds on NPS land. If the predation were natural (say, coyotes or bobcats), then we understand the natural cycle. But here, out-of-control dogs attacked and killed the goslings for fun. With all the talk about needing off-leash recreation for "humane" reasons for dogs, there seems to be very little consideration of the inhumane treatment of birds and other wildlife that are their playthings.

You'll also note that the event occurred with multiple off-leash dogs forming a little pack to attack the wildlife. As you consider rules for the number of off-leash dogs to be allowed and commercial dog-walking in the park, please remember this event. Even three dogs "packing" together can wreak havoc.

Finally, please also note that this once again shows that "voice control" is nothing more than a myth. At a minimum, NPS should acknowledge that fact in the dog management plan. These owners--like most--had no voice control over their animals, and once the dogs had the scent, there was no calling them back until the goslings were killed.

While we can blame the dogs, or dog owners, ultimately the responsibility for maintaining order falls on the NPS. We know you are working on a revised plan, but by all accounts it appears it will be even weaker than the prior version. What will it take before the values of other park visitors and the resources NPS is tasked with stewarding will take precedence over dog owners? Off-leash dogs have already attacked wildlife and people--even NPS staff. Will it take a human fatality to bring some perspective to this issue?

Until GGNRA steps up and imposed a sensible rule with enforcement, off-leash dogs will continue attacking wildlife, horses, each other and people, continually degrading the park's resources and its value to other park users.

Thank you,
Mike Lynes

Executive Director
Golden Gate Audubon Society
2530 San Pablo Ave, Suite G
Berkeley, CA 94702
Office: (510) 843-9912
Cell: (510) 847-9393
Fax: (510) 843-5351
mlynes@goldengateaudubon.org
www.goldengateaudubon.org

Message

From: Smith, Shirwin [shirwin_smith@nps.gov]
Sent: 4/19/2013 11:47:35 AM
To: Michael Lynes [mlynes@goldengateaudubon.org]
CC: Bill Merkle [Bill_Merkle@nps.gov]
Subject: Fwd: GGAS blog post on unleashed dog attack on goslings at Crissy Field

Hi Mike, do you know if the witness contacted the park to file a report? If not, it's not too late to document the incident. Ms. Nakanishi should call the park's dispatch non-emergency number; 415-561-5505.

Shirwin

Shirwin Smith
Management Assistant
Golden Gate National Recreation Area
Ft. Mason, Building 201
San Francisco, CA 94123
415-561-4947 (o)
415-716-9999 (c)

---------- Forwarded message ----------
From: **Merkle, William** <bill_merkle@nps.gov>
Date: Fri, Apr 19, 2013 at 11:10 AM
Subject: Fwd: GGAS blog post on unleashed dog attack on goslings at Crissy Field
To: Shirwin Smith <Shirwin_Smith@nps.gov>

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

---------- Forwarded message ----------
From: **Michael Lynes** <mlynes@goldengateaudubon.org>
Date: Fri, Apr 19, 2013 at 11:06 AM
Subject: GGAS blog post on unleashed dog attack on goslings at Crissy Field
To: frank_dean@nps.gov, howard_levitt <Howard_Levitt@nps.gov>, "Bill_Merkle@nps.gov" <Bill_Merkle@nps.gov>, Daphne Hatch <daphne_hatch@nps.gov>
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While we can blame the dogs, or dog owners, ultimately the responsibility for maintaining order falls on the NPS. We know you are working on a revised plan, but by all accounts it appears it will be even weaker than the prior version. What will it take before the values of other park visitors and the resources NPS is tasked with stewarding will take precedence over dog owners? Off-leash dogs have already attacked wildlife and people--even NPS staff. Will it take a human fatality to bring some perspective to this issue?

Until GGNRA steps up and imposed a sensible rule with enforcement, off-leash dogs will continue attacking wildlife, horses, each other and people, continually degrading the park's resources and its value to other park users.

Thank you,
Mike Lynes

Executive Director
Golden Gate Audubon Society

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Cell: (510) 847-9393
Fax: (510) 843-5351
mlynes@goldengateaudubon.org
www.goldengateaudubon.org

Message

From: Merkle, William [bill_merkle@nps.gov]
Sent: 4/26/2013 2:59:21 PM
To: Sunil Rajappa [sunil_rajappa@partner.nps.gov]; Victoria Seher [Victoria_Seher@nps.gov]
Subject: Fwd: Recent Incidents Highlight Need for Dog Owner Responsibility

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

---------- Forwarded message ----------
From: **Smith, Shirwin** <shirwin_smith@nps.gov>
Date: Fri, Apr 26, 2013 at 11:47 AM
Subject: Fwd: Recent Incidents Highlight Need for Dog Owner Responsibility
To: Bill Merkle <Bill_Merkle@nps.gov>

Shirwin Smith
Management Assistant
Golden Gate National Recreation Area
Ft. Mason, Building 201
San Francisco, CA 94123
415-561-4947 (o)
415-716-9999 (c)

---------- Forwarded message ----------
From: **Picavet, Alexandra** <GOGA_NewsRelease@nps.gov>
Date: Thu, Apr 25, 2013 at 4:28 PM
Subject: Recent Incidents Highlight Need for Dog Owner Responsibility
To:

Golden Gate National Recreation Area News Release

Release date: Immediate Sent on April 25, 2013

Contact(s): Howard Levitt Mobile: 415-561-4730 Howard_Levitt@nps.gov

Recent Incidents Highlight Need for Dog Owner Responsibility

San Francisco, CA— On April 18, 2013, the park received a report of an attack on Canada Goose goslings on the shoreline at Crissy Field by off leash dogs that were not under the control of their owners. The attack reportedly resulted in the death of two of the goslings. The incident is under investigation.

This incident is just one of many over the past year that highlight the need for dog owners to maintain control of their animals at all times, even in those areas where dogs are currently permitted to be off-leash. There have been at least nine incidents in the past year in which park visitors or employees were bitten by dogs, most of them off-leash dogs. At Fort Funston several months ago, a fight between two off-leash dogs resulted in a dog being stabbed by the owner of one of the dogs. Last year on Crissy Field, a US Park Police Horse was attacked and badly injured by an off-leash dog that was not under control.

Owners of dogs that harm or harass wildlife, threaten or attack park visitors or employee, or fight with other dogs may be cited for violation of federal regulations. Anyone witnessing these kinds of occurrences should immediately call Park Dispatch at 415 561-5505. In the event of a safety emergency, call 415 561-5656.

Golden Gate National Recreation Area Superintendent Frank Dean said, "Our park welcomes millions of visitors each year. Every visitor is responsible for following the rules. Visitors with dogs are responsible for preventing their dogs from damaging park resources or attacking wildlife or people. We will use existing federal regulations to prosecute owners whose dogs create the kinds of problems that have occurred throughout the park."

Dog owners are encouraged to take advantage of training classes, including one offered by the San Francisco SPCA, that teach basic dog obedience skills needed to maintain control of dogs around wildlife, other dogs, and the public.

Federal regulations governing protection of wildlife and visitors are found at the park's current dog walking information web page at www.nps.gov/goga/parkmgmt/pets.htm.

Follow us on Twitter at @GoldenGateNPS
Contact Public Affairs Office at 415-786-8021
GOGA_NewsRelease@nps.gov

Message

From: Merkle, William [bill_merkle@nps.gov]
Sent: 7/9/2014 1:48:17 PM
To: Steven Ortega [steve_ortega@nps.gov]; Jennifer Chapman [jennifer_chapman@nps.gov]; Rachel Townsend [rachel_k_townsend@partner.nps.gov]
Subject: beach snowy plover section for operational section 7 with USFWS

Let me know if you have any issues with this?

I just put it together and it probably needs some editing--just wanted to make sure I included everything and info is correct.

III.D.12. *BEACH MANAGEMENT ACTIVITIES*

The GOGA has eight beaches in Marin and San Francisco Counties that provide recreational opportunities for the public as well as important habitat for wildlife and plants. In Marin County, these beaches include Stinson Beach, Muir Beach, Tennessee Cove Beach, and Rodeo Beach. In San Francisco County, these beaches include Crissy Field, Baker Beach, China Beach, and Ocean Beach. Two of these beaches, Crissy Field and Ocean Beach, provide non-breeding habitat for the western snowy plover (Figure 12).

GOGA has monitored western snowy plover use of Ocean Beach and Crissy Field. Based on this monitoring and previous planning decisions (e.g. formal and informal consultation related to sand management, rulemaking on dog walking, Snowy Plover Management Plan for Ocean Beach, Crissy Field EA), we have identified a Snowy Plover Protection Area from Stairwell 21 to Sloat Boulevard at Ocean Beach and the Wildlife Protection Area at Crissy Field. These protection areas encompass the locations, and some buffer around the locations, where plovers primarily have been observed and utilize over longer periods of time. A small number of snowy plover observations have occurred outside the identified protection areas (and at a few other GOGA beaches), however, these have been small numbers of plovers that tend to only remain for short periods of time, usually only a single day.

There have been several activities at have been identified as having the potential for impacts to western snowy plover including[WWM1] :

- Unleashed Pets (covered in the Dog Management Plan EIS and related documents)
- Campfires (GOGA 2012). Campfires are not allowed at Crissy Field. At Ocean Beach campfires are regulated by the park compendium and occur only outside the Snowy Plover Protection Area.
- Horse and Bicycles
- Kite flying, kiteboarding [DRF2] and model airplanes[DRF3]

- Extreme visitation. The park does not permit special events inside the Snowy Plover Protection Area or Wildlife Protection Area. Furthermore, GOGA has made a standard practice of closing the Wildlife Protection Area to people for large outside events such as Fourth of July, America's Cup 34, and Fleet Week. Special lockable gates and perimeter fencing facilitate closing this site to the public. Extreme visitation at Ocean Beach is focused at the north end of the beach where there is the most parking, which is mostly outside the Snowy Plover Protection Area. GOGA beaches do receive high levels of visitation, particularly on warm, sunny days and holidays or weekends.

- Sand maintenance activities[DRF4]

  o At Ocean Beach, prevailing winds from the west blow sand across the beach and onto walkways, parking lots, and adjacent roadways. This blowing sand creates impediments to utilizing these infrastructure. GOGA coordinates with the City and County of San Francisco for many sand maintenance activies, as the city owns and maintains some of these areas. Sand is an important resource in the coastal ecosystem, and GOGA has clean sand collected through any of these sand maintenance activities placed back onto the beach in appropriate areas. Sand is typically placed outside the Snowy Plover Protection Area in areas that provide additional erosion protection, providing a soft solution to erosion instead of putting in hardened structures like seawalls or rock walls.

    - GOGA moves sand on Ocean Beach outside the Snowy Plover Protection Area year round when necessary. This is typically at the north end of the beach, where sand is pushed westward toward the ocean. Sand maintenance also includes maintaining beach access sand ladders.

    - CCSF moves sand all year from walkways, parking lots, and roadways. Clean sand is deposited back on the beach outside the Snowy Plover Protection Area in prioritized erosion areas.

    - CCSF moves sand on the beach within the Snowy Plover Protection Area from Noreiga to Santiago Streets. Work is focused on moving sand that ramps up along the Promenade Seawall and blows onto the walkway. Sand is pushed out from the seawall towards the ocean with bulldozers. Existing dune vegetation is flagged by park staff and avoided. In this way, the sand stays in this particular beach location, maintaining some of the beach width, and is not moved elsewhere in the system. Also, this reduces transport costs and emissions which would be associated with transporting the sand with trucks. GOGA issues CCSF a permit authorizing this work and annually coordinates with them about implementing this sand management activity. This work is only conducted during the month of June, when plovers have not been observed at Ocean Beach. Sand volume moved is typically between 5,000 and 7,000 cy, but has been as high as 8,000 cy.

    - Sand back-pass. The park and CCSF coordinate on this activity. Sand is moved from the back beach at the north end of Ocean Beach within 50 feet of the Seawall to reduce the sand that ramps up and blows onto walkway and into parking lot. The sand is loaded into dumptrucks and transported to erosion priority areas south of Sloat Blvd. Most of the sand collection occurs north of stairwell 21, which is outside the Snowy Plover Protection Area. Some sand is collected from stairwells 21-28, within 50 feet of the Seawall. The beach at the north end of Ocean Beach is accreting sand and

growing wider, while other areas of central and south Ocean Beach have been eroding. This work has been previously approved through informal consultation with USFWS. This project is implemented as necessary based on conditions, and has happened in 2012 and is scheduled to occur this year also. In 2012 about 70,000 cy of sand was moved. This year we are projecting moving about 40-50,000 cy. Volumes moved may range up to 150,000 cy based on beach conditions and available funds.

- o GOGA does not move regularly move sand at the Crissy Wildlife Protection Area, except for clearing the storm outfall.

- o

- Off-road vehicle operations

  - o routine driving of all-terrain vehicle, off-road motorbike, 4-wheel drive vehicle by NPS resource protection rangers and lifeguard patrols and maintenance staff during daylight hours as well as other law enforcement agencies (CDFW City of San Francisco).[DRF5] GOGA staff are given sensitivity training. To the extent possible vehicles stay in wet sand corridor where snowy plovers are less likely. Working with CCSF law enforcement to focus training outside Snowy Plover Protection Area and during times snowy plovers are not on the beach.

- Resource management, monitoring and research activities (vehicles)

  - o Routine driving of research all-terrain vehicle on the beach for topographic data. Researchers are provided information on snowy plovers and avoidance as part of their Research and Collecting Permit with the park.

- Interpretive activities

- Heavy equipment operation

  - o use of D6 caterpillar (and other heavy equipment as needed) for sand movement and burial of large marine mammal carcasses. Sand movement is described in more detail above. Carcass burial is periodic and only necessary when carcass presents a risk to public safety or is in a high use area with aesthetic concerns, otherwise our preference is to leave the carcass to decay as a natural process and food source. Outside the Snowy Plover Protection Area carcass burial can occur year round. Within the Snowy Plover Protection Area and Wildlife Protection Area and during the times we know snowy plovers may be on the beach from July 1-May 15, we would survey for snowy plovers, have a biological monitor onsite, and direct the heavy equipment to drive directly across the beach to the wet sand and then traverse the wet sand to the carcass area.

  - o Beach cleanup using mechanical beach cleaner and use of heavy equipment. Beach cleaning only occurs outside the Snowy Plover Protection Area.

- Emergency Operations[WWM6]

  - o use of emergency vehicle on the beach, nearshore rescue boats, and Coast Guard helicopters overhead

- Boat salvage[WWM7]
    - vehicles and heavy equipment utilized to remove wreckage and cleanup debris
- Beach cleanup
    - Volunteer groups and GOGA staff [DRF8] conducting frequent hand removal of trash. Leaders and groups are given snowy plover sensitivity training and avoid approaching areas with roosting plovers to minimize disturbance. For larger groups, we may have a biological monitor on site.
- Spill cleanup[WWM9]
- Special events[WWM10]

These activities are described in greater detail in the snowy plover management plan for Ocean Beach (Hatch 1998). Restrictions on activities (e.g., location of campfires) are described in an annual compendium of designations, closures, and permit requirements (GOGA 2012). Although it focuses on GOGA activities at Ocean Beach, the same types of activities would occur at Crissy Field. The activities proposed in this biological assessment do not include management associated with unleashed pets. This issue is being covered in detail by ongoing NEPA compliance process and related consultations (1-1-07-I-0106, 1-1-07-I-0117, 81420-2009-I-0744). The specific areas covered by beach management activities are illustrated in Figure 12.

LOCALE: specific sections of Crissy Beach, Ocean Beach (San Francisco County)

TIMING: Year-round

EQUIPMENT: Hand tools, beach cleaner, patrol and emergency rescue vehicles, nearshore rescue boats, D6 caterpillar or similar

EXISTING CONSERVATION MEASURES: [to complete]

- Process (1a,b,d)
- Resource Sensitivity Training (2a)
- Biological Monitor (3a-c)
- Avoidance Zones (4a-c)

- Noise Control (9)
- Vegetation Management (10.a.iv)

ADDITIONAL CONSERVATION MEASURES: [to complete]

Species Specific

Western snowy plover

1. *NO GATHERING, CUTTING OR SCAVENGING OF FIREWOOD OR KINDLING IS PERMITTED (GOGA 2012)*

2. *FIRES PERMITTED ONLY IN FIRE RINGS PROVIDED BY GOGA BETWEEN STAIRWELL #15-20 (FIGURE 13, GOGA 2012).*

3. *BEACH FIRES WITH GROUPS OVER 25 PEOPLE REQUIRE A PERMIT (GOGA2012)*

4. *USE OF MECHANICAL BEACH CLEANER OUTSIDE SNOWY PLOVER MANAGEMENT AREA*

5. *COLLECTION OF ONLY MANMADE DEBRIS DURING BEACH CLEANUPS*

6. *NO SPECIAL EVENTS INSIDE SNOWY PLOVER PROTECTOIN AREA OR WILDLIFE PROTECTION AREA.*

7. *WILDLIFE PROTECTION AREA AT CRISSY FIELD WILL BE CLOSED TO THE PUBLIC ON PREDICTED HIGH VISITATION DAYS TO PREVENT SNOWY PLOVER DISTURBANCE AND TRAMPLING OF DUNE HABITAT.*

8. *REGULAR COORDINATION MEETINGS WITH CCSF TO DISCUSS SAND MANAGEMENT AND BEFORE LARGER PROJECTS.*

9. *HEAVY EQUIPMENT AND SAND MOVEMENT ACTIVITIES OUTSIDE THE SNOWY PLOVER MANAGEMENT ZONE/CRISSY FIELD WILDLIFE PROTECTION AREA ARE PERMITTED YEAR ROUND.*

10. *HEAVY EQUIPMENT AND SAND MOVEMENT ACTIVITIES WITHIN THE SNOWY PLOVER MANAGEMENT ZONE/CRISSY FIELD WILDLIFE PROTECTION AREA.*

    I. *SHOULD BE TARGETED FOR PERIOD FROM MAY 15-JULY 1 WHEN SNOWY PLOVERS HAVE NOT BEEN OBSERVED ON THE BEACH.*

    II. *FOR WORK FROM JULY 1-MAY 15: SENSITIVITY TRAINING, BIOLOGICAL MONITORING AND MONITOR ONSITE WHEN APPROPRIATE. TRAVEL CORRIDOR IS WET SAND. NO STAGING EQUIPMENT OR REFUELING ON BEACH. 10 MPH SPEED LIMIT FOR EQUIPMENT.*

[WWM1]We didn't cover all these other threats for other species or activities so think we should consider restricting this analysis to things we are seeking coverage for???

[DRF2]See if in compendium

[DRF3]Prohibit on beach. Disturbance unlikely for water-based boarding.

[DRF4]Use snowy plover mngt plan, Check in with Aaron,Frank, and Mike Henagan. Include avoidance language for areas outside plove mngt area, Habitat modifications impacts

[DRF5]Need to address potential impact to roosting habitat

[WWM6]Don't think we would do this as routine recurring coverage?

[WWM7]Would not include as routine recurring coverage

[DRF8]Denise shea-- weekly

[WWM9]Again, don't think we are looking for routine coverage here.

[WWM10]Covered elsewhere

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

Message

From: Ward, Kristen [kristen_ward@nps.gov]
Sent: 1/24/2013 11:06:52 AM
To: William Merkle [bill_merkle@nps.gov]
Subject: Re: CH 3 - GOGA input needed

Hi Bill - I'm really confused by gmail. This message I was cc'd on from Suzie shows up in my inbox saying that you're the sender.

anyway, for what it's worth, I think the text is fine the way it is.

also, I think the Jim Kelly that is mentioned in the 2005 email re: plovers near the inlet is the person who use to be the Utilities Mgr for the Trust, not the Jim Kelly birder that I think you're thinking of.

I can dig through old emails and see if I can figure out who reported that to me way back when.

kristen

On Thu, Jan 24, 2013 at 9:37 AM, Koser, Sarah <skoser@eaest.com> wrote:

Bill – Thanks for your input. I think the statement about plover use at Central Beach originated from a comment you provided in July 2009 on the plan/EIS (see below). Based on the maps, the inlet is part of Central Beach at Crissy Field. Do you think the current text should be altered? Current text: Western snowy plovers infrequently use [SES2] the habitat at Central Beach (including the tidal inlet from Crissy Marsh), where there are no leash restrictions, although this area is not as wide and the beach characteristics may not provide the same quality of snowy plover or shorebird habitat as the WPA.

Bill Merkle comment, July 2009: "I don't think Central Beach is as wide as the WPA so I don't think it would provide the same quality of habitat as WPA. Plovers have been observed in the inlet area which is another possibility—though probably has higher use than WPA."

Thanks again for your help,

Sarah

Sarah T. Koser, MS, PWS

Environmental Scientist

EA Engineering, Science, & Technology, Inc.

225 Schilling Circle

Hunt Valley, MD 21031

410.584.7000 (Office)

410.771.1625 (Fax)

skoser@eaest.com

Before printing, think about ENVIRONMENTAL responsibility

From: Merkle, William [mailto:bill_merkle@nps.gov]
Sent: Wednesday, January 23, 2013 5:57 PM
To: Boltz, Suzanne
Cc: Shirwin Smith; Edwards, Michael; Koser, Sarah; Matkowski, Jeannette; Daphne Hatch; Kristen Ward

Subject: Re: CH 3 - GOGA input needed

Hi Susie,

Currently, the Central Beach at Crissy is rather steep and narrow and does not seem like a place we would expect to have consistent snowy plover use. They could show up on any of our beaches temporarily--but don't think that is an issue we have to deal with.

We did look back at records. The Crissy bird monitoring program did detect snowy plovers prior to 2006, however these were all in the WPA. I did find an email, which I will forward, about an observation of snowy plovers on East Beach (I believe this is from Jim Kelly, who would be a very reliable source).

-Bill

Bill Merkle, Ph.D.

Wildlife Ecologist

Golden Gate National Recreation Area

415-289-1843

On Thu, Jan 17, 2013 at 7:09 AM, Boltz, Suzanne <sboltz@eaest.com> wrote:

Bill & Shirwin,

We need resolution of two comments by GOGA so we can wrap CH 3, can you please help us sort these out?

Thanks

Suzie

The NPS has been monitoring shorebirds at Crissy Field WPA since 2000, and records of western snowy plover pre-date the focused monitoring program there, which began in 2004 (NPS 2008a, 1). The western snowy plover monitoring protocol at Crissy Field was peer reviewed by an external panel through the NPS Inventory and Monitoring Program peer review process. Monitoring under this protocol started in 2006 using the same methods as Ocean Beach. Two to eight[WWM1] western snowy plovers have overwintered in Crissy Field WPA annually since individuals were first observed there in January 2005. Additionally, wintering site fidelity was demonstrated by two color-banded individuals that were observed

Similar to Ocean Beach, dogs have specifically been documented disturbing western snowy plovers at the Crissy Field WPA, although these numbers likely undercount disturbances (see below). In June through July 2006, there were 2 observed instances of dogs chasing birds within the Crissy Field WPA (Hatch et al. 2007a,

14) and during the September 2006 through April 2007 surveys, there were 3 observations of dogs chasing shorebirds within the Crissy Field WPA (Hatch et al. 2007b, 5). There were no observations of dogs chasing shorebirds or plovers during the July 2007 through February 2008 surveys within the Crissy Field WPA (Hatch et al. 2008, 3). Western snowy plovers infrequently use [SES2] the habitat at Central Beach (including the tidal inlet from Crissy Marsh), where there are no leash restrictions, although this area is not as wide and the beach characteristics may not provide the same quality of snowy plover or shorebird habitat as the WPA.

EA Engineering, Science, & Technology, Inc.

Suzanne Boltz ~ Project Manager

225 Schilling Circle

Hunt Valley, MD 21031

410.329.5143 (Office)

410.xxx-xxxx (Fax)

410.458.8272 (Cell)

sboltz@eaest.com

[WWM1]Check this with Lidia. ACTION NEEDED>

[SES2]Have they ever been seen there? Didn't recall that.

We believe Bill Merkle provided this input during a previous round of comments

Bill – please confirm?

Message

From: Merkle, William [bill_merkle@nps.gov]
Sent: 1/24/2013 11:43:59 AM
To: Boltz, Suzanne [sboltz@eaest.com]; Shirwin Smith [Shirwin_Smith@nps.gov]; Michael Edwards [michael_b_edwards@nps.gov]
Subject: Fwd: Fw: Crissy Field breach visit, 12/1

Here are the original emails on plovers at East Beach they were from Peter Baye--who has done a ton of coastal work in this area and would know plovers.

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

---------- Forwarded message ----------
From: <Kristen_Ward@nps.gov>
Date: Thu, Jan 24, 2013 at 11:34 AM
Subject: Fw: Crissy Field breach visit, 12/1
To: Bill_Merkle@g-nps.doi.gov

----- Forwarded by Kristen Ward/GOGA/NPS on 01/24/2013 11:33 AM -----

"PETER BAYE"
<baye@Exemp. 6
Exemp. 6
To
<Kristen_Ward@nps.gov>
12/06/2005 04:20 PM
cc
Subject
Re: Crissy Field breach visit, 12/1
Please respond to
"PETER BAYE"
<baye@Exemp. 6
Exemp. 6

Kristen, briefly in reply --

1. yes, 5 plovers were near berm crest east of the breach. First time I've ever seen them there, too, which is why I've reported them. All my previous

sightings were far west, near NOAA buildings.
2. Thalweg elevations are probably less informative, from my perspective, as
the shoreline configuration...the shape of the spit-inlet complex, intertidal and emergent beach ridges, and low-tide channel pattern, ebb delta platform. Bedforms (ripple types, sizes) are at low tide are also instructive. If you have a grid set up, you could develop rough maps showing progress of inlet morphodynamics (in lieu of regular aerial photos).
3. Very unexpected that kelp-amended plants would be less productive than unamended in pure sand! What was date of planting? Was sand re-compacted for
full root contact? Was kelp placed at full salinity after rainy season, during growing season? Or rainy season transplants? Seedling survival may be
impaired by high lagoon stands during inlet closure events. PB
----- Original Message -----
From: <Kristen_Ward@nps.gov>
To: <baye@ Exemp. 6
Sent: Tuesday, December 06, 2005 2:32 PM
Subject: Re: Crissy Field breach visit, 12/1

> Hi Peter,
>
> I'm glad you got to see the breach. It's pretty exciting to watch. I had
> intended to be there, but unfortunately missed most of it. It all
> happened
> a bit earlier and more quickly than anticipated. Although I stopped by
> briefly shortly before the equipment arrived, I wasn't able to get back
> down there until about 2:30 so I missed the most exciting part. So, I
> really appreciate your observations - and will add them to the
> description
> of the event. And if you don't mind sharing some of your pics, I'd love
> to
> get some. I have some pics taken around noon and some more from later in
> the afternoon, but I missed the actual breach.
> I also noticed how quickly the channel had deflected slightly to the
> east.
> The same thing has happened following the last two mech. breaches (may
> 05,
> june 04), but I don't remember it happening quite so quickly - i.e., it

> happened within one tidal cycle, but I don't remember it happening within
> just 2 or 3 hours.
>
> Generally, when we mechanically excavate, we take lots of photos and I
> usually record my observations of the breach itself and general changes
in
> the days following. If we have time/personnel available, we also try to
> do
> some physical monitoring - usually the thalweg elevation before and
after,
> the ebb bar crest and sometimes profiles on East Beach. But I haven't
> done
> any more intense monitoring with regards to the changes that happen in
the
> first hours and days right at the inlet. But I'm sure we'll have another
> chance soon. We could always videotape, or take a series of photos at
> regular intervals through the first tidal cycle and then at lesser
> intervals over the first few days.
>
> As for the Suaeda, we planted it in 3 locations around the marsh with
> paired plots at each location and four plants/per plot. We also put one
> additional plant outside of each paired plot since we had some larger
> plants in the nursery that were carryovers from an earlier growing
> attempt.
> (The other two sets of plots are at the west end of the marsh, and along
> the southwest upland - both within about 25-30 meters of the SW corner of
> the marsh.) We added composted kelp to one of the paired plots and just
> re-worked the soil without adding kelp in the other plot. All of the
> individuals in the non-amended plots have done really well - growing
> substantially and flowering and/or going to seed. I'm hoping we may get
> some new recruits. (I'm not sure why the plants did so much better in
> the
> unamended soil - I'm wondering if I might have actually added to much of
> the kelp.) We've collected soil samples in each of the plots to look at
> differences in organic content, but haven't had a chance to process them
> yet. so we'll see... Let me know if you'd like to get a closer look and

> I
> can meet you out there.
>
> and the snowy plovers - i just have to double check to make sure I'm
> understanding you right about where you saw them - were they really on
> East
> Beach, to the east of the marsh inlet? If so, that would be the first
> time
> they've been seen there. We've been seeing 4-5 snowy plovers pretty

> consistently now at the west end of Crissy in the Wildlife Protection
> Area,
> but have not seen them anywhere at the east end near the marsh.
>
> Kristen
>
>
>
>
>
> "PETER BAYE"
> <baye@ Exemp. 6 To:
> <Kristen_Ward@nps.gov>
> et> cc:
> Subject: Re: Crissy Field
> breach visit, 12/1
> 12/04/2005 08:44
> PM PST
> Please respond to
> "PETER BAYE"
>
>
>
>
>
> Kristen, I made an impromptu visit to Crissy Field after a SF meeting on
> Thursday, during the storm. Coincidentally, I arrived as the beach ridge
> was
> overtopping from the lagoon side, and was starting to incise a breach
> (close
> to 0.5 to 1 cfs outflow), when the NPS excavator and bulldozer arrived. I
> got treated to a very dramatic breach...fortunately, I had my digital
> camera
> with me (a l ittle worse for the wear in the rain). I returned to show
the
> breach to a colleague after another meeting in the Presidio, and the
> channel
> had already deflected about 15 m east, and an intertidal spit about half
> as
> long had deposited. The scarps at the breach had almost completely
> infilled
>
> to swash slopes within a day. Are you monitoring these intense events?
> They
>
> are incredibly informative about the kinds and rates of processes at work

> on
> the inlet. I was amazed to see how much the lagoon water levels declined
> while the excavation was in progress, pre-breach, when the tide was going
> out...apparently seepage outflows, like gravel barriers (though variable
S
> wind and internal lagoon surge may have been a factor, too).
>
> At 4:30 pm on Friday, we also saw 5 western snowy plovers on the Crissy
> Field beach remnant of the beach east of the breach, on the berm crest. 4
> were female, and I wasn't able to determine the 5th. They were mostly
> crouching in footprint depressions. Only two off-leash dogs were present,
> about 100 m to the east. The birds seem fairly acclimated to humans: two
> childred walked by them, and the plovers didn't move until the children
> were
> about 2 m from them.
>
> I also saw the 3 Suaeda californica plants on the north-central shore of
> the
> lagoon. One was vigorous, and looks like it may flower. The other two
were
> smaller and sparse. At Pier 98/Heron's Head, there are only about 4
> genetic
>
> individuals left, and they don't flower synchronously, so the seed
> set/production is markedly decreased compared with 2002. Are you checking
> for viable seed production this year? Are there more individuals I missed
> within pollen dispersal distance? I'm working on a reintroduction plans
> for
>
> many other sites in East Bay and SF peninsula. Some may go in this
spring.
>
> Regards -- Peter
>
>

Message

From: Smith, Shirwin [shirwin_smith@nps.gov]
Sent: 1/28/2013 10:05:02 AM
To: Ron Gutierrez [ronsfca@ Exemption 6
CC: Bill Merkle [Bill_Merkle@nps.gov]
Subject: Re: From NPS.gov: Dogs Off Lease

Sounds like a report was taken, but if you want to be sure, you can always call our Dispatch office on their non-emergency line (415-561-5505) and ask to have a report taken. If you given them the day and location, they may be able to tell you right then if a report already exists.

I've also copied Bill Merkle, the park's Wildlife Biologist, who may want to talk with you to get a few additional details, if that is alright with you.

Shirwin

Shirwin Smith
Management Assistant
Golden Gate National Recreation Area
Ft. Mason, Building 201
San Francisco, CA 94123
415-561-4947 (o)
415-716-9999 (c)

On Sat, Jan 26, 2013 at 8:50 PM, Ron Gutierrez <ronsfca@ Exemption 6 wrote:
Your welcome. I didn't fill out a written report - they told me it had already been reported and was being worked on. Let me know if I should. I hope foul play was not involved.

Take care,
Ron

--- On **Sat, 1/26/13, Smith, Shirwin <*shirwin_smith@nps.gov*>** wrote:

From: Smith, Shirwin <shirwin_smith@nps.gov>

Subject: Re: From NPS.gov: Dogs Off Lease
To: "Ron Gutierrez" <ronsfca@ Exemption 6
Date: Saturday, January 26, 2013, 3:54 PM

Hello Ron - thank you for the report of the dead coyote; have passed your info on to our Wildlife Ecologist and to our Trails/Sign folks asking for status of regulatoy signs up there.

Thank you for reporting what you saw to the Headlands Visitor Center; did they have you fill out any kind of statement?

Shirwin

Shirwin Smith
Management Assistant
Golden Gate National Recreation Area
Ft. Mason, Building 201
San Francisco, CA 94123
415-561-4947 (o)
415-716-9999 (c)

On Sat, Jan 26, 2013 at 3:47 PM, Ron Gutierrez <ronsfca@ Exemption 6 > wrote:
Dear Shirwin,

I just wanted to follow-up on my original email from last September. This morning I saw a dead coyote on the SCA which looked as if it may have been shot which further prompted me to write. I did report the coyote to the Headlands Visitors' Center today. Since I commented about dogs off lease on the SCA trail I've noticed that there is currently no signage ("No Pets" or "SCA") at the SCA trailhead where it junctions w/ Alta and Rodeo. I recall one in the past but there in none now as there is at the SCA junction w/ Costal. As a result I've continued to witness dogs on the SCA and they are almost always off-lease. Given the dead coyote on the trail I'm concerned about how much dog presence on this trail is disrupting local wildlife - especially since the dogs are usually on & off trail. The HVC said the dead coyote would be investigated and I'm hoping that adequate "no pet" signage can be added as well.

Thanks,
Ron Gutierrez
Exemption 6
SF, CA 94118

--- On **Thu, 9/27/12, Shirwin_Smith@nps.gov <*Shirwin_Smith@nps.gov*>** wrote:

From: Shirwin_Smith@nps.gov <Shirwin_Smith@nps.gov>
Subject: Re: From NPS.gov: Dogs Off Lease
To: "Ron Gutierrez" <ronsfca Exemption 6
Date: Thursday, September 27, 2012, 3:03 PM
Hi Ron - this confirms that you've been added to the dog management project email list. We appreciate your interest in this project.

Shirwin

Shirwin Smith
Management Assistant
Golden Gate National Recreation Area
Ft. Mason, Building 201
San Francisco, CA 94123
415-561-4947 (o)
415-716-9999 (c)

Ron Gutierrez
<ronsfca Exemption 6
m>

To
Shirwin_Smith@nps.gov

09/27/2012 10:15 AM

cc

Subject
Re: From NPS.gov: Dogs Off Lease

Dear Shirwin,

Thanks for the reply. Yes please add me to the Dog Management Project mailing list. I firmly believe that all trail users can share the trails including dogs & dog owners. Unfortunately there are exceptions out there who challenge our co-use of the trails.

Thanks,
Ron

--- On Tue, 9/25/12, Shirwin_Smith@nps.gov <Shirwin_Smith@nps.gov> wrote:

From: Shirwin_Smith@nps.gov <Shirwin_Smith@nps.gov>
Subject: Re: From NPS.gov: Dogs Off Lease
To: ronsfca@ Exemption 6
Date: Tuesday, September 25, 2012, 10:01 AM

Hello Mr. Gutierrez, your message (attached below) to the Superintendent was reviewed and then forwarded to me as the park lead on the dog management project. First, we regret that you had such an unpleasant experience during your run in the Headlands two weekends ago. The dog walker's conduct was certainly unacceptable, especially since they were

on
a trail which is signed as closed to dog walking.

You may be aware that GGNRA is currently involved in a dog management project with the goal of establishing a new dog walking regulation for this
park, with the intent of providing a variety of quality, safe visitor experiences - including dog walking - while protecting park resources. A Draft Plan/Environmental Impact Statement (EIS) was released in 2011 for public comment; as a result of the substantive comments received, and additional information available to us, we will be releasing a Supplemental
EIS early next year for further public comment.

With your concerns, I would like to add you to the project email list so that you will be notified when the document is available for review and comment. Please let me know if you would like to be added, and for additional information about the project, please see:
http://www.nps.gov/goga/parkmgmt/dog-management.htm

Finally, in case you are ever in any GGNRA site and want to either report an incident or need assistance from our law enforcement staff, here are numbers for the park's 24/7 dispatch center: for non-emergency calls (reporting an incident), 415-561-5505; for law enforcement assistance/emergencies, call 911 or 415-561-5656.

Thank you for taking the time to let us know about this incident; the information you provided has also been forwarded to our law enforcement division for their information and awareness.

Shirwin Smith
Management Assistant
Golden Gate National Recreation Area
Ft. Mason, Building 201
San Francisco, CA 94123
415-561-4947 (o)
415-716-9999 (c)

Dear Superintendent Dean, I'm writing to bring to your attention regarding
a dog encounter that occurred today (9/16/12 around noon). I was running on
the SCA trail returning to the GG Bridge. On the SCA I passed a couple (male - white 30s 6', female - white, 30s, 5'6") after passing them about

20 yards later a chocolate full grown labrador came running at me full-speed. I stopped and braced myself to be pounced on and perhaps bitten but the dog ran around me at the last second. I turned around as the couple called to the dog and it stopped next to them. As I ran back I yelled to the couple to put their dog on a leash. They yelled back that they didn't have to and basically told me to mind my own business. Then the dog comes running after me - I'm not sure if they commanded it to chase me but they never leashed it or grabbed onto it's collar. The dog was a few feet from me growling and barking. Having been bit before on trail by a "friendly" dog I was very upset and feared getting bitten again. The couple made no attempt to come after their dog and after about 30 seconds it returned to them and I ran back to the GGB. I have noticed a number of unleashed dogs on the SCA and given it's narrow single track it's not ideal but this situation scared me and I really felt I was gonna get bit. I know resources are tight but enforcement and/or better signage might help deter these situations in the future. I greatly enjoy the peace and tranquility the Headlands provides but these situations rob me of those pleasures. Thanks for reading. Respectfully, Ron Gutierrez

Message

From: Merkle, William [bill_merkle@nps.gov]
Sent: 1/30/2013 11:26:37 AM
To: Sunil Rajappa [srajappappsintern@g exemption 6
Subject: Fwd: FW: Otter

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

---------- Forwarded message ----------
From: **Cedric Cabansag** <CCabansag@parksconservancy.org>
Date: Tue, Jan 29, 2013 at 1:20 PM
Subject: RE: FW: Otter
To: "Merkle, William" <bill_merkle@nps.gov>

Hi Bill,

There have been more of the same problems. Someone has just defaced the WindMaster containing the sign about dogs not allowed near the bottom of the path.

I have several photos for you. I tried to send some before but ran into a size limit. I'll put 2 photos per email and see if that works.

Thanks.

Cedric

From: Merkle, William [mailto:bill_merkle@nps.gov]
Sent: Tuesday, January 29, 2013 1:14 PM
To: Cedric Cabansag
Subject: Re: FW: Otter

Hi Cedric,

Any updates from this weekend?

Thank you, Bill

Bill Merkle, Ph.D.

Wildlife Ecologist

Golden Gate National Recreation Area

415-289-1843

On Tue, Jan 22, 2013 at 5:55 PM, Levitt, Howard <howard_levitt@nps.gov> wrote:

Thanks for this report, Cedric. HL

Bill - good suggestions here; what's feasible?

On Tue, Jan 22, 2013 at 5:49 PM, Robert Lieber <RLieber@parksconservancy.org> wrote:

Hi All,

Here is a first-hand otter report from Cedric Cabansag who manages the Lands End Lookout.

Robert

Hello Robert,

The main issue with the river otter is that people do not respect his space. Specifically, they crowd the ledges between the two pools, the large and the smaller, and prevent him from having free access during the day, especially on weekends.

There are a few signs and barriers, but people ignore them. They could be made more effective by specifying exactly where people are not allowed. Additional barriers, something more like a continuous barrier that people cannot step around, is needed to keep people off all the ledges between the two pools.

The river otter is trapped on the weekends, and on some weekdays. People are getting way too close and sometimes preventing him from leaving the hole he likes to hide in. I've heard many reports and seen pictures of the otter peering out of the hole, unable to leave because people are standing and lying on the ledges. Or, the otter is in one pool and cannot get to the other for the entire day because people are standing between him and the other pool.

In addition, some people are trying to feed the otter, everything from bread to oysters. Other people throw objects towards him to get him to move one way or another. People have allowed their dogs off leash and some dogs have even gotten into the pool with him.

It is only a matter of time before a person, a pet, or the otter himself is injured or hurt. It is a public safety issue and a natural resource issue. It is also an issue of our credibility. People see we are doing nothing to protect the river otter. We hear complaints all the time – why don't you protect the otter? Can't you see he is stressed?

The most optimal solution would be some kind of temporary fencing that keeps people off all the ledges between the two pools, signs that explain that people are not to approach, feed, or allow their pets to get close to the river otter, and volunteers on the weekends to keep people off the ledges and to explain to the public something about the ecology of river otters and how we can appreciate this one at the proper distance without turning Sutro Baths into some kind of zoo.

There have been some volunteers, but they are not comfortable asking people to stop inappropriate behavior or asking people to leave the ledges.

Thank you.

Cedric Cabansag

Manager, Lands End Lookout

Golden Gate National Parks Conservancy

680 Point Lobos Avenue

San Francisco, CA 94121

ofc: (415) 426-5241

cell: (415) 613-8509

fax: (415) 933-6007

www.parksconservancy.org

The Nonprofit Support Partner for the Golden Gate National Parks

PARKS FOR ALL FOREVER

--

Howard Levitt

Director of Communications and Partnerships

Golden Gate National Parks

howard_levitt@nps.gov

415-561-4730

Message

From: Megan Isadore [megan.isadore@ **Exemption 6**
Sent: 1/30/2013 2:43:57 PM
To: Merkle, William [bill_merkle@nps.gov]
Subject: Re: suggestions for Land's End

of course!~

On Jan 30, 2013, at 10:19 AM, Merkle, William wrote:

Megan,

Also, will you keep us posted about your folks observing feeding, harassment, or dogs impacting the otter at the site?

-Bill

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

On Wed, Jan 30, 2013 at 10:18 AM, Merkle, William <bill_merkle@nps.gov> wrote:
Hi,

Thank you. Yes, we have definitely gotten the news that signs and barricades are ineffective without people. We are working to set up way to staff--at least on busier days. There is some interest in redoing the signs--although think we are going to get same reaction to them.

Understand that your volunteers can't take on staffing the site.

Do you have interest or time to:

(1) Do an hour long training for volunteers/staff that will be at the site?

(2) Do a program on river otters on site? With viewing opportunities?

Have they posted archive for the Terra Verde show yet? I still haven't heard it.

Best, Bill

Bill Merkle, Ph.D.
Wildlife Ecologist
Golden Gate National Recreation Area
415-289-1843

On Tue, Jan 29, 2013 at 3:50 PM, Megan Isadore <megan.isadore@[Exemption 6]> wrote:
Hi Bill,

I'm hearing from our vol who visits down there that people are completely ignoring the signage and running around all over the hill and the wetland. He said they're totally ignoring the signage. How disappointing and dispiriting! I'm not sure how to approach something like that; if folks are going to ignore all signage I suppose you would need to have someone on duty down there on the weekends. Our guy said there was no park person there.

I wish we had the staff to do it for you, but unfortunately we don't have anyone willing to spend a few hours at a time down there doing crowd control every weekend. Our one guy is there doing the behavioral study and habitat mapping, and he cannot do that plus intervention.

We both need armies!

Message

From: Cornelia Foster [corny.foster@ Exemption 6
Sent: 1/31/2013 3:46:31 PM
To: Matthew Zlatunich [mbzlat@y Exemption 6
CC: GeorgeDurgerian [george_durgerian@nps.gov]; William Merkle [bill_merkle@nps.gov]
Subject: Re: SNPL Outreach Report 1/17/13 and food for thought

Hi guys,

I haven't heard from bill, so here's what i recommend we do on maintenance mondays:

--using the outreach form (attached), we collect data on all the elements--the snowys, the dogs, the signage, etc. George, do you want this info? we capture the volunteer hours separately, but I can send this info in to you.

--we can also ask the folks who go out on their own (corny, matt, cindy, nancy?) to fill it out as well and send into george. (george, i could shift my volunteer hours to the Monday Maint. program if you want, and keep sending you the form when i go out on my own.)

some of us are trained as outreach volunteers -- although honestly, the training was mostly about the plover and not much about interacting with the public. so it seems to me that people like cindy could have a couple of brochures in her pocket and talk to people if she wants. if she doesn't want to get involved with offleash dogs, she doesn't need to. if she does want to, then she can.

i think all plover/crissy wpa activites should be linked so that we are all collecting the minimum needed data and have some sort of coordination. I propose to sweep any bits and pieces under the monday maint. program for the purpose of tracking hours, trash, snowys and other data and having a place to go with questions (matt and me). if there is a separate plover monitoring program, they should be filling out the same form/collecting the same data, no? and we should know each other. maybe we can start to structure a "Crissy WPA/Snowy Plover Stewardship Program" that has integrated components (beach clean up, plover monitoring, public outreach).

other ideas?

--Corny

Exemption 6

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On Jan 21, 2013, at 10:41 AM, Matthew Zlatunich <mbzlat@y Exemption 6 rote:

Hi All,

A few thoughts/ideas about plover monitoring at Crissy:

- Although Corny is the only volunteer turning in the forms, there are others who are actively monitoring the plovers, including those of us involved in the multi-year study of the recreational impacts at the WPA, and a handfull of local birders who check the beach and report on the Yahoo!Group SFBirds.

- The research permit for the recreational impact study will be expiring after this season. I think that we have enough data to understand and interpret the recreational impacts at the WPA and there is probably little need to continue this study.

- There is a need to continue monitoring the plovers and there are volunteers who are willing to do this type of work. I think the NPS needs to coordinate a continued volunteer monitoring effort.

- I think that volunteers from the birding community are interested in searching for and documenting the birds and their activity, and not so interested in interacting with dog walkers.

- Maybe when the Dog Management Plan is adopted and the WPA is off-limits to dog walking, ploverphiles will be interested in doing short term outreach and education for dog walkers.

- I think we should consider including inspection of signage and fencing into the Maintenance Monday routine. Thus, any defecits can be properly documented and reported.

Matt

--- On **Sat, 1/19/13, Durgerian, George <*george_durgerian@nps.gov*>** wrote:

From: Durgerian, George <george_durgerian@nps.gov>
Subject: Re: SNPL Outreach Report 1/17/13 and food for thought
To: "Cornelia Foster" <corny.foster@ **Exemption 6**
Cc: "Matthew Zlatunich" <mbzlat@ **Exemption 6** "William Merkle" <bill_merkle@nps.gov>
Date: Saturday, January 19, 2013, 3:27 PM
Hi Corny,

Bill Merkle runs the overall bird monitoring program, but you are indeed the sole outreach volunteer counting plovers on Crissy Field. Dan Murphy is working Ocean Beach. Your reports are important, you're free to do as you wish, and I'm happy for you to do them in conjunction with the Monday cleanups. You can just do the counting of birds, dogs, etc. on those days if it's more convenient for you. That said, I'll defer to Bill for his ideas on how monitoring should progress. Bill?|

On Sat, Jan 19, 2013 at 3:19 PM, Cornelia Foster <corny.foster@ **Exemption 6** wrote:
Hi george and matt,

first, here is my report from 1/17/13.

I know this program is sort of dormant -- is that right george? Is there anyone besides me, at least at Crissy, docenting and filling out these reports?

second, would it make sense to merge maintenance mondays at crissy wpa with what i'm doing as a docent? the monday maintenance program captures hours and amount of trash and vegetation removal. does not capture dogs. we find the snowys, but record them in our own book and don't provide the info to anyone.

when i'm "docenting," i report hours, dogs, snowys, visitor contacts and misc. stuff, but not trash/veg removal.

would it be useful to do this report for maint. mondays (and not use it for capturing hours)? would it make sense for trash/veg removal done while docenting to be captured through maintenance mondays?

is there anyone who cares about this data who's not somehow in the loop?

what do you guys think?

--Corny

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--
George

George Durgerian
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CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

Comment [DRF1]: Minor note—CDFG just changed its name to California Department of Fish and Wildlife. May need to do global search and replace

This chapter describes the potential environmental consequences of implementing any of the alternatives being considered. It is organized by resource topic and provides a standardized comparison among alternatives based on topics described in chapter 1 and further described in chapter 3. In accordance with the *National Environmental Policy Act of 1969* (NEPA), impacts are described in terms of context, intensity, and duration; cumulative impacts and mitigating measures for adverse impacts are also described. The analysis for each impact topic includes the methods used to assess the type and relative level of impact. In addition to determining the environmental consequences of implementing the preferred and other alternatives, NPS *Management Policies 2006* (section 1.4) requires analysis of potential effects to determine whether or not proposed actions would impair a park's resources and values. The determination of non-impairment for the preferred alternative is found in appendix C.

INTRODUCTION

General Methodology for Analyzing Impacts

Potential impacts or effects are described in terms of type, context, duration, and intensity, which are generally defined below, while more specific impact thresholds are given for each resource at the beginning of each resource section. A threshold is the point that must be exceeded to begin producing a given effect or result or to elicit a response. For the analysis, context, duration, and intensity have been categorized into negligible, minor, moderate, and major and are defined in more detail in each resource section. Negligible impacts are neither adverse nor beneficial, nor long-term or short-term. No impacts to a resource may also be applicable for some alternatives and sites if dogs are prohibited.

Comment [DRF2]: This is confusing—would it be easier to say discountable or "not observable or measurable" as in other later definitions of negligible

Type of Impact—Impacts can be either beneficial or adverse. A beneficial impact would be a positive change in the condition or appearance of the resource. An adverse impact would be a change that would detract from its appearance or condition.

Context—Context describes the area or location (site-specific, local, parkwide, or regional) in which the impact would occur. Site-specific impacts would occur at the location of the action, local impacts would occur within the general vicinity of the study area, parkwide impacts would affect a greater portion of the park, and regional impacts would extend beyond park boundaries, which in coastal GGNRA sites extend beyond the tideline.

Duration—Duration describes the length of time an effect would occur, either short term or long term. Long term impacts are described as those persisting for the life of the plan/environmental impact statement (EIS) (the next 20 years). At the beginning of the plan's implementation, a 1- to 3-month period of public education would occur to implement the proposed action followed by a 1- to 3-month period testing the compliance–based management strategy. At the beginning of the education and enforcement period, short-term impacts on all resources would occur, regardless of the alternative chosen. During this period, impacts would be similar to the current conditions and would be short-term. Following the education period, monitoring for compliance would begin and it is expected that compliance with the dog walking regulations and associated adverse impacts would improve gradually and the impacts would then become long term, as described below for each resource and alternative.

Intensity—Intensity describes the degree, level, or strength of an impact. Because definitions of intensity vary by resource topic, intensity definitions are provided separately for each impact topic.

Direct and Indirect Impacts—NPS policy requires that direct and indirect impacts including cumulative be considered in the analysis of alternatives, but the impacts do not have to be specifically identified as

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either direct or indirect. A direct effect would occur at the same time and place as the action. An indirect effect would be caused by an action but would be later in time or farther removed in distance, but would still be reasonably foreseeable.

Law Enforcement Data – Law enforcement data from 2001 through 2011, presented in Chapter 3, Visitor Use and Experience, was used to demonstrate if noncompliance occurs at each site. Table A and B show the number of dog incidents at the park compared to other park incidents or violations. This data was taken from the annual reports for each year. Park law enforcement data supports the need for the new dog management regulation. From 2001 through 2011, a total of 4,940 dog incidents were documented. Dog incidents comprised 10.8 percent of the total incidents documented at GGNRA. Park incidents may be underestimated because the annual report does not include incidents that may have included more than one violation. Prior to 2006, law enforcement staff heavily enforced the NPS leash law regulation, CFR 2.15 (a)(2). Following the 2005 court order affirming that GGNRA cannot enforce the NPS-wide regulation requiring on-leash walking of pets (36 CFR 2.15(a)(2)) in areas that were included in the 1979 Pet Policy, dog incidents and violations decreased due to the confusion over the pet policy.

Law enforcement is responsible for covering approximately 80 miles of separate, non-contiguous park sites. There are approximately nine law enforcement staff and park police monitoring sites per shift; therefore, law enforcement must strategize which sites to assign staff to each shift. Low use sites and small sites are regularly not heavily patrolled due to staff limitations. For these reasons, it is likely that if more staff were available there would be an increase in the number of incidents and violations at the park. While GGNRA cannot provide an exact number of incidents that go unreported, even if law enforcement data undercounts incidents, the data substantiates a need to regulate dog walking to protect resources, diverse visitor experiences, and health and safety.

Ex 5

Incidents related to dogs were investigated further to determine the type of dog incidents that were most common at the site. Each incident report containing dog violations were reviewed. Some of the incident reports contained multiple violations (unleashed dog in a closed area). Tables C-S show the types of dog incident at each site per year, this data includes incident reports with multiple violations.

MONITORING-BASED MANAGEMENT STRATEGY

As described in chapter 2, monitoring-based management strategies has been designed to ensure that compliance with the Code of Federal Regulations (CFR) applicable to dog management is high to ensure protection of park resources, visitors, and staff. The dog walking regulations defined in action alternatives B, C, D, E, and F would be regularly enforced by park law enforcement, and monitored by park staff. A monitoring-based management strategy would be developed and implemented to encourage compliance with the dog walking regulation and would apply to all action alternatives. It will allow staff to monitor and record noncompliance as well as impacts to natural and cultural resources. Monitoring would inform park management and law enforcement when, where, and how to prioritize responses to noncompliance. Noncompliance would include dog walking within restricted areas, dog walking under voice and sight control in designated on-leash dog walking areas, and dog walking under voice and sight control outside of established regulated off-leash walking areas (ROLAs). To prevent these impacts from increasing or occurring outside of the designated dog walking areas the NPS would regularly monitor all sites. When the level of compliance is deemed unacceptable based on violations and/or impacts to resources, primary management actions such as focused enforcement of regulations, education, and establishment of buffer zones, time and use restrictions, and SUP restrictions would be implemented. If noncompliance continues, secondary management actions including short-term closures, typically one year or less would be implemented through the compendium. The park would evaluate whether to propose a long-term closure, which would be made available to the public. Impacts from noncompliance are expected to be short-term and adverse, but the monitoring-based strategy is designed to return impacts to a level that assumes compliance, as described in the overall impacts analysis.

Ex 5

CUMULATIVE IMPACT SCENARIO

The Council on Environmental Quality (CEQ) regulations that implement the provisions of NEPA require that cumulative impacts be assessed in the decision-making process for federal projects. Cumulative effects are defined by the CEQ regulations as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative effects can result from individually negligible (or minor), but collectively significant, actions taking place over a period of time. The cumulative impact analysis includes actions both inside and outside the boundary of the park. Cumulative impacts were determined by combining the impacts of each alternative with other past, present, and reasonably foreseeable future actions within the park and outside the boundary of the park.

A list of past, present, and reasonably foreseeable future actions, projects, and programs within the park and outside the boundary of the park were compiled for consideration in the cumulative impact analysis. This list is included in appendix K. The list is organized by plans and projects that have been completed, current projects that are underway, long term projects, and future projects. From this list projects and actions were pulled out and discussed as applicable under each resource and site. The Park Stewardship Programs are incorporated in this list and includes programs performed by the Trails Forever Program and other Volunteer Programs.

The lands in San Francisco known as the "Presidio" are managed by both NPS and the cooperating agency, the Presidio Trust. Congress established the Presidio Trust in 1996, which works in partnership with NPS to manage the Presidio lands. The Presidio Trust manages the interior 80 percent of lands (known as Area B) and NPS manages the coastal areas (known as Area A). This chapter considers direct impacts to Area A Presidio lands managed by NPS. This chapter also considers indirect impacts to adjacent lands in the cumulative impacts scenario as a result of the alternatives to Area B Presidio lands managed by Presidio Trust.

Increasing Visitation

The temporal scope of this plan/EIS has been defined as twenty years. As previously discussed in chapter 3, visitation to GGNRA is not expected to experience a significant increase in visitation over the next 20 years given the overall visitation trends to the park. Assuming there are no major changes in park boundaries or facilities, park visitation would range between 12.6 million to 15.9 million people annually, similar to how it has been operating over the previous 20 years. Therefore increased visitation to GGNRA should not result in cumulative impacts to GGNRA resources.

NEARBY DOG WALKING AREAS

As noted in chapter 3, NPS conducted a survey in the summer of 2012 to measure customer satisfaction related to dog walking at GGNRA (NPS 2012b). The *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b) evaluated the perception of and satisfaction with the current dog walking policies, and the potential for redistribution of use based on access changes. The survey was completed in response to public comments received on the draft plan/EIS. Of the 7,000 individuals contacted for the survey, 897 responded. Respondents included 662 dog walkers, 20 commercial dog walkers, and 212 individuals who do not walk dogs at the park. Nearly half of the respondents indicated that their round trip travel to their favorite GGNRA sites is up to 10 miles.

Ex 5

General satisfaction at the park was included in the survey using the following categories: "not at all satisfied," "slightly satisfied," "moderately satisfied," "very satisfied," and "completely satisfied" (NPS

2012b, 10). Of the dog walkers that responded to the survey, 431 individuals indicated that they were "not at all satisfied," "slightly satisfied," or "moderately satisfied," with on-leash dog walking opportunities at the park. These same respondents were then asked if they would go (inside or outside GGNRA) somewhere else as an alternative site. The five most popular alternative sites indicated in the survey for off leash dog walking included Pine Lake/Stern Grove, Golden Gate Park (all areas), McLaren Park, Ocean Beach, and Alta Plaza (NPS 2012b, 13-15). The five most popular alternative sites for on leash dog walking included Pine Lake / Stern Grove, Golden Gate Park (all areas), McLaren Park, Marin Headlands Trails, and Alta Plaza (NPS 2012b, 19-21). Using the results of this survey, a more detailed evaluation of the potential impacts to alternative sites identified in the survey was completed for this plan/EIS. These "alternative sites" are referred to as "nearby dog walking areas" to reduce confusion in the SEIS. After reviewing results of the survey, a list of nearby dog walking areas was created for each GGNRA site. Some of the nearby dog walking areas include other GGNRA sites, and some include areas outside of GGNRA. For example, if on-leash dog walking is limited at Crissy Field, based upon the survey, visitors may choose to visit (in order of preferred choice in the survey and taking into account immediately adjacent parks) Alta Plaza Park, Golden Gate Park, Ocean Beach, Baker Beach, or the Presidio (Area B). Similarly, if off-leash dog walking is limited at Crissy Field, based upon the survey, visitors may choose to visit (in order of preferred choice in the survey and taking into account immediately adjacent parks) Ocean Beach, Golden Gate Park, Alta Plaza Park, Fort Mason, or Mountain Lake Park. Limitations to this survey included a small sample size of respondents; less than 13 percent of individuals who were contacted responded to the survey. In addition, a high number of answers included "I don't know" in the survey (NPS 2012b, 13, 19).

Table 4a, below, describes the alternative sites identified in the survey. A short description of each of the areas follows that table and includes natural resources present, the location of the area, the size of on-leash and off-leash areas, amenities (if any) present, and recreational opportunities. A detailed impacts analysis for the nearby dog walking areas is also included for each GGNRA site and alternative. Finally, a summary for each alternative in this plan/EIS is included along with an impacts analysis for the nearby dog walking areas.

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Table 4a. Nearby Dog Walking Areas Identified as Alternative Sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b)

Name	Park Management*	Location	Size of Park	Frequency in GGNRA survey (NPS 2012b)	Notes
Marin County Nearby Dog Walking Areas					
Blithedale Summit Open Space Preserve	Marin County	Mill Valley; Glen Dr.	899 acres	Not listed in survey	Dogs on-leash on all trails; dogs off-leash on all fire roads under voice command.
Bolinas Beach	Marin County and Private Lands	Olema Bolinas Road, off Highway 1	Unknown	Not listed in survey	Dogs allowed off-leash
Camino Alto Open Space Preserve	Marin County	Mill Valley; Escalon Rd.	170 acres	22nd preferred choice for on-leash (1.0%); 19th preferred choice for off-leash (0.80%);	Dogs on-leash on all trails; dogs off-leash on all fire roads under voice command.
Mt. Tamalpais State Park	CDPR	Mill Valley	6,300 acres	24th preferred choice for on-leash (0.75%)	Dogs on-leash only in picnic areas and camping areas. No dogs allowed on trails, fire roads, or undeveloped areas.
Upton Beach	Marin County	Adjacent to Stinson Beach	4 acres	8th preferred choice for off-leash (2.4%)	Beach is on-leash dog walking only, but off-leash dog walking may occur here
San Francisco County Nearby Dog Walking Areas					
Alta Plaza Park	SFRPD	**Pacific Heights neighborhood;** between Scott and Steiner St.	0.5 acres off leash DPA	5th preferred choice for on-leash (2.99%); 5th preferred choice for off -leash (3.46%)	Leash rule: Off leash in DPA, on-leash in the park Park is a large sloping expanse of grass with some landscaped plantings
Bernal Heights	SFRPD	**Bernal Heights neighborhood;** Bernal Heights and Esmeralda	21 acres off leash DPA	10th preferred choice for on-leash (1.75%); 10th preferred choice for off -leash (1.87%)	DPA located within Bernal Heights Natural Area.
Glen Canyon Park	SFRPD	**Glen Park neighborhood;** Bosworth St. and Diamond Heights Blvd.	70 acres	9th preferred choice for on-leash (2.24%); 7th preferred choice for off -leash (2.67%)	Leash rule: Leashes required
Golden Gate Park (all areas)	SFRPD	**Sunset neighborhood; between Sunset and Richmond**	1,017 acres; , 8.6 acres off leash DPAs	2nd preferred choice for on-leash (9.24%); 2nd preferred choice for off -leash (7.2%)	There are four distinct DPA areas in the park (southeast, northeast, southcentral, and northcentral) where dogs are allowed off-leash. Outside of the DPAs, dogs are allowed on-leash, and can be walked on trails at the site.

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McLaren Park	SFRPD	**Bayview neighborhood;** Shelly Dr. and Mansell St	59.9 acres off leash DPA	3rd preferred choice for on-leash (3.49%); 3rd preferred choice for off-leash (4.80%)	Two separate DPAs: (1) 59-acre area bounded by Shelly Drive with fence along roadway (2) 0.9 acre adjacent to Natural Area with fence along roadway
Mountain Lake Park	SFRPD and the Presidio Trust	**Richmond neighborhood;** Lake St and 12th Ave	0.4 acres off leash DPA	19th preferred choice for on-leash (0.80%)	East end of the park has a DPA
Pine Lake/Stern Grove	SFRPD	**Wawona neighborhood; Stern Grove is at** 19th Ave. and Wawona; Pine Lake at Wawona Way and Crestlake	3.3 acres (Pine Lake DPA); 0.20 mile trail; 0.7-acre (Stern Grove DPA)	1st preferred choice for on-leash (12.47%); 1st preferred choice for off -leash (14.76%)	Off-leash areas in two DPAs and along the 0.2 mile Stern Grove Trail; this trail connects Pine Lake Meadow to Stern Grove on the north side of the park.
The Presidio (Area B)	The Presidio Trust	Northern tip of the San Francisco Peninsula; south of Mason St. and east of Lincoln Blvd.	Entire Presidio area is 1,491 acres	10th preferred choice for on-leash (1.75%); 13th preferred choice for off -leash (5.0%)	Dogs on-leash in most parts of the Presidio Area B.
San Mateo County Nearby Dog Walking Areas					
Half Moon Bay (Surfer's Beach)	CDPR	El Granada; along Highway 1	Unknown	20th preferred choice for on-leash (1.25%)	Dogs allowed on leash
Montara State Beach (includes McNee Ranch)	CDPR	Montara	Unknown	14th preferred choice for on-leash (1.25%)	Dogs allowed on a leash, six feet or shorter.
Pacifica State Beach (at Linda Mar)	City of Pacifica	Pacifica; along Highway 1	Unknown	Last preferred choice (0.25%)	Dogs allowed on-leash on the beach.
Quarry Park, El Granada	San Mateo County and MDL	El Granada; corner of Santa Maria Ave. and Columbus St.	40 acres	14th preferred choice for on-leash (1.25%)	Dogs allowed on-leash.
Sharp Park	SFRPD	Pacifica; along Highway 1	Unknown	31st preferred choice (0.50%)	Dogs allowed on-leash

*Notes: SFRPD (San Francisco Recreation and Parks Department); DPA (Dog Play Area); CDPR (State of California Department of Parks and Recreation); MDL (Midcoast Park Lands)

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The following paragraphs describe the nearby dog walking areas identified in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b) by county that will be considered in the impacts analysis.

MARIN COUNTY PARKS

Comment [WWM9]: How much detail do you want on resources in these areas? For some we don't know including Sf and San Mateo sites.

Blithedale Summit Open Space Preserve – Blithedale Summit is 899 acres open space preserve in Marin County. Resources at the site include a diverse variety of habitats, such as chaparral and forested areas, including redwood groves. The redwood groves provide habitat for the endangered northern spotted owl, as well as other wildlife species. Activities permitted at the site include hiking, horseback riding, and mountain biking (Marin County Parks 2012c). Blithedale Summit has several trails and fire roads. The fire roads are generally steep and rocky along the ridgelines, but trails and roads at the site pass through a variety of habitats. Dogs are allowed at Blithedale Open Space Preserve. Dogs are allowed to be off-leash under voice command on all fire roads. Visitors are not allowed more than three dogs, and must have a leash for each dog that must not exceed six feet in length. Commercial dog walkers require a permit. Dogs are also allowed on-leash on all trails (Marin County 2012). Fire roads include the South Marin Line Filre Raod, the Madera Ridge Fire Road, Glen Fire Road, Elinor Fire Road, the Blithedsale Ridge Fire Road, and H Line Fire Road. Trails include the Corte Huckleberry Trail, Piedmont Trail, Warner Canyon Trail, Tartan Trail, and Maytag Trail (Marin County Parks 2012c).

Bolinas Beach – Bolinas Beach is located in the small and remote town of Bolinas, famous for a history of removing road signs towards the town. The beach is calm water with a sand bar. Fishing and camping are allowed at the site, and surfing is a popular activity. Dogs are allowed off-leash at Bolinas Beach (Dogtrekker 2012b).

Camino Alto Open Space Preserve – The Camino Alto Open Space Preserve is located in Marin County, and runs from Mt. Tamalpais towards the bay, and branches off south toward Mill Valley. The preserve is predominantly on a west-facing slope, and is well forested, with shady ridgeline access (Marin County Parks 2012a, 1). Vegetation along the fire roads and trails at the Camino Alto Open Space Preserve include coast live oak, California bay, toyon, madrone, coyote brush, monkeyflower, hazelnut, redwoods, buckeye, thimbleberry, and invasive broom. Some portions of the fire roads are lined with patches of buckwheat, and purple coyote mint (Bay Area Hiker 2002, 1). The site also includes ample parking. Many of the fire roads found within the Camino Alto Open Space Preserve are popular, and are used by hikers, bicyclists, and equestrians. The fire roads offer a relatively level trail, and have views of Mt. Tamalpais as well as San Francisco. Dogs are allowed at Camino Alto Open Space Preserve. Dogs are allowed to be off-leash under voice command on all fire roads. Dogs are also allowed on-leash on all trails (Dogtrekker 2012a). Visitors are not allowed more than three dogs per person, and must have a leash for each dog. The leash must not exceed six feet in length. Commercial dog walkers require a permit. Fire roads include the Escalon Fire Road, Del Casa Fire Road, Marlin Fire Road, Camino Alto Fire Road, Octopus Access Fire Road, Middle Summit Fire Road, and Lower Summit Fire Road. There is also the Harvey Warne Trail (Marin County Parks 2012a, 1).

Comment [WWM10]: Include northern spotted owl habitat.

Mt. Tamalpais State Park – This park is located in Marin County, just north of the Golden Gate Bridge. Mt. Tamalpais has over 50 miles of trails connecting to a network of over 200 miles of trails. The park provides trails for hiking and biking, and some trails for horseback riding. The park includes redwood groves and oak woodlands, and contains a great diversity of plant life because of the varied habitats, topography, and soils. Hikers are able to pass through grasslands, chaparral, oak woodlands, as well as redwood groves and Douglas fir stands. Dogs are allowed only on leash in the camping and picnic areas, and are prohibited from the trails, fire roads, or undeveloped areas (California State Parks 2010, 4).

Comment [WWM11]: Include northern spotted owl habitat, coho and steelhead.

Comment [DAH12]: Probably also a number of rare plants given serpentine habitat. Check with Alison or with USFWS quad maps.

Upton Beach – Upton Beach is a four acre stretch that is adjacent and to the north of the GGNRA portion of Stinson Beach. The beach is popular for sunbathing, fishing, picnicking, and surfing, as well as other

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beach activities. Kayaking, swimming, and walking are other activities allowed at the park. The site is also frequently used by hang gliders who take off from Mt. Tamalpais. Parking is either at Stinson Beach, or on Calle del Arroyo (Marin County Parks 2012b, 1). Dogs are allowed on-leash on Upton Beach, but no dogs are allowed at the adjacent Stinson Beach. The dog leash must not exceed 6 feet in length.

SAN FRANCISCO COUNTY

Alta Plaza Park- This 11.89 acre park is located in the Pacific Heights neighborhood between Steiner and Scott, Clay and Jackson Streets. Originally a rock quarry, the land was terraced and planted with lawn, and has 5 large staircases. The park also contains several paved walking trails, lawns, and benches throughout (San Francisco Parks Alliance 2012, 1). The off-leash area (DPA) is on the east side of the park, and includes the second terrace on Clay Street between Scott and Steiner Streets. It is approximately 0.5 acres. The rest of the park is on-leash. Commercial dog walkers are allowed at the park, but must not have more than six dogs (City and County of San Francisco Parks and Recreation Department n.d., 1-2; SFRPD 2005, 1).

Bernal Heights – This 24.3-acre park is managed by the SFRPD and is located in the Bernal Heights neighborhood in central San Francisco. The slopes of Bernal Hill support native grasslands and sensitive species while other portions of the site support urban forest (SFPD 2011, 117). The DPA is located in a grassy area with a few scattered trees and scrub vegetation (SFPD 2011, 117). In general, Bernal Hill provides a mosaic of habitats that are accessible to mobile wildlife species, particularly birds that forage, nest, and roost in these habitats (SFPD 2011, 290). There are two main entrances to the park and a large paved path connects a closed utility road. Apart from the paved path, a network of social trails traverses the hill area. There are parking spaces provided at the park. The park includes a designated DPA within a Natural Area (Bernal Hill Natural Area) above Bernal Heights Boulevard. The SNRAMP proposes to retain on- and off-leash dog use of the entire Natural Area but to limit off-leash activities to the relatively flat areas to avoid sensitive plant species (SFPD 2011, 118). The SNRAMP proposes to reduce the size of the DPA at Bernal Hill from 21 acres to 15 acres (a reduction of 6 acres, approximately 29 percent of total DPA area) (SFPD 2011, 114). Additionally, the SNRAMP proposes to "encourage people and dogs to stay on designated trails and discourage them from climbing the steep slopes and causing erosion on the north side of the Natural Area" (SFPD 2011, 118).

Glen Canyon Park – This 70-acre park is managed by the SFRPD and located between the Diamond Heights and Miraloma neighborhoods in an area known as San Miguel Hills. Vegetation at the park includes native plants within the grasslands or sensitive species, scrub-covered western slopes, a riparian corridor, a free-flowing creek, and urban forest (SFPD 2011, 125-126, 286). Glen Canyon Park serves as an important wildlife corridor (SFPD 2011, 290). Recreation facilities in Glen Canyon Park include a day camp, a community recreation center, ball fields, playgrounds, and formal and informal trails. In San Francisco, the majority of Islais Creek has been piped into an underground culvert except for an open water stretch in Glen Canyon Park and the bay outfall at Third Street. The Glen Canyon Park reach of Islais Creek is an intermittent stream but supports willows and other riparian vegetation. The creek enters a five-foot-diameter underground culvert at the lower end of Glen Canyon Park (SFPD 2011, 355). The park has wooded canyon trails along both sides of a creek, rock outcroppings, and a wide variety of native vegetation throughout the site. There are several side trails to that climb in elevation and narrow to the top of a hill then loop back down the hill. The SNRAMP proposes to "monitor the dog impact on wetlands and Islais Creek channel and consider appropriate restrictions (including fencing) to keep dogs out of the creek channel and wetlands" (SFPD 2011, 127). The SNRAMP also proposes to protect sensitive habitats and prevent erosion by closing and revegetating social trails in sensitive areas of the Glen Canyon Park, including the social trails at the northwestern rock outcrop (SFPD 2011, 126) and next to or crossing Islais Creek (SFPD 2011, 128). There is no parking lot for the park, but street parking only.The park

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includes a 60-acre Natural Area (Glen Canyon Park Natural Area) that allows on-leash dog walking. There are no off-leash dog areas or DPAs within Glen Canyon Park.

Golden Gate Park – The Golden Gate Park is a 1,017-acre, landscaped park that includes playgrounds, lakes and picnic areas. There are four DPAs in Golden Gate Park that total 8.6 acres. The first is the southeast section bounded by Lincoln Way, King Dr., and 5th and 7th Aves. This site is approximately 2.6 acres, and is near to the Natural Area. The second DPA is in the northeast section at Fulton and Willard, within a natural area. It is 0.2 acres. The third is the southcentral DPA bounded by King Dr., Middle Dr., and 34th and 38 Aves. It is approximately 4.4 acres in size. The last DPA in Golden Gate Park is in the northcentral area, near 38th Ave. and Fulton. It is a fenced training area approximately 1.4 acres large. All of these sites allow off-leash dogs (SFRPD 2005, 1). Dogs are allowed elsewhere in the park on-leash.

McLaren Park – This 312-acre park is managed by the SFRPD and is located in the **Bayview** neighborhood in San Francisco County. Numerous freshwater sources, including Gray Fox Creek, and associated riparian habitats that consists of willow scrub are present within the park (SFPD 2011, 214). Other habitat present includes wildflower meadows (SFPD 2011, 114), a wet meadow, and a freshwater marsh (McLaren Park) (SFPD 2011, 286). In general, McLaren Park provides a mosaic of habitats that are accessible to mobile wildlife species, particularly birds that forage, nest, and roost in these habitats (SFPD 2011, 290). There is parking along Shelley Drive and a parking lot located near the reservoir. The park includes a designated DPA within a Natural Area and a designated DPA adjacent to the Natural Area. The DPA within the Natural Area is a 59-acre hill top park bounded by Shelly Drive (a fence is present at the roadway) and includes trails, open lawn areas, and a reservoir. The DPA adjacent to the Natural Area is located at the south entrance of the park, in the 1600 block of Geneva. This DPA includes 0.9 acres of open lawn area and a fence along the roadway as well. The SNRAMP proposes to reduce the size of the DPA at McLaren Park from 61.7 acres to 53.4 acres (a reduction of 8.3 acres, approximately 13 percent of total DPA area) (SFPD 2011, 114). The SNRAMP also proposes to restrict dogs from sensitive habitat areas at McLaren Park, including approximately 0.6 acre of Gray Fox Creek (SFPD 2011, 138) and would monitor dog use and impacts on small wildflower meadows in McLaren Park (SFPD 2011, 114).

Mountain Lake Park – This 14-acre park is managed by the SFRPD and located in in the Richmond neighborhood of San Francisco at 12th and Lake Avenue. Mountain Lake Park is 14 acres in size and located next to Mountain Lake and adjacent to the southern edge of the Presidio. The park has two meadows; the large meadow is generally used for picnics and sports. Several trails can be accessed from the area. Dog walking, picnicking, and hiking are popular activities in the park (The Presidio Trust 2012a, 3). The park provides opportunities for visitors to walk or jog along the lake. There is also a built-in fitness circuit along the trails in the park. Mountain Lake contains wetland areas, and provides habitat for wildlife, though many of the species currently found are non-native (The Presidio Trust 2012a, 3). Sedimentation of the lake from Highway 1 and runoff from the adjacent golf course have lowered the water quality and degraded the habitat surrounding the lake. A remediation and restoration project is currently underway to restore native vegetation to the lake, and includes dredging of the lake. The restoration will also include the creation of a large wetland in the lake, and the relocation of non-native species (The Presidio Trust 2012b, 1). On leash dog walking is allowed in the park and off-leash dog walking is allowed in the DPA. The DPA is 0.4 acre, is unfenced, located at the northeast end of the Park, and is a combination of grass and woodchips (SFRPD 2005, 1; FMLP 2012, 1).



Pine Lake/Stern Grove –Pine Lake Park and Stern Grove Park constitute a total of 64 acres of park land managed by the SFRPD. The Pine Lake Natural Area (8.4 acres) is located in Pine Lake Park (30.3 acres). The area is located in the neighborhood of Wawona in San Francisco County and bounded by Wawona Way on the north and Crestlake Drive on the west and south sides. The Stern Grove area is bounded by 19th Avenue and Wawona way. Riparian habitats and several different types of wetlands are present

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including open water, willow scrub, and freshwater marsh (SFPD 2011, 286). In general, Pine Lake Park/Stern Grove provides a mosaic of habitats that are accessible to mobile wildlife species, particularly birds that forage, nest, and roost in these habitats (SFPD 2011, 290). There are picnic tables, horseshoe courts, walking trails, and the area is surrounded by fir, redwood, and eucalyptus trees. There is parking along the road and a parking lot within the park. Drinking fountains for visitors and dogs are provided in the park. A designated 3.3 acre unfenced DPA exists in a meadow to the east of the Natural Area in Pine Lake (SFRPD 2011, 141). The DPA is located on the second terrace of the park contiguous to Stern Grove and next to a parking lot at Crestlake and Vale streets. This park also includes the 0.2 mile Stern Grove Trail as an off leash area that connects the Pine Lake Meadow DPA to Stern Grove. Stern Grove also includes a 0.7 acre DPA. This DPA is not within a Natural Area. The SNRAMP does not propose to reduce the size of the DPAs at this park or the trails that allows off leash dog walking.

Presidio (Area B) – The Presidio (Area B) is managed by The Presidio Trust. The site includes miles of hiking and biking trails, several restaurants, hotel, several neighborhoods, and offices. The Presidio also houses hundreds of listed historic properties. It provides an overnight campground facility, a golf course, bowling center, playgrounds, athletic fields, a trampoline park, rock climbing gym, swimming facilities, gymnastics facilities, four parade grounds, and a visitor center (Presidio 2012c, 1). The park has abundant wildlife and plant communities. Habitats found along trails include oak woodlands, and other native plant communities. The site also contains a 300 acre forest of eucalyptus, cypress, and pine. Although not native to the area, this forest was planted at the end of the 19th century. Other historic gardens are also found in the park. Hundreds of wildlife species use habitat in the park as well (Presidio 2012d, 1). In terms of dog use, the rules of the Presidio state that dogs are welcome on-leash in nearly all areas (Presidio 2012c, 1).

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Half Moon Bay (Surfers Beach) – Surfers Beach, or El Granada beach, is located across from the town of El Granada. It is a popular surfing beach, with easy access and good waves (HiddenSF.com 2012, 1). However, in recent years this beach has seen severe erosion that threatens to undermine highway 1, and severely limits recreational activities at the beach (CSMW 2012, 1;). Dogs are allowed on-leash at Surfers beach (California State Parks n.d. , 1).

Montara State Beach (includes McNee Ranch) – Montara State Beach is found in San Mateo County in the community of Montara. The beach at Montara is wide and sandy, and is about 0.8 mile long. Montara Beach has two steep access points (California State Parks 2012, 1). While there are diverse tidepools on the southern end of the beach, they are largely inaccessible. Seals occasionally haul out at Montara State Beach (CSPA 2012, 1). There is also a lighthouse with overnight accommodations at the beach (California State Parks 2012, 1). Montara Mountain (also known as McNee Ranch), is also within this state park. McNee Ranch is located on the west side of Montara Mountain. It features the only undisturbed coastal mountain habitat found on over 100 miles of coastline, and provides a rich diversity of flora and fauna. The site offers hiking, biking, horsebackriding, and walking trails (CSPA 2012, 1). Dogs are allowed on-leash on the beach, but must be controlled with a leash of no more than six feet. They are also allowed on-leash on the trails at McNee Ranch (CSPA 2012, 1).

Pacifica State Beach – The Pacifica State Beach is located south of San Francisco in the Pacifica community. The beach is located off of Highway 1 in downtown Pacifica. Amenities at Pacifica beach include a recreational trail system along the water, surfing and surf camps, as well as parking, showers, and restrooms (City of Pacifica 2012, 1). Pacifica Beach is home to large numbers of shorebirds, including the federally threatened western snowy plover (*Charadrius alexandrinus nivosus*). There is also a small wetland on the southern portion of the beach that provides wildlife habitat, and the beach is listed

as habitat for the western snowy plover in the USFWS recovery plan (Pacific Shorebird Alliance 2012, 1). Dogs must be on-leash at this beach (City of Pacifica 2012, 1).

Quarry Park, El Granada – Quarry Park is a 40-acre community park in El Granada. The site is adjacent to the Wicklow open space area, and many of the trails at Quarry Park connect to this area. Trails provide a hike through the old quarry, and some vistas of the surrounding area and Princeton Harbor. The trail is open to horses, hikers, and bicyclists (County of San Mateo Division of Parks 2012, 1). Dogs are allowed on-leash at Quarry Park (County of San Mateo Division of Parks 2012, 1).

Sharp Park – This 411-acre park is managed by the SFRPD and located in the town of Pacifica in San Mateo County. The park borders the Pacific Ocean and is bisected by Highway 1. This park is surrounded by significant open spaces. Mori Point borders the southwestern edge and the Sweeney Ridge Golden Gate National Recreation Area borders the park on the southeastern and eastern edges. The dominant vegetation at Sharp Park includes invasive forest and maintained lawns associated with a golf course, but the park also contains significant areas of wetlands and scrub vegetation associated with Sanchez Creek and Laguna Salada near the Pacific Ocean (143). Several different types of wetlands are present including free-flowing creeks, open water, wet meadow, willow scrub, and freshwater marsh (SFPD 2011, 286). The wetland habitats of Sharp Park support several sensitive species including common yellowthroats, black-crowned night herons *(Nycticorax nycticorax)*, California red-legged frog, San Francisco garter snakes *(Thamnophis sirtalis elegans)*, and San Francisco forktail damselfly. Because Sharp Park is bordered by undeveloped areas, including Sweeney Ridge, Mori Point, and Milagra Ridge, it serves as a relatively undisturbed corridor for wildlife, particularly birds (SFPD 2011, 290). Sharp Park's connectivity to high-quality natural habitats also allows it to support medium size and large mammals, including numerous general wildlife species, such as the black-tailed deer (*Odocoileus hemionus columbianus*), bobcat (*Lynx rufus californicus*), common porcupine (*Erethizon dorsatum epixanthum*), coyote (*Canis latrans*), and mountain lion (*Puma concolor californicus*) (SFPD 2011, 290). On-leash dog walking is allowed at the park; there are no off-leash dog areas within Sharp Park. This park was identified as an alternative site for on leash dog walking, although at a very low frequency (NPS 2012b, Attachment B). Because Sharp Park does not include a DPA, acreage of dog play areas would not be reduced in the SNRAMP, but signs and barriers would be installed and maintained to prevent disturbance of sensitive habitat in Horse Stable Pond and Laguna Salada by "dogs or other possible nuisances" (SFPD 2011, 144).

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Impacts to Nearby Dog Walking Areas - Ocean Beach

Outside of GGNRA sites, there are two San Francisco parks (Pine Lake/Stern Grove and McLaren Park, both with DPAs, near Ocean Beach that were identified as preferred choices for alternative dog walking sites (NPS 2012b).

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Visitor use at Ocean Beach is high, with annual visitation estimated to be 2.7 million, of that approximately 9.4 percent of visitors are dog walkers (IEC 2011).

Alternative A (Ocean Beach) – No change to dog walking areas; ROLAs would occur at Ocean Beach under alternative A. As a result, visitors would continue to walk their dogs both on and off-leash at Ocean Beach and no impacts to nearby dog walking areas would occur.

Alternative B (Ocean Beach) – Under alternative B, on-leash dog walking would still be allowed on the adjacent trail and on the beach, so visitors would continue to walk dogs on-leash at Ocean Beach, but a beach ROLA would no longer be available. The off-leash dog walking areas would be reduced by 6.27 miles. The closest GGNRA beach sites, Fort Funston and Baker Beach, would also have no available beach ROLAs under alternative B. It is possible that some visitors who currently walk their dogs off-leash

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would continue to use Ocean Beach, but would leash their dogs. Alternately, Pine Lake/Stern Grove or McLaren Park would provide a nearby alternative for off-leash (although non-beach) dog walking experience. If off-leash dog walking increased at these parks under alternative B, adverse impacts would occur from physical deterioration of natural resources at both areas. Pine Lake is designated as a "Natural Area" by the San Francisco Recreation and Parks Department (SFRPD) and has undergone native plant restoration. Although the level of increased recreational use at these parks is speculative, it is likely that overcrowding of the dog play areas at these sites could occur, thus reducing the overall visitor experience. In addition, the Significant Natural Areas Resource Management Plan (SNRAMP) proposes to reduce the size of the DPA at McLaren Park from 61.7 acres to 53.4 acres (a total reduction of 8.3 acres) (SFPD 2011, 114). The SNRAMP does not propose to reduce the Pine Lake DPA and on-leash dog use would still be allowed outside the DPA at both parks. There would be an overall decrease in currently available off-leash recreational dog walking opportunities, which may increase pressure that is unable to be absorbed by other dog walking areas in San Francisco, including DPAs.

Alternative C (Ocean Beach) – Under alternative C, on-leash dog walking would still be allowed on the trail adjacent to the beach and a beach ROLA would still be available at Ocean Beach, although the area allowing off leash use has been reduced by 2.72 miles The closest equivalent GGNRA beach site to provide an on leash dog walking experience would be Baker Beach; the nearest GGNRA beach ROLA would be at Fort Funston. As a result of the decreased beach ROLA, even though a beach ROLA would be available nearby at Fort Funston, it is expected that visitors may also take their dogs to either Pine Lake/Stern Grove or McLaren Park for an off-leash (although non-beach) dog walking experience. Visitors may also take their dogs to Fort Funston, or even to Crissy Field which provides easier access than Fort Funston, for an off-leash (beach) dog walking experience under alternative C. Similar to alternative B, increased dog use at Pine Lake/Stern Grove and McLaren Park under alternative C would result in adverse impacts to natural resources. Overcrowding of these sites could also occur, thus reducing the overall visitor experience. As stated in public comments to the draft plan/EIS, "If use by off-leash voice-controlled dogs is drastically restricted at Ocean Beach, the dog play area at Stern Grove, an area we utilize, will be very adversely impacted. Such an event happened recently when the tsunami warning closed Ocean Beach for several days. The use of the dog off-leash area at Stern Grove more than quadrupled during that time" (NPS 2011b, Correspondence 4556).It is expected that the movement of visitors to other dog parks as a result of the alternatives would not have the same level of impact on nearby dog walking areas as the recent tsunami. Under the alternatives Ocean Beach would still be open to both on and off-leash dog walking, not closed entirely as was the case during the tsunami.

Alternative D (Ocean Beach) – Same as alternative B, but visitors would be able to take their dogs to Fort Funston for an off-leash (beach) dog walking experience under alternative D. Increased dog use at Pine Lake/Stern Grove and McLaren Park under alternative D would result in adverse impacts to natural resources. Overcrowding of these sites could also occur, thus reducing the overall visitor experience.

Alternative E (Ocean Beach) – Under alternative E, on-leash dog walking would still be allowed on the trail adjacent to the beach and on the beach between Stairwell 21 and Sloat Blvd., and a beach ROLA would still be available north of Stairwell 21. The beach ROLA would be reduced by 2.72 miles. As a result, visitors would continue to walk their dogs both on and off-leash at Ocean Beach and no impacts to nearby dog walking areas would occur.

Alternative F (Ocean Beach) – Same as alternative C. Increased dog use at Pine Lake/Stern Grove and McLaren Park under alternative F would result in adverse impacts to natural resources at these sites. Overcrowding of these sites could also occur, thus reducing the overall visitor experience.

Impacts to Nearby Dog Walking Areas – Fort Funston

Outside of GGNRA, there are two San Francisco parks (Pine Lake/Stern Grove and McLaren Park, both have DPAs) near Fort Funston that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b). Some visitors may also visit Bernal Hill as an alternative dog walking site, but this park is farther from Fort Funston.

Visitor use at Fort Funston is high, with annual visitation estimated to be 545,500; of that, approximately 62.1 percent of visitors are dog walkers (IEC 2011).

Alternative A (Fort Funston) – No change to dog walking areas; ROLAs would occur at Fort Funston under alternative A. As a result, visitors would continue to walk their dogs both on and off-leash at Fort Funston and no impacts to nearby dog walking areas would occur.

Alternative B (Fort Funston) – Under alternative B, on-leash dog walking would still be allowed on trails and on the beach, so visitors would continue to walk dogs on-leash at Fort Funston. The 1.13-mile off-leash beach ROLA would be converted to on-leash dog walking. Although 2.10 additional miles of trails would be designated as on-leash dog walking, 98.70 acres of an off-leash ROLA would be removed at Fort Funston. The ROLAs (beach and upland) would no longer be available. The closest GGNRA beach sites, Ocean Beach, Baker Beach, and Crissy Field, have no available ROLAs under alternative B. It is possible that some visitors who currently walk their dogs off-leash would continue to use Fort Funston, but would leash their dogs. It is more likely that visitors would take their dogs to either Pine Lake/Stern Grove or McLaren Park for an off-leash (non-beach) dog walking experience. Based on public comments on the draft plan/EIS, visitors may also take their dogs to Bernal Hill if off-leash dog walking is reduced at Fort Funston (NPS 2011b, Correspondence 4575). As a result of increased dog use at these parks under alternative B, adverse impacts would occur from physical deterioration of natural resources at Pine Lake/Stern Grove, McLaren Park, and possibly Bernal Hill as well. Both Bernal Hill and Pine Lake are designated as "Natural Areas" by SFRPD; Pine Lake has undergone native plant restoration. Although the increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, thus reducing the overall visitor experience. As stated in public comments to the draft plan/EIS, "Recently, when Fort Funston was closed for a day due to the Tsunami warning, many dog walkers including some professional dog walkers with multiple dogs, converged on Stern Grove, increasing the number of dogs from the usual fifty to between two and three hundred. According to the local San Franciscans who utilize Stern Grove on a daily basis, this created a very unstable and over-crowded situation" (NPS 2011b, Correspondence 3997). It is expected that the movement of visitors to other dog parks as a result of the alternatives would not have the same level of impact on nearby dog walking areas as the recent tsunami. Under the alternatives Fort Funston would still be open to both on and off-leash dog walking, not closed entirely as was the case during the tsunami. In addition to potential overcrowding, the SNRAMP proposes to reduce the size of the DPA at McLaren Park from 61.7 acres to 53.4 acres (a total reduction of 8.3 acres) and reduce the size of the DPA at Bernal Hill from 21 acres to 15 acres (a total reduction of 6 acres) (SFPD 2011, 114). The SNRAMP does not propose to reduce the Pine Lake DPA and on-leash dog use would still be allowed at McLaren Park and Bernal Hill. There would be an overall decrease in currently available recreational dog walking opportunities, which may increase pressure that is unable to be absorbed by other dog walking areas, including DPAs.

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Alternative C (Fort Funston) – Under alternative C, a beach ROLA and an "upland" ROLA (between the Chip Trail, Sunset Trail, and parking lot as described in chapter 2) would still be available at Fort Funston, although total ROLA area has been reduced by about 90 acres (90.4-acre reduction in the "upland" ROLA and 0.47-mile reduction in beach ROLA). On-leash dog walking would still be allowed on 1.80 miles of trails at Fort Funston. There is no equivalent alternative site near Fort Funston that

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allows on-leash (non-ROLA) beach dog walking under alternative C. The closest GGNRA beach sites (Ocean Beach, Crissy Field, and Lands End) have no available on-leash (non-ROLA) beach dog walking under alternative C. As a result of the decreased size of the ROLAs at Fort Funston, visitors could take their dogs to Pine Lake/Stern Grove, McLaren Park, or Bernal Hill for an off-leash (non-beach) dog walking experience. Visitors may also take their dogs to Crissy Field or Ocean Beach for an off-leash (beach ROLA) dog walking experience. Similar to alternative B, increased dog use at Pine Lake/Stern Grove, McLaren Park, and Bernal Hill under alternative C would result in adverse impacts to natural resources. Overcrowding of these sites could also occur, reducing the overall visitor experience.

Alternative D (Fort Funston) – Under alternative D, an "upland" ROLA would still be available at Fort Funston, although this area has been reduced by 94 acres. A beach ROLA would not be available at Fort Funston, resulting in a reduction of 1.13 miles of beach ROLA. On-leash dog walking would be available for 0.66 of a mile on the beach and 2.10 miles on trails. The closest GGNRA beach sites, Crissy Field and Ocean Beach, have no available ROLAs under alternative D. It is possible that some visitors who currently walk their dogs off-leash would continue to use Fort Funston, but would leash their dogs. Because there is no beach ROLA available at Fort Funston under alternative D, it is expected that visitors may also take their dogs to Pine Lake/Stern Grove, McLaren Park, or Bernal Hill for an off-leash (non-beach) dog walking experience. Similar to alternative B, increased dog use at Pine Lake/Stern Grove, McLaren Park, and Bernal Hill under alternative D would result in adverse impacts to natural resources. Overcrowding of these sites could also occur, reducing the overall visitor experience.

Alternative E (Fort Funston) – Under alternative E, on-leash dog walking would still be allowed on trails and on the beach (0.47-mile on-leash beach and 1.61-mile trail area for on-leash). The beach ROLA would still be available, but would be reduced by 0.47 of a mile. The "upland" ROLA would still allow for off-leash dog walking, but would be reduced by 81.1 acres. As a result, visitors would continue to walk their dogs both on and off-leash at Fort Funston and no impacts to nearby dog walking areas would occur.

Alternative F (Fort Funston) – Same as alternative E except that alternative F would not include a 0.47-mile on-leash beach walking area. Because alternative F includes on-leash (trail) dog walking, a beach ROLA and a large upland ROLA, it is likely that visitors would continue to walk their dogs both on and off-leash at Fort Funston and no impacts to nearby dog walking areas would occur.

Impacts to Nearby Dog Walking Areas – Stinson Beach

Outside of GGNRA, there is one Marin beach (Upton Beach, the neighborhood beach at Stinson) adjacent to Stinson Beach that was identified as a preferred choice for an alternative dog walking site (NPS 2012b).

Alternative A (Stinson Beach) – No change to dog walking areas would occur at Stinson Beach under alternative A. As a result, visitors would continue to walk their dogs on leash in designated areas at Stinson Beach and no impacts to nearby dog walking areas would occur.

Alternative B (Stinson Beach) – Same as alternative A. Visitors would continue to walk their dogs on leash in designated areas at Stinson Beach and no impacts to nearby dog walking areas would occur.

Alternative C (Stinson Beach) – Same as alternative A. Visitors would continue to walk their dogs on leash in designated areas at Stinson Beach and no impacts to nearby dog walking areas would occur.

Alternative D (Stinson Beach) – Under alternative D, no on-leash or off-leash dog walking would be allowed, resulting in a reduction or loss of an 11.02-acres on-leash dog walking area. Visitors that prefer

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an on-leash beach experience may visit the beach area adjacent to Stinson Beach known as Upton Beach (neighborhood beach). The closest GGNRA beach sites that allow on-leash dog walking under alternative D are Rodeo Beach/South Rodeo Beach and Muir Beach. Because Stinson Beach has a moderate to high (picnic area only) percentage of visitors walking on-leash dogs at the site, it is possible that Upton Beach may experience increased dog use under alternative D. This would result in adverse impacts to natural resources at the site and overcrowding may also occur, reducing the overall visitor experience.

Alternative E (Stinson Beach) – Same as alternative A. Visitors would continue to walk their dogs on-leash in designated areas at Stinson Beach and no impacts to nearby dog walking areas would occur.

Alternative F (Stinson Beach) – Same as alternative A, but with the addition of a 0.02 mile on-leash dog walking path to Upton Beach from the north parking lot. Visitors would continue to walk their dogs on-leash in designated areas at Stinson Beach since no dog walking areas are being removed, but visitors may also choose to access Upton Beach using the new path. Although the increased level of recreational use at Upton Beach that could result is speculative, it is unlikely that overcrowding or impacts to natural resources would occur, since visitors walking dogs would not be displaced from Stinson Beach under alternative F.

Impacts to Nearby Dog Walking Areas – Homestead Valley

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Outside of GGNRA, there are two Marin parks (Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve) near Homestead Valley that were identified as preferred choices for alternative dog walking sites (NPS 2012b).

Alternatives A-F (Homestead Valley) – Acreage of available on-leash and off-leash dog walking at Homestead Valley varies among the alternatives, from 1.20 miles of off-leash dog walking trails, 0.45 mile of on-leash dog walking trails. It is anticipated that some visitors would go to nearby dog walking sites if off-leash dog walking was removed of if there was a reduction in on-leash dog walking acreage at Homestead Valley. However, Homestead Valley experiences low dog visitation, and the increase of dog walkers at other sites as a result of changes at Homestead Valley would not be noticeable. Therefore, none of the alternatives would have adverse impacts on the natural resources or visitor experience of nearby areas for dog walking.

Impacts to Nearby Dog Walking Areas – Alta Trail/Orchard Fire Road/Pacheco Fire Road

Outside of GGNRA, there are two Marin parks (Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve) near Alta Trail/Orchard Fire Road/Pacheco Fire Road that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

Alternative A (Alta Trail/Orchard Fire Road/Pacheco Fire Road) – No change to dog walking areas would occur at Alta Trail/Orchard Fire Road/Pacheco Fire Road under alternative A. As a result, visitors would continue to walk their dogs both on and off-leash at Alta Trail/Orchard Fire Road/Pacheco Fire Road and no impacts to nearby dog walking areas would occur.

Alternative B (Alta Trail/Orchard Fire Road/Pacheco Fire Road) – Under alternative B, on-leash dog walking would still be allowed on trails at Alta Trail/Orchard Fire Road/Pacheco Fire Road, but no off-leash dog walking would be allowed at the site, and the trails available for dog walking would be reduced by 0.26 of a mile when compared to available trails under alternative A. It is possible that some visitors who currently walk their dogs off-leash would continue to use Alta Trail/Orchard Fire Road/Pacheco Fire

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Road, but would leash their dogs. It is more likely that visitors would take their dogs to either Camino Alto Open Space Preserve or Blithedale Summit Open Space Preserve for an off-leash (fire roads only) dog walking experience. The closest GGNRA site with equivalent features, Marin Headlands Trails, has no available off-leash dog walking on trails under alternative B. As a result of increased dog use at nearby parks under alternative B, adverse impacts would occur from physical deterioration of natural resources at Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve. Although the increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience.

Alternative C (Alta Trail/Orchard Fire Road/Pacheco Fire Road) – Same as alternative B, although additional dog walking on-leash dog walking would be available at Marin Headlands Trails under alternative C, providing another nearby alternative dog-walking site to Alta Trail/Orchard Fire Road/Pacheco Fire Road. Adverse impacts would occur from physical deterioration of natural resources at Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve. Although the increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience

Alternative D (Alta Trail/Orchard Fire Road/Pacheco Fire Road) – Under alternative D, dogs would not be allowed at Alta Trail/Orchard Fire Road/Pacheco Fire Road (a reduction of 1.90 miles of trails compared to alternative A). Adverse impacts would occur from physical deterioration of natural resources at Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve. Although the increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience.

Alternative E (Alta Trail/Orchard Fire Road/Pacheco Fire Road) – Similar to alternative B, but the overall trails available for dog walking would increase by an additional 1.03 miles from alternative A, though these trails would be on-leash under alternative E. Adverse impacts would occur from physical deterioration of natural resources at Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve. Although the increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience.

Alternative F (Alta Trail/Orchard Fire Road/Pacheco Fire Road) – Same as alternative E.

Impacts to Nearby Dog Walking Areas – Oakwood Valley

Outside of GGNRA, there are two Marin parks (Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve) near Oakwood Valley that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

Alternative A (Oakwood Valley) – No change to dog walking areas would occur at Oakwood Valley under alternative A. As a result, visitors would continue to walk their dogs both on and off-leash at Oakwood Valley and no impacts to nearby dog walking areas would occur.

Alternative B (Oakwood Valley) – Under alternative B, on-leash dog walking would still be allowed on trails at Oakwood Valley, and would be increased by 0.8 of a mile. Off-leash dog walking would not be allowed at the site (a 1.25-mile reduction in off-leash dog walking trails). It is possible that some visitors who currently walk their dogs off-leash would continue to use Oakwood Valley, but would leash their dogs. It is more likely that visitors would take their dogs to either Camino Alto Open Space Preserve or Blithedale Summit Open Space Preserve for an off-leash (fire roads only) dog walking experience. The closest GGNRA sites with equivalent features (Marin Headlands Trails and Baker Beach and Bluffs to

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Golden Gate Bridge) have no available off-leash dog walking on trails under alternative B. As a result of increased dog use at nearby parks under alternative B, adverse impacts would occur from physical deterioration of natural resources at Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve. Although the increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience.

Alternative C (Oakwood Valley) – Under alternative C, on-leash dog walking would still be allowed on trails but would be reduced by 0.37 of a mile. A trail ROLA for off-leash dog walking would still be available, but would be reduced by 0.45 of a mile. As a result, visitors would continue to walk their dogs both on and off-leash at Oakwood Valley and no impacts to nearby dog walking areas would occur.

Alternative D (Oakwood Valley) – Same as alternative B, though the miles of trail available would only be increased by 0.78 of a mile, as opposed to 0.8 of a mile under alternative B. Adverse impacts would occur from physical deterioration of natural resources at Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve. Although the increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience.

Alternative E (Oakwood Valley) – Same as alternative C. Visitors would continue to walk their dogs both on and off-leash at Oakwood Valley and no impacts to nearby dog walking areas would occur.

Alternative F (Oakwood Valley) – Same as alternative B, but the miles of trail would only be increased by 0.43 mile, as opposed to 0.8 of a mile under alternative B. Adverse impacts would occur from physical deterioration of natural resources at Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve. Although the increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, thus reducing the overall visitor experience.

Impacts to Nearby Dog Walking Areas – Muir Beach

Outside of GGNRA, there is one Marin beach (Little Beach) with dog use areas immediately adjacent to Muir Beach. However, Little Beach was not identified as a preferred choice for an alternative dog walking site in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b) and numerous public complaints were submitted on the draft plan/EIS with concerns about citing Little Beach as a nearby dog walking alternative site to Muir Beach. For example, "We do not go to Little Beach on nice days because it's a nude beach and we've encountered too many inappropriate things going on there" (NPS 2011b, Correspondence 4257). Based on public comments, Little Beach is not accessible without crossing the main beach or driving along private neighborhood private streets and there is no public parking (either on Sunset Way or Pacific Way) (NPS 2011b, Correspondence 284). For visitors that may access Little Beach by foot, there are no amenities or services, no public trash cans, no toilets, and sometimes, there is not even a beach (NPS 2011b, Correspondence 284). In addition, most of the beach is private property, up to the mean high tide (NPS 2011b, Correspondence 2017). Because of public comments with complaints concerning Little Beach, it was not included as a preferred choice as an alternative dog walking site. There are no other nearby off-leash (beach) dog walking areas outside of GGNRA that offer equivalent features. However, Bolinas Beach is located farther away from Muir Beach, but does provide off-leash dog walking.

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Although not identified in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b), it is anticipated that some of the visitors who prefer off-leash dog walking would use the off-leash trails at Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve as an alternative nearby

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dog walking site to Muir Beach. Visitors may also choose to visit Upton Beach, where on-leash beach dog walking is available.

Visitor use at Muir Beach is high, with annual visitation estimated to be 261,000; of that, approximately 5.5 percent of visitors are dog walkers (IEC 2011).

Alternative A (Muir Beach) – No change to dog walking areas; ROLAs would occur at Muir Beach under alternative A. As a result, visitors would continue to walk their dogs both on and off-leash at Muir Beach and no impacts to nearby dog walking areas would occur.

Alternative B (Muir Beach) – Under alternative B, on-leash dog walking would still be allowed on trails, and would be increased on trails by 0.24 of a mile). The off-leash beach ROLA at Muir Beach that was 0.18 of a mile would be converted to a beach on-leash dog walking area. There is no equivalent alternative site outside of GGNRA near Muir Beach that allows off-leash (beach) dog walking. The closest GGNRA beach sites (Ocean Beach, Crissy Field, Fort Funston, and Baker Beach) have no available beach ROLAs under alternative B. It is possible that some visitors who currently walk their dogs off-leash at Muir Beach would continue to use Muir Beach, but would leash their dogs. Visitors that prefer an off-leash (beach) dog walking at Muir Beach would be displaced under alternative B. Some of these visitors may travel to Bolinas Beach, which allows off-leash dog walking, but this is considered unlikely given the distance between Muir Beach and Bolinas Beach. As such, impacts to Bolinas Beach are not anticipated. Some visitors who still prefer off-leash dog walking to on-leash dog walking may go to nearby areas that offer off-leash trail alternatives, including Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve. Although the increase in recreational use of these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience.

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Alternative C (Muir Beach) – Same as alternative B, but the closest GGNRA beach sites (Ocean Beach, Crissy Field, and Fort Funston) have beach ROLAs under alternative C. Visitors that prefer an off-leash (beach) dog walking at Muir Beach are expected to visit these other GGNRA sites that provide off-leash dog walking in addition to the nearby dog walking areas that provide off-leash dog walking on trails.

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Alternative D (Muir Beach) – Alternative D would result in an increase of 0.13 of a mile of on-leash trail walking when compared to alternative A, but would not include any on or off-leash beach walking areas.

Alternative E (Muir Beach) – Same as alternative C, but the on-leash beach dog walking area would only be 0.04 mile as opposed to 0.18 mile under alternative C. Additionally, nearby GGNRA sites (Ocean Beach, Crissy Field, and Fort Funston) would provide both on and off-leash beach walking under this alternative.

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Alternative F (Muir Beach) – Same as alternative C.

Impacts to Nearby Dog Walking Areas – Rodeo/South Rodeo Beach

Outside of GGNRA, there are no parks with equivalent off leash (beach) dog walking areas near Rodeo Beach that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

Although not identified in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b), it is anticipated that some of the visitors who prefer off-leash dog walking would use the off-leash trails at Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve as an alternative nearby dog walking site to Rodeo Beach.

Alternative A (Rodeo/South Rodeo Beach) – No change to dog walking areas; ROLAs would occur at Rodeo Beach under alternative A. As a result, visitors would continue to walk their dogs both on and off-leash at Rodeo Beach and no impacts to nearby dog walking areas would occur.

Alternative B (Rodeo/South Rodeo Beach) – Under alternative B, on-leash dog walking would still be allowed on trails and on the beach, but the 0.56-mile beach ROLA at Rodeo Beach would be converted to an on-leash beach area. There is no equivalent alternative site outside of GGNRA near Rodeo Beach that allows off-leash (beach) dog walking. The closest GGNRA beach sites (Muir Beach, Crissy Field, Ocean Beach, Fort Funston, and Baker Beach) have no available beach ROLAs under alternative B. It is possible that some visitors who currently walk their dogs off-leash at Rodeo Beach, would continue to use Rodeo Beach, but would leash their dogs. Visitors that prefer an off-leash (beach) dog walking at Rodeo Beach would be displaced under alternative B. Some visitors who still prefer off-leash dog walking to on-leash dog walking may go to nearby areas that offer off-leash trail alternatives, including Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve. Although the increase in recreational use of these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience.

Alternative C (Rodeo/South Rodeo Beach) – Under alternative C, on-leash dog walking would still be allowed on trails, but is reduced by 0.19 of a mile. A beach ROLA would still be available, but would be reduced by 0.15 of a mile compared to alternative A. As a result, visitors would continue to walk their dogs off-leash in the beach ROLA at Rodeo Beach. As a result, visitors would continue to walk their dogs both on and off-leash at Rodeo Beach, and no impacts to nearby dog walking areas would occur.

Alternative D (Rodeo/South Rodeo Beach) – Alternative D is similar to alternative B, but provides less mileage for on-leash (trail and beach) dog walking. The on-leash trail mileage would be reduced by 0.19 mile when compared to alternative A, and the on-leash 0.56-mile ROLA under alternative A would be converted to on-leash dog walking, and reduced by 0.37 of a mile under alternative D. Visitors that prefer an on-leash (beach) dog walking experience would continue to walk at Rodeo Beach, or would go to other GGNRA beach sites (Muir Beach, Crissy Field, Ocean Beach, Fort Funston, and Baker Beach). It is possible that some visitors who currently walk their dogs off-leash at Rodeo Beach, would continue to use Rodeo Beach, but would leash their dogs. Visitors that prefer an off-leash (beach) dog walking at Rodeo Beach would be displaced under alternative D. Some visitors who still prefer off-leash dog walking to on-leash dog walking may go to nearby areas that offer off-leash trail alternatives, including Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve. Although the increase in recreational use of these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience.

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Alternative E (Rodeo/South Rodeo Beach) – Same as alternative A.

Alternative F (Rodeo/South Rodeo Beach) – Same as alternative C.

Impacts to Nearby Dog Walking Areas – Marin Headlands Trails

Outside of GGNRA, there are two Marin parks (Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve) near Marin Headlands Trails that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

Alternative A (Marin Headlands Trails) – No change to dog walking areas; ROLAs would occur at Marin Headlands Trails under alternative A. As a result, visitors would continue to walk their dogs both on and off-leash at Marin Headlands Trails and no impacts to nearby dog walking areas would occur.

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Alternative B (Marin Headlands Trails) – Under alternative B, no dogs would be allowed at the Marin Headlands Trails, resulting in a loss of 8.22 miles of on-leash dog walking trails, and 12.22 miles of off-leash dog walking trails. Both visitors who walk their dogs leashed and visitors who walk their dogs off-leash are expected to walk their dogs at Camino Alto Open Space Preserve and the Blithedale Summit Open Space Preserve. The closest GGNRA site with equivalent features, Baker Beach and Bluffs to Golden Gate Bridge, has no available off-leash dog walking on trails under alternative B, but would likely be visited by those who wanted to walk their dogs on-leash. Public comments received on the draft plan/EIS noted that "If under this policy there will be no areas off leash in San Mateo County and fewer than at present in Marin County and San Francisco County, those areas that would still be off leash would be more heavily used than at present, causing control problems for both dog owners and GGNRA staff" (NPS 2012, correspondence 1210). As a result of increased dog use at nearby parks under alternative B, adverse impacts would occur from physical deterioration of natural resources at Camino Alto Open Space Preserve and Blithedale Summit Open Space Preserve. Although increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience.

Alternative C (Marin Headlands Trails) – Under alternative C, on-leash dog walking would still be allowed at Marin Headlands Trails, but the available on-leash trails would be reduced by 3.38 miles, and no off-leash dog walking would be allowed at the site, resulting in a 12.22-mile reduction. It is possible that some visitors who currently walk their dogs off-leash would continue to use Marin Headlands Trails, but would leash their dogs. It is more likely that visitors would take their dogs to either Camino Alto Open Space Preserve or Blithedale Summit Open Space Preserve for an off-leash dog walking experience. Although the increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience.

Alternative D (Marin Headlands Trails) – Same as alternative B.

Alternative E (Marin Headlands Trails) – Under alternative E, no off-leash dog walking would be allowed at Marin Headlands Trails (a loss of 12.22 miles of off-leash trails), but the available trails for on-leash dog walking would increase by 9.48 miles. It is possible that some of the visitors that currently walk their dogs off-leash at the site would continue to walk their dogs at Marin Headlands Trails, but would leash their dogs. However, it is more likely that these visitors would take their dogs to Camino Alto Open Space Preserve or Blithedale Summit Open Space Preserve to walk their dogs off-leash. The closest GGNRA site, Baker Beach & Bluffs to Golden Gate Bridge, would provide a small off-leash beach ROLA under alternative E, and some visitors may go to this site for off-leash dog walking. Although the increased level of recreation at these nearby parks is speculative, it is likely that overcrowding would occur, reducing the overall visitor experience

Alternative F (Marin Headlands Trails) – Same as alternative C, though the available on-leash trails would only be reduced by 2.51 miles as opposed to a 3.38-mile reduction under alternative C.

Impacts to Nearby Dog Walking Areas – Fort Baker

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Outside of GGNRA, there are three San Francisco parks (Golden Gate Park, Glen Canyon Park, The Presidio-Area B) near Fort Baker that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

Alternatives A-F (Fort Baker) – Acreage of available on-leash dog walking at Fort Baker varies among the alternatives, from 51.30 acres of on-leash areas, and 3.78 miles of on-leash dog walking trails, to 32.02 acres of on-leash areas and 2.30 miles of on-leash dog walking trails. It is anticipated that some visitors would go to nearby dog walking sites if there was a reduction in on-leash dog walking acreage at

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Fort Baker. However, Fort Baker experiences low dog visitation, and the increase of dog walkers at other sites as a result of changes at Fort Baker would not be noticeable. Therefore, none of the alternatives would have adverse impacts on the natural resources or visitor experience of nearby areas for dog walking.

Impacts to Nearby Dog Walking Areas – Upper and Lower Fort Mason

Outside of GGNRA, there are three San Francisco parks (Alta Plaza Park, Golden Gate Park, The Presidio-Area B) near Upper and Lower Fort Mason that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

Alternatives A-F (Upper and Lower Fort Mason) – Acreage of available on-leash dog walking at Fort Mason varies among the alternatives, from 18.80 acres of on-leash areas, and 2.61 miles of on-leash dog walking trails with no off-leash ROLAs, to 5.20 acres of on-leash areas, 2.61 miles of on-leash dog walking trails, and a 5.30-acre off-leash ROLA. It is anticipated that some visitors would go to nearby dog walking sites if off-leash dog walking was removed of if there was a reduction in on-leash dog walking acreage at Upper and Lower Fort Mason. However, Fort Mason experiences low to moderate dog visitation, and the increase of dog walkers at other sites as a result of changes at Fort Mason would not be noticeable. Therefore, none of the alternatives would have adverse impacts on the natural resources or visitor experience of nearby areas for dog walking.

Impacts to Nearby Dog Walking Areas – Crissy Field

Outside of GGNRA, there are four San Francisco parks (Golden Gate Park, Alta Plaza Park, The Presidio-Area B, Mountain Lake Park) near Crissy Field that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

Visitor use at Crissy Field is high, with annual visitation estimated to be 3.2 million; of that, approximately 24 percent of visitors are dog walkers (IEC 2011).

Alternative A (Crissy Field) – No change to dog walking areas; ROLAs would occur at Crissy Field under alternative A. As a result, visitors would continue to walk their dogs both on and off-leash at Crissy Field and no impacts to nearby dog walking areas would occur.

Alternative B (Crissy Field) – Under alternative B, nooff-leash dog walking at Crissy Field would be allowed, resulting in a reduction of 2.9 miles of off-leash trails, 1.29 miles of off-leash beach walking, and a reduction of 38.58 acres of other off-leash areas. On-leash dog walking on both trails and on the beach would be increased, with on-leash trails increasing by 3.25 miles, and an expansion of on-leash walking on the beach in the WPA by 0.39 of a mile. However, this area in the WPA would be entirely reduced during the seasonal restriction. Lastly, the 38.58-acre off-leash dog ROLA found in alternative A would be converted to an on-leash dog area under alternative B. It is possible that some visitors who currently walk their dogs off-leash, would continue to use Crissy Field, but would leash their dogs. It is more likely that visitors would take their dogs to Golden Gate Park, Alta Plaza Park, or Mountain Lake Park for an off-leash (non-beach) dog walking experience, as all of these parks provide at least one DPA, as well as abundant on-leash dog walking. The closest GGNRA sites mentioned by visitors in the *GGNRA Dog Walking Satisfaction Visitor Study*, Ocean Beach and Fort Mason, would not provide any off-leash dog walking under alternative B. As a result of increased dog use at these sites under alternative B, adverse impacts would occur to nearby dog walking areas from the physical deterioration of natural resources. Although the increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience. Based on the public comments on the draft plan/EIS, visitors expressed concern with the impacts of visitors from

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Crissy Field going to nearby dog walking areas, such as Golden Gate Park, Alta Plaza Park and Mountain Lake Park. Commenters noted that these nearby areas would be overcrowded, and are not viable alternatives to Crissy Field (NPS 2011b, Correspondences 4602, 1642). There would be an overall decrease in currently available recreational dog walking opportunities, which many increase pressure that is unable to be absorbed by other dog walking areas, including DPAs.

Alternative C (Crissy Field) – Under alternative C, on-leash dog walking would be increased on trails by 3.25 miles, and by 25.4 acres in other areas, but an area that provided on-leash only dog walking on the beach would be removed (a 0.44-mile loss of on-leash beach walking). A beach ROLA and an additional off-leash ROLA would still be present at the site for off-leash dog walking, but the off-leash trail walking would be removed (a 2.90-mile reduction). The beach ROLA would be reduced in size by 0.76 of a mile, and the additional ROLA would be reduced by 25.4 acres when compared to alternative A. Regardless, visitors who walk their dogs off-leash at Crissy Field would still have abundant areas for off-leash dog walking at Crissy Field, and are not expected to travel to other nearby sites for off-leash dog walking. It is anticipated that most visitors who walk their dogs on-leash at Crissy Field would continue to do so, though visitors who wished to walk their dogs on-leash on the beach with no off-leash dogs would likely go to adjacent GGNRA sites at Baker Beach and Bluffs to Golden Gate Bridge, which would provide on-leash dog only walking on the beach under alternative C. Although some visitors may choose to go to Baker Beach and Bluffs to Golden Gate Bridge, it is anticipated that because both on-leash and off-leash dog walking would still be available at Crissy Field, the increase in recreational use at Baker Beach would not have adverse impacts on the natural resources or visitor experience at this site.

Alternative D (Crissy Field) – Alternative D would provide nearly the same acreage for on-leash and off-leash dog walking as alternative C. Under alternative D, there would be no beach ROLA (1.29 mile reduction from alternative A), and no off-leash trails (a 2.90-mile reduction). Like alternative C, there would also be no on-leash only dog walking on the beach, resulting in a 0.44-mile reduction from alternative A, but on-leash trail mileage would increase by 3 miles. Although the additional off-leash areas would be reduced by 23.16 acres, there would still be off-leash dog walking at Crissy Field under alternative D, and other on-leash dog walking areas would increase by 20 acres. Visitors who wish to walk their dogs on-leash on the beach with no off-leash dogs present are anticipated to visit the GGNRA sites at Ocean Beach or Baker Beach and Bluffs to Golden Gate Bridge, which would provide on-leash only dog walking on the beach under alternative D. Although some visitors may choose to go these nearby GGNRA sites for on-leash only beach dog walking, it is anticipated that because both on-leash and off-leash dog walking would still be available at Crissy Field, the increase in recreational use at Baker Beach and Ocean Beach would not have adverse impacts on the natural resources or visitor experience at this site. Similarly to alternative C, it is anticipated that visitors who walk their dogs off-leash would continue to do so at Crissy Field under alternative D, as the site would still provide off-leash areas, even if these do not include beach areas.

Alternative E (Crissy Field) – Alternative E is similar to alternative A, as it provides substantial off-leash dog-walking options on both beaches, and other areas, including a beach ROLA and additional ROLA, but does not include a ROLA on trails. The off leash dog walking opportunities would be reduced by 2.90 miles for trail walking, 0.76 mile for beach ROLAs, and 10.46 acres for other off leash areas in comparison to alternative A. On-leash dog-walking options include trails, beaches, and other areas. On-leash areas would be increased by 3.25 miles on trails, 0.32 of a mile on the beach, and 10.43 acres in other areas in comparison to alternative A. Although alternative E reduces the size of the current ROLA, it also increases on-leash dog walking.

Alternative F (Crissy Field) – Same as alternative C, but the other off-leash dog area would be reduced by 25.89 acres, as opposed to a 25.4-acre reduction under alternative C.

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Impacts to Nearby Dog Walking Areas – Fort Point

Outside of GGNRA, there are three San Francisco parks (Alta Plaza Park, Golden Gate Park, The Presidio-Area B) near Fort Point that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

Alternative A (Fort Point) – Under alternative A no change to on-leash dog walking areas would occur at Fort Point, which currently does not provide any off-leash dog walking. As a result, visitors would continue to walk their dogs on-leash at Fort Point and no impacts to nearby dog walking areas would occur.

Alternative B (Fort Point) – Same as alternative A.

Alternative C (Fort Point) – Same as alternative A.

Alternative D (Fort Point) – Under alternative D, on-leash dog walking areas would be reduced by 1.06 miles on trails, and 0.15 of an acre in other areas. However, it is not anticipated that visitors who want to walk their dogs on-leash would choose to go to nearby sites, as on-leash dog-walking would still be available at Fort Point. Therefore there would be no impacts to nearby parks under alternative D.

Alternative E (Fort Point) – Same as alternative A.

Alternative F (Fort Point) – Same as alternative A.

Impacts to Nearby Dog Walking Areas – Baker Beach & Bluffs to Golden Gate Bridge

Outside of GGNRA, there are no parks with dog use areas near Baker Beach and Bluffs to Golden Gate Bridge that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b). However, visitors may choose to visit nearby sites depending on changes to the site under each alternative. Three San Francisco parks (Mountain Lake Park, Golden Gate Park, The Presidio-Area B) provide opportunities for dog walking, and are in proximity to Baker Beach.

Visitor use at Baker Beach is high, with annual visitation estimated to be 494,000, of that approximately 6.9 percent of visitors are dog walkers (IEC 2011).

Alternative A (Baker Beach) – Under alternative A no change to on-leash dog walking areas would occur at Baker Beach and Bluffs to Golden Gate Bridge, which currently provides both on-leash and off-leash dog walking. As a result, visitors would continue to walk their dogs on-leash and off-leash at Baker Beach, and no impacts to nearby dog walking areas would occur.

Alternative B (Baker Beach) – Under alternative B, on-leash dog walking would be slightly expanded, with a reduction of 0.12 mile of on-leash trails, but an increase of 0.59 mile of on-leash beach walking, for a net increase of 0.47 mile. Off-leash dog walking would no longer be allowed at Baker Beach and Bluffs to Golden Gate Bridge (a 0.59-acre reduction). Visitors would continue to walk dogs on-leash at Baker Beach. It is possible that some visitors who currently walk their dogs off-leash at Baker Beach would continue to use Baker Beach and Bluffs to Golden Gate Bridge, but would leash their dogs. It is more likely that visitors would take their dogs to nearby off-leash dog areas in the GGNRA, or to DPAs at Golden Gate Park, or Mountain Lake Park. However, the closest GGNRA sites, Ocean Beach, Crissy Field, Fort Funston, and Marin Headlands Trails would not provide any off-leash dog walking areas under alternative B. As a result of increased dog use at nearby parks under alternative B, adverse impacts would

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occur from physical deterioration of natural resources at Golden Gate Park and Mountain Lake Park. Although increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience.

Alternative C (Baker Beach) – Alternative C is the same as alternative B, but under alternative C, Ocean Beach, Crissy Field, and Fort Funston would provide nearby off-leash dog walking areas, and it is anticipated that visitors from Baker Beach who want to walk their dogs off-leash would visit these sites, or the DPAs in Mountain Lake Park and Golden Gate Park. Increased off-leash dog use at other GGNRA sites and nearby dog walking areas under alternative C would result in adverse impacts to natural resources. Overcrowding of these sites could also occur, reducing the overall visitor experience.

Alternative D (Baker Beach) – Alternative D includes a 0.24-mile reduction in on-leash dog walking on trails, but provides the addition of a 0.24-mile beach walking area for on-leash dog walking. Alternative D does not include any areas for off-leash dog walking. It is anticipated that visitors would continue to walk dogs on-leash at Baker Beach. It is possible that some visitors who currently walk their dogs off-leash at Baker Beach would continue to use Baker Beach and Bluffs to Golden Gate Bridge, but would leash their dogs. It is more likely that visitors would take their dogs to nearby off-leash dog areas in Mountain Lake Park, Golden Gate Park, and in the GGNRA. Under alternative D, Crissy Field and Fort Funston would provide nearby off-leash dog walking areas, and it is anticipated that visitors from Baker Beach who want to walk their dogs off-leash would visit these sites. Increased off-leash dog use at nearby dog walking areas and other GGNRA sites under alternative D would result in adverse impacts to natural resources. Overcrowding of these sites could also occur, reducing the overall visitor experience.

Alternative E (Baker Beach) – Alternative E includes a 0.12-mile reduction in on-leash trail mileage, but provides 0.35 of a mile of on-leash beach walking. Under alternative E, an off-leash dog walking beach ROLA is still included, but is reduced by 0.35 mile when compared to alternative A. Visitors would continue to walk dogs on-leash at Baker Beach. It anticipated that visitors that currently walk their dogs off-leash at Baker Beach would also continue to use Baker Beach and Bluffs to Golden Gate Bridge. Therefore there would be no impacts to nearby parks under alternative E.

Alternative F (Baker Beach) – Same as alternative D.

Impacts to Nearby Dog Walking Areas – Fort Miley

Outside of GGNRA, there are four San Francisco parks (Alta Plaza Park, Golden Gate Park, Glen Canyon, Mountain Lake Park) near Fort Miley that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

Alternative A (Fort Miley) – Under alternative A no change to off-leash dog walking areas would occur at Fort Miley, which currently provides off-leash dog walking, but does not have any on-leash dog walking. As a result, visitors would continue to walk their dogs off-leash at Fort Miley and no impacts to nearby dog walking areas would occur.

Alternative B (Fort Miley) – Under alternative B, dog walking would no longer be allowed (a reduction of 0.47 mile of off-leash trails, 2.50 acres of other off-leash areas). It is likely that visitors would take their dogs off-leash and on-leash to Golden Gate Park, Alta Plaza Park, Glen Canyon, and Mountain Lake Park. Visitors may also take their dogs the GGNRA sites at Lands End and Crissy Field, which provide on-leash dog walking under alternative B. As a result of increased dog use at these parks under alternative B, adverse impacts would occur from physical deterioration of natural resources at Golden Gate Park, Alta Plaza Park, Glen Canyon, and Mountain Lake Park, where visitors are anticipated to go for on and off-leash dog walking, as well as at Lands End and Crissy Field, which provide on-leash dog

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walking. Although the increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience.

Alternative C (Fort Miley) – Under alternative C, off-leash dog walking would not be allowed (a reduction of 0.47 mile of off-leash trails, 2.50 acres of other off-leash areas), and a 0.20-mile area of on-leash dog walking would be added. It is anticipated that some visitors who had previously walked dogs off-leash at Fort Miley would continue to use the site, but would leash their dogs. It is more likely that visitors would take their dogs to Golden Gate Park, Alta Plaza Park, Glen Canyon, and Mountain Lake Park, which all provide DPAs for off-leash dog walking. A close GGNRA site that allows off-leash dog walking under alternative C is Fort Mason, and it is anticipated that a some visitors may take their dogs to this site instead of one of the city park areas. As a result of increased dog use at these parks under alternative C, adverse impacts would occur from physical deterioration of natural resources. Although the increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience.

Alternative D (Fort Miley) – Same as alternative B. Dog walkers would also have the option of walking their dogs off-leash at Fort Mason under alternative D.

Alternative E (Fort Miley) – Same as alternative C, but alternative E would provide slightly more on-leash dog walking, with a 0.37-mile on-leash trail, as opposed to 0.20-mile trail under alternative C.

Alternative F (Baker Beach) – Same as alternative C.

Impacts to Nearby Dog Walking Areas – Rancho Corral de Tierra

Outside of GGNRA, there are four San Mateo parks (Quarry Park, Montara State Beach-includes McNee Ranch, Half Moon Bay-Surfers Beach, and Sharp Park) near Rancho Corral de Tierra that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

Alternative A (Rancho Corral de Tierra) – Under alternative A no change to on-leash dog walking areas would occur at Rancho Corral de Tierra, which currently does not provide any off-leash dog walking. As a result, visitors would continue to walk their dogs on-leash at the site, and no impacts to nearby dog walking areas would occur.

Alternative B (Rancho Corral de Tierra) – Under alternative B, there would be a 1.14-mile reduction in the trail miles available for on-leash dog walking. Regardless of this slight reduction, it is expected that visitors would continue to walk their dogs on-leash at Rancho Corral de Tierra, and no impacts to nearby dog walking areas would occur.

Alternative C (Rancho Corral de Tierra) – Similarly to alternative B, there would be a 1.14-mile reduction in on-leash dog walking trails at Rancho Corral de Tierra. However, an off-leash ROLA would be created at the site, for the addition of 1.39 acres of off-leash dog walking. It is anticipated that visitors would continue to walk their dogs on-leash at Rancho Corral de Tierra, and that some visitors would also use the new ROLA for off-leash dog walking. No impacts are expected to nearby dog walking areas.

Alternative D (Rancho Corral de Tierra) – Under alternative D, on-leash dog walking areas would be reduced by 6.5 miles. Although some visitors may continue to walk their dogs on-leash at Rancho Corral de Tierra, it is anticipated that some dog walkers would take their dogs to walk on-leash at Quarry Park, Montara State Beach (includes McNee Ranch), Half Moon Bay (Surfers beach), and Sharp Park. All of these sites provide on-leash dog walking. Even though visitors are expected to go to nearby dog walking

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areas, it is not anticipated that overcrowding at these sites would occur, as there is abundant on-leash dog walking. Therefore, there would be no impact to natural resources or visitor experience at theses nearby sites.

Alternative E (Rancho Corral de Tierra) – Same as alternative C.

Alternative F (Rancho Corral de Tierra) – Same as alternative B.

Impacts to Nearby Dog Walking Areas – Lands End

Exemption 5

Outside of GGNRA, there are five San Francisco parks (Pike Lake/Stern Grove, Golden Gate Park, Glen Canyon Park, Alta Plaza Park, Mountain Lake Park) near Lands End that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

Alternatives A-F (Lands End) – Acreage of available on-leash dog walking at Lands End varies among the alternatives, from 3.25 miles of on-leash trails with a 0.19 acre beach ROLA, to 1.73 miles of on-leash trails with no off-leash dog walking areas. It is anticipated that some visitors would go to nearby dog walking sites if off-leash dog walking was removed of if there was a reduction in on-leash dog walking acreage at Lands End. However, Lands End experiences low to moderate dog visitation, and the increase of dog walkers at other sites as a result of changes at Lands End would not be noticeable. Therefore, none of the alternatives would have adverse impacts on the natural resources or visitor experience of nearby areas for dog walking.

Impacts to Nearby Dog Walking Areas – Sutro Heights Park

Outside of GGNRA, there are two San Francisco parks (Alta Plaza Park, Golden Gate Park) near Sutro Heights that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

Alternatives A-F (Sutro Heights Park) – Acreage of available on-leash dog walking at Sutro Heights varies among the alternatives, from no reduction of acreage, to the removal of dogs from the site. It is anticipated that some visitors would go to nearby dog walking sites if there was a reduction in on-leash dog walking acreage at Sutro Heights. However, Sutro Heights experiences low dog visitation, and the increase of dog walkers at other sites as a result of changes at Sutro Heights would not be noticeable. Therefore, none of the alternatives would have adverse impacts on the natural resources or visitor experience of nearby areas for dog walking.

Impacts to Nearby Dog Walking Areas – Mori Point

Outside of GGNRA, there are three San Mateo parks (Pacifica State Beach, Montara State Beach, including McNee Ranch, and Sharp Park) near Mori Point that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

Alternative A (Mori Point) – Under alternative A no change to dog walking areas would occur at Mori Point, which currently only provides on-leash dog walking. As a result, visitors would continue to walk their dogs on-leash at Mori Point and no impacts to nearby dog walking areas would occur.

Alternative B (Mori Point) –Under alternative B, dog walking areas would be reduced by 2.42 miles of trails. As a result, while some visitors would likely continue to walk their dogs on-leash at Mori Point, it is anticipated that some visitors would likely walk their dogs at nearby dog walking areas. Some visitors

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are expected to walk their dogs on-leash at Pacifica State Beach, Montara State Beach (including McNee Ranch), and at Sharp Park. The closest GGNRA sites, Sweeney Ridge and Cattle Hill, would not allow dogs under alternative B. As a result of increased dog use at nearby dog walking parks under alternative B, adverse impacts would occur at these sites from physical deterioration of natural resources. Although the increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience.

Alternative C (Mori Point) – Same as alternative B, though off-leash dog walking trails would only be reduced by 1.92 miles as opposed to 2.42 miles under alternative B. The two nearest GGNRA sites, Sweeney Ridge and Cattle Hill, would allow on-leash dog walking under alternative C. It is anticipated that the increase in recreational use at nearby dog walking areas would have adverse impacts on the natural resources, and that overcrowding would impact the overall visitor experience at these sites.

Alternative D (Mori Point) – Under alternative D, no dogs would be allowed at Mori Point (a 3.12-mile reduction). Visitors would likely walk their dogs on-leash at nearby dog walking areas, including Pacifica State Beach, Montara State Beach (including McNee Ranch), and at Sharp Park. The closest GGNRA sites, Sweeney Ridge and Cattle Hill, would not allow dogs under alternative D. As a result of increased dog use at nearby dog walking parks under alternative D, adverse impacts would occur at these sites from physical deterioration of natural resources. Although the increased level of recreational use at these parks that could result is speculative, it is likely that overcrowding of these sites could occur, reducing the overall visitor experience.

Alternative E (Mori Point) – Same as alternative B, though off-leash dog walking trails would only be reduced by 1.74 miles, as opposed to 2.42 miles under alternative B. The nearest GGNRA sites, Sweeney Ridge and Cattle Hill, would allow the most on-leash dog walking miles of any alternative under alternative E. It is anticipated that the increase in recreational use at nearby dog walking areas would have adverse impacts on the natural resources, and that overcrowding would impact the overall visitor experience at these sites.

Alternative F (Mori Point) – Same as alternative E.

Impacts to Nearby Dog Walking Areas – Milagra Ridge

Outside of GGNRA, there are three San Mateo parks (Montara State Beach including McNee Ranch, Quarry Park, and Sharp Park) near Milagra Ridge that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

Alternatives A-F (Milagra Ridge) – Acreage of available on-leash dog walking at Milagra Ridge varies among the alternatives, from no reduction of acreage, to the removal of dogs from the site. It is anticipated that some visitors would go to nearby dog walking sites if there was a reduction in on-leash dog walking acreage at Milagra Ridge. However, Milagra Ridge experiences low to moderate dog visitation, and the increase of dog walkers at other sites as a result of changes at Milagra Ridge would not be noticeable. Therefore, none of the alternatives would have adverse impacts on the natural resources or visitor experience of nearby areas for dog walking.

Impacts to Nearby Dog Walking Areas – Sweeney Ridge/Cattle Hill

Outside of GGNRA, there are four San Mateo parks (Montara State Beach including McNee Ranch, Pacifica State Beach, Quarry Park, and Sharp Park) near Sweeney Ridge/Cattle Hill that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

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Alternatives A-F (Sweeney Ridge/Cattle Hill) – Acreage of available on-leash dog walking at Sweeney Ridge/Cattle Hill varies among the alternatives, from no reduction of acreage, to the removal of dogs from the site. It is anticipated that some visitors would go to nearby dog walking sites if there was a reduction in on-leash dog walking acreage at Sweeney Ridge/Cattle Hill. However, Sweeney Ridge/Cattle Hill experiences low to moderate dog visitation, and the increase of dog walkers at other sites as a result of changes at Sweeney Ridge/Cattle Hill would not be noticeable. Therefore, none of the alternatives would have adverse impacts on the natural resources or visitor experience of nearby areas for dog walking.

Impacts to Nearby Dog Walking Areas – Pedro Point

Outside of GGNRA, there are two San Mateo parks (Montara State Beach including McNee Ranch, Pacifica State Beach) near Pedro Point that were identified as preferred choices for alternative dog walking sites in the *GGNRA Dog Walking Satisfaction Visitor Study* (NPS 2012b).

Alternatives A-F (Pedro Point) – Acreage of available on-leash dog walking at Pedro Point varies among the alternatives, from 2.4 miles of dog walking trails, to the removal of dogs from the site. It is anticipated that some visitors would go to nearby dog walking sites if there was a reduction in on-leash dog walking acreage at Pedro Point. However, Pedro Point experiences low to moderate dog visitation, and the increase of dog walkers at other sites as a result of changes at Pedro Point would not be noticeable. Therefore, none of the alternatives would have adverse impacts on the natural resources or visitor experience of nearby areas for dog walking.

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IMPACTS ON NEARBY DOG WALKING AREAS BY ALTERNATIVE

Under this plan/EIS, there are several potential impacts to resources that would occur as a result of projected increases in dog walking at nearby dog walking areas. Impacts to natural resources, visitor experience, visitor safety, and park operations (maintenance and cost) are expected to occur and are generally discussed in the paragraphs that follow and in more detail by each alternative below. It is important to note that the increased level of recreational use at the nearby dog walking areas is speculative. Increased visitation at nearby dog walking areas could degrade natural resources, such as causing vegetation trampling by dogs, resulting in damaged plant and root systems. Damaged vegetation may cause bare areas, create mud, and increase the potential for erosion during rain events. Wildlife associated with habitat at these areas would be adversely impacted from an increase in disturbance from greater numbers of dogs and visitors at these areas. Some of these areas also contain sensitive species that may be adversely impacted from the higher number of dogs at these sites. At these areas, dogs are not allowed in wetlands or waterbodies (such as streams or lakes). But, there would likely be more dog waste with increased visitation, which would have adverse impacts on health, visitor experience, aesthetics, and on the natural resources at the site. If waste is not properly collected, rain events could wash pet waste into adjacent waterbodies and affect water quality. Therefore, increased maintenance at these areas may be necessary for control of additional dog waste. In Marin County and San Francisco County, there are no comparable, nearby off-leash beaches at non-GGNRA areas. Therefore, the lack of off-leash beaches at nearby dog walking areas would adversely impact visitor experience for some visitors. Overcrowding in general can also degrade visitor experience, but can also jeopardize visitor safety. During the public comment period for the draft plan/EIS, many commenters noted that crowding dogs into smaller areas for off-leash dog walking would result in more dog aggression, with more dogfights and altercations. An increase in visitation would also create parking issues, since some areas do not have designated parking lots, but street parking options only. The availability of other amenities may also be an issue with increased visitation, such as public restrooms or water fountains. Maintenance and law enforcement issues could also arise at nearby dog walking areas as a result of increased visitation, adversely affecting the operations of these parks.

Under this plan/EIS, commercial dog walking is allowed under alternative B, but dog walkers may not have more than three dogs. Under alternatives C, E and F, commercial dog walking is also allowed, but dog walkers would need to apply for a permit to walk up to six dogs at the following seven, high-use GGNRA sites: Alta Trail, Rodeo Beach, Fort Baker (excluding Drown Fire Road), Fort Mason, Crissy Field, Baker Beach, and Fort Funston. As a result, commercial dog walkers who currently use GGNRA lands may choose to walk dogs on land owned by the City of San Francisco. San Francisco City lands allow a maximum number of eight permitted dogs, higher than the proposed limit of six dogs at selected high-use GGNRA sites under this plan/EIS. It is likely that the Presidio Trust will amend commercial dog walking limits for Area B. In the Federal Register, the Presidio Trust recently published a proposed public use limit of persons walking four or more dogs at one time in Area B (Presidio Trust 2012c, 69785). The Trust proposes that persons walking four or more dogs must possess a valid Dog Walking Permit obtained from the City and County of San Francisco. Therefore, the commercial dog walking limits proposed under this plan/EIS in combination with the Presidio Trust's proposed limits would result in the movement of commercial dog walkers to other nearby dog walking areas. Under alternatives B through F, this movement may have additional impacts on natural resources, visitor use and experience, and park operations at nearby dog walking areas, including San Francisco City lands.

In addition to proposed limits on commercial dog walking, implementation of the proposed SNRAMP (SFPD 2011) may further restrict dog access and off-leash areas in San Francisco, including Lake Merced (which is currently closed to dogs) and other Natural Areas. The SNRAMP proposes to permanently close the Lake Merced DPA (loss of 5 acres) and reduce the size of the DPAs at Bernal Hill (by 6 acres) and McLaren Park (by 8.3 acres) (SFPD 2011, 114). A total of 19.3 acres of off-leash areas would be lost as a

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result of the SNRAMP, though on-leash dog walking would still be allowed. There are 95.2 acres of existing DPAs in San Francisco and the SNRAMP would reduce this total by over 20 percent, leaving 75.9 acres of DPAs to remain (SFPD 2011, 463). In addition to restricting and closing DPAs, the San Francisco Recreation and Park Commission has directed that no new DPAs are to be established until system-wide DPA planning is completed (SFPD 2011, 105). The combined reductions in off-leash areas proposed by both the SNRAMP and this plan/EIS could result in an increase in dog use at the remaining Natural Areas managed by SFRPD, as well as other dog walking areas. However, both this plan/EIS and the SNRAMP include objectives to protect natural resources while providing for compatible recreation (SFPD 2011, 82).

IMPACT THRESHOLDS

Impacts to nearby dog walking areas were determined by examining the potential effects of how this plan/EIS would cause dog walkers to relocated and use other, non-GGNRA areas. The impacts of these dog walking activities were conducted through a qualitative analysis of changes to natural resources, visitor use and experience, visitor safety, and park operations (including maintenance and cost) at the nearby dog walking areas. The intensity of each adverse impact is judged as having a minor, moderate, or major effect. Negligible impacts are neither adverse or beneficial. No impact on nearby dog walking areas may also be applicable, as noted. The following impact thresholds were established to describe the effects on nearby dog walking areas under the various alternatives being considered.

No Impact On-leash and off-leash dog walking would be allowed at all GGNRA sites. No GGNRA sites would completely prohibit dogs. Total mileage or area of off-leash and/or on-leash dog walking areas has not been changed or reduced. Visitors would not move to other nearby dog walking areas. The natural resources at nearby dog walking areas would not be degraded. Visitor experience, visitor safety, and park operations would not change.

Negligible On-leash and off-leash dog walking would be allowed at all GGNRA sites. No GGNRA sites would completely prohibit dogs. Total mileage or area of off-leash and/or on-leash dog walking areas has changed but not noticeably reduced. Commercial dog walking is still allowed at GGNRA. Visitors would not move to other nearby dog walking areas. The natural resources, visitor experience, and visitor safety at nearby dog walking areas would not noticeably change.

Adverse **Minor**. On-leash and off-leash dog walking would be allowed at all GGNRA sites. No GGNRA sites would completely prohibit dogs. Total mileage or area of off-leash and/or on-leash dog walking areas has been reduced. Commercial dog walking would be allowed at GGNRA. Some visitors would move to other nearby dog walking areas, and increased visitation by both people and dogs would result. The natural resources at nearby dog walking areas would be degraded but resources would still be manageable. Visitor experience would change as a result of crowding and parking, but nearby parks would still be enjoyable to visit. Visitor safety would be affected by having more dogs in the same-sized areas. Park operations (through increased maintenance and cost) would be affected but could be absorbed.

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Moderate. On-leash dog walking would be allowed at some GGNRA sites. No off-leash dog walking in ROLAs would be allowed at GGNRA. Some GGNRA sites would completely prohibit dogs. Total mileage or area of on-leash dog walking areas has been reduced. Commercial dog walking is still allowed at GGNRA. Many visitors would move to other nearby dog walking areas, and increased visitation by both people and dogs would result. The natural resources at nearby dog walking areas would be degraded but could recover if limitations/monitoring were in place, visitor experience would be affected by overcrowding and parking issues. Visitor safety would be compromised by high numbers of dogs in small areas, and park operations (through increased maintenance and cost) would be adversely affected.

Major. On-leash dog walking would be allowed at some GGNRA sites. No off-leash dog walking in ROLAs would be allowed at GGNRA. Many GGNRA sites would completely prohibit dogs. Total mileage or area of on-leash dog walking areas has been reduced the most compared to other alternatives. Commercial dog walking is no longer allowed at GGNRA. All commercial dog walkers and most other dog walking visitors would move to other nearby dog walking areas, and increased visitation by both people and dogs would result. The natural resources at nearby dog walking areas would be degraded beyond repair. Visitor experience would be affected by overcrowding and parking issues and would no longer be enjoyable. Visitor safety would be compromised by high numbers of dogs in small areas. Park operations (through increased maintenance and cost) would be adversely affected and could jeopardize future management.

Alternative A: Under alternative A, dog walking (both on-leash and under voice and sight control) would remain the same at all GGNRA sites. Visitors who currently walk their dogs or use ROLAs at GGNRA sites would have no reason to move to nearby dog walking areas under alternative a. As a result, alternative a would have no impact on the natural resources or on visitor use and experience at these nearby dog walking areas.

Alternative B: Alternative B represents the NPS-wide approach to dog walking, and includes no provisions for off-leash dog walking per the 1979 Pet Policy (no ROLAs are proposed under this alternative). It also includes the closure of some sites to both on and off-leash dog walking. The GGNRA sites that are currently most heavily used for off-leash dog walking are Fort Funston, Crissy Field, Rodeo Beach, Baker Beach, Muir Beach, and Ocean Beach. Under alternative B, these sites would no longer provide off-leash dog walking. It is possible that some visitors who currently walk their dogs off-leash at these sites would continue to use these same sites for dog walking, but would leash their dogs. However, it is more likely that visitors would take their dogs to nearby off-leash dog areas.

Visitors who currently visit Fort Funston would likely take their dogs to the DPAs at Pine Lake/Stern Grove (3.3 driving miles away), McLaren Park (6.4 driving miles away), or Bernal Heights (7.9 driving miles away) for an off-leash experience. These nearby sites would likely be the most impacted from the movement of visitors in terms of increased visitation and natural resource degradation. Resources present at the nearby sites identified above include riparian and wetland areas, meadows, and marshes. Bernal Heights also contains sensitive plant species. Although dogs are not allowed off-leash in sensitive areas or Natural Areas, the increased visitation would impact resources in on and off-leash areas. Dogs trampling vegetation in meadow areas in the DPAs is a concern at these sites. Wildlife associated with these habitats may be adversely affected as well.

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Visitors who walk their dogs off-leash at Ocean Beach would also be likely go to Pine Lake/Stern Grove (3.9 driving miles) under alternative B. This would further exacerbate impacts on the natural resources and visitor experience described at these nearby dog walking areas, particularly due to the high number of visitors that currently use Ocean Beach. Visitors may also go to Golden Gate Park (2.5 driving miles). This park provides DPAs that may be impacted by the increased visitation. Another issue at Golden Gate Park would be parking, as parking is not provided in a lot and visitors would need to find street parking. The DPAs at Golden Gate Park encompass forested habitat, as well as lawn areas. One of the Golden Gate Park DPAs is within a Natural Area that contains oak woodland habitat. Increased visitation from off-leash dog walking in the DPA is likely to have an adverse effect on natural resources. The grass areas at this site could be trampled due to overcrowding, but the DPAs found in areas with more mature forested vegetation would be less susceptible to this trampling. Additionally, the SFRPD would monitor dog use and impacts on the oak woodlands (SFPD 2011, 114).

For Crissy Field, visitors who want an off-leash experience would likely relocate to Alta Plaza Park (1.8 driving miles away), Golden Gate Park (5.8 driving miles away), or Mountain Lake Park (3.1 driving miles away). These sites provide DPAs that would be impacted from the movement of visitors in terms of increased visitation and natural resource degradation. Because parking lots are not provided at Golden Gate and Mountain Lake Parks, finding street parking could be an issue that would negatively affect visitor experience, depending upon day and use times. Alta Plaza Park provides large grassy areas within the DPA. The DPAs at Golden Gate Park encompass forested habitat, as well as lawn areas. One of the Golden Gate Park DPAs is within a Natural Area that contains oak woodland. Mountain Lake Park contains wetland areas and wildlife habitat, but the DPA at the site is in an area of lawn and woodchips. Increased visitation from off-leash dog walking in the DPA would likely adversely impact natural resources. The grassy areas at Alta Plaza Park, Mountain Lake Park, and Golden Gate Park could be trampled due to overcrowding. The more mature forested vegetation at Golden Gate Park would be less susceptible to trampling compared to the grassy areas, and monitoring of the oak woodlands would occur, as noted above (SFPD 2011, 114).

As Baker Beach would no longer provide a ROLA under the alternative B, visitors are also likely to go to Golden Gate Park (2.2 driving miles) and Mountain Lake Park (1.4 driving miles), thus further exacerbating impacts on the natural resources and visitor experience at these nearby dog walking areas.

Visitors from Rodeo Beach would likely go to Camino Alto Open Space Preserve (10.6 driving miles) or Blithedale Summit Open Space Preserve (11.3 driving miles) to walk dogs off-leash. These preserves allow dogs on-leash dog walking on trails, and off-leash on fire roads in Marin County. Both of these areas offer extensive trail and road systems, but overcrowding could occur, depending upon day and use time. At Camino Alto, vegetation communities along fire roads include grasslands, bay and oak woodlands, as well as redwood and Douglas fir forests. Blithedale Summit contains chaparral and forested habitat, including redwood groves. These redwood groves are known to support special status species. Adverse impacts on the natural resources at these sites would occur from physical deterioration due to this increased use by dog walkers. The mature, forested vegetation such as the redwoods would be less susceptible to trampling compared to the grassy areas and sensitive special-status plant species.

Since Muir Beach would no longer provide a ROLA under alternative B, it is possible that visitors from Muir Beach would go to Camino Alto Open Space Preserve (8.5 miles) or Blithedale Summit Open Space Preserve (7.3 driving miles), thus further exacerbating impacts on the natural resources and visitor experience at these nearby dog walking areas. Overall, alternative B is anticipated to have long-term, moderate adverse impacts on nearby dog walking areas as a result of this plan/EIS. Under alternative B, on-leash dog walking is reduced, no ROLAs are proposed, and three GGNRA sites (Marin Headlands, Fort Miley, and Sweeney Ridge/Cattle Hill) would completely prohibit dogs. Compared to alternative A, alternative B would reduce the available on-leash dog walking on trails/roads by 4.1 miles and in other

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areas by 0.13 acre; off-leash dog walking would be reduced on trails/roads by 33.4 miles and in other areas by 139.8 acres. Visitors who currently use GGNRA sites for off-leash dog walking would likely find other places to walk their dogs off-leash in nearby areas. The movement of these visitors, particularly those sites that are most heavily used for recreation, would result in overcrowding at nearby parks, and would cause the physical deterioration of natural resources at these sites. These impacts would likely be most concentrated within the DPAs, which make up between 1 percent and 62 percent of the total park sites, as shown in table 4b below. The mileage of off-leash dog-walking on fire roads at sites in Marin County is not known, and is therefore not listed in table 4b below.

Table 4b. DPAs in Nearby Dog Walking Areas

Nearby Dog Walking Area	Total Size of Park (acres)	Size of DPA (acres)	DPA % of Total Area
Alta Plaza Park	11.9	0.5	4
Pine Lake/Stern Grove	64	4	6
McLaren Park	312	59	19
Bernal Heights	24.3	15	62
Mountain Lake Park	14	0.4	3
Golden Gate Park	1,017	8.6	1

Alternative C: Alternative C provides a balance of different dog walking opportunities in all three counties. Of the sites that currently have high levels of dog walking, Crissy Field, Fort Funston, and Ocean Beach would still have ROLAs available under alternative C, but there would be a decrease in size of these areas. It is likely that many visitors would continue to walk their dogs off-leash at these areas, but some visitors may choose to visit sites with larger, off-leash areas. Baker Beach, Rodeo Beach, and Muir Beach would no longer provide off-leash dog walking under alternative C. It is possible that some visitors who currently walk their dogs off-leash at these sites would continue to use these same sites for dog walking, but would leash their dogs. However, it is more likely that visitors would take their dogs to nearby off-leash dog areas.

Visitors who currently visit Fort Funston would likely continue to take their dogs to Fort Funston for off-leash dog walking, despite the decrease in the size and number of ROLAs. However, some visitors may choose to visit nearby dog walking sites for off-leash dog walking under alternative C. These visitors would likely go to the DPAs at Pine Lake/Stern Grove (3.3 driving miles away), McLaren Park (6.4 driving miles away), or Bernal Heights (7.9 driving miles away) for an off-leash experience. Impacts at these sites would be the same as those listed above under alternative B, but would be reduced under alternative C, since fewer visitors from Fort Funston are anticipated to go to these sites and there would be less overcrowding.

Some visitors who walk their dogs off-leash at Ocean Beach may also go to Pine Lake/Stern Grove (3.9 driving miles away), though most visitors are anticipated to continue to use Ocean Beach for off-leash dog walking under alternative C. If visitors move to Pine Lake/Stern Grove, it would further exacerbate impacts on the natural resources and visitor experience. Impacts from the increase in visitation at these sites would be similar to the impacts listed above for Fort Funston. Visitors from Ocean Beach may also go to Golden Gate Park (2.5 driving miles away). The impacts resulting from increased visitation at Golden Gate Park would be similar to the impacts described under alternative B, but these impacts would be reduced under alternative C, since fewer visitors would come to these sites from Ocean Beach.

For Crissy Field, it is most likely that visitors would continue to use the site for off-leash dog walking, despite the decrease in size and number of ROLAs. However, some visitors may choose to go to other sites for off-leash dog walking. Visitors would most likely relocate to Alta Plaza Park (1.8 driving miles away), Golden Gate Park (5.8 driving miles away), and Mountain Lake Park (3.1 driving miles away).

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Impacts to these sites are listed above under alternative B, but impacts are anticipated to be reduced under alternative C, since fewer visitors would come to these sites from Crissy Field.

For Baker Beach, visitors who want an off-leash experience would likely relocate to Mountain Lake Park (1.4 driving miles) or Golden Gate Park (2.2 driving miles). These sites provide DPAs that would be impacted from the movement of visitors in terms of increased visitation and natural resource degradation, as mentioned under alternative B. Increased visitation from off-leash dog walking in the these DPAs would likely adversely impact natural resources.

Visitors from Rodeo Beach are likely to continue to use Rodeo Beach for off-leash and on-leash dog walking, but a small number of visitors may go to other sites due to the reduction in the size of the ROLA. It is anticipated that these visitors would go to Camino Alto Open Space Preserve (10.6 driving miles) and Blithedale Summit Open Space Preserve (11.3 driving miles) to walk dogs off-leash. Impacts at these sites from increased visitation are discussed above under alternative B. However, the impacts to these sites under alternative C are expected to be reduced compared to alternative B, since the increase in visitation at nearby dog walking areas is not expected to be as high because a ROLA would still available at Rodeo Beach.

As Muir Beach would no longer provide a ROLA under alternative C, it is possible that visitors would go to Camino Alto Open Space Preserve (8.5 miles) or Blithedale Summit Open Space Preserve (7.3 driving miles). Impacts from increased visitation would be similar to those discussed above for alternative B.

Overall, alternative C is anticipated to have long-term, minor adverse impacts on nearby dog walking areas as a result of this plan/EIS. Impacts to these areas under alternative C are expected to be reduced compared to alternative B, since on-leash and off-leash dog walking would still be available at GGNRA sites, but reduced in total mileage/acreage. None of the sites are closed to dogs under alternative C, and this alternative includes ROLAs at several sites. Compared to alternative A, alternative C would reduce the available on-leash dog walking on trails/roads by 2.5 miles and in other areas by 26.9 acres; off-leash dog walking would be reduced on trails/roads by 24 miles and in other areas by 116.9 acres. Visitors who currently use GGNRA sites for off-leash dog walking would most likely continue to walk their dogs at GGNRA sites that provide ROLAs for off-leash dog walking. However, some visitors may find other places to walk their dogs off-leash in nearby areas. The movement of these visitors, particularly from those sites that are most heavily used for recreation and no longer provide ROLAs, would result in overcrowding at nearby parks. This would likely cause physical deterioration of natural resources at these sites and would have impacts to the visitor experience. These impacts would likely be most concentrated within the DPAs .

Alternative D: Alternative D is the alternative that is most protective of resources and visitor safety. Of the sites that currently have high levels of dog walking, Crissy Field and Fort Funston, would still have ROLAs under alternative D, but there would be a decrease in size of these areas. It is likely that many visitors would continue to walk their dogs off-leash at these areas, but some visitors may choose to visit sites with larger off-leash areas. Baker Beach, Rodeo Beach, Ocean Beach, and Muir Beach would no longer provide off-leash dog walking under alternative D. It is possible that some visitors who currently walk their dogs off-leash at these sites would continue to use these same sites for dog walking, but would leash their dogs. However, it is more likely that visitors would take their dogs to nearby off-leash dog areas.

Some visitors would likely continue to take their dogs to Fort Funston for off-leash dog walking, despite the decrease in the size and number of ROLAs. However, some visitors may choose to visit nearby dog walking sites for off-leash dog walking under alternative D. These visitors would likely go to the DPAs at Pine Lake/Stern Grove (3.3 driving miles away), McLaren Park (6.4 driving miles away), or Bernal

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Heights (7.9 driving miles away) for an off-leash experience. Impacts at these sites would be the same as those listed above under alternative B, but would be reduced under alternative D, as fewer visitors from Fort Funston are anticipated to go to these sites because a ROLA would still be available under alternative D.

Some visitors who walk their dogs off-leash at Ocean Beach would likely go to Pine Lake/Stern Grove (3.9 driving miles away) under alternative D. This site provides DPAs that would be impacted from the movement of visitors in terms of increased visitation and natural resource degradation, as mentioned above in alternative B. Increased visitation from off-leash dog walking in the DPA would likely adversely impact natural resources found at Pine Lake/Stern Grove. Visitors from Ocean Beach may also go to Golden Gate Park (2.5 driving miles away). The impacts of overcrowding at this site are anticipated to be similar to the impacts discussed in alternative B.

For Crissy Field, it is most likely that visitors would continue to use the site for off-leash dog walking, despite the decrease in size and number of the two ROLAs. However, some visitors may choose to go to other sites for off-leash dog walking. Visitors would most likely relocate to Alta Plaza Park (1.8 driving miles away), Golden Gate Park (5.8 driving miles away), and Mountain Lake Park (3.1 driving miles away). Impacts to these sites are listed above under alternative B, would be elevated under alternative D, since more visitors would come to these sites from Crissy Field.

For Baker Beach, visitors who want an off-leash experience would likely relocate to Mountain Lake Park (1.4 driving miles) and Golden Gate Park (2.2 driving miles). These sites provide DPAs that would be impacted from the movement of visitors in terms of increased visitation and natural resource degradation, as mentioned above in alternative B. Increased visitation from off-leash dog walking in the DPA would likely to adversely impact natural resources.

Visitors from Rodeo Beach would likely go to Camino Alto Open Space Preserve (10.6 driving miles) or Blithedale Summit Open Space Preserve (11.3 driving miles) to walk dogs off-leash, which could result in overcrowding, depending upon day and use time. This increased use would likely result in adverse impacts from the physical deterioration of natural resources and visitor experience, as outlined above under alternative B.

As Muir Beach would no longer provide a ROLA under alternative D, it is possible that visitors would go to Camino Alto Open Space Preserve (8.5 miles) or Blithedale Summit Open Space Preserve (7.3 driving miles). Impacts from increased visitation would be similar to those discussed above under alternative B.

Overall, alternative D is anticipated to have long-term, moderate to major adverse impacts on nearby dog walking areas as a result of this plan/EIS. Under alternative D, on-leash dog walking is reduced, the number and size of ROLAs are reduced, nine GGNRA sites (Stinson Beach, Alta Trail, Marin Headlands, Fort Miley, Sutro Heights, Mori Point, Milagra Ridge, Sweeney Ridge/Cattle Hill, and Pedro Point) would completely prohibit dogs. Compared to alternative A, alternative D would reduce the available on-leash dog walking on trails/roads by 20.9 miles and in other areas by 48.8 acres; off-leash dog walking would be reduced on trails/roads by 33.4 miles and in other areas by 117.2 acres. Under alternative D, commercial dog walking would not be allowed so these dog walkers would relocate to other nearby dog walking areas, including the City of San Francisco and the Presidio. As a result, this alternative could have up to major, adverse impacts to nearby dog walking areas. Visitors and commercial dog walkers who currently use GGNRA sites for off-leash dog walking would most likely find other places to walk their dogs off-leash in nearby areas. The movement of these visitors and commercial dog walkers, particularly those sites that are most heavily used for recreation, would likely result in overcrowding at nearby parks, and would cause the physical deterioration of natural resources at these sites. Overcrowding

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would also have impacts on the visitor experience at these sites. These impacts would likely be most concentrated within the DPAs.

Alternative E: Alternative E offers the most dog walking access to GGNRA areas, while still providing protection for natural and cultural resources, and recreational experiences for all user groups. Of the sites that currently have high levels of dog walking, Rodeo Beach would have the same access as is currently available under alternative A. It is anticipated that there would be no change in visitation at this site. Crissy Field, Fort Funston, Baker Beach and Ocean Beach would still have ROLAs under alternative E, but there would be a decrease in size of these areas. It is likely that many visitors would continue to walk their dogs off-leash at these areas, but some visitors may choose to visit sites with larger off-leash areas. Muir Beach would no longer provide off-leash dog walking under alternative E. It is possible that some visitors who currently walk their dogs off-leash at these sites would continue to use these same sites for dog walking, but would leash their dogs. However, it is more likely that visitors would take their dogs to nearby off-leash dog areas.

Visitors who currently visit Fort Funston would likely continue to take their dogs to Fort Funston for off-leash dog walking, despite the decrease in the size and number of ROLAs. However, some visitors may choose to visit nearby dog walking sites for off-leash dog walking under alternative E. These visitors would likely go to the DPAs at Pine Lake/Stern Grove (3.3 driving miles away), McLaren Park (6.4 driving miles away), or Bernal Heights (7.9 driving miles away) for an off-leash experience. Impacts at these sites would be the same as those listed above under alternative B, but would be less adverse under alternative E, as fewer visitors from Fort Funston are anticipated to go to these sites.

Some visitors who walk their dogs off-leash at Ocean Beach may also go to Pine Lake/Stern Grove (3.9 driving miles away), though most visitors are anticipated to continue to use Ocean Beach for off-leash dog walking under alternative E. If visitors chose to go to Pine Lake/Stern Grove, it would further exacerbate impacts on the natural resources and visitor experience. Impacts from the increase in visitation at these sites would be similar to the impacts listed above for Fort Funston. Visitors from Ocean Beach may also go to Golden Gate Park (2.5 driving miles away). The impacts resulting from increased visitation at Golden Gate Park would be similar to the impacts described under alternative B, but these impacts would be less adverse under alternative E as fewer visitors from Ocean Beach are anticipated to find dog walking elsewhere.

For Crissy Field, it is most likely that visitors would continue to use the site for off-leash dog walking, despite the decrease in size and number of ROLAs. However, some visitors may choose to go to other sites for off-leash dog walking. Visitors would most likely relocate to Alta Plaza Park (1.8 driving miles away), Golden Gate Park (5.8 driving miles away), and Mountain Lake Park (3.1 driving miles away). Impacts to these sites are listed above under alternative B, but impacts under alternative E are anticipated to be less adverse than under alternative B, as fewer visitors would likely come to these sites from Crissy Field.

For Baker Beach, it is likely that visitors would continue to walk their dogs off-leash at the site, despite the decrease in the size of the ROLA. Some visitors may choose to go to other sites for off-leash dog walking. These visitors would likely relocate to Mountain Lake Park (1.4 driving miles) and Golden Gate Park (2.2 driving miles). These sites provide DPAs that would be impacted from the movement of visitors in terms of increased visitation and natural resource degradation, as mentioned above in alternative B, but impacts are expected to be less adverse under alternative E as fewer visitors would be likely to go to these sites.

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Under alternative E, dog access at Rodeo Beach would be the same as is currently available under alternative A. Visitors are not expected to find other locations to walk their dogs, and no impacts would occur to nearby dog walking areas.

As Muir Beach would no longer provide a ROLA under alternative E, it is anticipated that visitors would go to Camino Alto Open Space Preserve (8.5 miles) and Blithedale Summit Open Space Preserve (7.3 driving miles). Impacts at these sites from increased visitation are expected to be the same as impacts discussed above under alternative B.

Overall, alternative E is anticipated to have long-term, minor adverse impacts on nearby dog walking areas as a result of this plan/EIS. None of the sites would be entirely closed to dogs under alternative E, all of the sites would allow on-leash dog walking, and several sites would provide ROLAs. Commercial dog walking would also be allowed under alternative E. Compared to alternative A, alternative E would increase the available on-leash dog walking on trails/roads by 19.8 miles but would decrease on-leash dog walking in other areas by 36 acres; off-leash dog walking would be reduced on trails/roads by 29.9 miles and in other areas by 86.4 acres. Most visitors who currently use GGNRA sites for off-leash dog walking would continue to walk their dogs at the GGNRA sites, while some may find other places to walk their dogs off-leash in nearby areas that provide more off-leash acreage. The movement of these visitors, particularly those sites that are most heavily used for recreation, would result in overcrowding at nearby parks, and would cause the physical deterioration of natural resources at these sites. These impacts would likely be most concentrated within the DPAs. However, the movement of visitors is anticipated to be low, since most GGNRA sites would still provide off-leash dog walking.

Alternative F: Alternative F is the preferred alternative, and was developed in response to public comments received on the draft plan/EIS. The preferred alternative includes balanced visitor use for dog walkers (provides on-leash dog walking areas and dog walking under voice and sight control in ROLAs) as well as providing for protection of natural resources and visitor safety. Of the sites that currently have high levels of dog walking, Crissy Field, Fort Funston, Ocean Beach, and Rodeo Beach would all still provide ROLAs, but these off-leash areas would be reduced in size. Muir Beach and Baker Beach would no longer provide off-leash dog walking under the preferred alternative. It is possible that some visitors who currently walk their dogs off-leash at these sites would continue to use these same sites for dog walking, but would leash their dogs. However, it is more likely that visitors would take their dogs to nearby off-leash dog areas.

Visitors who currently visit Fort Funston would likely continue to take their dogs to Fort Funston for off-leash dog walking, despite the decrease in the size and number of ROLAs. However, some visitors may choose to visit nearby dog walking sites for off-leash dog walking under alternative E. These visitors would likely go to the DPAs at Pine Lake/Stern Grove (3.3 driving miles away), McLaren Park (6.4 driving miles away), or Bernal Heights (7.9 driving miles away) for an off-leash experience. Impacts at these sites would be the same as those listed above under alternative B, including impacts to natural areas. However, these impacts would be less adverse under the preferred alternative, as fewer visitors from Fort Funston are anticipated to go to these sites.

Some visitors who walk their dogs off-leash at Ocean Beach may also go to Pine Lake/Stern Grove (3.9 driving miles away), though most visitors are anticipated to continue to use Ocean Beach for off-leash dog walking under the preferred alternative. If visitors chose to go to Pine Lake/Stern Grove, it would further exacerbate impacts on the natural resources and visitor experience. Impacts from the increase in visitation at these sites would be similar to the impacts listed above for Fort Funston. Visitors from Ocean Beach may also go to Golden Gate Park (2.5 driving miles away). The impacts resulting from increased visitation at Golden Gate Park would be similar to the impacts described under alternative B, but these

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impacts would be less adverse under the preferred alternative as fewer visitors from Ocean Beach are anticipated to find dog walking elsewhere.

For Crissy Field, it is most likely that visitors would continue to use the site for off-leash dog walking, despite the decrease in size and number of ROLAs. However, some visitors may choose to go to other sites for off-leash dog walking. Visitors would most likely relocate to Alta Plaza Park (1.8 driving miles away), Golden Gate Park (5.8 driving miles away), and Mountain Lake Park (3.1 driving miles away). Impacts to these sites are listed above under alternative B, but impacts under alternative F are anticipated to be less adverse than under alternative B, as fewer visitors would come to these sites from Crissy Field.

Baker Beach would no longer provide a ROLA under the preferred alternative so it is likely that visitors may choose to go to other sites for off-leash dog walking. These visitors would likely relocate to Mountain Lake Park (1.4 driving miles) and Golden Gate Park (2.2 driving miles). These sites provide DPAs that would be impacted from the movement of visitors in terms of increased visitation and natural resource degradation, as mentioned previously in alternative B, but impacts are expected to be reduced under the preferred alternative as fewer visitors would be likely to go to these sites.

Visitors from Rodeo Beach are likely to continue to use Rodeo Beach for off-leash and on-leash dog walking, but a small number of visitors may go to other sites due to the reduction in the size of the ROLA. It is anticipated that these visitors would go to Camino Alto Open Space Preserve (10.6 driving miles) and Blithedale Summit Open Space Preserve (11.3 driving miles) to walk dogs off-leash. Impacts at these sites from increased visitation are discussed above under alternative B. However, the impacts to these sites under the preferred alternative are expected to be reduced, as the increase in visitation is not expected to be high.

As Muir Beach would no longer provide a ROLA under the preferred alternative, it is anticipated that visitors would go to Camino Alto Open Space Preserve (8.5 miles) and Blithedale Summit Open Space Preserve (7.3 driving miles). Impacts at these sites from increased visitation are expected to be the same as the impacts discussed above under alternative B.

Overall, the preferred alternative is anticipated to have long-term, minor adverse impacts on nearby dog walking areas as a result of this plan/EIS. Most visitors who currently use GGNRA sites for off-leash dog walking would most likely continue to walk their dogs at the GGNRA sites where they currently walk, while some may other places to walk their dogs off-leash in nearby areas. Five GGNRA sites would continue to provide ROLAs, including a newly established ROLA at Fort Mason. None of the GGNRA sites would prohibit dogs under the preferred alternative and commercial dog walking would be allowed, as previously discussed. Compared to alternative A, the preferred alternative would increase the available on-leash dog walking on trails/roads by 2.4 miles but would decrease on-leash dog walking in other areas by 12.8 acres; off-leash dog walking would be reduced on trails/roads by 31.1 miles and in other areas by 107 acres. The movement of some visitors to nearby dog walking areas, particularly those sites that are most heavily used for recreation, would result in overcrowding as described above, and would cause the physical deterioration of natural resources at these sites and visitor experience would change at these sites. However the movement of visitors is anticipated to be low, since most GGNRA sites would still provide off-leash dog walking in ROLAs. These impacts would likely be most concentrated within DPAs at other parks, which make up between 1 percent and 62 percent of the total area, as shown in the table below. The mileage of off-leash dog-walking trails at sites in Marin County is not known, and is therefore not listed in the table 4b above.

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VEGETATION AND SOILS

As stated previously in chapter 3, GGNRA supports a rich assemblage of plants in the parks' grasslands, coastal scrub, wetlands, and forests that compose the coastal ecosystem. Approximately 80 vegetation alliances (or plant communities) have been documented at GGNRA. These alliances were then grouped into general vegetation communities at GGNRA for the purposes of analysis. In this section, impacts on these identified natural vegetation communities are analyzed for each alternative presented. The impact analysis described in this section also includes plant species of interest or management concern. Species of interest include plants that are not federally or state listed, but have status or ranking through the California Native Plant Society (CNPS). The NPS conducts its actions in a manner consistent with relevant state laws and regulations. As a result, this section analyzes impacts on plant species included on lists produced by the CNPS. Impacts on plant species that are federally or state listed as threatened, endangered, or candidate species are described in the section "Special-status Species." Because soils have been dismissed as a stand-alone section in this document, discussions of soil types and impacts resulting from soil compaction and subsequent changes to soils are included in this vegetation section of chapter 4.

This "Vegetation and Soils" section also provides an overview of the guiding policies and regulations, describes the study area, includes a definition of duration, details the assessment methodology, and defines the impact thresholds for vegetation as well as soils.

GUIDING POLICIES AND REGULATIONS

NPS Natural Resource Policies and Guidelines

The NPS has developed specific guidelines for the management of natural resources (NPS 2006b). The guidelines provide for the management of native and non-native plant (and animal) species. They are designed to assist parks in developing resource management plans and action plans for specific park programs in all park management zones: natural, cultural, park development, and special use zones as described in the NPS *Management Policies 2006* (NPS 2006b) and articulated in each park's general management plan (GMP).

The NPS *Management Policies 2006* state that the NPS "will maintain as parts of the natural ecosystems of parks all plants and animals native to park ecosystems. The term "plants and animals" refers to all five of the commonly recognized kingdoms of living things and includes such groups as flowering plants, ferns, mosses, lichens, algae, fungi, bacteria, mammals, birds, reptiles, amphibians, fishes, insects, worms, crustaceans, and microscopic plants or animals." The NPS will achieve this by:

- preserving and restoring the natural abundances, diversities, dynamics, distributions, habitats, and behaviors of native plant and animal populations and the communities and ecosystems in which they occur;
- restoring native plant and animal populations in parks when they have been extirpated by past human caused actions; and
- minimizing human impacts on native plants, animals, populations, communities, and ecosystems, and the processes that sustain them (NPS 2006b, section 4.1).

Management Policies 2006 also states that the NPS "will inventory, monitor, and manage state and locally listed species in a manner similar to its treatment of federally listed species to the greatest extent possible. In addition, the "Service will inventory other native species that are of special management

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concern to parks (such as rare, declining, sensitive, or unique species and their habitats) and will manage them to maintain their natural distribution and abundance" (NPS 2006b, section 4.4.2.3).

NPS *Management Policies 2006* requires the NPS "to understand and preserve the soil resources of parks, and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil or its contamination of other resources." "Management action will be taken by superintendents to prevent or at least minimize adverse, potentially irreversible impacts on soil" (NPS 2006b, section 4.8.2.4, 56).

Additionally, the *Organic Act* of 1916 (16 USC 1) directs national parks to conserve wild life unimpaired for future generations and is interpreted to mean that native animal life is to be protected and perpetuated as part of a park unit's natural ecosystem. Parks rely on natural processes to control populations of native species to the greatest extent possible; otherwise, they are protected from harvest, harassment, or harm by human activities.

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Species Designations

As described in chapter 3, other species of interest at GGNRA include plants that are not federally or state listed but have status or ranking through either the Department of Fish and Game (DFG) or the CNPS. The impact analysis for these plant species considered as other species of interest is included in this "Vegetation" section. Federally and state-listed plant species are discussed in detail in the "Special-status Species" section. These species all require consideration by the NPS when management actions are taken to ensure that actions do not harm the species or their habitats.

California Native Plant Society. The CNPS maintains a list of species in California that are considered rare or endangered according to CNPS criteria. The list contains plants of special concern in California, including species, subspecies, or varieties that are considered to be extinct (list 1A); species that are rare, threatened, or endangered in California and elsewhere (list 1B); species that are rare, threatened, or endangered in California but are more common elsewhere (list 2); species that are potentially endangered but additional information on rarity and endangerment is needed (list 3); and species that have a limited distribution, but are not currently endangered (list 4).

California Department of Fish and Game. The DFG maintains an informal list of native plant and wildlife species of special concern because of population declines and restricted distributions, and/or because they are associated with habitats that are declining in California. The DFG considers all plants listed by the CNPS as "special plants" and recommends that impacts on plants on lists 1 and 2 be considered during project analysis. Legal protection is afforded to plant species listed under the California *Endangered Species Act* (ESA) by the Fish and Game Commission of the DFG.

STUDY AREA

The geographic study area for vegetation and soils includes the individual sites of GGNRA under consideration for the dog management plan/EIS that could be impacted by dog management activities including new lands. There are 22 individual sites relevant to this project, which have been previously described in detail in chapter 3. Not all communities present at GGNRA will be affected by this project; therefore, this section only analyzes impacts on the vegetation, soil, and plant communities at GGNRA affected by dog management activities.

DURATION OF IMPACT

Duration describes the length of time an effect would occur, either short term or long term. Long term impacts to vegetation and soils are described as those persisting for the life of the plan/EIS (the next 20

years). After the implementation of the plan, a 1- to 3-month period of public education would occur to implement the proposed action followed by a 1- to 3-month period testing the monitoring-based management strategy. At the beginning of the education and enforcement period, short-term impacts on all natural resources would occur, regardless of the alternative chosen. During this period, impacts on vegetation and soils would be similar to the current conditions and would be short-term. Following the education period, monitoring for noncompliance and impacts to resources would begin and it is expected that compliance with the dog walking regulations and associated adverse impacts would improve gradually and the impacts on vegetation and soils would then become long term, as described below for each alternative.

ASSESSMENT METHODOLOGY

Maps showing vegetation cover in GGNRA and consultations with NPS staff were used to identify baseline conditions in the study area, along with available information on the condition and composition of the vegetation in the park. The analysis of vegetation considered that changes in the plant community size, integrity, or continuity could occur as a result of the implementation of various management activities.

Overall, impacts on vegetation were analyzed qualitatively, and as a result, acreages of impacts on specific types of vegetation were not completed as part of this project. The information in this analysis was obtained through best professional judgment of park staff and experts in the field, as well as supporting literature (as cited in the text). Data on frequency of disturbance of closed areas (specific habitat types, such as creeks, lagoons, and cliffs) in a particular park site, if available, have been incorporated with relevant scientific literature to predict the impact of dog management activities on vegetation. Where data on the frequency of disturbance are not available, information from park staff and visitors on the relative intensity of use by visitors and the relative number of dogs both on and off leash has been used to predict impacts.

In addition to vegetation, this analysis considers the changes in rates of erosion, soil composition, or soil function that would occur as a result of the implementation of the various management activities. The analysis of soils began with the existing condition of the soil. Natural soil function has been lost in areas that have been converted to urban uses or compacted by use (e.g., parking lots, picnic areas, and trails). Impacts on soil resources as a result of dogs were analyzed qualitatively due to a lack of site-specific scientific data regarding the effects of dogs on soils at GGNRA. Best professional judgment, from experts in the field and at the park, and other supporting literature (as cited in the text) were used in determining impact categories.

IMPACT THRESHOLDS

Vegetation impacts were determined by examining the potential effects of dog walking activities on the plant community, including plant structure and abundance as well as distribution, quality, and quantity of the habitat in a park site. Soil impacts were determined by examining the potential effects of dog walking activities on soils or soil function, as well as distribution, quality, and quantity of soils within a park site. For the action alternatives, on-leash dog walking impacts were based on an allowed 6-foot dog leash. Since dog walkers may walk along the edge of the fire road or trails, dogs would then have access to the adjacent land 6 feet in all directions, resulting in a Limit of Disturbance (LOD) area for vegetation that would extend 6 feet out from the edges of the fire road or trails. The intensity of each adverse impact is judged as having a minor, moderate, or major effect. Negligible impacts are neither adverse or beneficial, nor long term or short term. A beneficial impact would be a positive change in the condition or appearance of the resource. No impact on vegetation or soils may also be applicable for some alternatives

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and sites if dogs are prohibited. The following impact thresholds were established to describe the effects on vegetation and soils under the various alternatives being considered.

Beneficial A beneficial impact is a beneficial change from the current conditions and is a relative indicator of progress compared to the no-action alternative. In general, a beneficial impact to vegetation would include an increase in the abundance as well as distribution, quality, and quantity of the vegetation. For soils, a beneficial impact would include increases to the natural soil function or soil/geologic composition, or a decrease in soil erosion.

Negligible Impacts to vegetation would result in no measurable or perceptible changes in the plant community, including plant structure and abundance as well as distribution, quality, and quantity of the habitat in a park site. For soils, impacts would be at such low levels of detection that there would be no discernible effect on soils or soil function. Negligible is also appropriate at park sites where natural soil function or vegetation has been converted previously due to development or use (parking lots, roads, compacted trails, picnic areas, lawn areas).

Adverse **Minor**. Effects would be measurable and perceptible, but would be localized in a relatively small area. The overall integrity of the plant community, including plant structure and abundance as well as distribution, quality, and quantity of the habitat in a park site, would not be affected and, if left alone, would recover. For soils, impacts would be detectable, but they would not be large enough to cause changes in soils or soil function at a park site.

Moderate. Effects would be measurable and perceptible over a relatively large area, and would affect the overall integrity of a plant community, including plant structure and abundance as well as distribution, quality, and quantity of the habitat. For soils, impacts would be long term and readily apparent, and cause noticeable changes in soils or soil function at a park site.

Major. Effects would be readily apparent over the majority of the study area and would affect the integrity of the plant community, including plant structure and abundance as well as distribution, quality, and quantity of the habitat. Impacts to soils or soil function at a park site would be substantial, highly noticeable, and permanent.

Detailed Description of Impact Analysis

At GGNRA, the management of vegetation is primarily focused on research, monitoring, and actively restoring habitat for threatened, endangered, and unique plant species. Restoration efforts at GGNRA have included decompacting soils, removing non-native and invasive plant species, and planting listed and unique plant species. At GGNRA, for new and/or pending properties recently acquired by the park (Cattle Hill, Pedro Point Headlands, and Rancho Corral de Tierra), detailed inventorying of vegetation, including listed plant species, is currently ongoing. Therefore, both mapped occurrences as well as potential habitat are identified at these sites because site-specific data collection was still occurring at the time of publication.

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COMMON TO ALL ALTERNATIVES

Site-specific, peer-reviewed studies have not been conducted at the GGNRA sites for the sole purpose of documenting impacts to vegetation or soils from dogs. While it is generally accepted and well documented that the presence of dogs in natural areas can result in disturbance to wildlife (as described in detail in the "Wildlife" section), specific published and peer-reviewed studies regarding impacts on soils and vegetation as a result of dogs are not as widely available as other studies documenting impacts as a result of domestic dogs. During the past six years, park staff has amassed scientific and technical information that is available on dog management–related topics. Information was collected on dog management policies from a variety of jurisdictions, vegetation data and information were collected from scientists and organizations, and information related to dog impacts on soils and vegetation, including waste issues. This section provides a general summary of the literature review conducted to determine the associations between dogs, soils, and vegetation, which are used for the purposes of the impacts analysis presented in this chapter. The existing disturbance from dogs to soils and vegetation at GGNRA is discussed in this section based upon the review and extrapolation of results from published and peer-reviewed studies. The results of this literature review therefore provides a general nexus for dog-related impacts to soils and vegetation. When technical and scientific information was not available, the NPS followed the provisions of the CEQ regulations (40 CFR 1502.22), which requires disclosing and discussing information that is incomplete or unavailable, summarizing the existing credible scientific evidence relevant to evaluating the adverse impacts on the human environment, and evaluating these impacts based on theoretical approaches or research methods generally accepted in the scientific community. Section 4.5 of the 2011 DO-12 update requires that, pursuant to NEPA and the National Parks Omnibus Management Act of 1988 (16 U.S.C. 5901 et seq.), NPS management decisions should be based on technical and scientific studies properly considered and appropriate to the decisions made. A reasoned connection between the technical and scientific information was therefore considered in this agency action. As required, the existing credible scientific literature is discussed in detail below and the potential impacts to vegetation and soils were described as a result of this information.

It has been documented that recreational activities can affect vegetation and soils, resulting in damage to plant communities (Cole 1978, 281; Douglass et al. 1999, 9.2). In recreational/park settings, domestic dogs and people are generally not mutually exclusive and it is therefore difficult to isolate the impacts and effects of dogs alone on soils and vegetation. It is important to note that dogs are viewed as a contributing factor to impacts associated with soils and vegetation, and the total elimination of dogs in the park would not eliminate effects on soils and vegetation, because visitors without dogs would continue to visit the park and use the trails/roads at GGNRA. Disturbance by all manner of visitors and any associated recreation equipment as well as by dogs has occurred and currently occurs in GGNRA as an existing condition. However, visitors with dogs could impact natural resources to a greater extent than visitors without dogs.

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Soils and vegetation can be both indirectly and directly affected by recreational activities. Vegetation can be affected by trampling indirectly through the consolidation of the soil and directly by treading upon the plant itself (Bates 1935, 476). Trampling, which initially bends and weakens leaves and branches and can ultimately cause breaking and injury to the plant (Douglass et al. 1999, 9.3; (Bates 1935, 476). Some plant species can be damaged and completely destroyed by the action of treading, while other species are comparatively immune to harm of this kind (Bates 1935, 476). Vegetation along trails is particularly vulnerable to damage (Cole 1978, 281). Sensitive environments can be subject to physical disturbance by dogs (through digging or bed-making) and could damage vegetation and soils, with resulting influences on vegetation, soils, and wildlife such as small mammal populations (Sime 1999, 8.9). "High foot traffic (both people and dogs) resulting from an off-leash area would result in trampling and disturbance of vegetation" (Andrusiak 2003, 5). In addition, heavy off-leash dog use increases deterioration of native dune communities (Shulzitski and Russell 2004, 5). As cited in Andrusiak (2003, 3.2), the Greater

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Vancouver Regional District collected observational data on dog walkers and dogs in individual regional parks and observed dogs in the water and uprooting beach and dune vegetation by digging. Both dog and human traffic compact the soil and crush vegetation and dogs can dig in the soils; this is unlikely to have significant effects on the unvegetated areas, but could contribute to degradation of vegetated areas (Andrusiak 2003, 3.2).

At GGNRA, 36 CFR 2.1 covers the preservation of natural resources. Vegetation damage is described in section 36 CFR 2.1 (a) (1) (ii)) and the following is applicable to vegetation and soils and prohibited: possessing, destroying, injuring, defacing, removing, digging, or disturbing from its natural state: Plants or the parts or products thereof. Park rangers have recorded damages to vegetation from dogs at GGNRA that are in violation of the above regulation. Dog-related incidents were recorded at GGNRA using LE's criminal incident records. From 2001 through 2011, a total of 4,940 dog-related incidents were recorded at the park, which represents 11 percent of all violations at GGNRA. Below, a sample of some recent excerpts from 2009 and 2010 incident records are included. These quotes describe the issues and provide specific examples of dogs damaging vegetation or accessing sensitive closed areas at GGNRA:

- "I observed two off-leash dogs running around the Fort Funston Ranger Office. I observed them running around and digging up native plants near the native plant nursery." (Fort Funston, September 29, 2010, Incident Report # 10-011098)
- "Ranger A.J. Legault and I observed two dogs running off-leash on the protected plant area of Battery Chamberlin." (Baker Beach, January 12, 2009, Incident Report # 09-432)
- "They were accompanied by an unrestrained Australian Shepherd-like dog which was walking over the just-revegetated slope west of the stairs, condoned off to allow growth." (Mori Point, March 17, 2009, Incident Report # 09-002701)
- "We noticed a male in the area with a dog conducting resource damage by digging in an area known to have endangered plant species." (Sutro Heights, March 26, 2009, Incident Report # 09-003043)
- On July 10th, 2009 at approximately 1715 hours, Ranger Harrison and I observed [visitors] with two dogs off leash in the Wildlife Protection Area at Crissy Field… Before making contact with the two individuals, their dogs were running freely throughout the closure area including the dunes. (Crissy Field, July 10, 2009, Incident Report # 09-007365)

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Trailside plant communities usually contain both locally occurring species and invaders from other sources, which are favored by the environmental conditions adjacent to trails (Cole 1978, 282). Dogs (as well as horses and hikers) may also alter dispersal of both native and non-native plants along trail corridors, as seeds that adhere to their paws and fur are then transported to other locations, possibly resulting in the spread and establishment of new populations of invasive and/or non-native plants (Sime 1999, 8.9-8.10). It is generally accepted that the creation of social trails by dogs and dog walkers also increases erosion, damages root systems, further fragments habitat, and can alter reproductive success by isolating plants, thus reducing the opportunities for cross-pollination and effective seed dispersal. However, this has not been documented in peer-reviewed studies but has been observed by park staff. The primary detrimental soil impacts from recreation are loss of productivity, erosion, compaction, rutting, and displacement (Douglass et al. 1999, 9.5). Park users can also damage and destroy vegetation and create soil compaction, which reduces infiltration of moisture into the soil and increases the volume of runoff and the potential for loss of topsoil (Douglass et al. 1999, 9.3). Sources of soil disturbance in the park include natural forces, such as wind and weather, and human disturbance, such as development; stream diversion; road or trail creation for cars, bicycles, hiking, running, or horseback riding; and dog walking. Trampling and digging by dogs can lead to accelerated erosion of cliffs and dunes at GGNRA, which can also be exacerbated by high visitor traffic. Heavy dog use can cause soil compaction or erosion, although this has not been documented in peer-reviewed studies. In areas with unconsolidated or

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unvegetated surficial deposits, dog traffic can physically move the soil, but other factors also influence soils such as human traffic, wind, and storm events. Dog traffic can compact the soil, which could kill vegetation and expose the soil to erosion although this has not been documented in peer-reviewed studies. Soil compaction is common along social trails that have been created by—and are heavily used by—bikers, hikers, runners, and dog walkers. Dogs and dog walkers that do not stay on designated trails and venture off trail create social trails that become denuded of vegetation and result in increased soil compaction at GGNRA. This has occurred at Homestead Valley, Alta Trail/Orchard and Pacheco fire roads, Oakwood Valley, Marin Headlands, Baker Beach, Lands End, Fort Funston, Mori Point, Sweeney Ridge/Cattle Hill, and Pedro Point Headlands.

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Dog waste contains nutrients and can increase the amount of nitrogen and phosphorus in the soil (CRCCD 2009, 1). Soils and vegetation can be affected by dogs through defecation and urination, although this has not specifically been documented in peer-reviewed studies. The act of "marking" (scent marking with urine) could also affect vegetation by concentrating nutrients in particular areas. Although nitrogen and phosphorus are nutrients required for plant growth, dog waste could increase the amount of nutrients in the soil above natural levels; dog urine could increase the natural salinity of soil. An increase in nutrients from dog excrement in concentrated areas could result in changes in plant species and distribution as well as changes in soil organisms. Nutrient addition to nutrient-poor serpentine soils can alter soil chemistry, which may result in changes to the plants that occur in these soils (USFWS 1998, I-12). At sites with serpentine soils, adding nutrients could change soil composition and eventually cause detrimental effects on sensitive plant species adapted to serpentine soils.

At GGNRA, it is required by law for people to clean up dog fecal matter. Violations have been written for park visitors at GGNRA who have not cleaned up after their dogs, under 36 CFR 2.34(a) (4), creating a "physically offensive condition" and 36 CFR 2.15 (a) (5), "failing to comply with pet excrement disposal conditions established by the superintendent." As a result of dog fecal matter, natural nutrient levels in the soils throughout the park have been altered by dog waste (NPS 1999, 40). Furthermore, a recent monitoring report for the OSMP in Colorado documented that compliance with the excrement removal requirement was generally low; just over 45 percent of the visitor parties complied with the excrement requirement in 2010 (City of Boulder 2011, 11). Uncollected dog waste can negatively affect park aesthetics and can also damage turf and other vegetation (LEES + Associates n.d., 2). In natural parks or along the edge of water bodies, accumulating dog waste can adversely impact sensitive habitat areas (LEES + Associates n.d., 2). It is important to note that nutrient addition also occurs from other sources, including other animals (such as native carnivores as well as horses on trails) and atmospheric deposition. However, when visitors fail to comply with pet excrement removal requirements, dog waste can accumulate in the soils and affect the vegetation. The total amount of waste can become substantial in certain areas, depending on the number of dog owners and their frequency of use of the area as observed by park staff at GGNRA.

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In conclusion, very little peer-reviewed literature exists documenting disturbance to vegetation and soils as a result of domestic dogs in recreational/park settings. However, park rangers have observed dogs affecting soils and vegetation at GGNRA sites. Dogs could affect vegetation and soils by trampling and digging. When visitors fail to comply with pet excrement removal requirements, dog waste can accumulate in the soils and affect the vegetation. Management suggestions such as physically restraining dogs on a leash, fencing sensitive areas, and prohibiting dogs from certain areas would protect vegetation and soils, similar to management suggestions included in the recently released *SNRMP* (SFPD 2011).

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Other Coniferous Communities

Within the study area East Fort Miley is the only site containing Monterey cypress. East Fort Miley is primarily Monterey cypress with some wetland/riparian vegetation around the fringes; the area is dominated by older stands of cypress, which were densely planted (NPS 2006i). East and West Fort Miley has low numbers of dog walkers, and low numbers of citations and incident reports related to dog activities at the site (table 9). A large portion of the site is developed and only a small portion of the site supports mature, coniferous vegetation (including primarily Monterey cypress, which is not naturally occurring in San Francisco County) in areas that are open to dogs. The stands of mature Monterey cypress are unlikely to be affected by dogs through trampling, digging, or dog waste due to their already established nature at the site and the development that has previously occurred at Fort Miley. Therefore, impacts from dogs on other coniferous communities (Monterey Cypress) at Fort Miley for all alternatives would be negligible and are not discussed further in this "Vegetation" section.

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CUMULATIVE IMPACTS COMMON TO ALL ALTERNATIVES

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Urban development and loss of habitat continuity, as well as the establishment and overall dominance of areas by non-native and/or invasive plant species, are the primary past actions that have influenced vegetation at the sites in GGNRA in this study area. In addition, fire suppression efforts beginning in 1870 and extending into recent years has resulted in a twofold increase in oak pollen and oak density, perhaps facilitating the spread and effect of the non-native sudden oak death (SOD) pathogen (NPS 2005a, 321) and allowing the unnatural buildup of both dead and live fuels. The use of fire may help manage both the forest structure and potentially stall or inhibit the effects of SOD; recent studies suggest fire can be used to manage the spread of SOD, and may kill off fungal spores (NPS 2005a, 197).

Prior to the park's establishment, urban development immediately adjacent to park boundaries has contributed to changes in composition and density of key species. For example, coastal redwood forest is estimated to have covered 1.98 acres across its range 200 years ago. Today, approximately 85,000 acres (4 percent) is left. Monterey pine, Monterey cypress, and eucalyptus have all been imported by European-American settlers for lumber or other purposes and, as non-native species, have competed with and replaced native species, resulting in altered vegetation communities inside and outside GGNRA. Conversion of land to impervious surfaces has increased soil erosion, and overuse of areas has increased soil compaction; both erosion and compaction have resulted in further loss of native vegetation communities from altered soil characteristics and direct loss of soils. Disturbed areas provide opportunities for colonization by non-native invasive plant species. Coastal scrub habitat is present over about 15 percent of its former range in California, primarily because of land conversion to agricultural, industrial, and residential development. Grasslands in California have been invaded by non-native species in part because non-native plant species are better adapted to areas grazed by the livestock that have displaced the native tule elk, as well as areas disturbed by clearing and plowing for agriculture. Highly invasive species that occur in grasslands and coastal scrub in the park, such as Scotch and French broom, are escaped ornamental shrubs brought from Europe, and most of the park's non-native grasses are imported from Eurasia. All are adapted to the area's Mediterranean climate (NPS 2005a).

In addition to urban development outside and adjacent to GGNRA sites, as well as actions such as the establishment of "social trails" made by dogs and humans traversing park sites off official trails, can result in GGNRA sites becoming fragmented into islands of intact habitat surrounded by infrastructure and associated non-native species. Populations of plants have become isolated from each other, which decreases opportunities for cross-pollination or seed movement. This gradually causes a reduction in the overall adaptability or elasticity of populations to respond to changing environmental conditions, resulting in long-term adverse impacts on population sizes and overall species survival. It then becomes imperative

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for the NPS to provide protection to remaining habitat and ensure that the quality of habitats in GGNRA is maintained.

Throughout GGNRA, the NPS and groups such as the Golden Gate National Parks Conservancy are attempting to reduce the impacts of prior and adjacent development, fire suppression, erosion, and soil damage through a variety of management projects that will benefit native vegetation communities and special-status plant species. Restored and revitalized vegetation communities in GGNRA will, in turn, provide additional improved habitat for wildlife. Completed, current, and future project activities that will have a beneficial cumulative impact on vegetation in the GGNRA sites discussed in this plan/EIS include the following:

- The GGNRA GMP, which provides for resource protection in the park.
- The GGNRA *Fire Management Plan*, which provides guidance for the protection of natural resources through the use of prescribed burns, fire protection measures, and the reduction of fuel hazards.
- Native plant habitat restoration projects that occur throughout the park and are conducted through park stewardship programs led by GGNRA Natural Resources staff (Habitat Restoration Team), the Presidio Park Stewards, and the Golden Gate National Parks Conservancy site stewardship programs. These projects include invasive species removal and/or native plant restoration projects to restore and enhance natural terrestrial plant communities in GGNRA and will beneficially affect coastal vegetation communities at GGNRA. Since 2003, the Conservancy site stewardship programs have worked with the NPS to control invasive plant species and restore natural plant species throughout the park, resulting in the restoration or enhancement of over 1,000 acres of trailside habitat in sites such as the Marin Headlands Trails and Lands End.
- The NPS inventory and monitoring program, which aims to improve park management through greater reliance on scientific knowledge, including collecting, organizing, and making available natural resource data, such as invasive plant species. Specifically, the inventory and monitoring program includes early detection of invasive plant species, described as a protocol to help find and map the most invasive plant species as they enter sensitive areas of the park to protect the most critical places.
- The *Mori Point Restoration and Trail Plan*, which will restore the ecological integrity of existing habitats and restore native plant communities.
- Restoration of native vegetation as part of the *Lower Easkoot Creek Restoration Plan*.
- The *Muir Beach Wetland and Creek Restoration Project*, which will restore riparian habitat; proposed fencing will protect wetland plant communities.
- Fencing installed at Rodeo Beach / South Rodeo Beach as part of the *Marin Headlands Trails / Fort Baker Improvement and Transportation Management Plan/EIS*, which will protect sensitive coastal dune and wetland communities.
- The SNRAMP, as discussed in more detail below:

Fragments of unique plant and animal habitats within San Francisco and Pacifica, known as Significant Natural Resource Areas (Natural Areas) have been preserved within the parks that are managed by the San Francisco Recreation and Park Department (SFRPD). The SNRAMP is intended to guide natural resource protection, habitat restoration, trail and access improvements, other capital projects, and maintenance activities over the next 20 years (SFPD 2011, 1). The scope of the SNRAMP analysis includes Natural Areas managed by the SFRPD in San Francisco and Pacifica and addresses dog walking (including on-leash dog walking and off-leash DPAs) in these areas (SFPD 2011, 261-262). The SNRAMP will protect natural resources, but will affect recreation resources.

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The SNRAMP would have an overall beneficial impact on biological resources over the long term. Habitat types within the Natural Areas include grassland, wetland, coastal scrub, dune scrub, riparian, and native forest, as well as numerous areas of nonnative vegetation (SFPD 2011, 285). The Natural Areas provide a mosaic of habitats that are accessible to mobile wildlife species, particularly birds, including foraging, nesting, and roosting habitats (SFPD 2011, 290). Project activities included in the SNRAMP would protect and enhance special status species habitat, riparian habitat, wetlands, migratory wildlife habitat, nursery sites, and other sensitive habitats in the Natural Areas (SFPD 2011, 292), and would include the following:

- Maintain viable populations of all special status species;
- Maintain and enhance native plant and animal communities;
- Maintain and enhance local biodiversity;
- Reestablish native community diversity, structure, and ecosystem function where degraded;
- Improve natural area connectivity; and
- Decrease the extent of invasive exotic species cover.

Natural Areas in San Francisco and Pacifica are managed by the SFRPD, including DPAs that allow for an off-leash dog experience. The San Francisco Recreation and Park Department's dog policy excludes dogs (on- and off-leash) from sensitive habitat areas, such as sensitive wildlife areas (e.g., breeding habitat for birds), sensitive remnant native plant communities (e.g., wetlands), sensitive plant populations (e.g., locally rare wildflower species), and high erosion prone areas, and excludes them temporarily from restoration areas (SFPD 2011, 156). The SNRAMP, authored by the San Francisco Planning Department will guide natural resource protection and habitat restoration, among other activities over the next 20 years in Natural Areas of San Francisco and Pacifica managed by SFRPD (SFPD 2011, 1). The scope of the SNRAMP analysis includes Natural Areas managed by the SFRPD in San Francisco and Pacifica and addresses dog walking (including on-leash dog walking and off-leash DPAs) in these areas (SFPD 2011, 261-262), including:

- "Limit off-leash activities to the relatively flat areas to avoid sensitive plant species" (SFPD 2011, 118)
- "Monitor the dog impact on wetlands and [creeks] and consider appropriate restrictions (including fencing) to keep dogs out of the creek channel and wetlands" (SFPD 2011, 127)
- "Install and maintain signs and barriers to prevent disturbance of sensitive habitat in Horse Stable Pond and Laguna Salada by dogs or other possible nuisances" (SFPD 2011, 144)
- "Make 33.3 acres of Arrowhead Pond, Laguna Salada, and Horse Stable Pond off limits to dogs to prevent access to sensitive habitats; if this is not effective, use fencing to close social trails in these areas" (SFPD 2011, 145)

The combined reductions in off leash areas proposed by both the SNRAMP and this plan/EIS could result in an increase in dog use at the remaining Natural Areas managed by SFRPD. An increase in dog use at the Natural Areas could accelerate the physical deterioration of those DPAs and the Natural Areas in general. DPAs within the Natural Areas would continue to be evaluated in accordance with the SFRPD's Dog Policy; the SFRPD would monitor DPAs for their effects on the Natural Areas and develop solutions to any identified issues. In this section, the SNRAMP will be discussed as a cumulative project for GGNRA sites within San Francisco that have coastal scrub/chaparral/grassland vegetation, riparian vegetation, and wetland vegetation. Once implemented, the SNRAMP would improve plant communities and would have an overall beneficial impact on vegetation over the long term.

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Adverse impacts could occur as a result of development projects both in the park and adjacent to park boundaries, including the various transportation plans and trails plans, including the *Marin Headlands*

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Trails/Fort Baker Improvement and Transportation Management Plan/EIS. These efforts will involve ground-disturbance activities that could add to or exacerbate existing non-native plant problems along road and trail corridors. However, ongoing efforts to identify mitigation measures for these projects, such as pre-project weed control, post-project planting and weeding, and use of weed-free products (soils, fill material, and equipment), would reduce the potential for these types of impacts. These projects would have a beneficial impact on vegetation as a whole (NPS 2005a). Projects would also focus on the elimination of excess or unofficial social trails, reducing habitat fragmentation and associated infiltration of weed species into intact habitat areas.

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The paragraphs after the monitoring-based management strategies discussion describe impacts on vegetation by habitat type, alternative, and applicable site.

MONITORING-BASED MANAGEMENT STRATEGY

In order to ensure protection of vegetation from dog walking activities, the dog walking regulations defined in action alternatives B, C, D, E, and F would be regularly enforced by park law enforcement, and monitored by park staff. A monitoring-based management strategy would be implemented to encourage compliance with the dog walking regulation and would apply to all action alternatives. It will allow staff to monitor and record noncompliance as well as impacts to natural and cultural resources. Monitoring would inform park management and law enforcement when, where, and how to prioritize responses to noncompliance. Noncompliance would include dog walking within restricted areas, dog walking under voice and sight control in designated on-leash dog walking areas, and dog walking under voice and sight control outside of established ROLAs. If noncompliance occurs, impacts to vegetation have the potential to increase and become short-term minor to major adverse. Vegetation can be both directly affected by dogs through physical disturbance and indirectly affected by dogs through defecation and urination. Physical disturbance to vegetation can include trampling or digging that may reduce the viability of the plant(s). Defecation by dogs could also affect vegetation by concentrating nutrients in particular areas. Noncompliant dog walkers could also create social trails that would increase erosion, damage root systems, further fragment habitat, and alter reproductive success by isolating plants, thus reducing the opportunities for cross-pollination and effective seed dispersal. To prevent these impacts from increasing or occurring outside of the designated dog walking areas the NPS would regularly monitor all sites. When the level of compliance is deemed unacceptable based on violations and/or impacts to resources, primary management actions such as focused enforcement of regulations, education, and establishment of buffer zones, time and use restrictions, and SUP restrictions would be implemented. If noncompliance continues, secondary management actions including short-term closures, typically one year or less would be implemented through the compendium. The park would evaluate whether to propose a long-term closure, which would be made available to the public. Impacts from noncompliance could reach short-term minor to major adverse, but the monitoring-based management strategy is designed to return impacts to a level that assumes compliance.

COASTAL COMMUNITIES

The coastal communities at GGNRA include habitats such as coastal dunes, beaches, adjacent open water, and rocky intertidal areas, of which only the coastal dune habitat supports terrestrial plant communities that could be affected by dog activities. . In the study area at GGRNA, coastal dune habitat is found at Stinson Beach, Muir Beach, Rodeo Beach/South Rodeo Beach, Crissy Field, Baker Beach and Bluffs to Golden Gate Bridge, Ocean Beach, and Fort Funston. Coastal dune plant species are very sensitive and easily disturbed by trampling, digging, and other activities, and may not recover due to their sensitive nature or may create opportunities for the establishment of non-native and/or invasive plant species. CNPS-listed plant species at GGNRA that occur in coastal dune habitat are included in the impacts analysis of this section as applicable. The following areas in the dog management planning areas at

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GGNRA have beach habitat: Muir Beach, Rodeo Beach/South Rodeo Beach, Crissy Field, Baker Beach and Bluffs to Golden Gate Bridge, Ocean Beach, Fort Funston, and Mori Point; dogs are currently allowed access to these beaches or portions of these beaches. As applicable, these beach areas are discussed in more detail in the following paragraphs. Many of the coastal sites in GGNRA have rocky intertidal areas and cliffs, including Muir Beach, Rodeo Beach, Fort Baker, Fort Mason, Lands End, Fort Funston, Mori Point, and Pedro Point. However, these areas are not the dominant habitat type at the site or are generally not accessible to visitors therefore, are not discussed further in this plan/EIS.

MARIN COUNTY SITES

Stinson Beach

Alternative A: No Action. Under current conditions at Stinson Beach, dogs and dog owners are restricted to having dogs on leash in the parking lot and picnic areas since dogs are not allowed on the beach because it is a swimming beach. Currently, there is low compliance with the no-dog walking restriction on the beach; there were over 70 recorded incidents of dogs in a closed area in 2008 through 2011 (table C). Compliance is considered good in the parking lots and picnic areas, with only 4 off-leash violations recorded (table C). The integrity of the plant community is already affected by human use, and it is unlikely that dogs are currently affecting the dunes. The dune communities are generally not in areas where dogs are allowed on leash under alternative A, and the majority of vegetation that could be affected by dogs on dunes (at the north parking lot) is non-native vegetation. Therefore, alternative A would result in continued negligible impacts on the coastal foredune plant community.

Under alternative A, no permit system exists for dog walking. At Stinson Beach, commercial dog walking is uncommon. Therefore, commercial dog walking would have negligible impacts on the coastal foredune plant community.

Cumulative Impacts. Projects and actions in and near Stinson Beach were considered for the cumulative impacts analysis (appendix K). The following is a discussion of projects that have had, are currently having, or have the potential to have effects on coastal dune vegetation at or in the vicinity of this site.

The Park Stewardship Programs provide indirect benefits to shorebirds by activities such as controlling invasive plant species, supporting coastal habitats, and restoring habitats. Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect habitat at GGNRA park sites such as Stinson Beach. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Stinson Beach. The *Lower Easkoot Creek Restoration Project* at Stinson Beach has restored native vegetation (NPS n.d.d). The Gulf of the Farallones National Marine Sanctuary has proposed the *Bolinas Lagoon Ecosystem Restoration Project*, located near Stinson Beach, in partnership with Marin County Open Space District and the USACE (GFNMS Working Group 2008). This project will restore natural sediment transport and ecological functions of Bolinas Lagoon, and identify and manage introduced species in the Bolinas Lagoon watershed.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Stinson Beach. Development or construction actions at or in the vicinity of GGNRA sites have had or may have the potential to have adverse impacts on coastal communities.

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Even though these efforts both within and beyond park boundaries would affect vegetation, mitigation for these projects would reduce the potential for impacts.

The negligible impacts from dogs at Stinson Beach on coastal dune vegetation under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from the restoration projects provided by the Park Stewardship Programs combined with the negligible impacts from any development or construction actions and the negligible impacts on coastal dune vegetation from alternative A would result in negligible cumulative impacts on coastal dune vegetation.

STINSON BEACH ALTERNATIVE A CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts	Dune communities are generally not in areas where dogs would be allowed on leash and the majority of vegetation on the dunes is non-native species where dogs can affect dunes; however, it is unlikely that dogs could affect dunes through trampling, digging, and dog waste because dogs would be restricted to being walked on leash in the parking lot and picnic areas	N/A	Negligible cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. As in alternative A, on-leash dog walking would be allowed only in the parking lot and picnic areas of Stinson Beach. Dogs would not be allowed on the beach itself, because it is a designated swimming beach. Assuming compliance, alternative B would produce no impact on coastal dunes at Stinson Beach because dune communities are not in areas where dogs would be allowed.

Since dune communities are not in areas where dogs would be allowed there would be no impact on coastal dunes at Stinson Beach from commercial dog walkers.

Cumulative Impacts. The lack of impacts on coastal dune vegetation from dogs at Stinson Beach under alternative B were considered together with the effects of the projects mentioned above in alternative A. The beneficial effects from the restoration projects provided by the Park Stewardship Programs combined with the negligible impacts from any development or construction actions and the lack of impacts from alternative B would result in beneficial cumulative impacts on coastal dune vegetation.

STINSON BEACH ALTERNATIVE B CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact, assuming compliance	Dogs would not be allowed on the beach or trails	Beneficial, assuming compliance	Beneficial cumulative impacts

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Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C dog walking restrictions for Stinson Beach would be the same as alternative B; therefore, there would be no impact on coastal dune communities under alternative C, assuming compliance.

Since dune communities are not in areas where dogs would be allowed there would be no impact on coastal dunes at Stinson Beach from commercial dog walkers.

Cumulative Impacts. Under alternative C, the cumulative impacts would be the same as those under alternative B: beneficial cumulative impacts on coastal dunes at this park site.

STINSON BEACH ALTERNATIVE C CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact, assuming compliance	Dogs would not be allowed on the beach or trails	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Under alternative D, dogs would not be allowed at this site. Assuming compliance, no impact on vegetation from dogs would occur at this site because dog walking would be eliminated from the site.

Since dogs would not be allowed at Stinson Beach, there would be no impact from commercial dog walkers on the coastal community vegetation.

Cumulative Impacts. The lack of impacts on coastal dune vegetation from dogs at Stinson Beach under alternative D was considered together with the effects of the projects mentioned above in alternative A. The beneficial effects from the restoration projects provided by the Park Stewardship Programs combined with the negligible impacts from any development or construction actions and the lack of impacts on coastal dune vegetation from alternative D would result in beneficial cumulative impacts on coastal dune vegetation.

STINSON BEACH ALTERNATIVE D CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact, assuming compliance	Dogs would be prohibited at the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would have the same dog walking restrictions as alternative B, and impacts on vegetation would be the same, assuming compliance: no impact.

Since dune communities are not in areas where dogs would be allowed there would be no impact on coastal dunes at Stinson Beach from commercial dog walkers.

Cumulative Impacts. Under alternative E, the cumulative impacts on vegetation at this park site would be the same as those under alternative B: beneficial cumulative impacts.

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STINSON BEACH ALTERNATIVE E CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact, assuming compliance	Dogs would be prohibited on the beach or trails	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking in the parking lot and picnic areas of Stinson Beach and on the path to Upton Beach from the north parking lot. Dogs would not be allowed on the beach itself, because it is a designated swimming beach. Assuming compliance, the preferred alternative would produce no impact on coastal dunes at Stinson Beach because (with the exception of the path to Upton Beach) dune communities are not in areas where dogs would be allowed on leash.

Since dune communities are not in areas where dogs would be allowed there would be no impact on coastal dunes at Stinson Beach from commercial dog walkers.

Cumulative Impacts. Projects and actions in and near Stinson Beach were considered for the cumulative impacts analysis (appendix K). The following is a discussion of projects that have had, are currently having, or will have the potential to have effects on coastal dune vegetation at or in the vicinity of this site.

The Park Stewardship Programs provide indirect benefits to shorebirds by activities such as controlling invasive plant species, supporting coastal habitats, and restoring habitats. Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect habitat at GGNRA park sites such as Stinson Beach. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Stinson Beach. The *Lower Easkoot Creek Restoration Project* at Stinson Beach has restored native vegetation (NPS n.d.d, 1). The Gulf of the Farallones National Marine Sanctuary has proposed the *Bolinas Lagoon Ecosystem Restoration Project*, located near Stinson Beach, in partnership with Marin County Open Space District and the USACE (GFNMS Working Group 2008). This project will restore natural sediment transport and ecological functions of Bolinas Lagoon, and identify and manage introduced species in the Bolinas Lagoon watershed.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Stinson Beach. Development or construction actions at or in the vicinity of GGNRA sites have had or may have the potential to have adverse impacts on coastal communities. Even though these efforts both within and beyond park boundaries would affect vegetation, mitigation for these projects would reduce the potential for impacts.

The lack of impacts on coastal dune vegetation from dogs at Stinson Beach under the preferred alternative was considered together with the effects of the projects mentioned above. The beneficial effects from the restoration projects provided by the Park Stewardship Programs combined with the negligible impacts from any development or construction actions and the lack of impacts on coastal dune vegetation from the preferred alternative would result in beneficial cumulative impacts on coastal dune vegetation.

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STINSON BEACH PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact, assuming compliance	Dogs would be prohibited on the beach	Beneficial, assuming compliance	Beneficial cumulative impacts

Muir Beach

Alternative A: No Action. At Muir Beach, dune communities, including a dune restoration area, are located adjacent to the beach, which is open to dogs under voice control. This site has high visitor use and a total of 24 dog related violations were reported from 2008 through 2011 (table E). The most common violations were for having dogs off-leash (9 violations) and having dogs within closed areas (4 violations) (table E). The dune communities at Muir Beach are not well protected. Ineffective post-and-cable fencing at Muir Beach discourages visitors from entering the dune restoration area; other dune areas are unfenced and would not physically exclude dogs. As a result, alternative A would have continued long-term moderate adverse impacts on coastal dune plant species because the integrity of the plant community could be negatively affected by dogs through trampling, digging, and dog waste.

Under alternative A, no permit system exists for dog walking. At Muir Beach, commercial dog walking is uncommon. Therefore, commercial dog walking would have negligible impacts on dune communities.

Cumulative Impacts. Projects and actions in and near Muir Beach were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Muir Beach. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Muir Beach. The *Lower Redwood Creek Floodplain and Salmonid Habitat Restoration* restored channel function to reduce flooding and reconnect the creek to its floodplain as well as expanding riparian vegetation at the Banducci site (NPS 2010d). The *Dias Ridge Restoration and Trail Improvement Project* is currently realigning trail segments and restoring degraded areas on Dias Ridge above Muir Beach (NPS 2009q). Additional vegetation benefits would be expected from wetland and creek restoration at the tidal lagoon, which would reduce flooding on Pacific Way. The *Muir Beach Wetland and Creek Restoration Project* is restoring and enhancing ecological processes near the mouth of Redwood Creek, contributing to the quality of habitat, parti300300larly as a result of restoration and enhancement of habitat and improvement of erosion and sedimentation conditions (NPS 2007b; NPS 2009m). The Park Stewardship Programs Initiative at Pirates Cove, just south of Muir Beach, included efforts to control invasive non-native plants such as pampas grass to support the dense and relatively undisturbed coastal scrub, prairie, and riparian habitats (GGNPC 2010c). The Pirates Cove project disturbed a large area of soil and vegetation and resulted in a short-term adverse impact, but these impacts were offset by the long-term, beneficial impacts on soils and vegetation resources (NPS 2010b).

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Muir beach. Development or construction actions at or in the vicinity of GGNRA sites have had or may have the potential to have adverse impacts on coastal communities. Even

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though these efforts both within and beyond park boundaries would affect vegetation, mitigation for these projects would reduce the potential for impacts.

The long-term moderate adverse impacts on the coastal dune plant community from dogs at Muir Beach under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from the many habitat restoration projects at and near Muir Beach should reduce some of the adverse impacts from this alternative on the coastal dune plant community. Therefore, cumulative impacts on the coastal dune plant community under this alternative would be expected to be negligible to long term, minor, and adverse.

MUIR BEACH ALTERNATIVE A CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term moderate adverse impacts	Dune communities are not well protected, are adjacent to off-leash areas, and are subject to impacts by dogs through trampling, digging, and dog waste	N/A	Negligible to long-term minor adverse cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking in the parking area, bridge, path to the beach, the proposed Pacific Way Trail (to be built), and the beach. The dune communities located adjacent to Muir Beach would be generally protected by physically restraining dogs. Coastal dune vegetation located in the 6-foot area adjacent to the beach (LOD area) would receive long-term minor adverse impacts from dogs trampling and digging in vegetated areas; nutrient addition from dog waste would also occur.

The long-term minor adverse impacts from dogs on the trails and in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs would protect vegetation and habitat off trail. Therefore, the overall impact on vegetation under alternative B would be negligible because no measurable or perceptible changes in the dune plant community would occur; plant structure, abundance, and distribution (both quality and quantity) of the coastal community would not measurably change.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking is not common at Muir Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on vegetation.

Cumulative Impacts. The negligible impacts on the coastal dune plant community from dogs at Muir Beach under alternative B were considered together with the effects of the projects mentioned above under alternative A "Cumulative Impacts." The beneficial effects from the many habitat restoration projects at and near Muir Beach combined with the negligible impacts from any development or construction actions and the negligible impacts from this alternative on the coastal dune plant community would result in beneficial cumulative impacts.

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MUIR BEACH ALTERNATIVE B CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect dune vegetation; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Because alternative C would have the same dog walking restrictions as alternative B, the impacts on dune communities would also be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Muir Beach to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. However, impacts to the coastal dunes by commercial dog walkers would be prevented by requiring dogs to the on a leash resulting in no impact on vegetation.

Cumulative Impacts. Under alternative C, the cumulative impacts on vegetation at this park site would be the same as those under alternative B: beneficial cumulative impacts.

MUIR BEACH ALTERNATIVE C CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect dune vegetation; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. In the vicinity of Muir Beach, alternative D would allow on-leash dog walking in the parking area and on the Pacific Way Trail. The boardwalk/path to the beach and the beach itself would be closed to dogs; the tidal lagoon and Redwood Creek, which are currently closed to dogs, would remain so. Assuming compliance, no impact on vegetation (in or beyond LOD area) would occur as a result of alternative D because trampling, digging, and nutrient addition in coastal dunes would be prevented by on-leash dog walking since dogs would not be allowed on the beach, the boardwalk, or path near dune communities.

No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on coastal dune vegetation.

Cumulative Impacts. Under alternative D, the lack of impacts on the coastal dune plant community from dogs was considered together with the effects of the projects mentioned above under alternative A "Cumulative Impacts." The beneficial effects from the many habitat restoration projects at and near Muir Beach combined with the negligible impacts from any development or construction actions and the lack of impacts from this alternative on the coastal dune plant community would result in beneficial cumulative impacts.

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MUIR BEACH ALTERNATIVE D CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact, assuming compliance	Dogs would not be allowed on the beach or boardwalk/path near dune communities	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. In the vicinity of Muir Beach, the parking area, the Pacific Way Trail, and the bridge and path to the beach would be open to on-leash dog walking. The portion of Muir Beach south of the access path would be a designated ROLA open to dogs under voice and sight control. Dogs would be prohibited on the remainder of the beach north of the access path. The ROLA designated as part of this alternative is located immediately adjacent to the fenced dune restoration area. The dunes would not be able to expand naturally beyond the fencing because of dog use, due to continued trampling, digging, and dog waste. Therefore, impacts in the LOD area and the ROLA would be long term, moderate, and adverse because the effects would be measurable and perceptible over a relatively large area and would affect the overall integrity of a plant community.

The long-term moderate adverse impacts in the ROLA and the LOD area would occur in a relatively small area compared to the site as a whole, and physically restraining dogs would protect dune vegetation, including the restored dunes. However, the dunes would not be able to expand naturally because the ROLA would be located immediately adjacent to the fenced dune restoration area. Therefore, the overall impact on dune vegetation under alternative E would be long term, minor, and adverse because effects would be measurable and perceptible, but would be localized in a relatively small area.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Muir Beach to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Muir Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on coastal dune vegetation.

Cumulative Impacts. The long-term minor adverse impacts on coastal dune communities from dogs at Muir Beach under alternative E were considered together with the effects of the projects mentioned above under alternative A. The beneficial effects from the many habitat restoration projects at and near Muir Beach should reduce the adverse impacts from this alternative to the coastal dune plant community. Therefore, cumulative impacts on the coastal dune plant community under this alternative would be expected to be negligible.

MUIR BEACH ALTERNATIVE E CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall long-term minor adverse impacts, assuming compliance	Physically restraining dogs would protect dune vegetation; dunes would not be able to expand naturally	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on the beach, bridge and path to the beach, and the Pacific Way Trail. Fencing would be installed along the

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dunes and lagoon as needed. The tidal lagoon and Redwood Creek, which are currently closed to dogs, would remain so. Assuming compliance, no impact on vegetation (in or beyond LOD area) would occur as a result of the preferred alternative because trampling, digging, and nutrient addition in coastal dunes would be prevented by on-leash dog walking since off-leash dogs would not be allowed on the beach, the bridge, or path near dune communities.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Muir Beach to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. However, impacts to the coastal dunes by commercial dog walkers would be prevented by the requirement, resulting in no impact on vegetation.

Cumulative Impacts. Projects and actions in and near Muir Beach were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Muir Beach. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Muir Beach. The *Lower Redwood Creek Floodplain and Salmonid Habitat Restoration* restored channel function to reduce flooding and reconnect the creek to its floodplain, as well as expanding riparian vegetation at the Banducci site (NPS 2010d, 1). The *Dias Ridge Restoration and Trail Improvement Project* is currently realigning trail segments and restoring degraded areas on Dias Ridge above Muir Beach (NPS 2009q, 1). Additional vegetation benefits would be expected from wetland and creek restoration at the tidal lagoon, which would reduce flooding on Pacific Way. The *Muir Beach Wetland and Creek Restoration Project* is restoring and enhancing ecological processes near the mouth of Redwood Creek, contributing to the quality of habitat, particularly as a result of restoration and enhancement of habitat and improvement of erosion and sedimentation conditions (NPS 2009r, 1). The Park Stewardship Programs Initiative at Pirates Cove, just south of Muir Beach, included efforts to control invasive non-native plants such as pampas grass to support the dense and relatively undisturbed coastal scrub, prairie, and riparian habitats (GGNPC 2010c, 1).

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Muir Beach. Development or construction actions at or in the vicinity of GGNRA sites have had or may have the potential to have adverse impacts on coastal communities. Even though these efforts both within and beyond park boundaries would affect vegetation, mitigation for these projects would reduce the potential for impacts.

The lack of impacts on the coastal dune plant community from dogs at Muir Beach under the preferred alternative was considered together with the effects of the projects mentioned above. The beneficial effects from the many habitat restoration projects at and near Muir Beach combined with the negligible impacts from any development or construction actions and the lack of impacts from this alternative on the coastal dune plant community would result in beneficial cumulative impacts.

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MUIR BEACH PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact, assuming compliance	Dogs would not be allowed on the beach or boardwalk/path near dune communities	Beneficial, assuming compliance	Beneficial cumulative impacts

Rodeo Beach/South Rodeo Beach

Alternative A: No Action. Under current conditions, dogs are allowed under voice control on Rodeo Beach/South Rodeo Beach On-leash dog walking is allowed on the footbridge and access trail to the beach Coastal dune habitat at Rodeo Beach/South Rodeo Beach is generally located between the crest of the beach and the lagoon and along the south side of the lagoon inlet west of the pedestrian bridge, and is in the area where dogs are currently allowed under voice control. Both Rodeo Lagoon and Rodeo Lake are currently closed to dogs for overall resource protection. A total of 30 dog related incidents were reported with 9 off-leash violations and 7 incidents involving pets within closed areas (table F). Park staff have estimated that they observe dogs in the lagoon at least once a week, and on a daily basis during good weather. Therefore, alternative A would result in continued long-term moderate adverse impacts on the coastal dune plant community, including fenced dunes, because dune areas could be negatively affected by dogs through trampling, digging, and dog waste. Effects would be measurable and perceptible and may affect the overall integrity of a plant community.

Under alternative A, no permit system exists for dog walking. At Rodeo Beach/South Rodeo Beach, commercial dog walking is uncommon. Therefore, commercial dog walking would have negligible impacts on vegetation.

Cumulative Impacts. Projects and actions in and near Rodeo Beach/South Rodeo Beach were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Rodeo Beach/South Rodeo Beach. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Rodeo Beach/South Rodeo Beach.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Rodeo Beach/South Rodeo Beach. Development or construction actions at or in the vicinity of GGNRA sites have had or may have the potential to have adverse impacts on coastal communities. Even though these efforts both within and beyond park boundaries would affect vegetation, mitigation for these projects would reduce the potential for impacts.

The long-term moderate adverse impacts on the coastal dune plant community from dogs at Rodeo Beach/South Rodeo Beach under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from the Park Stewardship Programs and other restoration projects near Rodeo Beach/South Rodeo Beach should reduce some of the adverse impacts from this

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alternative on the coastal dune plant community. Therefore, cumulative impacts on the coastal dune plant community under this alternative would be expected to be long term, minor, and adverse.

RODEO BEACH/SOUTH RODEO BEACH ALTERNATIVE A CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term moderate adverse impacts	Dune communities, including fenced dunes, are in the area where dogs would be allowed under voice control and would be subject to impacts by dogs 306306rough trampling, digging, and dog waste	N/A	Long-term minor adverse cumulative impacts

N/A = not applicable.

Exemption 5

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking on Rodeo Beach and South Rodeo Beach, the footbridge, and access trail to the beaches. Under alternative B, on-leash dog walking would not allow dogs to roam freely along the beach. The dune communities located on the beach would be protected by physically restraining dogs; however, some individuals may still walk their dogs through this sensitive area. Vegetation located in this area and in the 6-foot area adjacent to the beach and trails (LOD area) would receive long-term minor adverse impacts from dogs trampling the vegetation and digging in the sand. Nutrient addition from dog waste would also occur. Adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs would protect vegetation and habitat off trail, but even on-leash dogs could trample unfenced dune vegetation at this site. Therefore, assuming compliance, the overall impact on coastal dune vegetation under alternative B would be negligible to long term, minor, and adverse because measurable or perceptible changes in the dune plant community could occur, but would be localized in a relatively small area.

Exemption 5

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking is not common at Rodeo Beach/South Rodeo Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on vegetation.

Cumulative Impacts. The negligible to long-term minor adverse impacts on the coastal dune plant community from dogs at Rodeo Beach/South Rodeo Beach under alternative B were considered together with the effects of the projects mentioned above under alternative A. The beneficial effects from the Park Stewardship Programs and other restoration projects near Rodeo Beach/South Rodeo Beach should reduce some of the adverse impacts from this alternative on the coastal dune plant community. Therefore, cumulative impacts on the coastal dune plant community under this alternative would be expected to be negligible.

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RODEO BEACH/SOUTH RODEO BEACH ALTERNATIVE B CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible to long-term minor adverse impacts, assuming compliance	Physically restraining dogs would protect dune vegetation, but even on-leash dogs could trample unfenced dune vegetation.	Beneficial, assuming compliance	Negligible cumulative impact

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would establish a ROLA on Rodeo Beach that includes areas of vegetated coastal foredunes within the ROLA extending from the crest of the beach east to the lagoon and south to the ridge on the beach just north of South Rodeo Beach. The installation of a post-and-cable fence along the west end of Rodeo Lagoon would discourage visitors from accessing the lagoon, but would not physically exclude dogs from this area. A fence more impervious to dogs in this area is not feasible because winter storm waves wash over the entire beach, and wind-driven litter and debris would be trapped in the fence. In the ROLA at Rodeo Beach/South Rodeo Beach, dogs would create long-term moderate adverse impacts on coastal foredune vegetation due to the large size of the ROLA and the vegetation within this off-leash area. Dogs would run/play through the foredune areas, potentially trampling and digging up vegetation and adding nutrients through dog waste.

The long-term moderate adverse impacts from dogs in the LOD area would occur in a large area compared to the site as a whole. Physically restraining dogs would protect vegetation and habitat off trail, but some dune vegetation is in the ROLA and would be affected by dogs. Therefore, assuming compliance, the overall impact on vegetation under alternative B would be long term, minor to moderate, and adverse because measurable or perceptible changes in the dune plant community would occur and the integrity of the plant community could be negatively affected by dogs through trampling, digging, and dog waste.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash and the permit may restrict use by time and area. Permits would be allowed at Rodeo Beach/South Rodeo Beach. Impacts on vegetation from permit holders with four to six dogs off leash would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Rodeo Beach/South Rodeo Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on coastal dune vegetation.

Cumulative Impacts. The long-term minor to moderate adverse impacts on the coastal dune plant community from dogs at Rodeo Beach/South Rodeo Beach under alternative C were considered together with the effects of the projects mentioned above under alternative A. The beneficial effects from the Park Stewardship Programs and other restoration projects near Rodeo Beach/South Rodeo Beach should reduce some of the adverse impacts from this alternative on the coastal dune plant community. Therefore, cumulative impacts on the coastal dune plant community under this alternative would be expected to be long term, minor, and adverse.

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RODEO BEACH/SOUTH RODEO BEACH ALTERNATIVE C CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall long-term minor to moderate adverse impacts, assuming compliance	Physically restraining dogs in some areas and fencing would protect dune vegetation, but dune vegetation is also in ROLA and subject to impacts from dogs	Beneficial to no change, assuming compliance	Long-term, minor, adverse cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Under alternative D, restricting dogs to on leash only on the footbridge and on Rodeo Beach north of the footbridge and prohibiting dog walking on the rest of Rodeo Beach, South Rodeo Beach, and the connecting paths would provide additional protection to the vegetated foredunes along the crest of the dunes, but the vegetated foredunes along the lagoon inlet west of the pedestrian bridge would still be open to on-leash dog walking. There are no obvious trails in this location and no fencing planned, since the beach topography near the inlet is dynamic in the winter months. The dune communities located on the beach would be protected by physically restraining dogs on a leash; however, some individuals may still walk their dogs through this sensitive area. Coastal dune vegetation located in this area and in the 6-foot area adjacent to the beach and trails (LOD area) would receive long-term minor adverse impacts from dogs trampling the vegetation and digging in the sand. Nutrient addition from dog waste would also occur.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole because dogs would be prohibited on the southern portion of Rodeo Beach, on the trail to South Rodeo Beach, and on South Rodeo Beach. Physically restraining dogs would protect vegetation and habitat off trail, but vegetated foredunes along the lagoon inlet would still be open to on-leash dog walking. Therefore, the overall impact on vegetation under alternative D, assuming compliance, would be long term, minor, and adverse because measurable or perceptible changes in the dune plant community would occur, but would be localized in a relatively small area.

No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on coastal dune vegetation.

Cumulative Impacts. The long-term minor adverse impacts on the coastal dune plant community from dogs at Rodeo Beach/South Rodeo Beach under alternative D were considered together with the effects of the projects mentioned above under alternative A. The beneficial effects from the Park Stewardship Programs and other restoration projects near Rodeo Beach/South Rodeo Beach should reduce some of the adverse impacts from this alternative on the coastal dune plant community. Therefore, cumulative impacts on the coastal dune plant community under this alternative would be expected to be negligible.

RODEO BEACH/SOUTH RODEO BEACH ALTERNATIVE D CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall long-term minor adverse impacts, assuming compliance	Physically restraining dogs would protect dune vegetation, but vegetated foredunes along the lagoon inlet would still be open to on-leash dog walking	Beneficial, assuming compliance	Negligible cumulative impacts

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Alternative E: Most Dog Walking Access/Most Management Intensive. Under alternative E, dog walking under voice and sight control would be allowed in a ROLA on Rodeo Beach and South Rodeo Beach. On-leash dog walking would be allowed on the footbridge and access trails to the beach. The ROLA includes some areas of coastal dune habitat, including the foredune area east of the crest of the dune. Dogs would run/play through the foredune area, potentially trampling and digging up vegetation and adding nutrients through dog waste. Impacts in the ROLA would be long term, would be readily apparent, and would cause noticeable changes in coastal dune vegetation. Vegetation located in the 6-foot area adjacent to the on-leash portion of the beach and the trails (LOD area) would also be affected by dogs. In the ROLA and the LOD area, long-term moderate adverse impacts on vegetation from dogs through trampling and digging would occur; nutrient addition from dog waste would also occur. The long-term moderate adverse impacts from dogs in the LOD area would occur in a large area compared to the site as a whole. Physically restraining dogs would protect the majority of dune vegetation and habitat off trail, but some dune vegetation is in the ROLA and would be affected by dogs. Therefore, assuming compliance, the overall impact on vegetation under alternative E would be long term, minor to moderate, and adverse because measurable or perceptible changes in the dune plant community would occur, and the integrity of the plant community could be negatively affected by dogs through trampling, digging, and dog waste.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash and the permit may restrict use by time and area. Permits would be allowed at Rodeo Beach/South Rodeo Beach. Impacts on vegetation from permit holders with four to six dogs off leash would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Rodeo Beach/South Rodeo Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on vegetation.

Cumulative Impacts. The long-term minor to moderate adverse impacts on the coastal dune plant community from dogs at Rodeo Beach/South Rodeo Beach under alternative E were considered together with the effects of the projects mentioned above under alternative A. The beneficial effects from the Park Stewardship Programs and other restoration projects near Rodeo Beach/South Rodeo Beach should reduce some of the adverse impacts from this alternative on the coastal dune plant community. Therefore, cumulative impacts on the coastal dune plant community under this alternative would be expected to be long term, minor, and adverse.

RODEO BEACH/SOUTH RODEO BEACH ALTERNATIVE E CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall long-term minor to moderate adverse impacts, assuming compliance	Fencing and physical restraint of dogs would protect some dune vegetation, but a large amount of dune vegetation is within the ROLA	Beneficial, assuming compliance	Long term, minor, adverse cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would establish a ROLA on Rodeo Beach that includes areas of vegetated coastal foredunes within the ROLA extending from the crest of the beach east to the lagoon and south to the ridge on the beach just north of South Rodeo Beach. The

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installation of a post-and-cable fence along the west end of Rodeo Lagoon would discourage visitors from accessing the lagoon, but would not physically exclude dogs from this area. A fence more impervious to dogs in this area is not feasible because winter storm waves wash over the entire beach, and wind-driven litter and debris would be trapped in the fence. In the ROLA at Rodeo Beach/South Rodeo Beach, dogs would create long-term moderate adverse impacts on coastal foredune vegetation due to the large size of the ROLA and the vegetation within this off-leash area. Dogs would run/play through the foredune areas, potentially trampling and digging up vegetation and adding nutrients through dog waste. The adverse impacts from dogs in the LOD area would occur in a large area compared to the site as a whole. Physically restraining dogs would protect vegetation and habitat off trail, but some dune vegetation is in the ROLA and would be affected by dogs. Therefore, the overall impact on vegetation under the preferred alternative would be long term, minor to moderate, and adverse because measurable or perceptible changes in the dune plant community would occur and the integrity of the plant community could be negatively affected by dogs through trampling, digging, and dog waste.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash and the permit may restrict use by time and area. Permits would be allowed at Rodeo Beach/South Rodeo Beach. Impacts on vegetation from permit holders with four to six dogs off leash would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Rodeo Beach/South Rodeo Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on vegetation.

Cumulative Impacts. Projects and actions in and near Rodeo Beach/South Rodeo Beach were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Rodeo Beach/South Rodeo Beach. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Rodeo Beach/South Rodeo Beach.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Rodeo Beach/South Rodeo Beach. Development or construction actions at or in the vicinity of GGNRA sites have had or may have the potential to have adverse impacts on coastal communities. Even though these efforts both within and beyond park boundaries would affect vegetation, mitigation for these projects would reduce the potential for impacts.

The long-term minor to moderate adverse impacts on the coastal dune plant community from dogs at Rodeo Beach/South Rodeo Beach under the preferred alternative were considered together with the effects of the projects mentioned above. The beneficial effects from the Park Stewardship Programs and other restoration projects near Rodeo Beach/South Rodeo Beach should reduce some of the adverse impacts from this alternative on the coastal dune plant community. Therefore, cumulative impacts on the coastal dune plant community under this alternative would be expected to be long term, minor, and adverse.

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RODEO BEACH/SOUTH RODEO BEACH PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall long-term minor to moderate adverse impacts, assuming compliance	Physically restraining dogs in some areas and fencing would protect dune vegetation, but dune vegetation is also in the ROLA and subject to impacts from dogs	Beneficial to no change, assuming compliance	Long-term, minor, adverse cumulative impacts

SAN FRANCISCO COUNTY SITES

Crissy Field

Common to All Action Alternatives. Impacts from dogs as a result of the two different definitions of the Crissy Field WPA (the 36 CFR 7.97(d) definition for alternative A and the Warming Hut to approximately 900 feet east of the former Coast Guard Pier definition for alternatives B–E) will be the same for all alternatives. Even though the WPA would be expanded for alternatives B–E, this change would not influence the overall impacts analysis at this site because it would neither increase nor decrease the impacts at Crissy Field described in the paragraphs that follow. Further explanation of these two definitions can be found in the "Current Regulations and Policies" section of chapter 2.

Alternative A: No Action. Dogs are currently allowed under voice control throughout Crissy Field except for the WPA (which has a seasonal leash restriction), the tidal marsh (which is closed to dogs), and the parking and picnic areas (which allow on-leash dog walking only). This site has documented moderate to high visitor use and compliance with dog walking regulations is low. From 2008 through 2011, a total of 510 incidents were reported. Of the 510 incidents, 283 incidents were for having dogs within the Crissy Field WPA during the seasonal restriction (table J). Other common incidents include having a dog within a closed area (73 incidents) and for having dogs off-leash (65 incidents).There is currently considerable access to dune habitat at Crissy Field, although the restored dune areas are fenced (NPS 2009b). In the restored dune areas, the shifting sand buries the fences, and dogs have accessed dune areas; there are also sparsely vegetated foredunes that have formed in the WPA that are frequently trampled by dogs.

Exemption 5

Therefore, alternative A would result in continued long-term moderate adverse impacts on the coastal dune vegetation in the Central and East beach areas and the WPA. Impacts would result from trampling, digging, and dog waste from dogs. Effects on the coastal community would be measurable and perceptible over a relatively large area, and would affect the overall integrity of the plant community. Additionally, the restoration areas at Crissy Field, which have been planted with CNPS-listed species such as San Francisco dune gilia and San Francisco spineflower, would continue to be at risk.

Under alternative A, no permit system exists for dog walking. However, commercial dog walking at Crissy Field occurs regularly. Commercial dog walking would continue to contribute to the long-term moderate adverse impacts on the coastal dune vegetation. Commercial dog walkers with multiple dogs under voice control would impact vegetation through dogs trampling, digging, and depositing dog waste.

Cumulative Impacts. Projects and actions in and near Crissy Field were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide

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restoration and enhancement efforts can also beneficially affect vegetation at GGNRA park sites such as Crissy Field. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Crissy Field. Beginning in 1997, efforts to remediate and restore Crissy Field included the removal of hazardous waste and the re-creation of a tidal marsh and dune habitat. The subsequent 5-year monitoring program included tracking of hydrology and geomorphology, water quality, soils and sedimentation, vegetation, fish, invertebrates, and birds (NPS 2010i, 1–2).

The PTMP was adopted in 2002 and includes the preservation of the Presidio's cultural, natural, scenic, and recreational resources in Area B, managed by the Presidio Trust. The PTMP focuses on the long-term preservation of the park, including replacing pavement with green space, improving and enlarging the park's trail system, restoring stream corridors and natural habitats, and reusing historic structures (Presidio Trust 2002, 3). Management objectives in the PTMP that are applicable to vegetation include identifying and protecting sensitive wildlife species, and restoring and maintaining their habitats. The PTMP also preserves, enhances, and increases natural habitats managed by the Presidio Trust. For example, historic forest is being rehabilitated, wetlands are being enhanced, and native plant and wildlife species are being protected (Presidio Trust 2002b, ii). As a result, the PTMP has beneficial impacts on vegetation at or in the vicinity of Crissy Field.

Once implemented, the SNRAMP would improve plant communities and would have a beneficial impact on vegetation over the long term. Projects included in the SNRAMP would protect and enhance special status species habitat, riparian habitat, wetlands, migratory wildlife habitat, nursery sites, and other sensitive habitats in the "Natural Areas" managed by SFRPD in San Francisco and Pacifica (SFPD 2011, 292). The SNRAMP would specifically: maintain and enhance native plant and animal communities; maintain and enhance local biodiversity; reestablish native community diversity, structure, and ecosystem function where degraded; improve natural area connectivity; and decrease the extent of invasive exotic species cover (SFPD 2011, 292).

Development or construction actions at or in the vicinity of GGNRA sites have had or may have the potential to have adverse impacts on coastal communities. The Doyle Drive project, which included a newly constructed facility at East Beach in late 2009 (GGNPC 2010b), is one example of such a project. Even though these efforts both within and beyond park boundaries would affect vegetation, mitigation for these projects would reduce the potential for impacts.

The long-term moderate adverse impacts on the coastal dune plant community from dogs at Crissy Field under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from the Park Stewardship Programs, the PTMP, the SNRAMP, and the past re-creation of a tidal marsh and dune habitat at Crissy Field should reduce some of the adverse impacts from this alternative on the coastal dune plant community. Therefore, cumulative impacts on the coastal dune plant community under this alternative would be expected to be long term, minor, and adverse.

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CRISSY FIELD ALTERNATIVE A CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term moderate adverse impacts	Restored dune areas are fenced, but there is considerable access to dune habitat, which is also present in the WPA and subject to impacts by dogs through trampling, digging, and dog waste	N/A	Long-term minor adverse cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking on the promenade, Crissy Airfield, East and Central beaches, paths leading to Central Beach, trails and grassy areas near East Beach, around the Old Coast Guard Station, and on the multi-use trail along Mason Street. Having dogs on leash throughout the site would restrict dogs from going into the fenced dune habitat. However, some individuals may still allow their dogs to enter this sensitive area. The impacts from dogs on coastal dune vegetation adjacent to the trails and on-leash portions of the beach (LOD area) would be long term, minor, and adverse due to trampling, digging, and dog waste.

The adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Overall, assuming compliance, negligible impacts on coastal dune vegetation would occur as a result of this alternative. Physically restraining dogs would protect dune vegetation, and the WPA, which supports dunes, would be closed to dogs. No measurable or perceptible change in coastal dune vegetation or CNPS-listed plant species in coastal dune habitat would be expected.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since the percentage of commercial dog walkers is considered high at Crissy Field, dogs walked by commercial dog walkers would contribute to a portion of the adverse impacts on vegetation from dogs at the site. Overall impacts on vegetation from dogs walked by both commercial dog walkers and private individuals are summarized above.

Cumulative Impacts. The negligible impacts on the coastal dune plant community from dogs at Crissy Field under alternative B were considered together with the effects of the projects mentioned above under alternative A. The beneficial effects from the Park Stewardship Programs, the PTMP, the SNRAMP, and the past re-creation of a tidal marsh and dune habitat at Crissy Field combined with the negligible impacts from any development or construction actions and the negligible impacts from this alternative would result in beneficial cumulative impacts.

CRISSY FIELD ALTERNATIVE B CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect dune vegetation; trails and the LOD area are a small portion of the site; the WPA (which supports dunes) would be closed to dogs	Beneficial, assuming compliance	Beneficial cumulative impacts

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Alternative C: Emphasis on Multiple Use—Balanced by County. The addition of one ROLA on Central Beach and one at Crissy Airfield in alternative C would allow dogs under voice and sight control. On-leash dog walking would be allowed in the remainder of the site, except for East Beach and the fenced areas and the WPA, where dogs would not be allowed. Having dogs on leash in the designated areas would restrict dogs from going onto the beach and into the fenced dunes habitat. Restoration areas at Crissy Field that have been planted with CNPS-listed species such as San Francisco dune gilia and San Francisco spineflower would be protected by leash requirements as part of alternative C. The impacts on coastal dune vegetation adjacent to the trails and on-leash portions of the beach (LOD area) and the Central Beach ROLA would be long term, minor, and adverse due to trampling, digging, and dog waste (nutrient addition would occur).

The long-term minor adverse impacts from dogs in the LOD area and the Central Beach ROLA would occur in a relatively small area compared to the site as a whole. Physically restraining dogs would protect vegetation and habitat off trail, and the WPA, which supports dunes, would be closed to dogs. Therefore, assuming compliance, the overall impacts on coastal dune vegetation under alternative C would be negligible because no measurable or perceptible changes in the dune plant community would occur: plant structure, abundance, and distribution (both quality and quantity) of the coastal community would not measurably change.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash, and the permit may restrict use by time and area. Permits would be allowed at Crissy Field. Impacts on coastal dune vegetation from permit holders with four to six dogs off leash would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is common at Crissy Field, impacts on coastal dune vegetation would be expected from this user group. Impacts on vegetation from commercial dog walkers would be similar to impacts from other dog walkers, as summarized above in overall impacts; therefore, impacts from commercial dog walking would be negligible.

Cumulative Impacts. The negligible impacts on the coastal dune plant community from dogs at Crissy Field under alternative C were considered together with the effects of the projects mentioned above under alternative A. The beneficial effects from the Park Stewardship Programs, the PTMP, the SNRAMP, and the past re-creation of a tidal marsh and dune habitat at Crissy Field combined with the negligible impacts from any development or construction actions and the negligible impacts from this alternative would result in beneficial cumulative impacts.

CRISSY FIELD ALTERNATIVE C CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect dune vegetation in restored dune areas; trails, LOD area, and ROLAs are a small portion of the site; the WPA (which supports dunes) would be closed to dogs	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Alternative D would prohibit dogs on all beaches, but would establish a ROLA on the western section of Crissy Airfield. On-

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leash dog walking would be allowed in all other areas of Crissy Field, except for the fenced areas and the beach. The ROLA does not contain any dune vegetation, but this community does exist adjacent to the trails. The impacts on coastal dune vegetation adjacent to the trails (LOD area) would be long term, minor, and adverse as a result of trampling, digging, and dog waste.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole, and the ROLA does not contain any dune vegetation. Physically restraining dogs would protect vegetation and habitat off trail, and the WPA, which supports dunes, would be closed to dogs. Therefore, assuming compliance, the overall impacts on coastal dune vegetation under alternative D would be negligible because no measurable or perceptible changes in the dune plant community would occur: plant structure, abundance, and distribution (both quality and quantity) of the coastal community would not measurably change.

No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on coastal dune vegetation.

Cumulative Impacts. The negligible impacts on the coastal dune plant community from dogs at Crissy Field under alternative D were considered together with the effects of the projects mentioned above under alternative A. The beneficial effects from the Park Stewardship Programs, the PTMP, and the past re-creation of a tidal marsh and dune habitat at Crissy Field combined with the negligible impacts from any development or construction actions and the negligible impacts from this alternative would result in beneficial cumulative impacts.

Crissy Field Alternative D Conclusion Table

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect dune vegetation; LOD area is a small portion of the entire site; the WPA (which supports dunes) would be closed to dogs	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Under alternative E, on-leash dog walking would be allowed on the promenade and the paths to Central Beach, in the WPA, on East Beach, on the trails and grassy areas near East Beach, and on the multi-use trail along Mason Street. Two ROLAs would be established at the site, one on Crissy Airfield and one on Central Beach. Having dogs on leash in the designated areas would restrict dogs from entering the fenced dunes habitat. The impacts on coastal dune vegetation adjacent to the trails and on-leash portions of the beach (LOD area, including the WPA) as well as the Central Beach ROLA would be long term, minor, and adverse due to trampling, digging, and dog waste (nutrient addition would occur). The dune vegetation in the WPA would also experience long-term minor adverse impacts as a result of on-leash dogs.

Even though the long-term minor adverse impacts from on-leash dog walking in the Central Beach ROLA and the LOD area would affect only a small portion of the site, the overall impacts on dune vegetation at Crissy Field would also be long term, minor, and adverse, assuming compliance. Physically restraining dogs would protect dune vegetation in restored dune areas, but the WPA, which supports dunes, would be open to on-leash dogs as discussed in the LOD area above. Effects on coastal dune vegetation as a result of dogs would be measurable and perceptible, but would be localized in a relatively small area.

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Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash and the permit may restrict use by time and area. Permits would be allowed at Crissy Field. Impacts on coastal dune vegetation from permit holders with four to six dogs off leash would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is common at Crissy Field, impacts on vegetation would be expected from this user group. Impacts on vegetation from commercial dog walkers would be similar to impacts from other dog walkers, as summarized above in overall impacts; therefore, impacts from commercial dog walking would be long term, minor, and adverse.

Cumulative Impacts. The long-term minor adverse impacts on the coastal dune plant community from dogs at Crissy Field under alternative E were considered together with the effects of the projects mentioned above in alternative A. The beneficial effects from the Park Stewardship Programs, the PTMP, and the past re-creation of a tidal marsh and dune habitat at Crissy Field should reduce some of the adverse impacts from this alternative on the coastal dune plant community. Therefore, cumulative impacts on the coastal dune plant community under this alternative would be expected to be negligible.

CRISSY FIELD ALTERNATIVE E CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall long-term minor adverse impacts, assuming compliance	Physically restraining dogs would protect dune vegetation in restored dune areas; trails, LOD area, and ROLAs are a small portion of the site; the WPA (which supports dunes) would be open to on-leash dogs	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. A ROLA on Central Beach and in the eastern section of Crissy Airfield in the preferred alternative would allow dogs under voice and sight control. On-leash dog walking would be allowed in the remainder of the site, except for East Beach and the fenced areas and the WPA, where dogs would not be allowed. Having dogs on leash in the designated areas would restrict dogs from going onto the beach and into the fenced dunes habitat. Restoration areas at Crissy Field that have been planted with CNPS-listed species such as San Francisco dune gilia and San Francisco spineflower would be protected by leash requirements as part of the preferred alternative. The impacts on coastal dune vegetation adjacent to the trails and on-leash portions of the beach (LOD area) and the Central Beach ROLA would be long term, minor, and adverse due to trampling, digging, and dog waste (nutrient addition would occur).

The long-term minor adverse impacts from dogs in the LOD area and ROLAs would occur in a relatively small area compared to the site as a whole. Physically restraining dogs would protect vegetation and habitat off trail, and the WPA, which supports dunes, would be closed to dogs. Therefore, assuming compliance, the overall impacts on vegetation under the preferred alternative would be negligible because no measurable or perceptible changes in the dune plant community would occur: plant structure, abundance, and distribution (both quality and quantity) of the coastal community would not measurably change.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a

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permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash, and the permit may restrict use by time and area. Permits would be allowed at Crissy Field. Impacts on coastal dune vegetation from permit holders with four to six dogs off leash would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is common at Crissy Field, impacts on coastal dune vegetation would be expected from this user group. Impacts on coastal dune vegetation from commercial dog walkers would be similar to impacts from other dog walkers, as summarized above in overall impacts; therefore, impacts from commercial dog walking would be negligible.

Cumulative Impacts. Projects and actions in and near Crissy Field were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts can also beneficially affect vegetation at GGNRA park sites such as Crissy Field. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Crissy Field. Beginning in 1997, efforts to remediate and restore Crissy Field included the removal of hazardous waste and the re-creation of a tidal marsh and dune habitat. The subsequent 5-year monitoring program included tracking of hydrology and geomorphology, water quality, soils and sedimentation, vegetation, fish, invertebrates, and birds (NPS 2010i, 1-2).

The PTMP was adopted in 2002 and includes the preservation of the Presidio's cultural, natural, scenic, and recreational resources in Area B, managed by the Presidio Trust. The PTMP focuses on the long-term preservation of the park, including replacing pavement with green space, improving and enlarging the park's trail system, restoring stream corridors and natural habitats, and reusing historic structures (Presidio Trust 2002, 3). Management objectives in the PTMP that are applicable to vegetation include identifying and protecting sensitive wildlife species, and restoring and maintaining their habitats. The PTMP also preserves, enhances, and increases natural habitats managed by the Presidio Trust. For example, historic forest is being rehabilitated, wetlands are being enhanced, and native plant and wildlife species are being protected (Presidio Trust 2002b, ii). As a result, the PTMP has beneficial impacts on vegetation at or in the vicinity of Crissy Field. Development or construction actions at or in the vicinity of GGNRA sites have had or may have the potential to have adverse impacts on coastal communities. The Doyle Drive project, which included a newly constructed facility at East Beach in late 2009 (GGNPC 2010b, 1), is one example of such a project. Even though these efforts both within and beyond park boundaries would affect vegetation, mitigation for these projects would reduce the potential for impacts.

The negligible impacts on the coastal dune plant community from dogs at Crissy Field under the preferred alternative were considered together with the effects of the projects mentioned above. The beneficial effects from the Park Stewardship Programs, the PTMP, and the past re-creation of a tidal marsh and dune habitat at Crissy Field combined with the negligible impacts from any development or construction actions and the negligible impacts from this alternative would result in beneficial cumulative impacts.

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CRISSY FIELD PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect dune vegetation in restored dune areas; trails, LOD area, and ROLAs are a small portion of the entire site; the WPA (which supports dunes) would be closed to dogs	Beneficial, assuming compliance	Beneficial cumulative impacts

Baker Beach and Bluffs to Golden Gate Bridge

Alternative A: No Action. Coastal dune scrub habitat at Baker Beach and Bluffs to Golden Gate Bridge is one of the few remaining intact stands of this vegetation type in central California. In coastal dune scrub habitat at Baker Beach and Bluffs to Golden Gate Bridge, restoration for pink sand-verbena has occurred, as well as restoration for CNPS-listed species San Francisco dune gilia and San Francisco spineflower. Other documented CNPS-listed plant species at Baker Beach and Bluffs to Golden Gate Bridge include the Mission Delores (San Francisco) campion, dune tansy, Indian paintbrush, and San Francisco wallflower (USFWS 2003). In some areas at this site, dogs and their owners/walkers have created a myriad of social trails in coastal dune vegetation. This site has documented low to high visitor use (varies depending on weather, holidays, and weekend use), and dog walking use is considered low to moderate (table 9).

Under alternative A, dogs would be allowed under voice control on the beach north of Lobos Creek and would be required to be on leash along trails, except the Batteries to Bluffs Trail, where dogs would not be allowed. A total of 86 dog related incidents were reported between 2008 and 2011; the majority of incidents were for having dogs off-leash or within a closed area (table L). As suggested by Shulzitski and Russell (2004, 5), heavy off-leash dog use increases deterioration of native dune communities. Although the dunes nearest the beach, which are actively planted and maintained by the park's resource stewardship programs, are fenced, dogs under voice control would have access to adjacent, undisturbed areas that support the growth of dune vegetation. Digging in dunes destabilizes the dunes, making it difficult for plants to establish in this habitat. Therefore, alternative A would result in continued long-term moderate adverse impacts on coastal dune vegetation at this site because the effects would be measurable and perceptible over a relatively large area, and would affect the overall integrity of a plant community.

No permit system exists for dog walking under alternative A. At Baker Beach and Bluffs to Golden Gate Bridge, commercial dog walking is uncommon. Therefore, commercial dog walking would have negligible impacts on coastal dune vegetation.

Cumulative Impacts. Projects and actions in and near Baker Beach and Bluffs to Golden Gate Bridge were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts can also beneficially affect vegetation at GGNRA park sites such as Baker Beach and Bluffs to Golden Gate Bridge. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Baker Beach and Bluffs to Golden Gate Bridge. Between August and November of 2007, 73,000 tons of landfill debris was unearthed by excavators at Baker Beach and

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Bluffs to Golden Gate Bridge and conveyed to the top of the cliffs as part of a remediation and restoration effort (Presidio Trust 2010). The *Lobos Creek Valley Dune Restoration* project near Baker Beach and Bluffs to Golden Gate Bridge involved efforts to restore the coastal scrub and help increase the population of the listed San Francisco lessingia (NPS 2010f).

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Baker Beach and Bluffs to Golden Gate Bridge. Development or construction actions at or in the vicinity of GGNRA sites have had or may have the potential to have adverse impacts on coastal communities. Even though these efforts both within and beyond park boundaries would affect vegetation, mitigation for these projects would reduce the potential for impacts.

The long-term moderate adverse impacts on dune vegetation from dogs at Baker Beach and Bluffs to Golden Gate Bridge under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from the rehabilitation projects provided by the Park Stewardship Programs and the *Lobos Creek Valley Dune Restoration* project should reduce some of the adverse impacts on the coastal dune plant community from alternative A. Therefore, cumulative impacts on dune vegetation under this alternative would be expected to be long term, minor, and adverse.

BAKER BEACH AND BLUFFS TO GOLDEN GATE BRIDGE ALTERNATIVE A CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term moderate adverse impacts	Dogs and their owners/walkers have created social trails in coastal dune habitat, which would be subject to impacts from dogs through trampling, digging, and dog waste	N/A	Long-term minor adverse cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking except on the Batteries to Bluffs Trail and the Battery Crosby Trail, where dogs are not allowed. In addition, dogs would not be allowed on South Beach. In general, impacts would be limited to the existing trail and the 6-foot corridors immediately adjacent to the trails. Vegetation in areas adjacent to the trails (LOD area) would be affected by dogs through trampling, digging, and dog waste (nutrient addition would occur). Impacts on dune vegetation along the trails would be long term, minor, and adverse. Impacts would be detectable, but not large enough to create a measurable or perceptible change in the dune plant community at this site.

When considering the entire site of Baker Beach, the long-term minor adverse impacts from dogs in the LOD area would affect only a small portion of the entire site. Therefore, the overall impact on coastal dune vegetation from on-leash dog walking at Baker Beach and Bluffs to Golden Gate Bridge would be negligible, assuming compliance. Physically restraining dogs would protect dune vegetation, and the use of social trails at this site would be reduced.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking activity is not common at Baker Beach and Bluffs to Golden Gate Bridge, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on dune vegetation.

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Cumulative Impacts. The negligible impacts on the coastal dune plant community from dogs at Baker Beach and Bluffs to Golden Gate Bridge under alternative B were considered together with the effects of the projects mentioned above under alternative A "Cumulative Impacts." The beneficial effects from the rehabilitation projects provided by the Park Stewardship Programs and the *Lobos Creek Valley Dune Restoration* project combined with the negligible impacts from any development or construction actions and the negligible impacts from this alternative on the coastal dune plant community would result in beneficial cumulative impacts.

BAKER BEACH AND BLUFFS TO GOLDEN GATE BRIDGE ALTERNATIVE B CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect dune vegetation; trails and the LOD area are a small portion of the site; use of social trails would be reduced	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Under alternative C, dog walking restrictions would be the same as those under alternative B, and impacts on coastal dune vegetation at this park site would also be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits would restrict use by time and area. Permits would be allowed for Baker Beach and Bluffs to Golden Gate Bridge. Impacts on coastal dune vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Baker Beach and Bluffs to Golden Gate Bridge, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on coastal dune vegetation.

Cumulative Impacts. Under alternative C, the cumulative impacts on coastal dune vegetation at this park would be the same as those under alternative B: beneficial cumulative impacts.

BAKER BEACH AND BLUFFS TO GOLDEN GATE BRIDGE ALTERNATIVE C CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect dune vegetation; trails and the LOD area are a small portion of the site; use of social trails would be reduced	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Alternative D would allow on-leash dog walking on the section of Baker Beach south of the north parking lot and on all trails leading to that section of beach, as well as on the multi-use Coastal Trail. Dogs would be prohibited in the

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section of beach north of the north parking lot, approximately half of the beach, and the trails leading to the northern section of the beach. Vegetation in areas adjacent to the trails (LOD area) would be affected by dogs through trampling, digging, and dog waste. Impacts on dune vegetation along the trails would be long term, minor, and adverse. Impacts would be detectable, but not large enough to create a measurable or perceptible change in the dune plant community at this site.

When considering the entire site of Baker Beach, the long-term minor adverse impacts from dogs in the LOD area would affect only a small portion of the entire site. Therefore, the overall impact on coastal dune vegetation from on-leash dog walking at Baker Beach and Bluffs to Golden Gate Bridge would be negligible, assuming compliance. Physically restraining dogs would protect dune vegetation, and the use of social trails at this site would be reduced.

No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on coastal dune vegetation.

Cumulative Impacts. The negligible impacts on the coastal dune plant community from dogs at Baker Beach and Bluffs to Golden Gate Bridge under alternative D were considered together with the effects of the projects mentioned above under alternative A "Cumulative Impacts." The beneficial effects from the rehabilitation projects provided by the Park Stewardship Programs and the *Lobos Creek Valley Dune Restoration* project combined with the negligible impacts from any development or construction actions and the negligible impacts from this alternative on the coastal dune plant community would result in beneficial cumulative impacts.

BAKER BEACH AND BLUFFS TO GOLDEN GATE BRIDGE ALTERNATIVE D CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect dune vegetation; trails and the LOD area are a small portion of the site; use of social trails would be reduced	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would allow on-leash dog walking on the northern portion of the beach and on all trails in the vicinity of Baker Beach except the Batteries to Bluffs Trail and the Battery Crosby Trail. A ROLA would be established on the southern portion of the beach, south of the north parking lot. In general, impacts would be limited to the existing trails and the 6-foot corridors immediately adjacent to the trails. Vegetation in areas adjacent to the trails (LOD area) and in the ROLA (which would experience concentrated use) would be affected by dogs through trampling, digging, and dog waste. Impacts on dune vegetation in the LOD area and in the ROLA would be long term, minor, and adverse.

The long-term minor adverse impacts from dogs in the LOD area and ROLA would result in overall long-term minor adverse impacts on the coastal dune vegetation, assuming compliance. Physically restraining dogs would protect dune vegetation, and the unfenced dunes would not be affected in this alternative. The use of social trails would be reduced, but a measurable or perceptible change in the dune plant community would occur as a result of disturbance from dogs, although this effect would remain relatively localized.

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Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash and the permit may restrict use by time and area. Permits would be allowed for Baker Beach and Bluffs to Golden Gate Bridge. Impacts on coastal dune vegetation from permit holders with four to six dogs off leash would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Baker Beach and Bluffs to Golden Gate Bridge, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on coastal dune vegetation.

Cumulative Impacts. The long-term minor adverse impacts on dune vegetation from dogs at Baker Beach and Bluffs to Golden Gate Bridge under alternative E were considered together with the effects of the projects mentioned above under alternative A. The beneficial effects from the rehabilitation projects provided by the Park Stewardship Programs and the *Lobos Creek Valley Dune Restoration* project should reduce some of the adverse impacts on the coastal dune plant community from alternative E. Therefore, cumulative impacts on dune vegetation under this alternative would be expected to be negligible.

BAKER BEACH AND BLUFFS TO GOLDEN GATE BRIDGE ALTERNATIVE E CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall long-term minor adverse impacts, assuming compliance	Physically restraining dogs would protect dune vegetation; no unfenced dunes would be affected; the ROLA, trails, and LOD area are a small portion of the site; use of social trails would be reduced	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on the section of Baker Beach south of the north parking lot and on all trails leading to that section of beach, as well as on the multi-use Coastal Trail. Dogs would be prohibited in the section of beach north of the north parking lot (approximately half of the beach) and on the trails leading to the northern section of the beach. Vegetation in areas adjacent to the trails (LOD area) would be affected by dogs through trampling, digging, and dog waste. Impacts on dune vegetation along the trails would be long term, minor, and adverse. Impacts would be detectable, but not large enough to create a measurable or perceptible change in the dune plant community at this site.

The long-term minor adverse impacts from dogs in the LOD area would affect only a small portion of the site. Therefore, the overall impacts on coastal dune vegetation from on-leash dog walking at Baker Beach and Bluffs to Golden Gate Bridge would be negligible, assuming compliance. Physically restraining dogs would protect dune vegetation and the use of social trails at this site would be reduced.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits would restrict use by time and area. Permits would be allowed for Baker Beach and Bluffs to Golden Gate Bridge. Impacts on coastal dune vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Baker Beach and Bluffs to Golden Gate

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Bridge, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on coastal dune vegetation.

Cumulative Impacts. Projects and actions in and near Baker Beach and Bluffs to Golden Gate Bridge were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts can also beneficially affect vegetation at GGNRA park sites such as Baker Beach and Bluffs to Golden Gate Bridge. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Baker Beach and Bluffs to Golden Gate Bridge. Between August and November of 2007, 73,000 tons of landfill debris was unearthed by excavators at Baker Beach and Bluffs to Golden Gate Bridge and conveyed to the top of the cliffs as part of a remediation and restoration effort (Presidio Trust 2010). The *Lobos Creek Valley Dune Restoration* project near Baker Beach and Bluffs to Golden Gate Bridge involved efforts to restore the coastal scrub and help increase the population of the listed San Francisco lessingia (NPS 2010f, 1).

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Baker Beach and Bluffs to Golden Gate Bridge. Development or construction actions at or in the vicinity of GGNRA sites have had or may have the potential to have adverse impacts on coastal communities. Even though these efforts both within and beyond park boundaries would affect vegetation, mitigation for these projects would reduce the potential for impacts.

The negligible impacts on the coastal dune plant community from dogs at Baker Beach and Bluffs to Golden Gate Bridge under the preferred alternative were considered together with the effects of the projects mentioned above. The beneficial effects from the rehabilitation projects provided by the Park Stewardship Programs and the *Lobos Creek Valley Dune Restoration* project combined with the negligible impacts from any development or construction actions and the negligible impacts from this alternative on the coastal dune plant community would result in beneficial cumulative impacts.

BAKER BEACH AND BLUFFS TO GOLDEN GATE BRIDGE PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect dune vegetation; trails and the LOD area are a small portion of the site; use of social trails would be reduced	Beneficial, assuming compliance	Beneficial cumulative impacts

Ocean Beach

Alternative A: No Action. Ocean Beach has a designated SPPA from Stairwell 21 south to Sloat Boulevard, which was implemented to protect the western snowy plover when it is present during the nonbreeding season. Under current conditions, the seasonal restriction continues to be implemented and requires dogs to be walked on leash from July 1 to May 15. Dogs are allowed under voice control in the SPPA from May 15 to July 1. This site has documented high visitor use and compliance with the current dog policies at Ocean Beach is considered poor; 969 dog related incidents were reported from 2008 through 2011. The majority of incidents were for violating the Ocean Beach SPPA (729 incidents) but

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many incidents were also off-leash violations (89 incidents) (table O).The NPS has observed that nearly 60 percent of dogs continue to be off-leash in the SPPA even after the seasonal leash restriction was implemented in the SPPA as a result of 36 CFR 7.97(d) (Hatch et al. 2007, 3). In addition, dogs are allowed under voice control both north of Stairwell 21 and south of Sloat Boulevard to Fort Funston. There are no coastal dune communities located north of Stairwell 21 or south of Sloat Boulevard. Between Stairwell 21 and Sloat Boulevard, the majority of the extensive dune system along portions of Ocean Beach is comprised of the non-native European beachgrass that was previously planted to stabilize the sand on the beach, while the sparsely vegetated foredunes consist of native dune vegetation. Alternative A would result in continued long-term minor adverse impacts on coastal dune plant species because the integrity of the plant community inhabiting dune areas could be negatively affected by dogs through trampling, digging, and dog waste, although the majority of the dune system is vegetated with non-native European beachgrass.

Exemption 5

Under alternative A, no permit system exists for dog walking. At Ocean Beach, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on coastal dune vegetation.

Cumulative Impacts. Projects and actions in and near Ocean Beach were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of vegetation communities. Ongoing parkwide restoration and enhancement efforts can also beneficially affect vegetation at GGNRA park sites such as Ocean Beach. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect soils at park sites such as Ocean Beach. The *Ocean Beach–Great Highway Erosion Control Project* is developing long-term solutions to beach and coastal bluff erosion problems at Ocean Beach along the Great Highway (Highway 1) consistent with the enhancement of natural processes (City and County of San Francisco 2008, 3, 7).

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Ocean Beach. Development or construction actions at or in the vicinity of GGNRA sites have had or may have the potential to have adverse impacts on coastal communities. Even though these efforts both within and beyond park boundaries would affect vegetation, mitigation for these projects would reduce the potential for impacts.

The long-term minor adverse impacts on the coastal dune plant community from dogs at Ocean Beach under alternative A were considered together with the effects of the actions mentioned above. The benefits to vegetation from the Park Stewardship Programs and from the erosion control project would not be expected to reduce the adverse impacts of this alternative; therefore, the cumulative impacts analysis for this park site will focus on the results of the impact analysis for this alternative. The beneficial effects from the Park Stewardship Programs and from the erosion control project combined with the long-term minor adverse impacts from alternative A would result in long-term minor adverse cumulative impacts.

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OCEAN BEACH ALTERNATIVE A CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	The majority of the dunes along portions of Ocean Beach are comprised of the non-native European beachgrass, while the sparsely vegetated foredunes consist of native dune vegetation; these areas would be subject to impacts from dogs through trampling, digging, and dog waste	N/A	Long-term minor adverse cumulative impacts

N/A = not applicable

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking on the Coastal Trail along the Great Highway as well as on the beach north of Stairwell 21 and south of Sloat Boulevard. Dogs would not be allowed on the beach in the SPPA. In general, impacts would be limited to the existing trail and the 6-foot corridors immediately adjacent to the trail (LOD area). In the LOD area, impacts on the coastal dune vegetation would be long term, minor, and adverse because the integrity of the plant community inhabiting dune areas could be negatively affected by dogs through trampling, digging, and dog waste, although the majority of the dunes are vegetated with non-native European beachgrass.

The long-term minor adverse impacts on dune vegetation adjacent to the trail would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect dune vegetation, even though the majority is non-native European beachgrass. Therefore, assuming compliance, the overall impact on coastal dune vegetation at Ocean Beach would be negligible. Impacts would be detectable, but not large enough to create a measurable or perceptible change in the dune plant community at this site.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking activity is not common at Ocean Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on coastal dune vegetation.

Cumulative Impacts. The negligible impacts on the coastal dune plant community from dogs at Ocean Beach under alternative B were considered together with the effects of the actions mentioned above under alternative A. The beneficial effects from the Park Stewardship Programs and from the erosion control project combined with the negligible impacts from alternative B would result in negligible cumulative impacts.

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OCEAN BEACH ALTERNATIVE B CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect dune vegetation even though the majority is non-native grass; the trail and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would not allow dogs on the beach in the SPPA, but would allow on-leash dog walking on the Coastal Trail east of the dunes adjacent to the Great Highway and would allow dog walking under voice and sight control in a ROLA on the beach north of Stairwell 21. No dune communities are located in the ROLA north of Stairwell 21. Under alternative C, impacts would be limited to the existing trail and the 6-foot corridors immediately adjacent to the trail (LOD area). In the LOD area, impacts on the coastal dune vegetation would be long term, minor and adverse because the integrity of the plant community inhabiting dune areas could be negatively affected by dogs through trampling, digging, and dog waste, although the majority of the dunes are vegetated with non-native European beachgrass. Because there are no dune communities in the ROLA north of Stairwell 21, no impact would occur in the ROLA.

The long-term minor adverse impacts on vegetation in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs would protect dune vegetation, even though the majority is non-native grass. Therefore, assuming compliance, the overall impact on coastal dune vegetation at Ocean Beach would be negligible because no measurable or perceptible change in the plant community would be expected.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Ocean Beach to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking activity is not common at Ocean Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on coastal dune vegetation.

Cumulative Impacts. The negligible impacts on the coastal dune plant community from dogs at Ocean Beach under alternative C were considered together with the effects of the actions mentioned above under alternative A. The beneficial effects from the Park Stewardship Programs and from the erosion control project combined with the negligible impacts from alternative C would result in negligible cumulative impacts.

OCEAN BEACH ALTERNATIVE C CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect dune vegetation, even though the majority is non-native grass; the trail and the LOD area are a small portion of the	Beneficial, assuming compliance	Negligible cumulative impacts

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	site		

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Alternative D would generally have the same dog walking restrictions as alternative B, except dogs would not be allowed on the beach south of Sloat Boulevard, and impacts would be the same: long term, minor, and adverse in the LOD area and negligible overall.

No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on coastal dune vegetation. Private dog walkers would be allowed to walk one to three dogs.

Cumulative Impacts. The negligible impacts on the coastal dune plant community from dogs at Ocean Beach under alternative D were considered together with the effects of the actions mentioned above under alternative A. The beneficial effects from the Park Stewardship Programs and from the erosion control project combined with the negligible impacts from alternative D would result in negligible cumulative impacts.

OCEAN BEACH ALTERNATIVE D CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect dune vegetation, even though the majority is non-native grass; the trail and the LOD area are a small portion of the entire site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would allow on-leash dog walking all year on the beach in the SPPA and south of Sloat Boulevard. Dog walking under voice and sight control would be allowed in a ROLA north of Stairwell 21. The ROLA north of Stairwell 21 does not contain coastal dunes. However, on-leash dog walking would create impacts on dune vegetation because coastal dunes are located in the SPPA. In general, impacts would be limited to the existing trail and the 6-foot corridors immediately adjacent to the trails (LOD area). In the LOD area, impacts on the coastal dune vegetation would be long term, minor, and adverse because the integrity of the plant community inhabiting dune areas could be negatively affected by dogs through trampling, digging, and dog waste, although the majority of the dunes are vegetated with non-native European beachgrass. Because there are no dune communities in the ROLA north of Stairwell 21, there would be no impact in the ROLA.

The impacts on coastal dune vegetation in the SPPA would occur in a relatively large area of the site. In the coastal dunes of the SPPA, there are some areas of sparsely vegetated foredunes, but the majority of the dune vegetation consists of the non-native plant species European beachgrass; in some areas this species has been removed and native dune vegetation has been planted. Therefore, assuming compliance, the overall impacts from dogs on the coastal dune vegetation at this site would range from negligible to long term, minor, and adverse.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Ocean Beach to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking activity is not common at

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Ocean Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on coastal dune vegetation.

Cumulative Impacts. The negligible to long-term minor adverse impacts on the coastal dune plant community from dogs at Ocean Beach under alternative E were considered together with the effects of the actions mentioned above under alternative A. The benefits to vegetation from the Park Stewardship Programs and from the erosion control project would not be expected to reduce the adverse impacts of this alternative; therefore, the cumulative impacts analysis for this park site will focus on the results of the impact analysis for this alternative. The beneficial effects from the Park Stewardship Programs and from the erosion control project combined with the negligible to long-term minor adverse impacts from alternative E would result in negligible to long-term minor adverse cumulative impacts.

OCEAN BEACH ALTERNATIVE E CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible to long-term minor adverse impacts, assuming compliance	Physically restraining dogs would protect dune vegetation, even though the majority is non-native grass; the trail and the LOD area are a small portion of the site but the impact on vegetation in the SPPA would occur in a relatively large area of the entire site	Beneficial to no change, assuming compliance	Negligible to long-term minor adverse cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would not allow dogs on the beach in the SPPA, but would allow on-leash dog walking on the Coastal Trail east of the dunes adjacent to the Great Highway and would allow dog walking under voice and sight control in a ROLA on the beach north of Stairwell 21. No dune communities are located in the ROLA north of Stairwell 21. Under the preferred alternative, impacts would be limited to the existing trail and the 6-foot corridors immediately adjacent to the trail (LOD area). In the LOD area, impacts on the coastal dune vegetation would be long term, minor, and adverse because the integrity of the plant community inhabiting dune areas could be negatively affected by dogs through trampling, digging, and dog waste, although the majority of the dunes are vegetated with non-native European beachgrass. Because there are no dune communities in the ROLA north of Stairwell 21, no impact would occur in the ROLA.

The long-term minor adverse impacts on coastal dune vegetation in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect dune vegetation, even though the majority is non-native grass. Therefore, assuming compliance, the overall impact on coastal dune vegetation at Ocean Beach would be negligible because no measurable or perceptible change in the plant community would be expected.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Ocean Beach to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking activity is not common at Ocean Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on coastal dune vegetation.

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Cumulative Impacts. Projects and actions in and near Ocean Beach were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of vegetation communities. Ongoing parkwide restoration and enhancement efforts can also beneficially affect vegetation at GGNRA park sites such as Ocean Beach. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect soils at park sites such as Ocean Beach. The *Ocean Beach–Great Highway Erosion Control Project* is developing long-term solutions to beach and coastal bluff erosion problems at Ocean Beach along the Great Highway (Highway 1) consistent with the enhancement of natural processes (City and County of San Francisco 2008, 3, 7).

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Ocean Beach. Development or construction actions at or in the vicinity of GGNRA sites have had or may have the potential to have adverse impacts on coastal communities. Even though these efforts both within and beyond park boundaries would affect vegetation, mitigation for these projects would reduce the potential for impacts.

The negligible impacts on the coastal dune plant community from dogs at Ocean Beach under the preferred alternative were considered together with the effects of the actions mentioned above. The beneficial effects from the 329329rk Stewardship Programs and from the erosion control project combined with the negligible impacts from the preferred alternative would result in negligible cumulative impacts.

OCEAN BEACH PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect dune vegetation, even though the majority is non-native grass; the trail and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Fort Funston

Alternative A: No Action. Fort Funston contains the last remnant of the expansive coastal dune complex that once covered the entire western portion of San Francisco. The habitat has been adversely affected by the site's development as a military site in the 1930s and use of non-native ice plant to stabilize the sand around the military facilities. Dogs are currently allowed under voice control on the beach and throughout upper Fort Funston (including a habitat corridor of coastal dune habitat along the Coastal Trail), with the exception of a the 12-acre fenced Habitat Protection Area closure in upper Fort Funston and the voluntary seasonal closure (April 1–August 15) for bank swallow protection on a section of beach extending 50 feet from the base of the coastal bluff below the bank swallow habitat areas (GGNRA Compendium; appendix B). Fort Funston has documented high visitor use (table 9) and a total of 172 dog related incidents were recorded from 2008 through 2011. The majority of incidents recorded were for hazardous conditions (72 incidents, 29 of which were pet rescues on the cliffs at Fort Funston) and having a dog off-leash (69 incidents), although an incident was recorded for damage to vegetation at Fort Funston (table P). Below, a sample of some recent excerpts from 2009 and 2010 incident records are included. These quotes describe the issues and provide specific examples of dogs disturbing the bluffs/cliffs at Fort Funston:

Exemption 5

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- "Numerous NPS and USPP units responded to Fort Funston for a reported dog trapped on a cliff. Upon arrival, units contacted a subject… who stated his dog had become stuck on a nearby cliff. The dog was located and a rescue effort begun, which included the construction of a technical rope rescue set up." (Fort Funston, February 6, 2010, Incident Report # 10-001252)

- "I was informed by Park dispatch dog had gone over the cliff side at Ft. Funston, When I arrived I was met by the dog Melody Lendaro, who pointed to the spot where the dog had gone. I was unable to see dog and requested that a beach patrol unit go down to the beach. A lifeguard was able locate the dog and guide me to a location above the dog, however I was still unable requested the help of the San Francisco Fire Department and Battalion 8 responded. Battalion 8 was able to rescue the dog and cleared at 1315." (Fort Funston, September 3, 2010, Incident Report # 10-009836)

- "On 10/1/09, at approximately 1532 hrs, I responded to Ft. Funston for a report of a dog stuck on a cliff. SFFD also responded. Upon arrival, I met with SFFD personnel who were already setting up rope lines to retrieve the dog. On scene I also met with the dog's owner who stated that the dog was not on a leash when it ran over the cliff side, west of Battery Davis. SFFD retrieved the dog without incident. The dog did not appear to be injured." (Fort Funston, October 1, 2009, Incident Report # 09-010997)

Exemption 5

Visitors can access areas surrounding the bluffs from above the beach at the Beach Access Trail. Signs and fencing (currently partially buried) along the bluff edge and along the beach below the colony have been installed to restrict access to these areas by visitors. During the monthly bird surveys at Fort Funston, dogs were recorded in the 12-acre Habitat Protection Area, which is closed to public access; on many occasions, dogs and humans were observed inside this area (USGS 2004). Commercial dog walking is also popular and is considered a high use activity at this site. Current heavy use by recreationists affects the native dune vegetation by trampling, thereby weakening plant root systems. Dogs and their owners/walkers have created a myriad of social trails in coastal dune vegetation between the parking lot and the Sunset and Chip trails. The NPS has implemented dune restoration at Fort Funston and has planted the native foredune species pink sand-verbena (also a CNPS-listed plant species) and dune tansy in a 12-acre Habitat Restoration Area. The restoration area is enclosed by fencing to protect the restoration area from recreational activity; however, dogs have accessed the restoration areas at Fort Funston despite the fencing. The majority of Fort Funston is undeveloped and denuded of vegetation as a result of direct impacts from dogs through trampling, digging, and dog waste. This site would have the potential to be restored to native plant habitat and is part of the recovery area in the *Recovery Plan for Coastal Plants of the Northern San Francisco Peninsula* (USFWS 2003), but restoration is precluded by unmanaged (or unrestricted) dog use at the site; the level of trampling and nutrient input may inhibit the ability of the NPS to restore the area. Restoration currently can only be carried out in the 12-acre closed area, as dogs and visitors have accessed all other portions of the site, including the bluff tops.

Under alternative A, dogs would continue to access the remnant coastal dune habitat, resulting in long-term major adverse impacts on coastal dune vegetation, including pink sand-verbena, and on restoration areas at Fort Funston because the integrity of the plant community inhabiting dune areas would continue being negatively affected by dogs through trampling, digging, and dog waste; restoration at the site would be precluded by dogs.

Under alternative A, no permit system exists for dog walking. However, commercial dog walking regularly occurs at Fort Funston. Commercial dog walking would continue to contribute to the long-term major adverse impacts on vegetation. Dune habitat would be impacted by dogs through trampling, digging, and dog waste.

Cumulative Impacts. Projects and actions in and near Fort Funston were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Fort Funston. The City of Daly City is preparing the *Vista Grande Drainage Basin Alternatives Analysis* to develop and evaluate alternatives that will reduce or eliminate flooding, reduce erosion along Lake Merced, and provide other potential benefits such as habitat enhancement and lake level augmentation (City of Daly City 2010a, 1).

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Fort Funston. For example, the NPS is planning to construct new restroom and maintenance facilities at Fort Funston, which has the potential to have an adverse impact on vegetation in the area (NPS 2010h, 1). The Vista Grande portion of Daly City's stormwater collection system includes an underground collection system that routes storm flows northwest to the Vista Grande canal and tunnel for discharge to an outfall structure at the beach below Fort Funston (City of Daly City 2010b, 3). This system has the potential to adversely affect vegetation in the area of Fort Funston.

The long-term major adverse impacts on the coastal dune plant community from dogs at Fort Funston under alternative A were considered together with the effects of the projects mentioned above. There would be a combination of adverse and beneficial actions in and around Fort Funston; when combined, these actions would balance out, resulting in negligible impacts. Therefore, the cumulative impacts analysis for this park site will mainly focus on the results of the impact analysis for each alternative. Cumulative impacts on the coastal dune plant community from dogs under this alternative would be expected to be long term, major, and adverse.

FORT FUNSTON ALTERNATIVE A CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term major adverse impacts	The majority of the site is undeveloped and denuded of vegetation as a result of unmanaged (or unrestricted) dog use at the site; the level of trampling and nutrient input may preclude (or inhibit) restoration at the recovery area; there is high visitor use and moderate to high levels of incidents related to dog activities at the site	N/A	Long-term major adverse cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Under alternative B, on-leash dog walking would be allowed on the beach and trails that are not closed to dogs. Closed areas include a 12-acre habitat protection area that restricts both visitors and dogs for the protection of native plant communities, the bluff area that has a seasonal closure (April 1 – August 15) for the protection of the bank swallow colony, and a section of trail closed for the prevention of erosion. Dog walking under voice control would no longer be allowed under this alternative. Coastal dune habitat north of the Beach Access Trail and west of the Coastal Trail in Fort Funston would remain closed for habitat protection, as well as a small portion between the Coastal Trail and Skyline Boulevard. These areas collectively account for 12 acres of protected coastal dune

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habitat and they are fenced in along the Coastal Trail. These closures allow for better protection of restoration sites and the potential recovery of the native San Francisco lessingia. In general, impacts on the coastal dune vegetation of Fort Funston would be limited to the 6-foot corridors immediately adjacent to the trails. Impacts in areas adjacent to the trails (LOD area) would be long term, minor, and adverse. Dogs could enter coastal dune habitat and affect it through trampling, digging, and dog waste. While dogs would cause impacts on the dunes, most of the vegetation in the coastal dune habitat in Fort Funston is non-native; therefore, the impacts would not be considered greater than minor and adverse.

The long-term minor adverse impacts on coastal dune vegetation adjacent to the trails would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect dune vegetation, the site could potentially be restored, and the habitat corridor at the site (coastal dune habitat along the Coastal Trail) would be protected. Therefore, assuming compliance, the overall impacts on coastal dune vegetation at Fort Funston would be negligible because no measurable or perceptible change in the coastal dune community would be expected as a result of alternative B.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since the percentage of commercial dog walkers is considered high at Fort Funston, dogs walked by commercial dog walkers would cause the majority of the adverse impacts on coastal dune vegetation from dogs at the site. Overall impacts on coastal dune vegetation from dogs walked by both commercial dog walkers and private individuals are summarized above.

Cumulative Impacts. The negligible impacts on the coastal dune plant community from dogs at Fort Funston under alternative B were considered together with the effects of the projects mentioned above under alternative A. There would be a combination of adverse and beneficial actions in and around Fort Funston; when combined, these actions would balance out, resulting in negligible impacts. Therefore, cumulative impacts on the coastal dune plant community from dogs under this alternative would be expected to be negligible.

FORT FUNSTON ALTERNATIVE B CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect dune vegetation; trails and the LOD area are a small portion of the entire site; site could potentially be restored and habitat corridor would be protected	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would allow on-leash dog walking on all trails north of the parking lot (except the Sunset Trail from the parking lot to the junction with the Chip Trail and Horse Trails, which would be closed to dogs), the Sand Ladder and Sunset Trail south of the main parking lot. Dog walking under voice and sight control would be allowed in two ROLAs: one on the beach and another adjacent to the parking lot. The upland ROLA is in existing coastal dune vegetation that has been fragmented by a myriad of social trails made by dogs and humans traversing the area under current conditions. Through concentrated dog use in this designated ROLA, the coastal vegetation would degrade and the potential for restoration of this remnant coastal dune habitat would be limited. In addition to impacts in the ROLAs, impacts on the coastal dune vegetation would also occur in the 6-foot corridors immediately adjacent to the trails (LOD area). Dogs could enter coastal dune habitat and affect it through trampling, digging and dog waste. In the LOD area and ROLAs, impacts on coastal dune vegetation would be long term, moderate, and adverse. However, designation of ROLAs

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could lead to greater compliance and reduced impacts in other (non-ROLA) areas of the site. While dogs would cause impacts on the dunes, most of the vegetation in the coastal dune habitat in Fort Funston is non-native; therefore, the impacts would not be considered greater than moderate and adverse.

Assuming compliance, alternative C would result in an overall long-term minor to moderate adverse impact on coastal dune habitat because the beach ROLA is located in coastal dune habitat that would degrade, but the area in the ROLA is only a small portion of the entire site. Physically restraining dogs would protect dune vegetation and reduce social trails at this site, but dog use would still limit potential restoration even though the habitat corridor would be protected.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash, and the permit may restrict use by time and area. Permits would be allowed for Fort Funston. Impacts on coastal dune vegetation from permit holders with four to six dogs off leash would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is common at Fort Funston, impacts on coastal dune vegetation would be expected from this user group. Impacts on coastal dune vegetation from commercial dog walkers would be similar to impacts from other dog walkers, as summarized above in overall impacts; therefore, impacts from commercial dog walking would be long term, minor to moderate, and adverse.

Cumulative Impacts. The long-term minor to moderate adverse impacts on the coastal dune plant community from dogs at Fort Funston under alternative C were considered together with the effects of the projects mentioned above under alternative A. There would be a combination of adverse and beneficial effects from actions in and around Fort Funston; when combined, these actions would balance out, resulting in negligible impacts. Therefore, the cumulative analysis for this park site will mainly focus on the results of the impact analysis for this alternative. Cumulative impacts on the coastal dune plant community from dogs under this alternative would be expected to be long term, minor to moderate, and adverse.

FORT FUNSTON ALTERNATIVE C CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall long-term minor to moderate adverse impacts, assuming compliance	Physically restraining dogs would protect dune vegetation and reduce social trails; the upland ROLA could support dune vegetation that would be affected but potential for restoration would be limited, although the habitat corridor would be protected and restored	Beneficial, assuming compliance	Long-term minor to moderate adverse cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Dog walking restrictions and impacts for alternative D would be similar to those described above for alternative C, although there would be on-leash dog walking instead of a ROLA on the beach and the upland ROLA would be located adjacent to the Coastal Trail, in coastal dune habitat. The proposed ROLA, which would be fenced, would also be in an area that has been affected by social trails. The vegetation would degrade through concentrated use in this designated ROLA, and the potential for restoration of this remnant

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coastal dune habitat would be limited. In addition to impacts in the ROLA, impacts on the coastal dune vegetation would also occur in the 6-foot corridors immediately adjacent to the trails (LOD area). Dogs could enter coastal dune habitat and affect it through trampling, digging, and dog waste. In the LOD area and ROLA, impacts on coastal dune vegetation would be long term, moderate, and adverse. However, designation of a ROLA could lead to greater compliance and reduced impacts in other (non-ROLA) areas of the site. While dogs would cause impacts on the dunes, most of the vegetation in the coastal dune habitat in Fort Funston is non-native; therefore, the impacts would not be considered greater than moderate and adverse.

Assuming compliance, alternative D would result in overall long-term minor to moderate adverse impacts on coastal dune habitat because the ROLA is located in coastal dune habitat that would degrade, but the area in the ROLA is only a small portion of the entire site. Physically restraining dogs on leash would protect dune vegetation and reduce social trails at this site, but dog use would still limit potential restoration even though the habitat corridor would be protected.

No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on coastal dune vegetation. Private dog walkers would be allowed to walk one to three dogs.

Cumulative Impacts. The long-term minor to moderate adverse impacts on the coastal dune plant community from dogs at Fort Funston under alternative D were considered together with the effects of the projects mentioned above under alternative A. There would be a combination of adverse and beneficial effects from actions in and around Fort Funston; when combined, these actions would balance out, resulting in negligible impacts. Therefore, the cumulative analysis for this park site will mainly focus on the results of the impact analysis for this alternative. Cumulative impacts on the coastal dune plant community from dogs under this alternative would be expected to be long term, minor to moderate, and adverse.

FORT FUNSTON ALTERNATIVE D CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall long-term minor to moderate adverse impacts, assuming compliance	Physically restraining dogs would protect dune vegetation and reduce social trails; however, the ROLA supports dune vegetation that would be affected, limiting potential restoration	Beneficial, assuming compliance	Long-term minor to moderate adverse cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would allow on-leash dog walking on all trails except the Equestrian Trail, which is closed to dogs and the northern end of the Sunset Trail, which is closed due to erosion. Dog walking under voice and sight control would be allowed in two ROLAs. One ROLA would be on the beach south of the Beach Access Trail to the Fort Funston southern boundary. The second ("upland") ROLA would extend north from the main parking lot. This ROLA corridor would extend from just north of the new trail to be built along the northern edge of the parking lot that extends to and includes the north beach access trail. The ROLA corridor includes the Chip Trail and sections of the Sunset Trail, Funston Road, and Battery Davis Road, all north of the parking lot. The ROLA also extends into the disturbed area across from the north beach access trail. The upland ROLA would be in existing coastal dune vegetation that has been fragmented by a myriad of social trails made by dogs and humans traversing the area under current conditions. Through concentrated dog use in this designated ROLA, the vegetation would degrade and the potential for restoration of this

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remnant coastal dune habitat would be limited. In addition to impacts in the ROLA, impacts on coastal dune vegetation would also occur in the 6-foot corridors immediately adjacent to the trails (LOD area). Dogs could enter coastal dune habitat and affect it through trampling, digging, and dog waste. In the LOD area and ROLA, impacts on coastal dune vegetation would be long term, major, and adverse. However, designation of a ROLA could lead to greater compliance and reduced impacts in other (non-ROLA) areas of the site. While dogs would cause impacts on the dunes, most of the vegetation in the coastal dune habitat in Fort Funston is non-native; therefore, the impacts would be considered major and adverse because of the large size of the two ROLAs proposed as part of alternative E.

Assuming compliance, alternative E would result in an overall long-term moderate adverse impact on coastal dune habitat because the upland ROLA corridor is in coastal dune vegetation and encompasses a large portion of coastal dune habitat, which would continue to degrade. In other areas, physically restraining dogs would protect dune vegetation, but restoration potential is limited at this site due to disturbance of vegetation by dogs.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash, and the permit may restrict use by time and area. Permits would be allowed for Fort Funston. Impacts on coastal dune vegetation from permit holders with four to six dogs off leash would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is common at Fort Funston, impacts on coastal dune vegetation would be expected from this user group. Impacts on coastal dune vegetation from commercial dog walkers would be similar to impacts from other dog walkers, as summarized above in overall impacts; therefore, impacts from commercial dog walking would be long term, moderate, and adverse.

Cumulative Impacts. The long-term moderate adverse impacts on the coastal dune plant community from dogs at Fort Funston under alternative E were considered together with the effects of the projects mentioned above under alternative A. There would be a combination of adverse and beneficial effects from actions in and around Fort Funston; when combined, these actions would balance out, resulting in negligible impacts. Therefore, the cumulative analysis for this park site will mainly focus on the results of the impact analysis for this alternative. Cumulative impacts on the coastal dune plant community from dogs under this alternative would be expected to be long term, moderate, and adverse.

FORT FUNSTON ALTERNATIVE E CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall long-term moderate adverse impacts, assuming compliance	The large, upland ROLA corridor is in coastal dune vegetation; in other areas, physically restraining dogs would protect dune vegetation; trails and the LOD area are a small portion of the site but ROLA corridor is large; restoration potential is limited	Beneficial, assuming compliance	Long-term moderate adverse cumulative impacts

Alternative F; Preferred Alternative. On-leash dog walking would be allowed on all trails north of the parking lot (except the horse trails, which would be closed to dogs) and on the Sand Ladder and Sunset Trail south of the main parking lot. Dog walking under voice and sight control would be allowed in two

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designated ROLAs, one on the beach south of the Beach Access Trail and a second ("upland" ROLA) north from the main parking lot, same as alternative C. The "upland" ROLA also extends into the disturbed area across from the north beach access trail. In addition, the Chip Trail would be hardened to improve accessibility. The upland ROLA is in existing coastal dune vegetation that has been fragmented by a myriad of social trails made by dogs and humans traversing the area under current conditions. Through concentrated use in this designated ROLA, the coastal dune vegetation would degrade and the potential for restoration of this remnant coastal dune habitat would be limited. In addition to impacts in the ROLAs, impacts on the coastal dune vegetation would also occur in the 6-foot corridors immediately adjacent to the trails (LOD area). Dogs could enter coastal dune habitat and affect it through trampling, digging, and dog waste. In the LOD area and ROLAs, impacts on coastal dune vegetation would be long term, moderate, and adverse. However, designation of ROLAs could lead to greater compliance and reduced impacts in other (non-ROLA) areas of the site. While dogs would cause impacts on the dunes, most of the vegetation in the coastal dune habitat in Fort Funston is non-native; therefore, the impacts would not be considered greater than moderate and adverse.

Assuming compliance, the preferred alternative would result in overall long-term minor to moderate adverse impacts on coastal dune habitat because the upland ROLA is located in previously disturbed coastal dune habitat that would continue to degrade, but the area in the ROLA is only a small portion of the entire site. Hardening the Chip Trail would also adversely affect coastal dune vegetation, but this area has been previously disturbed due to current existence of the trail. Physically restraining dogs on leash would protect dune vegetation and reduce social trails at this site, but dog use would still limit potential restoration even though the habitat corridor would be protected.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash, and the permit may restrict use by time and area. Permits would be allowed for Fort Funston. Impacts on coastal dune vegetation from permit holders with four to six dogs off leash would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is common at Fort Funston, impacts on coastal dune vegetation would be expected from this user group. Impacts on coastal dune vegetation from commercial dog walkers would be similar to impacts from other dog walkers, as summarized above in overall impacts; therefore, impacts from commercial dog walking would be long term, minor to moderate, and adverse.

Cumulative Impacts. Projects and actions in and near Fort Funston were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Fort Funston. The City of Daly City is preparing the *Vista Grande Drainage Basin Alternatives Analysis* to develop and evaluate alternatives that will reduce or eliminate flooding, reduce erosion along Lake Merced, and provide other potential benefits such as habitat enhancement and lake level augmentation (City of Daly City 2010a, 1).

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Fort Funston. For example, the NPS is planning to construct new restroom and maintenance facilities at Fort Funston, which has the potential to have an adverse impact on vegetation in the area (NPS 2010h, 1). The Vista Grande portion of Daly City's stormwater collection system includes an underground collection system that routes storm flows northwest to the Vista Grande

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canal and tunnel for discharge to an outfall structure at the beach below Fort Funston (City of Daly City 2010b, 3). This system has the potential to adversely affect vegetation in the area of Fort Funston.

The long-term minor to moderate adverse impacts on the coastal dune plant community from dogs at Fort Funston under the preferred alternative were considered together with the effects of the projects mentioned above. There would be a combination of adverse and beneficial effects from actions in and around Fort Funston; when combined, these actions would balance out, resulting in negligible impacts. Therefore, the cumulative analysis for this park site will mainly focus on the results of the impact analysis for this alternative. Cumulative impacts on the coastal dune plant community from dogs under this alternative would be expected to be long term, minor to moderate, and adverse.

FORT FUNSTON PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Community Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall long-term minor to moderate adverse impacts, assuming compliance	Physically restraining dogs would protect dune vegetation and reduce social trails; the upland ROLA supports dune vegetation that would be affected and limits potential restoration, although habitat corridor would be protected	Beneficial, assuming compliance	Long-term minor to moderate adverse cumulative impacts

COASTAL SCRUB, CHAPARRAL, AND GRASSLAND COMMUNITIES

Coastal scrub, chaparral, and grassland plant communities are found to some extent at many of the GGNRA sites considered in this plan/EIS, but at the more developed sites in San Francisco County, only small remnants may be found (Crissy Field, Fort Point Promenade/Fort Point NHS Trails, Baker Beach and Bluffs to Golden Gate Bridge, Lands End). As a result, only impacts in largely undeveloped park sites containing intact acreage of coastal scrub/chaparral/grassland are analyzed. Because these three communities form a vegetation mosaic along the coast, they are discussed together in this section. In general, there is little site-specific documentation that dogs have either directly or indirectly affected coastal scrub/chaparral/grassland habitat at GGNRA. However, park staff has observed noncompliant dogs in unprotected areas due to ineffective fencing or lack of fencing. As described in chapter 3, the coastal scrub/chaparral/grassland communities provide habitat for many CNPS-listed plant species. Also occurring at the grasslands in this community is silver-leaf lupine, the primary host plant for the federally endangered mission blue butterfly; both species are discussed in more detail in the "Special-status Species" section.

MARIN COUNTY SITES

Homestead Valley

Alternative A: No Action. Under current conditions, dogs are allowed under voice control or on leash throughout the site. Even though this site has low visitor use (see table 9), physical damage and nutrient addition from dogs is assumed to be currently happening along the fire road/trails and in off-trail areas throughout the site. Due to their nature, dogs are not expected to stay on the fire road/trails. Since dogs are currently allowed under voice control at the site, there is a higher likelihood that dogs would go off trail than if they were on leash, creating impacts on vegetation communities in the adjacent, undisturbed areas located along the fire road/trails. Impacts on vegetation in these adjacent areas would include

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physical damage and would create opportunities for invasive plants to establish. The creation of social trails could further affect the coastal scrub, chaparral, and grassland vegetation by increasing fragmentation. The Oakland mariposa lily occurs in the grasslands of Homestead Valley and is an example of a rare plant with limited distribution that could be susceptible to impacts from dog activities.

The impacts on vegetation at this park site under alternative A would be considered long term, minor, and adverse because effects would be measurable and perceptible, but would be localized in a relatively small area.

Under alternative A, no permit system exists for dog walking. At Homestead Valley, commercial dog walking is uncommon. Therefore, commercial dog walking would have negligible impacts on vegetation.

Cumulative Impacts. Projects and actions in and near Homestead Valley were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of the Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as the GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Homestead Valley. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Projects funded by the Wildland/Urban Interface Initiative on private lands and habitat restoration could also impact Homestead Valley.

Additional actions have had, are currently having, or have the potential to have adverse impacts on the coastal scrub, chaparral, and grassland communities at or in the vicinity of Homestead Valley, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The long-term minor adverse impacts on the coastal scrub, chaparral, and grassland communities from dogs at Homestead Valley under alternative A were considered together with the effects of the actions mentioned above. The benefits to the coastal scrub, chaparral, and grassland communities from the Park Stewardship Programs would not be expected to reduce the adverse impacts of this alternative; therefore, the cumulative analysis for this park site will focus on the results of the impact analysis for this alternative. The beneficial effects from the Park Stewardship Programs combined with the long-term minor adverse impacts from alternative A would result in long-term minor adverse cumulative impacts.

HOMESTEAD VALLEY ALTERNATIVE A CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Impacts on vegetation from dogs would be caused through physical damage such as trampling, digging, and dog waste; these effects, as well as fragmentation, could lead to the spread of invasive plant species	N/A	Long-term, minor, adverse cumulative impacts

N/A = not applicable.

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Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking on Homestead Fire Road and on neighborhood connector trails (Homestead Trail and Homestead Summit Trail) that would be designated in the future. In general, impacts on vegetation would be limited to the 6-foot corridors immediately adjacent to the trails/fire road. Impacts on vegetation could include physical damage from trampling and digging, as well as nutrient addition from dog waste and urine. Therefore, impacts in areas adjacent to the trail (LOD area) would be long term, minor, and adverse since this area supports the growth of native vegetation, some of it rare, such as the Oakland mariposa lily. Impacts would be would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Therefore, assuming compliance, the overall impact on coastal scrub/ chaparral/grassland vegetation from on-leash dog walking at Homestead Valley would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking in Homestead Valley is uncommon, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on coastal scrub/ chaparral/grassland vegetation.

Cumulative Impacts. The negligible impacts on vegetation from dogs at Homestead Valley under alternative B were considered together with the effects of the projects mentioned above under alternative A "Cumulative Impacts." Cumulatively, alternative B would have negligible impacts on the coastal scrub/chaparral/grasslands at this site when added to the effects from these projects.

HOMESTEAD VALLEY ALTERNATIVE B CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would have the same dog walking restrictions as alternative B, and the impacts on coastal scrub/chaparral/grassland vegetation would be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Homestead Valley to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common in this area, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on coastal scrub/chaparral/ grassland vegetation.

Cumulative Impacts. Under alternative C, the cumulative impacts on the vegetation at this park site would be the same as those under alternative B: negligible cumulative impacts on the coastal scrub, chaparral, and grassland communities.

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HOMESTEAD VALLEY ALTERNATIVE C CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Under alternative D, on-leash dog walking would be allowed only along the Homestead Fire Road; dogs would be prohibited in other areas of the site. Impacts on vegetation could include physical damage from trampling and digging, as well as nutrient addition from dog waste and urine. Impacts in areas adjacent to the fire road (LOD area) would be long term, minor, and adverse since this habitat supports the growth of native vegetation, some of it rare, such as the Oakland mariposa lily. Impacts would be would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Therefore, assuming compliance, the overall impact on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at Homestead Valley would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

No commercial dog walking would be allowed under alternative D; therefore, no impact would occur as a result of commercial dog walking.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Homestead Valley under alternative D were considered together with the effects of the projects mentioned above under alternative A "Cumulative Impacts." Cumulatively, alternative D would have negligible impacts on the coastal scrub/chaparral/grassland communities at this site when added to the effects from these projects.

HOMESTEAD VALLEY ALTERNATIVE D CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would have the same dog walking restrictions as alternative B, and the impacts on vegetation would be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Homestead Valley to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common in this area, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

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Cumulative Impacts. Under alternative E, the cumulative impacts on the coastal scrub/chaparral/ grassland communities at this park site would be the same as those under alternative B: negligible cumulative impacts on the coastal scrub/chaparral/grassland communities.

HOMESTEAD VALLEY ALTERNATIVE E CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on Homestead Fire Road and on neighborhood connector trails (Homestead Trail and Homestead Summit Trail) that would be designated in the future. In general, impacts on vegetation would be limited to the 6-foot corridors immediately adjacent to the trails/fire roads. Impacts on vegetation could include physical damage from trampling and digging, as well as nutrient addition from dog waste and urine. Therefore, impacts in areas adjacent to the trail (LOD area) would be long term, minor, and adverse since this habitat supports the growth of native vegetation, some of it rare, such as the Oakland mariposa lily. Impacts would be would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Therefore, assuming compliance, the overall impact on coastal scrub/ chaparral/grassland vegetation from on-leash dog walking at Homestead Valley would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Homestead Valley to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common in this area, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on vegetation.

Cumulative Impacts. Projects and actions in and near Homestead Valley were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of the Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as the GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Homestead Valley. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Homestead Valley, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

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The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Homestead Valley under the preferred alternative were considered together with the effects of the projects mentioned above. Cumulatively, the preferred alternative would have negligible impacts on the coastal scrub/ chaparral/grassland communities at this site when added to the effects from these projects.

HOMESTEAD VALLEY PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alta Trail/Orchard Fire Road/Pacheco Fire Road

Alternative A: No Action. Under current conditions, dogs are allowed under voice control or on leash on the trails and roads from Marin City to Oakwood Valley. These areas experience high use by commercial dog walkers (table 9), with typically 5 to 12 dogs under voice control per commercial walker.

Under alternative A, physical damage to vegetation from dogs through trampling, digging, and dog waste would continue to occur since dogs would be allowed under voice control and there is a higher likelihood of dogs going off the trail and fire roads than if they were on leash. Continued impacts in these areas could prevent the growth of vegetation or allow the establishment of non-native invasive species. These impacts would be considered long term, minor, and adverse due to the high use by commercial dog walkers and because effects would be measurable and perceptible, but would be localized in a relatively small area.

No permit system exists for dog walking under alternative A. However, commercial dog walking at Alta Trail, Orchard Fire Road, and Pacheco Fire Road is common, with commercial dog walkers having 5 to 12 dogs under voice control at one time. Commercial dog walking would continue to create long-term minor adverse impacts on vegetation, as described above. Dogs under voice control would continue to disturb the vegetation through digging, trampling, and dog waste.

Cumulative Impacts. Projects and actions in and near Alta Trail, Orchard Fire Road, and Pacheco Fire Road were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Alta Trail, Orchard Fire Road, and Pacheco Fire Road. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Alta Trail/Orchard Fire Road/Pacheco Fire Road.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Alta Trail/Orchard Fire Road/Pacheco Fire Road, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require

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project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts

The long-term minor adverse impacts on the coastal scrub, chaparral, and grassland communities from dogs at Alta Trail, Orchard Fire Road, and Pacheco Fire Road under alternative A were considered together with the effects of the actions mentioned above. The benefits to vegetation from the Park Stewardship Programs and other restoration projects in the area of this site would not be expected to reduce the adverse impacts of this alternative; therefore, the cumulative analysis for this park site will focus on the results of the impact analysis for this alternative. The beneficial effects from the Park Stewardship Programs and other restoration projects combined with the long-term minor adverse impacts from alternative A would result in long-term minor adverse cumulative impacts.

ALTA TRAIL/ORCHARD FIRE ROAD/PACHECO FIRE ROAD ALTERNATIVE A CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Impacts on vegetation from dogs would be caused through physical damage such as trampling, digging, and dog waste; these effects, as well as fragmentation, could lead to the spread of invasive plant species	N/A	Long-term, minor, adverse cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking on the Alta Trail to Orchard Fire Road and on Orchard and Pacheco fire roads. Impacts in areas adjacent to the trail (LOD area) would be long term, minor, and adverse since this habitat supports the growth of native vegetation, some of it rare, such as the Oakland mariposa lily. Impacts on vegetation could include physical damage from trampling and digging, as well as nutrient addition from dog waste and urine. Impacts would be detectable, but not large enough to cause a measurable or perceptible change in the coastal scrub/chaparral/grassland communities.

The long-term minor adverse impacts from the high level of dog use in the LOD area would occur in a relatively reduced area compared to the site as a whole. Therefore, assuming compliance, the overall impact on coastal scrub/chaparral/grassland vegetation from on-leash dog walking on the Alta Trail, Orchard Fire Road, and Pacheco Fire Road would be negligible because impacts would result in no measurable or perceptible changes in the plant communities.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since the percentage of commercial dog walkers is considered high at Alta Trail/Orchard Fire Road/Pacheco Fire Road, dogs walked by commercial dog walkers would cause the majority of the adverse impacts on vegetation from dogs at the site. Overall impacts on vegetation from dogs walked by both commercial dog walkers and private individuals are summarized above.

Cumulative Impacts. The negligible impacts on the coastal scrub, chaparral, and grassland communities from dogs at Alta Trail, Orchard Fire Road, and Pacheco Fire Road under alternative B were considered together with the effects of the actions mentioned above in alternative A. The benefits to vegetation from the Park Stewardship Programs and other restoration projects in the area of this site combined with the negligible impacts from alternative B would result in negligible cumulative impacts.

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ALTA TRAIL/ORCHARD FIRE ROAD/PACHECO FIRE ROAD ALTERNATIVE B CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would have the same dog walking restrictions as alternative B, and impacts would be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits may restrict use by time and area. Permits would be allowed for Alta Trail/Orchard Fire Road/Pacheco Fire Road. Impacts on vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is common at Alta Trail/Orchard Fire Road/Pacheco Fire Road, impacts on vegetation would be expected from this user group. Impacts on vegetation from commercial dog walkers would be similar to impacts from other dog walkers, as summarized above; therefore, impacts from commercial dog walking would be negligible.

Cumulative Impacts. Under alternative C, the cumulative impacts on the coastal scrub/chaparral/grassland communities at this park site would be the same as those under alternative B: negligible cumulative impacts on the coastal scrub/chaparral/grassland communities.

ALTA TRAIL/ORCHARD FIRE ROAD/PACHECO FIRE ROAD ALTERNATIVE C CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Under alternative D, dogs would not be allowed at this site. Therefore, no impact on vegetation from dogs would occur at this site.

Since dogs would not be allowed at Alta Trail, Orchard Fire Road, and Pacheco Fire Road, there would be no impact from commercial dog walkers on the coastal scrub, chaparral, and grassland vegetation communities.

Cumulative Impacts. The lack of impacts on the coastal scrub/chaparral/grassland communities from dogs at Alta Trail, Orchard Fire Road, and Pacheco Fire Road under alternative D was considered together with the effects of the projects mentioned above in alternative A. The beneficial effects from the Park Stewardship Programs and other restoration projects combined with the lack of impacts on the coastal scrub/chaparral/grassland communities from alternative D would result in beneficial cumulative impacts.

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ALTA TRAIL/ORCHARD FIRE ROAD/PACHECO FIRE ROAD ALTERNATIVE D CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact, assuming compliance	Dogs would be prohibited at the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would have similar dog walking restrictions as alternative B, and impacts would be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits would restrict use by time and area. Permits would be allowed for Alta Trail/Orchard Fire Road/Pacheco Fire Road. Impacts on vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is common at Alta Trail/Orchard Fire Road/Pacheco Fire Road, impacts on vegetation would be expected from this user group. Impacts on vegetation from commercial dog walkers would be similar to impacts from other dog walkers, as summarized above; therefore, impacts from commercial dog walking would be negligible.

Cumulative Impacts. Under alternative E, the cumulative impacts on the coastal scrub/chaparral/ grassland communities at this park site would be the same as those under alternative B: negligible.

ALTA TRAIL/ORCHARD FIRE ROAD/PACHECO FIRE ROAD ALTERNATIVE E CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on the Alta Trail from Donahue Street to the junction with the Morning Sun Trail and on Orchard and Pacheco fire roads. Impacts in areas adjacent to the trail (LOD area) would be long term, minor, and adverse since this habitat supports the growth of native vegetation, some of it rare, such as the Oakland mariposa lily. Impacts on vegetation could include physical damage from trampling and digging, as well as nutrient addition from dog waste and urine. Impacts would be detectable, but not large enough to cause a measurable or perceptible change in the coast scrub/chaparral/grassland plant communities.

The long-term minor adverse impacts from the high level of dog use in the LOD area would occur in a relatively reduced area compared to the site as a whole. Therefore, assuming compliance, the overall impact on coastal scrub/chaparral/grassland vegetation from on-leash dog walking on the Alta Trail, Orchard Fire Road, and Pacheco Fire Road would be negligible because impacts would result in no measurable or perceptible changes in the plant communities.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits would restrict use by time

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and area. Permits would be allowed for Alta Trail/Orchard Fire Road/Pacheco Fire Road. Impacts on vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is common at Alta Trail/Orchard Fire Road/Pacheco Fire Road, impacts on vegetation would be expected from this user group. Impacts on vegetation from commercial dog walkers would be similar to impacts from other dog walkers, as summarized above in overall impacts; therefore, impacts from commercial dog walking would be negligible.

Cumulative Impacts. Projects and actions in and near Alta Trail, Orchard Fire Road, and Pacheco Fire Road were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Alta Trail, Orchard Fire Road, and Pacheco Fire Road. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Alta Trail, Orchard Fire Road, and Pacheco Fire Road.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Alta Trail, Orchard Fire Road, and Pacheco Fire Road, such as development or construction actions at or in the vicinity of GGNRA sites. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The negligible impacts on the coastal scrub, chaparral, and grassland communities from dogs at Alta Trail, Orchard Fire Road, and Pacheco Fire Road under the preferred alternative were considered together with the effects of the actions mentioned above. The benefits to vegetation from the Park Stewardship Programs and other restoration projects in the area of this site combined with the negligible impacts from the preferred alternative would result in negligible cumulative impacts on the coastal scrub, chaparral, and grassland communities.

ALTA TRAIL/ORCHARD FIRE ROAD/PACHECO FIRE ROAD PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Oakwood Valley

Alternative A: No Action. Currently, dogs are allowed under voice control on Oakwood Valley Fire Road and on Oakwood Valley Trail from the junction with the fire road to the junction with Alta Trail. On-leash dog walking is allowed on Oakwood Valley Trail from the trailhead to the junction with Oakwood Valley Fire Road. These areas experience high use by hikers, runners, bicyclists, and horseback riders and moderate use by dog walkers (table 9). In addition, this area contains mission blue butterfly habitat and host plants.

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Under alternative A, physical disturbance from dog activities would continue to occur along the fire road and trail and in off-trail areas throughout the site. Due to their nature, dogs are not expected to stay on the fire road/trail. Since dogs would be allowed under voice control in some areas of the site, there is a higher likelihood that dogs would go off trail than if they were on leash, creating impacts on coastal scrub, chaparral, and grassland vegetation in adjacent areas. Therefore, these impacts would be considered long term, minor, and adverse because effects would be measurable and perceptible, but would be localized in a relatively small area.

No permit system exists for dog walking under alternative A. At Oakwood Valley, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on vegetation.

Cumulative Impacts. Projects and actions in and near Oakwood Valley were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Oakwood Valley. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/ Urban Interface Initiative on private lands could also impact Oakwood Valley.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Oakwood Valley, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The long-term minor adverse impacts on the coastal scrub/chaparral/grassland communities from dogs at Oakwood Valley under alternative A were considered together with the effects of the actions mentioned above. The benefits to vegetation from the Park Stewardship Programs and other restoration projects in the area of this site would not be expected to reduce the adverse impacts of this alternative; therefore, the cumulative analysis for this park site will focus on the results of the impact analysis for this alternative. The beneficial effects from the Park Stewardship Programs and other restoration projects combined with the long-term minor adverse impacts from alternative A would result in long-term minor adverse cumulative impacts.

OAKWOOD VALLEY ALTERNATIVE A CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Impacts on vegetation from dogs would be caused through physical damage such as trampling, digging, and dog waste; these effects, as well as fragmentation, could lead to the spread of invasive plant species	N/A	Long-term, minor, adverse cumulative impacts

N/A = not applicable.

GGNRA192802

Alternative B: NPS Leash Regulation. Under alternative B, on-leash dog walking would be allowed on the Oakwood Valley fire road and trail loop in the lower section of the site. No dogs would be allowed above the junction of the road and trail. Impacts in areas adjacent to the trail would be long term, minor, and adverse since these areas support existing vegetation that would be affected by trampling, digging, and dog waste. Impacts on vegetation would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at Oakwood Valley would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking activity is not common at Oakwood Valley, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Oakwood Valley under alternative B were considered together with the effects of the projects mentioned above under alternative A "Cumulative Impacts." Cumulatively, alternative B would have negligible impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the effects from these projects.

OAKWOOD VALLEY ALTERNATIVE B CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C proposes a ROLA on the Oakwood Valley Fire Road to the junction with Oakwood Valley Trail. Double gates would be located at both ends, with continuous fencing to protect sensitive habitat. Oakwood Valley Trail would allow on-leash dog walking from the junction with Oakwood Valley Fire Road to a new gate at the junction with Alta Trail. Dogs under voice and sight control in the ROLA on the Oakwood Valley Fire Road would have access to the land between the edge of the trail and the fence (LOD area). The vegetation in this area would be affected by physical disturbance from dog activities. Dogs in the ROLA would be confined to a smaller area, potentially increasing the impacts on the adjacent natural habitat and vegetation. There is also a potential for an increase in nutrient loading from dog waste due to having more dogs confined to a smaller area directly adjacent to natural habitat. Dogs would affect vegetation in the LOD area of the on-leash portion of Oakwood Valley Trail as well. Impacts would result from physical disturbance, such as trampling, digging, and dog waste. Impacts on vegetation in the LOD area and in the ROLA would be long term, minor, and adverse because effects would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area and ROLA would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation

GGNRA192803

off trail. Therefore, assuming compliance, the overall impacts on coastal scrub/chaparral/grassland vegetation from dog walking at Oakwood Valley would be negligible because impacts would result in no measurable or perceptible changes in the plant communities.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Oakwood Valley to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Oakwood Valley, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Oakwood Valley under alternative C were considered together with the effects of the projects mentioned above under alternative A "Cumulative Impacts." Cumulatively, alternative C would have negligible impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the effects from these projects.

OAKWOOD VALLEY ALTERNATIVE C CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Under alternative D, on-leash dog walking would be allowed only along the Oakwood Valley Fire Road from Tennessee Valley Road to the junction with Oakwood Valley Trail. Impacts in areas adjacent to the fire road would be long term, minor, and adverse since these areas support existing vegetation that would be affected by trampling, digging, and dog waste. The impacts from dogs would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on vegetation from on-leash dog walking at Oakwood Valley would be negligible because impacts would result in no measurable or perceptible changes in the coastal scrub/chaparral/grassland plant communities.

No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on vegetation. Private dog walkers would be allowed to walk one to three dogs.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Oakwood Valley under alternative D were considered together with the effects of the projects mentioned above under alternative A "Cumulative Impacts." Cumulatively, alternative D would have negligible impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the effects from these projects.

GGNRA192804

OAKWOOD VALLEY ALTERNATIVE D CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; the fire road and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E proposes a ROLA on the Oakwood Valley Fire Road to the junction with Oakwood Valley Trail. Double gates would be located at both ends, with noncontinuous fencing where needed to protect sensitive habitat. Oakwood Valley Trail would allow on-leash dog walking from the junction with Oakwood Valley Fire Road to the junction with Alta Trail. Impacts would be the same as those under alternative C, assuming compliance: long term, minor, and adverse in the LOD area and ROLA and negligible overall.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Oakwood Valley to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking activity is not common at Oakwood Valley, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Under alternative E, the cumulative impacts on the coastal scrub/chaparral/ grassland communities at this park site would be the same as those under alternative C: negligible cumulative impacts .

OAKWOOD VALLEY ALTERNATIVE E CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and LOD areas and ROLAs are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on the Oakwood Valley Fire Road and on the Oakwood Valley Trail from the junction with the fire road to the junction with the Alta Trail. Dogs would affect vegetation in the LOD area of the on-leash portion of Oakwood Valley Fire Road and Trail. Impacts in areas adjacent to the trail would be long term, minor, and adverse since these areas support existing vegetation that would be affected by trampling, digging, and dog waste. Impacts on vegetation would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impact on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at Oakwood Valley would be negligible because impacts would result in no measurable or perceptible changes in the plant communities.

GGNRA192805

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Oakwood Valley to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Oakwood Valley, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Projects and actions in and near Oakwood Valley were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Oakwood Valley. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Oakwood Valley.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Oakwood Valley, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Oakwood Valley under the preferred alternative were considered together with the effects of the projects mentioned above. Cumulatively, the preferred alternative would have negligible impacts on the coastal scrub/ chaparral/grassland communities at this park site when added to the effects from these projects.

OAKWOOD VALLEY PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Marin Headlands Trails

Alternative A: No Action. Under current conditions, on-leash dog walking is allowed along portions of the Coastal Trail (Hill 88 to Muir Beach), the Battery Smith-Guthrie Fire Road Loop, North Miwok Trail, County View Road, and South Rodeo Beach Trail. Dog walking under voice control (or on leash) is allowed along other portions of the Coastal Trail (Golden Gate Bridge to Hill 88, including portions of the Lagoon Trail); the Coastal, Wolf Ridge, and Miwok Trail Loop; and the Old Bunker Fire Road Loop (includes a section of the Coastal Trail). These trails experience low to moderate use by dog walkers. Dog-related incidents are high at this site with a total of 269 from 2008 through 2011, with the majority of incidents for having dogs within closed areas (table G). The Marin Headlands Trails area contains

Exemption 5

GGNRA192806

diverse habitat, including coastal scrub, serpentine coastal scrub, chaparral, grassland, and mission blue butterfly habitat and host plants; there are large tracts of coastal scrub habitat in the Marin Headlands Trails that extend north into Muir Beach. Physical disturbance and nutrient addition are currently happening along the trails and fire roads and in off-trail areas throughout the site due to unleashed dogs. In general, in larger tracts such as the Marin Headlands Trails, more dog walkers and their dogs will be concentrated at the trailheads and the ability of dog walkers to disperse provides a dilution that will actually spread impacts to a greater area or throughout the site. At trailheads and other congregating areas, in addition to physical damage, scent marking and dog waste by dogs can cause alteration of habitat conditions as well as furthering the spread of invasive plant species. Due to their nature, dogs are not expected to stay on the fire roads/trails.

Since dogs would be allowed under voice control in portions of the site under alternative A, there is a higher likelihood that dogs would go off trail than if they were on leash, thus affecting vegetation in adjacent undisturbed areas. Therefore, impacts on coastal scrub/chaparral/grassland vegetation as a result of this alternative would continue to be long term, minor, and adverse because effects would be measurable and perceptible, but would be localized in a relatively small area.

Under alternative A, no permit system exists for dog walking. At the Marin Headlands Trails, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on vegetation.

Cumulative Impacts. Projects and actions in and near the Marin Headlands Trails were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as the Marin Headlands Trails. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact the Marin Headlands Trails.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Marin Headlands Trails, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The long-term minor adverse impacts on the coastal scrub community from dogs at the Marin Headlands Trails under alternative A were considered together with the effects of the actions mentioned above. The benefits to vegetation from the Park Stewardship Programs and other restoration projects in the area of this site would not be expected to reduce the adverse impacts of this alternative; therefore, the cumulative analysis for this park site will focus on the results of the impact analysis for this alternative. The beneficial effects from the Park Stewardship Programs and other restoration projects combined with the long-term minor adverse impacts from alternative A would result in long-term minor adverse cumulative impacts on the coastal scrub community.

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MARIN HEADLANDS TRAILS ALTERNATIVE A CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Impacts on vegetation from dogs would be caused through physical damage such as trampling, digging, and dog waste; these effects, as well as fragmentation, could lead to the spread of invasive plant species	N/A	Long-term minor adverse cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would prohibit dogs on the trails at the Marin Headlands Trails. Not allowing dog walking on the Marin Headlands Trails would eliminate physical disturbance by dogs and nutrient addition from dog waste. Therefore, assuming compliance, alternative B would result in no impact on coastal scrub/chaparral/grassland vegetation at the site.

Since dogs would not be allowed at the Marin Headlands Trails, there would be no impact from commercial dog walkers on the coastal scrub/chaparral/grassland vegetation communities.

Cumulative Impacts. The lack of impacts on the coastal scrub/chaparral/grassland communities from dogs at the Marin Headlands Trails under alternative B was considered together with the effects of the projects mentioned above in alternative A. The beneficial effects from the Park Stewardship Programs and other restoration projects combined with the lack of impacts on the coastal scrub/chaparral/grassland communities from alternative B would result in beneficial cumulative impacts.

MARIN HEADLANDS TRAILS ALTERNATIVE B CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact	Dogs would be prohibited at the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would allow on-leash dog walking along the Lower Rodeo Valley Trail Corridor. This corridor includes the Rodeo Beach parking lot to the intersection of Bunker and McCollough Roads via Lagoon Trail, Miwok Trail, and Rodeo Valley Trail including the connector trails from the Rodeo valley Trail to Smith Road Trailhead. On-leash dog walking would also be allowed on the Old Bunker Fire Road Loop, including a section of the coastal Trail and the Battery Smith-Guthrie Fire Road Loop. This alternative would allow dog access only on these perimeter trails in the Marin Headlands Trails, while preserving and maintaining the integrity of interior habitat. Impacts in areas adjacent to the trails/fire roads would be long term, minor, and adverse since this vegetation would be affected by trampling, digging, and dog waste. Impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on coastal scrub/chaparral/grassland vegetation from on-leash dog walking would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

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Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at the Marin Headlands Trails to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at the Marin Headlands Trails, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at the Marin Headlands Trails under alternative C were considered together with the effects of the projects mentioned above under alternative A "Cumulative Impacts." Cumulatively, alternative C would have negligible impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the effects from these projects.

MARIN HEADLANDS TRAILS ALTERNATIVE C CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Alternative D would have the same dog walking restrictions as alternative B (dogs would be prohibited on the trails); therefore, no impact on coastal scrub/chaparral/grassland vegetation would occur as a result of alternative D, assuming compliance.

Since dogs would not be allowed at the Marin Headlands Trails, there would be no impact from commercial dog walkers on the coastal scrub/chaparral/grassland vegetation communities.

Cumulative Impacts. Under alternative D, the cumulative impacts on the coastal scrub/chaparral/ grassland communities at this park site would be the same as those under alternative B: beneficial cumulative impacts.

MARIN HEADLANDS TRAILS ALTERNATIVE D CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact	Dogs would be prohibited at the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would allow on-leash dog walking on the Coastal Trail from 101 following Conzelman Road to McCullough intersection and then to the Coastal Trail Bike Route including Julian Fire Road from 101 to Rodeo Beach parking lot. On-leash dog walking would also be available on the Old Bunker Fire Road Loop which includes a section of the Coastal trail, Battery Smith-Guthrie Fire Rood Loop, North Miwok Trail from Tennessee Valley to Highway 1, County View Trail, Marin Drive, Rodeo Avenue Trail, and Morning Sun Trail. This alternative would allow dog access only on these perimeter trails in the Marin Headlands, while preserving and maintaining the integrity of interior habitat. The impacts in areas adjacent to the trails/fire roads (LOD area) would be long term, minor, and adverse since vegetation in these areas would

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be affected by trampling, digging, and dog waste. Nutrient addition from dog waste may also occur as a result of runoff, which could also affect the coastal scrub/chaparral/grassland plant communities. Even though alternative E would allow more dog access at the site, the difference in dog use between alternatives E and C is not considered large enough to cause a change in the intensity of the impact relative to the area of the site. Impacts on vegetation would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Although more trails would be available to dogs in alternative E compared to alternative C, the overall impacts on coastal scrub/chaparral/grassland vegetation from on-leash dog walking would be the same. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on coastal scrub/chaparral/grassland vegetation would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at the Marin Headlands Trails to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking activity is not common at the Marin Headlands Trails, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at the Marin Headlands Trails under alternative E were considered together with the effects of the projects mentioned above under alternative A "Cumulative Impacts." Cumulatively, alternative E would have negligible impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the effects from these projects.

MARIN HEADLANDS TRAILS ALTERNATIVE E CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking along the Lower Rodeo Valley Trail Corridor, which includes the Rodeo Beach parking lot to the intersection of Bunker and McCollough Roads via Lagoon Trail, Miwok Trail, Rodeo Valley Trail, and the connector trail from Rodeo Valley Trail to Smith Road Trailhead. On-leash dog walking would also be available on the Old Bunker Fire Road Loop (including a section of the Coastal Trail), Battery Smith-Guthrie Fire Road Loop, Rodeo Avenue Trail, and Morning Sun Trail. This alternative would allow dog access only on these perimeter trails in the Marin Headlands, while preserving and maintaining the integrity of interior habitat. Impacts in areas adjacent to the trails/fire roads would be long term, minor, and adverse since this vegetation would be affected by trampling, digging, and dog waste. Impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail.

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Therefore, assuming compliance, the overall impact on coastal scrub/chaparral/grassland vegetation from on-leash dog walking would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at the Marin Headlands Trails to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking activity is not common at the Marin Headlands Trails, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Projects and actions in and near the Marin Headlands Trails were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as the Marin Headlands Trails. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact the Marin Headlands Trails.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Marin Headlands Trails, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at the Marin Headlands Trails under the preferred alternative were considered together with the effects of the projects mentioned above. Cumulatively, the preferred alternative would have negligible impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the effects from these projects.

MARIN HEADLANDS TRAILS PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Fort Baker

Alternative A: No Action. Under current conditions, on-leash dog walking is allowed throughout Fort Baker except on the Chapel Trail or the pier, where dogs are not allowed. This site experiences moderate visitor use and low dog walking use. Documented leash law violations at this site totaled 52 from 2008 through 2011 (table H). Dogs have been observed off leash at the Parade Ground, Drown Fire Road,

GGNRA192811

Battery Yates, and behind the Bay Area Discovery Museum. Dogs on leash have access to areas adjacent to the trails/fire roads, where viable plant communities exist. Impacts on this vegetation would include physical disturbance through trampling and digging, as well as nutrient addition, which would prevent the growth of new vegetation. Since compliance is an issue at this site, it is likely that many dogs are off leash and go beyond the trails and fire roads. Drown Fire Road traverses natural habitat where extensive mission blue butterfly habitat restoration has occurred. Runoff of nutrients from trails into the adjacent habitat may result in some changes in soil nutrient levels, which could also affect plant communities.

Under alternative A, long-term minor adverse impacts on coastal scrub, chaparral, and grassland vegetation would continue to occur at Fort Baker.

No permit system exists for dog walking under alternative A. At Fort Baker, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on coastal scrub/chaparral/ grassland vegetation.

Cumulative Impacts. Projects and actions in and near Fort Baker were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Fort Baker. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Fort Baker.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Fort Baker, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The long-term minor adverse impacts on the coastal scrub/chaparral/grassland communities from dogs at Fort Baker under alternative A were considered together with the effects of the actions mentioned above. The benefits to vegetation from the Park Stewardship Programs and other restoration projects in the area of this site would not be expected to reduce the adverse impacts of this alternative; therefore, the cumulative analysis for this park site will focus on the results of the impact analysis for this alternative. The beneficial effects from the Park Stewardship Programs and other restoration projects combined with the long-term minor adverse impacts from alternative A would result in long-term minor adverse cumulative impacts on the coastal scrub, chaparral, and grassland communities.

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FORT BAKER ALTERNATIVE A CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Impacts on vegetation from dogs would be caused through physical damage such as trampling, digging, and dog waste; these effects, as well as fragmentation, could lead to the spread of invasive plant species	N/A	Long-term, minor, adverse cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking on Drown Fire Road, the Bay Trail (not including Battery Yates Loop), Vista Point Trail (to be built), the Lodge/Conference Center Grounds, and the Parade Ground. Dogs would not be allowed on the Battery Yates Loop as part of this alternative, due to the presence of mission blue butterfly habitat. The impacts in the LOD area under alternative B would be the same as described for alternative A: long term, minor, and adverse. The impacts would result from physical disturbance from trampling and digging, as well as nutrient addition, which would prevent the growth of new vegetation. The effects would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on coastal scrub, chaparral, and grassland vegetation from on-leash dog walking at Fort Baker would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking is not common in this area, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on coastal scrub/chaparral/ grassland vegetation.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dog activities at Fort Baker under alternative B were considered together with the effects of the projects mentioned above under alternative A. Cumulatively, alternative B would have negligible impacts on the coastal scrub, chaparral, and grassland communities at this site when added to the effects from these projects.

FORT BAKER ALTERNATIVE B CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would have the same dog walking restrictions as alternative B, except for the addition of on-leash dog walking on the Battery

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Yates Loop (supports sensitive mission blue butterfly habitat). Long-term minor adverse impacts on the coastal scrub/chaparral/grassland vegetation in areas adjacent to the trail (6-foot corridor or LOD area) would occur as a result of this alternative because mission blue butterfly habitat is present along on-leash dog walking areas and would result in perceptible changes in the habitat.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Assuming compliance, the overall impacts on coastal scrub, chaparral, and grassland vegetation from on-leash dog walking at Fort Baker would be negligible because impacts would result in no measurable or perceptible changes in these plant communities. Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits would restrict use by time and area. Permits would be allowed for Fort Baker excluding Drown Fire Road. Impacts on coastal scrub/chaparral/grassland vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Fort Baker, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Under alternative C, the cumulative impacts on the coastal scrub/chaparral/ grassland communities at this site would be the same as those under alternative B: negligible cumulative impacts.

FORT BAKER ALTERNATIVE C CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Under alternative D, on-leash dog walking would be allowed on the grounds of the Lodge/Conference Center, Bay Trail (not including Battery Yates Loop), and Vista Point Trail (to be built). Impacts in areas adjacent to the trail would be long term, minor, and adverse since these areas support existing vegetation that would be affected by trampling, digging, and dog waste. Impacts would not be large enough to create a measureable or perceptible change in the coastal scrub/chaparral/grassland plant communities. Nutrient addition from dog waste may also occur beyond the LOD area as a result of runoff. Even though alternative D would allow less dog access at the site, the difference in dog impacts between alternatives D and B is not considered large enough to cause a change in the intensity of the impact, because of the developed nature of the site.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on coastal scrub, chaparral, and grassland vegetation from on-leash dog walking at Fort Baker would be negligible.

No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on coastal scrub/chaparral/grassland vegetation.

GGNRA192814

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dog activities at Fort Baker under alternative D were considered together with the effects of the projects mentioned above under alternative A. Cumulatively, alternative D would have negligible impacts on the coastal scrub, chaparral, and grassland communities at this site when added to the effects from these projects.

FORT BAKER ALTERNATIVE D CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; the trail and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would have the same dog walking restrictions as alternative C, and impacts would be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits would restrict use by time and area. Permits would be allowed for Fort Baker excluding Drown Fire Road. Impacts on coastal scrub/chaparral/ grassland vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Fort Baker, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Under alternative E, the cumulative impacts on the coastal scrub/chaparral/ grassland communities at this site would be the same as those under alternative C: negligible cumulative impacts.

FORT BAKER ALTERNATIVE E CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on Drown Fire Road, the Bay Trail (including Battery Yates Loop), Vista Point Trail (to be built), the Lodge/Conference Center Grounds, and the Parade Ground. Dogs would not be allowed on the Battery Yates Trail as part of this alternative, due to the presence of mission blue butterfly habitat. The impacts in the LOD area would be long term, minor, and adverse. The impacts would result from physical disturbance from trampling and digging, as well as nutrient addition, which would prevent the growth of

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new vegetation. The effects would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on vegetation from on-leash dog walking at Fort Baker would be negligible because impacts would result in no measurable or perceptible changes in the coastal scrub/chaparral/grassland plant communities.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits would restrict use by time and area. Permits would be allowed for Fort Baker excluding Drown Fire Road. Impacts on coastal scrub/chaparral/grassland vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Fort Baker, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Projects and actions in and near Fort Baker were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Fort Baker. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Fort Baker.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Fort Baker, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The overall negligible impacts on the coastal scrub/chaparral/grassland communities from dog activities at this site under the preferred alternative were considered together with the effects of the projects mentioned above. Cumulatively, the preferred alternative would have negligible impacts on the coastal scrub, chaparral, and grassland communities at this site when added to the effects from these projects.

FORT BAKER PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

GGNRA192816

SAN FRANCISCO COUNTY SITES

Baker Beach and Bluffs to Golden Gate Bridge

Alternative A: No Action. Under current conditions, dogs are allowed under voice control on the beach north of Lobos Creek, with on-leash dog walking required for trails leading to the beach; however, social trails exist at the site and traverse sensitive coastal scrub/chaparral/grassland habitat. This site has documented low to high visitor use (depending on weather, holidays, and weekend use) and dog walking use is considered low to moderate (table 9). Baker Beach and Bluffs to Golden Gate Bridge supports plant communities in the following habitats: coastal scrub, chaparral, serpentine outcroppings, serpentine scrub, and serpentine grassland. The unique vegetation that grows in serpentine soils includes several threatened and endangered plants and is particularly sensitive to changes in soil properties.

Under alternative A, continued impacts on vegetation would be long term, minor, and adverse, and would include physical disturbance through trampling and digging, as well as nutrient addition; effects would be measurable and perceptible, but would be localized in a relatively small area.

No permit system exists for dog walking under alternative A. At Baker Beach and Bluffs to Golden Gate Bridge, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Projects and actions in and near Baker Beach and Bluffs to Golden Gate Bridge were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts can also beneficially affect vegetation at GGNRA park sites such as Baker Beach and Bluffs to Golden Gate Bridge. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Baker Beach and Bluffs to Golden Gate Bridge. Between August and November of 2007, 73,000 tons of landfill debris was unearthed by excavators at Baker Beach and Bluffs to Golden Gate Bridge and conveyed to the top of the cliffs as part of a remediation and restoration effort (Presidio Trust 2010). The *Lobos Creek Valley Dune Restoration* near Baker Beach and Bluffs to Golden Gate Bridge involved efforts to restore the coastal scrub and help increase the population of the listed San Francisco lessingia (NPS 2010f, 1). In addition, the SNRAMP would improve plant communities and would have a beneficial impact on vegetation and sensitive habitats over the long term in "Natural Areas" that are managed by SFRPD in San Francisco (located near Baker Beach). The PTMP was adopted in 2002 and includes the preservation of the Presidio's cultural, natural, scenic, and recreational resources in Area B, managed by the Presidio Trust. The PTMP focuses on the long-term preservation of the park, including replacing pavement with green space, improving and enlarging the park's trail system, restoring stream corridors and natural habitats, and reusing historic structures (Presidio Trust 2002, 3). Management objectives in the PTMP that are applicable to vegetation include identifying and protecting sensitive wildlife species, and restoring and maintaining their habitats. The PTMP also preserves, enhances, and increases natural habitats managed by the Presidio Trust. For example, historic forest is being rehabilitated, wetlands are being enhanced, and native plant and wildlife species are being protected (Presidio Trust 2002b, ii). As a result, the PTMP has beneficial impacts on vegetation at or in the vicinity of Baker Beach and Bluffs to Golden Gate Bridge.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Baker Beach and Bluffs to Golden Gate Bridge, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and

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degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The long-term minor adverse impacts on the coastal scrub/chaparral/grassland communities from dogs at Baker Beach and Bluffs to Golden Gate Bridge under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from the Park Stewardship Programs, the PTMP, the SNRAMP, and the dune restoration project should reduce some of the adverse impacts on vegetation from alternative A. Therefore, cumulative impacts on the coastal scrub/chaparral/grassland communities under this alternative would be expected to be negligible.

BAKER BEACH AND BLUFFS TO GOLDEN GATE BRIDGE ALTERNATIVE A CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Impacts on vegetation from dogs would be caused through physical damage such as trampling, digging, and dog waste; these effects, as well as fragmentation, could lead to the spread of invasive plant species	N/A	Negligible cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would prohibit dog walking on the Batteries to Bluffs Trail and the Battery Crosby Trail but would allow on-leash dog walking on all other trails all the way to the Golden Gate Bridge in the vicinity of Baker Beach and Bluffs to Golden Gate Bridge, as well as on the entire beach within the GGNRA boundary. In general, impacts would be limited to the 6-foot corridors immediately adjacent to the trails. Nutrient addition from dog waste may also occur beyond the LOD area as a result of runoff. Impacts would affect the plants that grow in the serpentine soils immediately adjacent to the Coastal Trail. Therefore, impacts in areas adjacent to the trail (LOD area) would be long term, minor, and adverse since these areas support the growth of existing vegetation; impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would affect only a portion of the site. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at Baker Beach and Bluffs to Golden Gate Bridge would be negligible.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking is not common at Baker Beach and Bluffs to Golden Gate Bridge, it is likely that the new regulation would not affect the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Baker Beach and Bluffs to Golden Gate Bridge under alternative B were considered together with the beneficial effects from the Park Stewardship Programs, the PTMP, the SNRAMP, and the dune restoration project. Cumulatively, alternative B would have beneficial impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the beneficial effects from these projects.

GGNRA192818

BAKER BEACH AND BLUFFS TO GOLDEN GATE BRIDGE ALTERNATIVE B CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would have the same dog walking restrictions as alternative B, and impacts would be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits would restrict use by time and area. Permits would be allowed for Baker Beach and Bluffs to Golden Gate Bridge. Impacts on coastal scrub/chaparral/grassland vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Baker Beach and Bluffs to Golden Gate Bridge, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Under alternative C, the cumulative impacts on the coastal scrub/chaparral/grassland communities would be the same as those under alternative B: beneficial .

BAKER BEACH AND BLUFFS TO GOLDEN GATE BRIDGE ALTERNATIVE C CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Alternative D would allow on-leash dog walking on the section of Baker Beach south of the north parking lot and on all trails leading to that section of beach, as well as on the multi-use Coastal Trail. Dogs would be prohibited in the section of beach north of the north parking lot (approximately half of the beach) and on the trails leading to the northern section of the beach. The beach does not contain coastal scrub, chaparral, or grassland habitat. In general, impacts would be limited to the 6-foot corridors immediately adjacent to the trails. Nutrient addition from dog waste may also occur beyond the LOD area as a result of runoff. Impacts would affect the plants that grow in the serpentine soils immediately adjacent to the Coastal Trail. Therefore, impacts in areas adjacent to the trail (LOD area) would be long term, minor, and adverse since these areas support the growth of existing vegetation; impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would affect only a portion of the site. Physically restraining dogs would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at Baker Beach and Bluffs to Golden Gate Bridge would be negligible.

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No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Baker Beach and Bluffs to Golden Gate Bridge under alternative D were considered together with the beneficial effects from the Park Stewardship Programs, the PTMP, the SNRAMP, and the dune restoration project. Cumulatively, alternative D would have beneficial impacts on the coastal scrub/ chaparral/grassland communities at this park site when added to the beneficial effects from these projects.

BAKER BEACH AND BLUFFS TO GOLDEN GATE BRIDGE ALTERNATIVE D CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would allow on-leash dog walking on the northern portion of the beach and on all trails except the Batteries to Bluffs Trail and the Battery Crosby Trail. A ROLA would be established on the portion of the beach south of the north parking lot. The beach does not contain coastal scrub, chaparral, or grassland habitat. In general, impacts would be limited to the 6-foot corridors immediately adjacent to the trails. Nutrient addition from dog waste may also occur beyond the LOD area as a result of runoff. Impacts would affect the plants that grow in the serpentine soils immediately adjacent to the Coastal Trail. Therefore, impacts in areas adjacent to the trail (LOD area) would be long term, minor, and adverse since these support the growth of existing vegetation; impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would affect only a portion of the site. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on vegetation from dog walking at Baker Beach and Bluffs to Golden Gate Bridge would be negligible.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash, and the permit may restrict use by time and area. Permits would be allowed for Baker Beach and Bluffs to Golden Gate Bridge. Impacts on coastal scrub/chaparral/grassland vegetation from permit holders with four to six dogs off leash would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Baker Beach and Bluffs to Golden Gate Bridge, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on coastal scrub/chaparral/ grassland vegetation.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Baker Beach and Bluffs to Golden Gate Bridge under alternative E were considered together with the beneficial effects from the Park Stewardship Programs, the PTMP, the SNRAMP, and the dune restoration project. Cumulatively, alternative E would have beneficial impacts on the coastal scrub/ chaparral/grassland communities at this park site when added to the beneficial effects from these projects.

GGNRA192820

BAKER BEACH AND BLUFFS TO GOLDEN GATE BRIDGE ALTERNATIVE E CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site; the ROLA is located on the beach, not in coastal scrub/ chaparral/grassland habitat	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on the beach south of the north parking lot, in picnic and parking areas, on the trails to the southern beach area, and the multi-use Coastal Trail. Dogs would be prohibited in the section of beach north of the north parking lot (approximately half of the beach) and on the trails leading to the northern section of the beach. The beach does not contain coastal scrub, chaparral, or grassland habitat. In general, impacts would be limited to the 6-foot corridors immediately adjacent to the trails. Nutrient addition from dog waste may also occur beyond the LOD area as a result of runoff. Impacts would affect the plants that grow in the serpentine soils immediately adjacent to the Coastal Trail. Therefore, impacts in areas adjacent to the trail (LOD area) would be long term, minor, and adverse since these areas support the growth of existing vegetation; impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would affect only a portion of the site. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at Baker Beach and Bluffs to Golden Gate Bridge would be negligible.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits would restrict use by time and area. Permits would be allowed for Baker Beach and Bluffs to Golden Gate Bridge. Impacts on coastal scrub/chaparral/grassland vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Baker Beach and Bluffs to Golden Gate Bridge, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Projects and actions in and near Baker Beach and Bluffs to Golden Gate Bridge were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts can also beneficially affect vegetation at GGNRA park sites such as Baker Beach and Bluffs to Golden Gate Bridge. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Baker Beach and Bluffs to Golden Gate Bridge. Between August and November of 2007, 73,000 tons of landfill debris was unearthed by excavators at Baker Beach and Bluffs to Golden Gate Bridge and conveyed to the top of the cliffs as part of a remediation and restoration effort (Presidio Trust 2010). The *Lobos Creek Valley Dune Restoration* near Baker Beach and Bluffs to

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Golden Gate Bridge involved efforts to restore the coastal scrub and help increase the population of the listed San Francisco lessingia (NPS 2010f, 1). As stated previously, the PTMP identifies and protects sensitive wildlife species, and restoring and maintaining their habitats. The PTMP also preserves, enhances, and increases natural habitats managed by the Presidio Trust. For example, historic forest is being rehabilitated, wetlands are being enhanced, and native plant and wildlife species are being protected (Presidio Trust 2002b, ii). As a result, the PTMP has beneficial impacts on vegetation at or in the vicinity of Baker Beach and Bluffs to Golden Gate Bridge. In addition, the SNRAMP would improve plant communities and would have a beneficial impact on vegetation and sensitive habitats over the long term in "Natural Areas" that are managed by SFRPD in San Francisco (located near Baker Beach).

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Baker Beach and Bluffs to Golden Gate Bridge, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Baker Beach and Bluffs to Golden Gate Bridge under the preferred alternative were considered together with the beneficial effects from the Park Stewardship Programs, the PTMP, the SNRAMP, and the dune restoration project. Cumulatively, the preferred alternative would have beneficial impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the beneficial effects from these projects.

BAKER BEACH AND BLUFFS TO GOLDEN GATE BRIDGE PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Lands End

Alternative A: No Action. Under current conditions, dogs are allowed under voice control at the Lands End site, which includes the Coastal Trail and the El Camino del Mar Trail. This site has low to moderate visitor use by hikers, bicyclists, and dog walkers (table 9). Lands End contains coastal scrub, chaparral, and serpentine coastal scrub vegetation. Off-leash dog activities would contribute to physical disturbance of these communities and nutrient addition in off-trail areas occurs throughout the site. Due their nature, dogs are not expected to stay on the trails. Since dogs are currently allowed under voice control at the site, there is a higher likelihood that dogs would go off trail than if they were on leash, creating impacts on vegetation in the adjacent, undisturbed areas located along the trails. Impacts in these areas would include trampling and digging, as well as the addition of nutrients to the soil, which would impact vegetation. The Lands End area also contains rare serpentine soils that support sensitive plant species, but no threatened or endangered plants .

Exemption 5

Therefore, impacts on vegetation would continue to be long term, minor to moderate, and adverse under alternative A because effects would be measurable and perceptible, potentially over a relatively large area, and may affect the overall integrity of the plant communities at the site.

GGNRA192822

Under alternative A, no permit system exists for dog walking. At Lands End, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Projects and actions in and near Lands End were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils and vegetation. Ongoing parkwide restoration and enhancement efforts can also beneficially affect vegetation at GGNRA park sites such as Lands End. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Lands End. The efforts of Park Stewardship Programs at Lands End have included resurfacing and stabilizing segments of the trails, eliminating social trails, replanting native species in the local forest and surrounding areas, and engaging the community in park stewardship (GGNPC 2010a, 1). In addition, the SNRAMP would improve plant communities and would have a beneficial impact on vegetation and sensitive habitats over the long term in "Natural Areas" that are managed by SFRPD in San Francisco (located near Lands End).

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Lands End, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The long-term minor to moderate adverse impacts on the coastal scrub/chaparral/grassland communities from dogs at Lands End under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from the Park Stewardship Programs, the SNRAMP, should reduce some of the adverse impacts on the coastal scrub, chaparral, and grassland communities from alternative A. Therefore, cumulative impacts on the coastal scrub/chaparral/grassland communities under this alternative would be expected to be negligible to long term, minor, and adverse.

LANDS END ALTERNATIVE A CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor to moderate adverse impacts	Impacts on vegetation from dogs would be caused through physical damage such as trampling, digging, and dog waste; these effects, as well as fragmentation, could lead to the spread of invasive plant species	N/A	Negligible to long-term minor adverse cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking at Lands End on the El Camino del Mar Trail, Coastal Trail, and connecting steps, where much of the coastal scrub/chaparral habitat occurs. In general, impacts would be limited to the 6-foot LOD corridors immediately adjacent to the trails. Vegetation would be affected through physical disturbance such as trampling and digging. The Lands End area also contains rare serpentine soils, which support unique vegetation that includes several threatened and endangered plants; this vegetation is particularly sensitive to changes in soil properties. Nutrient addition from dog waste may also occur beyond the LOD area as a

Exemption 5

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result of runoff. Therefore, impacts in the LOD area would be long term, minor, and adverse since the area supports existing vegetation and because effects would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts on vegetation adjacent to the trails would occur in a relatively small area compared to the site as a whole, and Lands End receives low to moderate use by dog walkers. Also, physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on coastal scrub/chaparral/grassland vegetation at Lands End would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking is not common at Lands End, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on coastal scrub/ chaparral/grassland vegetation at Lands End.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Lands End under alternative B were considered together with the beneficial effects of the Park Stewardship Programs and the SNRAMP. Cumulatively, alternative B would have beneficial impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the beneficial effects from these actions.

LANDS END ALTERNATIVE B CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would allow on-leash dog walking on the El Camino del Mar Trail, the Coastal Trail at Lands End, including on the steps to El Camino del Mar Trail. Similar to alternative B above, impacts would be limited to the 6-foot LOD corridors immediately adjacent to the trails. Vegetation would be affected through physical disturbance such as trampling and digging. The Lands End area also contains rare serpentine soils, which support unique vegetation ; this vegetation is particularly sensitive to changes in soil properties. Nutrient addition from dog waste may also occur beyond the LOD area as a result of runoff. Therefore, impacts in the LOD area would be long term, minor and adverse and would result from physical disturbance; effects would be measurable and perceptible, but would be localized in a relatively small area.

Exemption 5

The long-term minor adverse impacts on coastal scrub/chaparral/grassland vegetation would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail, and Lands End receives low to moderate use by dog walkers. Therefore, assuming compliance, the overall impacts on coastal scrub/chaparral/grassland vegetation at Lands End would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Lands End to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of

GGNRA192824

three dogs on leash per person. Since commercial dog walking is not common at Lands End, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Lands End under alternative C were considered together with the effects of the projects mentioned above in alternative A. Cumulatively, alternative B would have beneficial impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the beneficial effects from these actions.

LANDS END ALTERNATIVE C CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial to no change, assuming compliance	Beneficial cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Alternative D would allow on-leash dog walking on the El Camino del Mar Trail, the Coastal Trail up to the junction with, and on the connector trail/steps leading to the El Camino del Mar Trail. The impacts would be similar to those under alternative B because the on-leash areas coincide with the coastal scrub/chaparral/grassland habitat of Lands End. In general, impacts would be limited to the 6-foot corridors immediately adjacent to the trails. Vegetation would be affected through physical disturbance such as trampling and digging. The Lands End area also contains rare serpentine soils, which support unique vegetation that includes several threatened and endangered plants; this vegetation is particularly sensitive to changes in soil properties. Nutrient addition from dog waste may also occur beyond the LOD area as a result of runoff. Therefore, impacts in the LOD area would be long term, minor, and adverse since the area supports existing vegetation and because effects would be measurable and perceptible, but would be localized in a relatively small area.

Exemption 5

The long-term minor adverse impacts on vegetation in the land adjacent to the trails would occur in a relatively small area compared to the site as a whole, and Lands End receives low to moderate use by dog walkers. Also, physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on coastal scrub/chaparral/grassland vegetation at Lands End would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Lands End under alternative D were considered together with the beneficial effects of the Park Stewardship Programs and the SNRAMP. Cumulatively, alternative D would have beneficial impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the beneficial effects from these actions.

GGNRA192825

LANDS END ALTERNATIVE D CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would have the same dog walking restrictions as alternative C, and impacts would be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Lands End to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Lands End, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Under alternative E, the cumulative impacts on the coastal scrub/chaparral/ grassland communities at this park site would be the same as those under alternative C: beneficial cumulative impacts.

LANDS END ALTERNATIVE E CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial to no change, assuming compliance	Beneficial cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on the El Camino del Mar Trail, Coastal Trail, and the connecting steps, where much of the coastal scrub/chaparral habitat occurs. In general, impacts would be limited to the 6-foot corridors immediately adjacent to the trails. Vegetation would be affected through physical disturbance such as trampling and digging. The Lands End area also contains rare serpentine soils, which support unique vegetation that includes several threatened and endangered plants; this vegetation is particularly sensitive to changes in soil properties. Nutrient addition from dog waste may also occur beyond the LOD area as a result of runoff. Therefore, impacts in the LOD area would be long term, minor, and adverse since the area supports existing vegetation and because effects would be measurable and perceptible, but would be localized in a relatively small area.

Exemption 5

The long-term minor adverse impacts on coastal scrub/chaparral/grassland vegetation adjacent to the trails would occur in a relatively small area compared to the site as a whole, and Lands End receives low to moderate use by dog walkers. Also, physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on coastal scrub/chaparral/grassland vegetation at Lands End would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

GGNRA192826

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Lands End to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Lands End, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Projects and actions in and near Lands End were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils and vegetation. Ongoing parkwide restoration and enhancement efforts can also beneficially affect vegetation at GGNRA park sites such as Lands End. GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Lands End. The efforts of Park Stewardship Programs at Lands End have included resurfacing and stabilizing segments of the trails, eliminating social trails, replanting native species in the local forest and surrounding areas, and engaging the community in park stewardship (GGNPC 2010a, 1). In addition, the SNRAMP would improve plant communities and would have a beneficial impact on vegetation and sensitive habitats over the long term in "Natural Areas" that are managed by SFRPD in San Francisco (located near Lands End).

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Lands End, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Lands End under the preferred alternative were considered together with the beneficial effects of the Park Stewardship Programs and the SNRAMP. Cumulatively, the preferred alternative would have beneficial impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the beneficial effects from these projects.

LANDS END PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

SAN MATEO COUNTY SITES

Mori Point

Alternative A: No Action. Mori Point contains coastal scrub habitat and grasslands that are dominated by purple needlegrass. On-leash dog walking is currently allowed on all trails and on the portion of beach owned by the NPS. This site has moderate visitor use by dog walkers, and some visitors do not comply with the leash law; off-leash violations totaled 146 from 2008 through 2011 (table Q). The NPS has

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invested time and money in extensive restoration projects at Mori Point and the impacts from dogs are negating the benefits of these restoration projects.

Under alternative A, dogs would continue to affect vegetation at Mori Point through digging, trampling, and nutrient addition. In addition, some dogs under voice control may go off trail into adjacent, undisturbed areas and impact vegetation in these areas. Therefore, impacts on vegetation as a result of this alternative would continue to be long term, minor, and adverse at this site because effects would be measurable and perceptible, but would be localized in a relatively small area.

No permit system exists for dog walking under alternative A. At Mori Point, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on coastal scrub/chaparral/ grassland vegetation.

Cumulative Impacts. Projects and actions in and near Mori Point were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of the Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of vegetation communities at park sites such as Mori Point. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at par373373sites such as Mori Point. The *Mori Point Restoration and Trail Plan* includes preserving and restoring habitat by reducing threats to native plant communities and natural processes, ensuring habitat connectivity between upland and wetland areas, and developing a safe and sustainable trail system to improve recreational experiences and reduce impacts on park resources (NPS 2010j, 1).

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Mori Point, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The long-term minor adverse impacts on the coastal scrub/chaparral/grassland communities from dogs at Mori Point under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from the Park Stewardship Programs and from the *Mori Point Restoration and Trail Plan* should reduce some of the adverse impacts on the coastal scrub, chaparral, and grassland communities from alternative A. Therefore, cumulative impacts on the coastal scrub/chaparral/grassland communities under this alternative would be expected to be negligible.

MORI POINT ALTERNATIVE A CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Impacts on vegetation from dogs would be caused through physical damage such as trampling, digging, and dog waste, and these effects would continue to negate restoration efforts	N/A	Negligible cumulative impacts

N/A = not applicable.

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Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking on the Coastal Trail and the portion of beach owned by the NPS, but dogs would not be allowed on the Pollywog Trail, which is located adjacent to the ponds. The Coastal Trail, where on-leash dog walking is allowed, winds through coastal scrub and grassland habitats. The vegetation in the areas adjacent to the trail would be affected by dogs through trampling, digging, and dog waste. The impacts in the LOD area caused by dog activities would be long term, minor, and adverse because effects would be measurable and perceptible, but would be localized in a relatively small area.

Compared to the size of the Mori Point site, the areas of coastal scrub/chaparral/grassland vegetation that could be impacted by on-leash dog walking are small. Additionally, physically restraining dogs on leash would protect vegetation off trail at the site. Therefore, assuming compliance, the overall impacts on the coastal scrub and grassland vegetation under alternative B would be negligible because impacts would result in no measurable or perceptible changes in the plant communities.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking is not common in this area, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on coastal scrub/chaparral/ grassland vegetation.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Mori Point under alternative B were considered together with the beneficial effects of the Park Stewardship Programs and the *Mori Point Restoration and Trail Plan*. Cumulatively, alternative B would have beneficial impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the beneficial effects from these projects.

MORI POINT ALTERNATIVE B CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would allow on-leash dog walking on the Coastal Trail, Old Mori Road, and the portion of beach owned by the NPS, but dogs would not be allowed on the Pollywog Trail, which is located adjacent to the ponds. Impacts under alternative C would be similar to those for alternative B. Coastal scrub and grassland vegetation could be impacted in the LOD area along the Coastal Trail. The vegetation in the areas adjacent to the trail would be affected by dogs through trampling, digging, and dog waste. The impacts caused by dog activities in the LOD area would be long term, minor, and adverse because effects would be measurable and perceptible, but would be localized in a relatively small area.

Compared to the size of the Mori Point site, the areas of vegetation that could be impacted by on-leash dog walking are small. Additionally, physically restraining dogs on leash would protect vegetation off trail at the site. Therefore, assuming compliance, the overall impacts on the coastal scrub/chaparral/ grassland vegetation communities under alternative C would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

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Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Mori Point to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Mori Point, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. The negligible impacts on coastal scrub/chaparral/grassland communities from dogs at Mori Point under alternative C were considered together with the beneficial effects of the Park Stewardship Programs and the *Mori Point Restoration and Trail Plan*. Cumulatively, alternative C would have beneficial impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the beneficial effects from these projects.

MORI POINT ALTERNATIVE C CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Under alternative D, dogs would not be allowed at this site. Therefore, assuming compliance, there would be no impact on coastal scrub/chaparral/grassland vegetation from dogs at this site.

Since dogs would not be allowed at Mori Point, there would be no impact from commercial dog walkers on the coastal scrub/chaparral/grassland vegetation communities.

Cumulative Impacts. The lack of impacts on the coastal scrub/chaparral/grassland communities from dogs under alternative D was considered together with the beneficial effects of the Park Stewardship Programs and the *Mori Point Restoration and Trail Plan*. Cumulatively, alternative D would have beneficial impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the beneficial effects from these projects.

MORI POINT ALTERNATIVE D CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact	Dogs would be prohibited at the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would allow on-leash dog walking on the same trails and beach as alternative C, with the addition of the Pollywog Trail. The areas surrounding the Pollywog Trail do not support coastal scrub or grassland vegetation. Therefore, the impacts under alternative E would be the same as those described for alternative C. In general, impacts would be limited to the beach and the 6-foot corridors immediately adjacent to the trails. The Coastal Trail and Old Mori Road, where on-leash dog walking is allowed, wind through coastal scrub and grassland habitats. The vegetation in the areas adjacent to the trail would be affected by dogs through trampling, digging, and dog waste. The impacts in the LOD area caused by dog activities would be long

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term, minor, and adverse because effects would be measurable and perceptible, but would be localized in a relatively small area.

Compared to the size of the Mori Point site, the areas of vegetation that could be impacted by on-leash dog walking are small. Additionally, physically restraining dogs on leash would protect vegetation off trail at the site. Therefore, assuming compliance, the overall impacts on the coastal scrub/chaparral/ grassland vegetation community under alternative E would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Mori Point to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Mori Point, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Mori Point under alternative E were considered together with the beneficial effects of the Park Stewardship Programs and the *Mori Point Restoration and Trail Plan*. Cumulatively, alternative E would have beneficial impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the beneficial effects from these projects.

MORI POINT ALTERNATIVE E CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on the Coastal Trail, Old Mori Road, Pollywog Trail, and the portion of beach owned by the NPS, but dogs would not be allowed on the Pollywog Trail, which is located adjacent to the ponds. Coastal scrub and grassland vegetation could be impacted in the LOD area along the Coastal Trail. The vegetation in the areas adjacent to the trail would be affected by dogs through trampling, digging, and dog waste. The impacts caused by dog activities in the LOD area would be long term, minor, and adverse because effects would be measurable and perceptible, but would be localized in a relatively small area.

Exemption 5

Compared to the size of the Mori Point site, the areas of vegetation that could be impacted by on-leash dog walking are small. Additionally, physically restraining dogs on leash would protect vegetation off trail at the site. Therefore, assuming compliance, the overall impacts on the coastal scrub/chaparral/ grassland vegetation community under the preferred alternative would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Mori Point to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking activity is not common at Mori Point, it is likely that the new regulation would not have an impact on the number of dog walkers.

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Therefore, commercial dog walking under the preferred alternative would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Projects and actions in and near Mori Point were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of the Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of vegetation communities at park sites such as Mori Point. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Mori Point. The *Mori Point Restoration and Trail Plan* includes preserving and restoring habitat by reducing threats to native plant communities and natural processes, ensuring habitat connectivity between upland and wetland areas, and developing a safe and sustainable trail system to improve recreational experiences and reduce impacts on park resources (NPS 2010j, 1).

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Mori Point, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Mori Point under the preferred alternative were considered together with the beneficial effects of the Park Stewardship Programs and from the *Mori Point Restoration and Trail Plan*. Cumulatively, the preferred alternative would have beneficial impacts on the coastal scrub/chaparral/grassland communities at this park site when added to the beneficial effects from these projects.

MORI POINT PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Milagra Ridge

Alternative A: No Action. Nearly the entire site of Milagra Ridge is composed of coastal scrub vegetation, although the site also supports coastal chaparral and grassland habitat. On-leash dog walking is currently allowed on all trails and fire roads. This site has documented moderate visitor use by bicyclists, walkers, and hikers, and low to moderate visitor use by dog walkers (table 9). Although current GGNRA regulations require dogs to be leashed at Milagra Ridge, unleashed dogs have been observed at the site; violations totaled 35 from 2008 through 2011 (table R).

Under alternative A, dogs would continue to contribute to physical disturbance to vegetation through digging, trampling, and nutrient addition. In addition, some of the off-leash dogs at the site may go off trail into adjacent, undisturbed areas and impact vegetation in these areas. Therefore, impacts would continue to be long term, minor, and adverse because effects would be measurable and perceptible, but would be localized in a relatively small area. In addition, the NPS has invested time and money in

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extensive restoration projects at Milagra Ridge, and the impacts from dogs would continue to negate the success of these restoration projects.

No permit system exists for dog walking under alternative A. At Milagra Ridge, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Projects and actions in and near Milagra Ridge were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of the Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils at park sites such as Milagra Ridge. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Milagra Ridge. The scope of the SNRAMP analysis includes Natural areas managed by the SFRPD in Pacifica (Sharp Park, located near Milagra Ridge) and addresses dog walking (including on-leash dog walking and off-leash DPAs) in this area (SFPD 2011, 261-262). Project activities included in the SNRAMP would protect and improve habitat and provide long-term beneficial impacts to vegetation.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Milagra Ridge, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The long-term minor adverse impacts on the coastal scrub/chaparral/grassland communities from dogs at Milagra Ridge under alternative A were considered together with the effects of the actions mentioned above. The benefits to vegetation from the Park Stewardship Programs and the SNRAMP would not be expected to reduce the adverse impacts of this alternative; therefore, the cumulative analysis for this park site will focus on the results of the impact analysis for this alternative. The beneficial effects from the Park Stewardship Programs combined with the long-term minor adverse impacts from alternative A would result in long-term minor adverse cumulative impacts on the coastal scrub/chaparral/grassland communities.

MILAGRA RIDGE ALTERNATIVE A CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Impacts on vegetation from dogs are caused through physical damage such as trampling, digging, and dog waste, and these effects would continue to negate restoration efforts	N/A	Long-term minor adverse cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking on the fire road, the trail to the westernmost overlook and World War II bunker, and Milagra Battery Trail (the future connector to lower Milagra). However, the trail loop to the top of the hill would not be open for dog walking in this alternative. In general, impacts on vegetation would be limited to the 6-foot corridors

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immediately adjacent to the trails/fire road. Impacts in areas adjacent to the trail in the 6-foot corridors or LOD area would be long term, minor, and adverse since the area supports existing vegetation. Impacts on vegetation could include trampling, digging, and nutrient addition from dog waste and urine; these impacts on vegetation would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impact on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at Milagra Ridge would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking at Milagra Ridge is not common, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Milagra Ridge under alternative B were considered together with the effects of the projects mentioned above under alternative A. Cumulatively, alternative B would have negligible impacts on the coastal scrub/chaparral/grassland communities at or in the vicinity of Milagra Ridge when added to the effects from these projects.

MILAGRA RIDGE ALTERNATIVE B CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would have the same dog walking restrictions as alternative B and impacts on coastal scrub/chaparral/grassland vegetation at this site would be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Milagra Ridge to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking activity is not common at Milagra Ridge, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Under alternative C, the cumulative impacts on the coastal scrub/chaparral/grassland communities at this park site would be the same as those under alternative B: negligible cumulative impacts.

GGNRA192834

MILAGRA RIDGE ALTERNATIVE C CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Under alternative D, dogs would not be allowed at this site. Therefore, assuming compliance, no impact on coastal scrub/ chaparral/grassland vegetation from dogs would occur.

Since dogs would not be allowed at Milagra Ridge, there would be no impact from commercial dog walkers on the coastal scrub/chaparral/grassland vegetation communities.

Cumulative Impacts. The lack of impacts on the coastal scrub/chaparral/grassland communities from dogs at Milagra Ridge under alternative D was considered together with the effects of the projects mentioned above in alternative A. The beneficial effects from Park Stewardship Programs and the SNRAMP combined with the lack of impacts on the coastal scrub/chaparral/grassland communities from alternative D would result in beneficial cumulative impacts.

MILAGRA RIDGE ALTERNATIVE D CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact	Dogs would be prohibited at the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would allow on-leash dog walking on the same trails as alternative B, with the addition of a loop to the top of the hill, and impacts would be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Milagra Ridge to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Milagra Ridge, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on coastal scrub/ chaparral/grassland vegetation.

Cumulative Impacts. Under alternative E, the cumulative impacts on the coastal scrub, chaparral, and grassland communities would be the same as those under alternative B: negligible cumulative impacts.

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MILAGRA RIDGE ALTERNATIVE E CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on the fire road, the trail to the westernmost overlook and World War II bunker, and Milagra Battery Trail (the future connector to lower Milagra). However, the trail loop to the top of the hill would not be open for dog walking in this alternative. In general, impacts on vegetation would be limited to the 6-foot corridors immediately adjacent to the trails/fire road. Impacts in areas adjacent to the trail in the 6-foot corridors or LOD area would be long term, minor, and adverse since the area supports existing vegetation. Impacts on vegetation could include trampling, digging, and nutrient addition from dog waste and urine; these impacts on vegetation would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole, and physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impact on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at Milagra Ridge would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Milagra Ridge to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Milagra Ridge, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Projects and actions in and near Milagra Ridge were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of the Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils at park sites such as Milagra Ridge. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Milagra Ridge. The scope of the SNRAMP analysis includes Natural areas managed by the SFRPD in Pacifica (Sharp Park, located near Milagra Ridge) and addresses dog walking (including on-leash dog walking and off-leash DPAs) in this area (SFPD 2011, 261-262). Project activities included in the SNRAMP would protect and improve habitat and provide long-term beneficial impacts to vegetation.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Milagra Ridge, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

GGNRA192836

The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Milagra Ridge under the preferred alternative were considered together with the effects of the projects mentioned above. Cumulatively, the preferred alternative would have negligible impacts on the coastal scrub/chaparral/ grassland communities at or in the vicinity of Milagra Ridge when added to the effects from these projects.

MILAGRA RIDGE PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Sweeney Ridge/Cattle Hill

Alternative A: No Action. Currently, on-leash dog walking is allowed on all trails at Sweeney Ridge except the Notch Trail, which is closed to dogs. The site is dominated by coastal scrub and chaparral vegetation, with grassland vegetation occurring along the Notch Trail and the western portions of the Mori Ridge Trail and the Cattle Hill Overlook Trail. This site has documented low to moderate visitor use by dog walkers and off-leash incidents totaled 115 from 2008 through 2011 (table S). Therefore, off-leash dog walking is currently occurring along the trails of Sweeney Ridge. Cattle Hill is not yet part of GGNRA, but unrestricted dog walking occurs at this site, and dogs have contributed to physical disturbance of vegetation.

Under alternative A, dogs would continue to contribute to physical disturbance at both sites through trampling, digging, and dog waste. In addition, since off-leash dog walking currently occurs at the sites, it is likely that dogs would continue to walk or run through other undisturbed areas adjacent to existing trails. Therefore, impacts on coastal scrub/chaparral/grassland vegetation as a result of alternative A would continue to be long term, minor, and adverse at these sites because effects would be measurable and perceptible, but would be localized in a relatively small area.

No permit system exists for dog walking under alternative A. Commercial dog walking is uncommon at Sweeney Ridge and Cattle Hill; therefore, commercial dog walking would have negligible impacts on coastal scrub/chaparral/grassland vegetation at these sites.

Cumulative Impacts. Projects and actions in and near Sweeney Ridge/Cattle Hill were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of the Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils at park sites such as Sweeney Ridge/Cattle Hill. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Sweeney Ridge/Cattle Hill. The scope of the SNRAMP analysis includes Natural areas managed by the SFRPD in Pacifica (Sharp Park, located near Sweeney Ridge/Cattle Hill) and addresses dog walking (including on-leash dog walking and off-leash DPAs) in this area (SFPD 2011, 261-262). Project activities included in the SNRAMP would protect and improve habitat and provide long-term beneficial impacts to vegetation.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Sweeney Ridge/Cattle Hill, such as development or construction actions.

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Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The long-term minor adverse impacts on the coastal scrub/chaparral/grassland communities from dogs at Sweeney Ridge and Cattle Hill under alternative A were considered together with the effects of the actions mentioned above. The benefits to vegetation from the Park Stewardship Programs and the SNRAMP would not be expected to reduce the adverse impacts of this alternative; therefore, the cumulative analysis for these park sites will focus on the results of the impact analysis for this alternative. The beneficial effects from the Park Stewardship Programs combined with the long-term minor adverse impacts from alternative A would result in long-term minor adverse cumulative impacts on the coastal scrub/chaparral/grassland communities.

SWEENEY RIDGE/CATTLE HILL ALTERNATIVE A CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Impacts on vegetation from dogs would be caused through physical damage such as trampling, digging, and dog waste	N/A	Long-term minor adverse cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Under alternative B, dogs would not be allowed at Sweeney Ridge and Cattle Hill. Therefore, assuming compliance, no impact on coastal scrub/chaparral/grassland vegetation from dogs would occur at these sites.

Since dogs would not be allowed at Sweeney Ridge and Cattle Hill, there would be no impact from commercial dog walkers on the coastal scrub/chaparral/grassland vegetation communities.

Cumulative Impacts. The lack of impacts on the coastal scrub/chaparral/grassland communities from dogs at Sweeney Ridge/Cattle Hill under alternative B was considered together with the effects of the projects mentioned above in alternative A. The beneficial effects from Park Stewardship Programs combined with the lack of impacts on the coastal scrub/chaparral/grassland communities from alternative B would result in beneficial cumulative impacts.

SWEENEY RIDGE/CATTLE HILL ALTERNATIVE B CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact	Dogs would be prohibited at both sites	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Under alternative C, dogs would not be allowed at Sweeney Ridge. Therefore, no impact on coastal scrub/chaparral/grassland vegetation from dogs would occur at this site. At Cattle Hill, on-leash dog walking would be allowed on the Baquiano Trail from Fassler Avenue up to and including the Farallones View Trail. In general, impacts on coastal scrub/chaparral/grassland vegetation would be limited to the 6-foot corridors immediately adjacent to the trails. Impacts in the LOD area would be long term, minor, and adverse since the area supports existing

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vegetation; impacts on vegetation could include trampling, digging, and nutrient addition from dog waste and urine. Impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area at Cattle Hill would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at Cattle Hill would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Sweeney Ridge/Cattle Hill to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since dog walking would not be allowed at Sweeney Ridge, commercial dog walking under alternative C would have no impact on coastal scrub/chaparral/grassland vegetation. Since commercial dog walking is not common at Cattle Hill, it is likely that the new regulation would not have an impact on the number of dog walkers.

Cumulative Impacts. The lack of impacts on the coastal scrub/chaparral/grassland communities from dogs at Sweeney Ridge under alternative C was considered together with the effects of the projects mentioned above under alternative A. The beneficial effects from the Park Stewardship Programs and the SNRAMP combined with the lack of impacts from the alternative C would result in beneficial cumulative impacts on the coastal scrub/chaparral/grassland communities at Sweeney Ridge. Cumulatively, alternative C would have negligible impacts on the coastal scrub, chaparral, and grassland communities at Cattle Hill when added to the effects from these projects.

SWEENEY RIDGE/CATTLE HILL ALTERNATIVE C CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact at Sweeney Ridge	Dogs would be prohibited at Sweeney Ridge	Beneficial, assuming compliance	Beneficial cumulative impacts at Sweeney Ridge
Overall negligible impacts, assuming compliance, at Cattle Hill	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts at Cattle Hill

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Under alternative D, dogs would not be allowed at Sweeney Ridge and Cattle Hill. Therefore, assuming compliance, no impact on coastal scrub/chaparral/grassland vegetation from dogs would occur at these sites.

Since dogs would not be allowed at Sweeney Ridge and Cattle Hill, there would be no impact from commercial dog walkers on the coastal scrub/chaparral/grassland vegetation communities.

Cumulative Impacts. Under alternative D, the cumulative impacts on the coastal scrub/chaparral/grassland communities would be the same as those under alternative B: beneficial cumulative impacts.

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SWEENEY RIDGE/CATTLE HILL ALTERNATIVE D CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact	Dogs would be prohibited at both sites	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. At Sweeney Ridge, alternative E would allow on-leash dog walking along Mori Ridge Trail, Sweeney Ridge Trail from Portola Discovery Site to the Notch Trail, and Sneath Lane. At Cattle Hill, on-leash dog walking would be allowed on the Baquiano Trail from Fassler Avenue up to and including the Farallones View Trail. In general, impacts on coastal scrub/chaparral/grassland vegetation would be limited to the 6-foot corridors immediately adjacent to the trails. Impacts in the LOD area would be long term, minor, and adverse since the area supports existing vegetation; impacts on vegetation could include trampling, digging, and nutrient addition from dog waste and urine. Impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the sites as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at Sweeney Ridge and Cattle Hill would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Sweeney Ridge/Cattle Hill to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Sweeney Ridge or Cattle Hill, it is likely that the new regulation would not have an impact on the number of dog walkers.

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Sweeney Ridge/Cattle Hill under alternative E were considered together with the effects of the projects mentioned above under alternative A . Cumulatively, alternative E would have negligible impacts on the coastal scrub/chaparral/grassland communities at these park sites when added to the effects from these projects.

SWEENEY RIDGE/CATTLE HILL ALTERNATIVE E CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the sites	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. On-leash dog walking would be allowed at Sweeney Ridge on the Sneath Lane and Sweeney Ridge Trail between Portola Discovery site and the Nike Missile Site. On-leash dog walking would be allowed at Cattle Hill on the Baquiano Trail from Fassler Avenue up to and including the Farallones View Trail. In general, impacts on vegetation would be limited to the 6-foot corridors immediately adjacent to the trails. Impacts in the LOD area would be long term, minor, and adverse since the area supports existing vegetation; impacts on vegetation could include trampling,

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digging, and nutrient addition from dog waste and urine. Impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area at Cattle Hill would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at Cattle Hill would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Sweeney Ridge/Cattle Hill to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since dog walking would not be allowed at Sweeney Ridge, commercial dog walking under the preferred alternative would have no impact on coastal scrub/chaparral/grassland vegetation. Since commercial dog walking activity is not common at Cattle Hill, it is likely that the new regulation would not have an impact on the number of dog walkers.

Cumulative Impacts. Projects and actions in and near Sweeney Ridge/Cattle Hill were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of the Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils at park sites such as Sweeney Ridge/Cattle Hill. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Sweeney Ridge/Cattle Hill. The scope of the SNRAMP analysis includes Natural areas managed by the SFRPD in Pacifica (Sharp Park, located near Sweeney Ridge/Cattle Hill) and addresses dog walking (including on-leash dog walking and off-leash DPAs) in this area (SFPD 2011, 261-262). Project activities included in the SNRAMP would protect and improve habitat and provide long-term beneficial impacts to vegetation.

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Sweeney Ridge/Cattle Hill, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The lack of impacts on the coastal scrub/chaparral/grassland communities from dogs at Sweeney Ridge under the preferred alternative was considered together with the effects of the projects mentioned above. The beneficial effects from the Park Stewardship Programs and the SNRAMP combined with the lack of impacts from the preferred alternative would result in beneficial cumulative impacts on the coastal scrub/chaparral/grassland communities at Sweeney Ridge. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Cattle Hill under the preferred alternative were considered together with the effects of the projects mentioned above. Cumulatively, the preferred alternative would have negligible impacts on the coastal scrub, chaparral, and grassland communities at Cattle Hill when added to the effects from these projects.

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SWEENEY RIDGE/CATTLE HILL PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Pedro Point Headlands

Alternative A: No Action. Although this site is currently not part of GGNRA, unrestricted dog walking occurs at this site, and dogs have contributed to disturbance of the plant communities along created social trails. Pedro Point Headlands contains coastal scrub, chaparral, and grassland vegetation. This site has documented low to moderate visitor use, but the numbers of citations and incident reports related to dog activities at the site are unknown since the NPS does not currently own the property and it is not patrolled by park rangers (table 9).

Under alternative A, dogs would continue to contribute to physical disturbance through trampling and digging, as well as contributing nutrients to the soil along the trails through dog waste. In addition, the NPS has invested time and money in extensive restoration projects at Pedro Point Headlands and the impacts from dogs would continue to negate the benefits of these restoration projects. Therefore, impacts on coastal scrub/chaparral/grassland vegetation as a result of this alternative would be long term, minor, and adverse because effects would be measurable and perceptible, but would be localized in a relatively small area.

No permit system exists for dog walking under alternative A. There are currently no commercial dog walking regulations at Pedro Point Headlands and it is unknown if commercial dog walkers contribute to coastal scrub/chaparral/grassland vegetation impacts. Therefore, commercial dog walking would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Projects and actions in and near the Pedro Point Headlands were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of the Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils at park sites such as Pedro Point Headlands. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Pedro Point Headlands. The *Pedro Point Headland Stewardship Project* aims to maintain and improve the ecological status of Pedro Point Headlands, and habitat restoration and trail development efforts include minimizing erosion (City College of San Francisco 2008; Coastsider 2010). Other projects benefit and enhance coastal scrub/chaparral/grassland habitat, including the proposed fire management policies of the *Fire Management Plan* (NPS 2005a), the *San Bruno Elfin and Mission Blue Butterflies Recovery Plan* (USFWS 1984), the *Pedro Point Headland Stewardship Project* (PLT 2008, 1), and the Martini Creek watershed assessment (San Mateo County) (CCC 2008). The scope of the SNRAMP analysis includes Natural areas managed by the SFRPD in Pacifica (Sharp Park, located near Pedro Point Headlands) and addresses dog walking (including on-leash dog walking and off-leash DPAs) in this area (SFPD 2011, 261-262). Project activities included in the SNRAMP would protect and improve habitat and provide long-term beneficial impacts to vegetation.

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Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). The implementation of current projects and future projects both in GGNRA and beyond park boundaries could have a cumulative impact on coastal scrub/chaparral/grassland communities. Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute to cumulative impacts.

The long-term minor adverse impacts on the coastal scrub/chaparral/grassland communities from dogs at the Pedro Point Headlands under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from trail rehabilitation projects, the SNRAMP, and actions from the *San Bruno Elfin and Mission Blue Butterflies Recovery Plan* (USFWS 1984) should reduce some of the adverse impacts from alternative A. The impacts resulting from any development or construction actions at or in the vicinity of GGNRA would add little to the cumulative impacts on vegetation, since those impacts were found to be negligible due to mitigation. Therefore, cumulative impacts on the coastal scrub/chaparral/grassland communities under this alternative would be expected to be negligible.

PEDRO POINT HEADLANDS ALTERNATIVE A CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Impacts on vegetation from dogs would be caused through physical damage such as trampling, digging, and dog waste, and these effects would continue negating restoration efforts	N/A	Negligible cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking on the Coastal Trail. No dog walking would be allowed on the trails proposed by the Pacifica Land Trust. In general, impacts on coastal scrub/chaparral/grassland vegetation would be limited to the 6-foot corridors immediately adjacent to the trail (LOD area). Impacts in the LOD area would be long term, minor, and adverse since the area supports existing vegetation. Impacts on coastal scrub/chaparral/grassland vegetation could include trampling, digging, and nutrient addition from dog waste and urine; impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impact on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at the Pedro Point Headlands would be negligible.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking is not common at Pedro Point Headlands, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

GGNRA192843

Cumulative Impacts. The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at the Pedro Point Headlands under alternative B were considered together with the effects of the projects mentioned above under alternative A. The beneficial effects from trail rehabilitation projects, the SNRAMP, and projects that enhance mission blue butterfly habitat combined with the negligible impacts from alternative B would result in beneficial cumulative impacts on the coastal scrub/chaparral/grassland communities.

PEDRO POINT HEADLANDS ALTERNATIVE B CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would have the same dog walking restriction as alternative B (on-leash dog walking on the Coastal Trail), and impacts would be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at the Pedro Point Headlands to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at the Pedro Point Headlands, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Under alternative C, the cumulative impacts on the coastal scrub/chaparral/grassland communities would be the same as those under alternative B: beneficial cumulative impacts.

PEDRO POINT HEADLANDS ALTERNATIVE C CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Under alternative D, dogs would not be allowed at the Pedro Point Headlands. Therefore, no impact on coastal scrub/chaparral/grassland vegetation from dogs would occur at this site.

Since dogs would not be allowed at Pedro Point Headlands, there would be no impact from commercial dog walkers on the coastal scrub/chaparral/grassland vegetation communities.

Cumulative Impacts. The lack of impacts on the coastal scrub/chaparral/grassland communities from dogs at the Pedro Point Headlands under alternative D was considered together with the effects of the projects mentioned above in alternative A. The beneficial effects from trail rehabilitation projects, the SNRAMP, and projects that enhance mission blue butterfly habitat combined with the lack of impacts

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from alternative D would result in beneficial cumulative impacts on the coastal scrub/chaparral/grassland communities.

PEDRO POINT HEADLANDS ALTERNATIVE D CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact, assuming compliance	Dogs would be prohibited at the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. On-leash dog walking would be allowed on the Coastal Trail and trails proposed by the Pacifica Land Trust. In general, impacts on coastal scrub/chaparral/grassland vegetation would be limited to the 6-foot corridors immediately adjacent to the trail (LOD area). Impacts in the LOD area would be long term, minor, and adverse since the area supports existing vegetation. Impacts on coastal scrub/chaparral/grassland vegetation could include trampling, digging, and nutrient addition from dog waste and urine; impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impact on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at the Pedro Point Headlands would be negligible.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at the Pedro Point Headlands to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking activity is not common at Pedro Point Headlands, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Under alternative E, the cumulative impacts on the coastal scrub/chaparral/grassland communities would be the same as those under alternative B: beneficial.

PEDRO POINT HEADLANDS ALTERNATIVE E CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative F: Preferred Alternative. On-leash dog walking would be allowed along the Coastal Trail, but no dog walking would be permitted on the trails proposed by the Pacifica Land Trust. In general, impacts on coastal scrub/chaparral/grassland vegetation would be limited to the 6-foot corridors immediately adjacent to the trail (LOD area). Impacts in the LOD area would be long term, minor, and adverse since the area supports existing vegetation. Impacts on coastal scrub/chaparral/grassland vegetation could include trampling, digging, and nutrient addition from dog waste and urine; impacts would be measurable and perceptible, but would be localized in a relatively small area.

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The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impact on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at Pedro Point Headlands would be negligible.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at the Pedro Point Headlands to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Pedro Point Headlands, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Projects and actions in and near Pedro Point Headlands were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of the Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils at park sites such as Pedro Point Headlands. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites such as Pedro Point Headlands. The *Pedro Point Headland Stewardship Project* aims to maintain and improve the ecological status of Pedro Point Headlands, and habitat restoration and trail development efforts include minimizing erosion (City College of San Francisco 2008, 1; Coastsider 2010, 1). The scope of the SNRAMP analysis includes Natural areas managed by the SFRPD in Pacifica (Sharp Park, located near Pedro Point Headlands) and addresses dog walking (including on-leash dog walking and off-leash DPAs) in this area (SFPD 2011, 261-262). Project activities included in the SNRAMP would protect and improve habitat and provide long-term beneficial impacts to vegetation.

Other projects benefit and enhance coastal scrub/chaparral/grassland habitat, including the proposed fire management policies of the *Fire Management Plan* (NPS 2005a), the *San Bruno Elfin and Mission Blue Butterflies Recovery Plan* (USFWS 1984), the *Coastal Corridor Enhancement Project* (Marin County, San Francisco County, and San Mateo County), the *Pedro Point Headland Stewardship Project*, and the Martini Creek watershed assessment (San Mateo County).

The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at the Pedro Point Headlands under the preferred alternative were considered together with the effects of the projects mentioned above. The beneficial effects from trail rehabilitation projects, the SNRAMP, and projects that enhance mission blue butterfly habitat combined with the negligible impacts from the preferred alternative would result in beneficial cumulative impacts on the coastal scrub/chaparral/grassland communities.

PEDRO POINT HEADLANDS PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

GGNRA192846

Rancho Corral de Tierra

Alternative A: No Action. Currently, on-leash dog walking is allowed on trails in the two areas near Montara and El Granada. These areas of Rancho are dominated by coastal scrub, chaparral, and grassland vegetation along the trails that allow on-leash dog walking. These areas of Rancho have documented low visitor use by dog walkers and compliance with the leash law is generally low. At Rancho, park rangers have observed off-leash dogs running in areas with unmarked potentially sensitive habitat.

Exemption 5

Under alternative A, dogs would continue to contribute to physical disturbance at Rancho through trampling, digging, and dog waste. In addition, since off-leash dog walking currently occurs at both areas of Rancho, it is likely that dogs would continue to walk or run through other undisturbed areas adjacent to existing trails. Therefore, impacts on coastal scrub/chaparral/grassland vegetation as a result of alternative A would continue to be long term, minor, and adverse at Rancho because effects would be measurable and perceptible, but would be localized in a relatively small area.

No permit system exists for dog walking under alternative A. Commercial dog walking is uncommon at Rancho; therefore, commercial dog walking would have negligible impacts on coastal scrub/chaparral/ grassland vegetation at this site.

Exemption 5

Cumulative Impacts. Projects and actions in and near Rancho were considered for the cumulative impacts analysis (appendix K). Since the Rancho Corral de Tierra site has been transferred to NPS, general protection of the site and associated natural resources will occur. For example, long-term parkwide projects such as trail rehabilitation performed as part of the Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils at park sites. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites. The scope of the SNRAMP analysis includes Natural areas managed by the SFRPD in Pacifica (Sharp Park, located near Mori Point) and addresses dog walking (including on-leash dog walking and off-leash DPAs) in this area (SFPD 2011, 261-262). Project activities included in the SNRAMP would protect and improve habitat and provide long-term beneficial impacts to vegetation.

Exemption 5

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Rancho Corral de Tierra, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

Exemption 5

The long-term minor adverse impacts on the coastal scrub/chaparral/grassland communities from dogs at Rancho Corral de Tierra under alternative A were considered together with the effects of the actions mentioned above. The benefits to vegetation from the Park Stewardship Programs and the SNRAMP would not be expected to reduce the adverse impacts of this alternative; therefore, the cumulative analysis for these park sites will focus on the results of the impact analysis for this alternative. The beneficial effects from the Park Stewardship Programs combined with the long-term minor adverse impacts from alternative A would result in long-term minor adverse cumulative impacts on the coastal scrub/chaparral/ grassland communities.

GGNRA192847

RANCHO CORRAL DE TIERRA ALTERNATIVE A CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Impacts on vegetation from dogs would be caused through physical damage such as trampling, digging, and dog waste	N/A	Long-term minor adverse cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulations. On-leash dog walking would be allowed on designated trails in the two areas open to dog walking near Montara and El Granada as defined in the Superintendent's Compendium. In general, impacts on coastal scrub/chaparral/grassland vegetation would be limited to the 6-foot corridors immediately adjacent to the trail (LOD area). Impacts in the LOD area would be long term, minor, and adverse since the area supports existing vegetation. Impacts on coastal scrub/chaparral/grassland vegetation could include trampling, digging, and nutrient addition from dog waste and urine; impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a very small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impact on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at Rancho would be negligible.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking at Rancho is not common, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. The lack of impacts on the coastal scrub/chaparral/grassland communities from dogs at Sweeney Ridge/Cattle Hill under alternative B was considered together with the effects of the projects mentioned above in alternative A. The beneficial effects from Park Stewardship Programs and the SNRAMP combined with the lack of impacts on the coastal scrub/chaparral/grassland communities from alternative B would result in beneficial cumulative impacts.

RANCHO CORRAL DE TIERRA ALTERNATIVE B CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Under alternative C dog walking under voice and site control would be allowed in a ROLA located between Le Conte and Tamarind Street, in a previously (partially) disturbed open area across the street and east of the Farallone View School. On-leash dog walking would be allowed on designated trails in the two areas open to dog walking near Montara and El Granada as defined in the Superintendent's Compendium. In general, impacts on coastal scrub/chaparral/grassland vegetation would be limited to the 6-foot corridors immediately adjacent to the trail and within the small-sized ROLA (LOD area). Impacts in the LOD area would be long term, minor,

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and adverse since the area supports existing vegetation. Impacts on coastal scrub/chaparral/grassland vegetation could include trampling, digging, and nutrient addition from dog waste and urine; impacts would be measurable and perceptible, but would be localized in a relatively small area.

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The long-term minor adverse impacts from dogs in the LOD area would occur in a very small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impact on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at Rancho would be negligible.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Rancho to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Rancho, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on coastal scrub/chaparral/grassland vegetation.

Cumulative Impacts. Under alternative C, the cumulative impacts on the coastal scrub/chaparral/ grassland communities would be the same as those under alternative B: beneficial cumulative impacts.

Exemption 5

RANCHO CORRAL DE TIERRA ALTERNATIVE C CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Under alternative D, on-leash dog walking would be allowed on the two existing San Mateo County trails: Old San Pedro Mountain Road and the Farallone Cutoff in Montara; dogs would be prohibited in other areas of the site. Impacts on vegetation could include physical damage from trampling and digging, as well as nutrient addition from dog waste and urine. Impacts in the LOD area would be long term, minor, and adverse since the area supports existing vegetation. Impacts on coastal scrub/chaparral/grassland vegetation could include trampling, digging, and nutrient addition from dog waste and urine; impacts would be measurable and perceptible, but would be localized in a relatively small area.

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The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Therefore, assuming compliance, the overall impact on coastal scrub/ chaparral/grassland vegetation from on-leash dog walking at Rancho would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

No commercial dog walking would be allowed under alternative D; therefore, no impact would occur as a result of commercial dog walking.

Cumulative Impacts. Under alternative D, the cumulative impacts on the coastal scrub/chaparral/ grassland communities would be the same as those under alternative B: beneficial cumulative impacts.

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RANCHO CORRAL DE TIERRA ALTERNATIVE D CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Exemption 5

Alternative E: Overall Most Dog Walking Access/Most Management Intensive. Dog walking restrictions under alternative E would be the same as under alternative C and impacts on coastal scrub/ chaparral/grassland vegetation would also be the same: overall, negligible impacts, assuming compliance.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Rancho to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking activity is not common at Rancho, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on coastal scrub/chaparral/ grassland vegetation.

Cumulative Impacts. Under alternative E, the cumulative impacts on the coastal scrub/chaparral/ grassland communities would be the same as those under alternative B: beneficial cumulative impacts.

RANCHO CORRAL DE TIERRA ALTERNATIVE E CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Exemption 5

Alternative F: Preferred Alternative. On-leash dog walking would be allowed on designated trails in the two areas open to dog walking near Montara and El Granada as defined in the Superintendent's Compendium. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impact on coastal scrub/chaparral/grassland vegetation from on-leash dog walking at Rancho would be negligible.

Under alternative F, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Rancho to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking activity is not common at Rancho, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative F would have negligible impacts on coastal scrub/chaparral/ grassland vegetation.

Cumulative Impacts. Projects and actions in and near Rancho were considered for the cumulative impacts analysis (appendix K). Since the Rancho Corral de Tierra site has been transferred to NPS, general protection of the site and associated natural resources would occur. For example, long-term parkwide projects such as trail rehabilitation performed as part of the Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife

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habitat and contributing to the quality of soils at park sites. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance, which can beneficially affect vegetation at park sites. The scope of the SNRAMP analysis includes Natural areas managed by the SFRPD in Pacifica (Sharp Park, located near Mori Point) and addresses dog walking (including on-leash dog walking and off-leash DPAs) in this area (SFPD 2011, 261-262). Project activities included in the SNRAMP would protect and improve habitat and provide long-term beneficial impacts to vegetation.

Exemption 5

Additional actions have had, are currently having, or have the potential to have adverse impacts on vegetation at or in the vicinity of Rancho Corral de Tierra, such as development or construction actions. Coastal scrub habitat in California is threatened by habitat loss, fragmentation, and degradation (USDA 2005, 613). Generally, construction projects that affect this community require project-specific mitigation measures to address impacts; therefore, these projects would not likely contribute negatively to cumulative impacts.

The negligible impacts on the coastal scrub/chaparral/grassland communities from dogs at Rancho Corral de Tierra under the preferred alternative were considered together with the effects of the actions mentioned above. The beneficial effects from the Park Stewardship Programs and the SNRAMP combined with the negligible impacts under the preferred alternative would result in beneficial cumulative impacts on the coastal scrub/chaparral/grassland communities.

RANCHO CORRAL DE TIERRA PREFERRED ALTERNATIVE CONCLUSION TABLE

Coastal Scrub, Chaparral, and Grassland Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Beneficial cumulative impacts

WETLANDS AND AQUATIC HABITATS

GGNRA contains both freshwater wetlands and coastal (estuarine) wetlands (riparian forest and stream corridors are considered separately). Vegetation in these wetlands is composed of both herbaceous and woody plant species; detailed descriptions have been presented in chapter 3 for wetland plant communities. Wetlands are located at Rodeo Beach/South Rodeo Beach (Rodeo Lagoon and Rodeo Lake), Muir Beach (tidal lagoon), Crissy Field, and Mori Point. Some of the wetlands in GGNRA have already been restored or are currently undergoing restoration. In general, dogs are prohibited from accessing most wetlands in GGNRA, but citations and incident reports related to dog activities at some of these sites do exist (table 9 and appendix G).

- "We observed the canine swim in Rodeo Lagoon (which is prohibited). We observed the same canine bark at and repeatedly chase numerous water-foul that were in the lagoon." (Rodeo Beach, May 19, 2010, Incident Report # 10-005086)
- "While patrolling with Ranger John Goodwin in a marked patrol vehicle along Mason, I observed an off leash dog running in the posted and fenced closed wildlife area adjacent to Crissy Field. The area is posted closed with no entry allowed." (Crissy Field, May 23, 2009, Incident Report # 09-005249)

Exemption 5

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MARIN COUNTY SITES

Muir Beach (Lagoon)

Alternative A: No Action. The lagoon located at Muir Beach is described as a small tidal lagoon fringed by wetland vegetation. A wetland restoration project was completed at this site in 2009, which included increasing its size and depth, adding woody debris and revegetating the shoreline; invasive vegetation was also removed as part of the restoration project (NPS 2007b); Phase I of this project reconnected the creek to the flood plain and expanded the tidal lagoon (NPS 2010b). Under current conditions, dog walking is allowed on leash or under voice control at the site. The park has closed the lagoon and Redwood Creek to dogs, although there is no physical barrier to prevent dogs from accessing the lagoon or Redwood Creek and it has been observed that these closures have been violated (table 6). The area is considered a moderate to high use site, and dogs do gain access to the lagoon and surrounding wetland habitat.

Therefore, alternative A would result in continued long-term minor to moderate adverse impacts on wetland and aquatic vegetation at this site because effects on sensitive habitat would be measurable and perceptible, but would be localized in a relatively small area.

Under alternative A, no permit system exists for commercial dog walking. At Muir Beach, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on wetland vegetation.

Cumulative Impacts. Projects and actions in and near Muir Beach were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. The initiative at Pirates Cove, just south of Muir Beach, included efforts to control invasive non-native plants such as pampas grass to support the dense and relatively undisturbed coastal scrub, prairie, and riparian habitats (GGNPC 2010c, 1). Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Muir Beach. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Muir Beach. The Muir Beach Wetland and Creek Restoration Project restored the lagoon in 2009 to provide a functional, resilient ecosystem while also providing habitat for special-status species and reducing flooding on Pacific Way. This project restored and enhanced ecological processes near the mouth of Redwood Creek, contributing to the quality of habitat, particularly as a result of restoration and enhancement of habitat and improvement of erosion and sedimentation conditions (NPS 2009r, 1). Phase I of this project reconnected the creek to the flood plain and expanded the tidal lagoon (NPS 2010b). Similarly, the NPS and the California State Lands Commission formulated the Giacomini Wetland Restoration Project (Marin County, near Tomales Bay) that restored 560 acres of pastures to wetlands of increased complexity and diversity of vegetation and aquatic habitats (NPS 2009l; NPS and CSLC 2007). The Lower Redwood Creek Floodplain and Salmonid Habitat Restoration restored channel function to reduce flooding and reconnect the creek to its floodplain, as well as expanding vegetation at the Banducci site (NPS 2010d, 1). The *Dias Ridge Restoration and Trail Improvement Project* is currently realigning trail segments and restoring degraded areas on Dias Ridge above Muir Beach (NPS 2009q, 1).

Additional actions have had or have the potential to have adverse effects on wetland and aquatic habitats at or in the vicinity of GGNRA sites. Larger, more regional development projects like the GGNRA *Long-range Transportation Plan Update* (NPS 2008i) and the *Doyle Drive Project* (Presidio Parkway 2008)

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will impact or have the potential to negatively affect wetland resources within and beyond park boundaries. However, wetland impacts from the implementation of these and other proposed projects in the area should be sufficiently offset by mitigation, project by project, such that there should be no net loss of wetland acreage, functions, or values.

The loss of more than 90 percent of California's original wetlands is the largest loss of any state in the nation and is directly related to economic development (NOAA 2010a). The *Clean Water Act* and the state's coastal wetlands statute have succeeded in reducing the rate of wetland loss in California, but development pressures remain a threat (NOAA 2010a, 1). Therefore, projects that protect or degrade wetland and aquatic habitats will have a cumulative effect, whether beneficial or adverse, on wetlands.

The long-term minor to moderate adverse impacts on wetland and aquatic vegetation from dogs at Muir Beach under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from wetland restoration/creation projects should reduce some of the adverse impacts on vegetation from alternative A. However, the impacts resulting from any development projects at or in the vicinity of GGNRA and the loss of more than 90 percent of California's original wetlands may add adversely to the cumulative impacts on vegetation, even with wetland mitigation. There would be a combination of beneficial and adverse effects from actions in and around Muir Beach; when combined, these projects would balance out, resulting in negligible impacts. Therefore, the cumulative analysis for this park site will mainly focus on the results of the impact analysis for each alternative. Cumulative impacts on wetland and aquatic vegetation under this alternative would be expected to be long term, minor to moderate, and adverse.

MUIR BEACH ALTERNATIVE A CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor to moderate, adverse impacts	Wetland vegetation around lagoon would be affected by dogs through trampling and increased turbidity; there would be no physical barrier to prevent dogs from accessing the lagoon shoreline and closures would continue to be violated regularly	N/A	Long-term, minor to moderate, adverse cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking on the beach, the bridge, and path to the beach, the parking area, and the proposed Pacific Way Trail (to be built). Under alternative B, protection of wetland and aquatic habitat would occur through requiring on-leash dog walking. If dogs at this site are physically restrained on leash, they should not gain access to the lagoon or its shorelines. As part of the restoration plan at this site, post-and-cable fencing would be installed between the tidal lagoon and Muir Beach to discourage visitors from accessing the lagoon, but the fencing would not physically exclude noncompliant dogs from the area. Therefore, assuming compliance, alternative B would result in negligible impacts on wetland and aquatic vegetation at this site because no measurable or perceptible changes in wetland and aquatic plants would occur as a result of this alternative.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking is not common at Muir Beach, it is likely that the new regulation would not have an impact on the number of dog walkers.

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Therefore, commercial dog walking under alternative B would have negligible impacts on wetland vegetation.

Cumulative Impacts. The negligible impacts on wetland and aquatic vegetation from dogs at Muir Beach under alternative B were considered together with the effects of the projects mentioned above under alternative A. There would be a combination of beneficial and adverse effects from projects in and around Muir Beach; when combined, these projects would balance out, resulting in negligible impacts. Therefore, these negligible impacts combined with the negligible impacts from alternative B would result in negligible cumulative impacts on wetland and aquatic vegetation.

MUIR BEACH ALTERNATIVE B CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Physically restraining dogs would protect wetlands along the shoreline of the lagoon	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would have the same dog walking restrictions as alternative B, and impacts would be the same, assuming compliance: negligible.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required No permits would be allocated at Muir Beach to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking activity is not common at Muir Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on wetland and aquatic vegetation.

Cumulative Impacts. Under alternative C, the cumulative impacts on wetland and aquatic vegetation at this park site would be the same as those under alternative B: negligible cumulative impacts.

MUIR BEACH LAGOON ALTERNATIVE C CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Physically restraining dogs would protect wetlands along the shoreline of the lagoon	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. In the vicinity of Muir Beach, alternative D would allow on-leash dog walking in the parking area and on the Pacific Way Trail, which has some adjacent wetland habitat. Dogs would not be allowed along the lagoon shoreline. Assuming compliance, dogs would not be able to gain access to wetland vegetation. Therefore, assuming compliance, alternative D would result in negligible impacts on wetland and aquatic vegetation at this site because no measurable or perceptible changes in wetland and aquatic plants would occur as a result of this alternative.

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No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on wetland vegetation.

Cumulative Impacts. The negligible impacts on wetland and aquatic vegetation from dogs at Muir Beach under alternative D were considered together with the effects of the projects mentioned above under alternative A. There would be a combination of beneficial and adverse effects from projects in and around Muir Beach; when combined, these projects would balance out, resulting in negligible impacts. Therefore, these negligible impacts combined with the negligible impacts from alternative D would result in negligible cumulative impacts on wetland and aquatic vegetation.

MUIR BEACH ALTERNATIVE D CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Physically restraining dogs would protect wetlands along the shoreline of the lagoon because dogs would not be allowed along the lagoon shoreline, but only on the Pacific Way Trail, which has some adjacent wetland habitat	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would allow on-leash dog walking on the Pacific Way Trail, the bridge and path to the beach, and the parking lot, and would establish a ROLA on the beach south of the boardwalk/path to the beach. This alternative would protect wetland and aquatic habitat through requiring on-leash dog walking and prohibiting dogs on the portion of beach adjacent to the lagoon. The ROLA is not located in or adjacent to wetland vegetation surrounding the lagoon. Therefore, assuming compliance, alternative E would result in negligible impacts on wetland vegetation.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Muir Beach to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Muir Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on wetland vegetation.

Cumulative Impacts. The negligible impacts on wetland and aquatic vegetation from dogs at Muir Beach under alternative E were considered together with the effects of the projects mentioned above under alternative A. There would be a combination of beneficial and adverse effects from projects in and around Muir Beach; when combined, these projects would balance out, resulting in negligible impacts. Therefore, these negligible impacts combined with the negligible impacts from alternative E would result in negligible cumulative impacts on wetland vegetation.

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MUIR BEACH ALTERNATIVE E CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Compliance in the ROLA and physical restraint of dogs would protect wetlands along the shoreline of the lagoon	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on the beach, bridge and path to the beach, and the Pacific Way Trail. Assuming compliance, dogs would not be able to gain access to wetland and aquatic vegetation. The protection of wetland and aquatic habitat would occur through requiring on-leash dog walking. If dogs at this site are physically restrained on leash, they should not gain access to the lagoon or its shorelines because dogs would not be allowed along the lagoon shoreline. As part of the restoration plan at this site, post-and-cable fencing would be installed between the tidal lagoon and Muir Beach to discourage visitors from accessing the lagoon, but the fencing would not physically exclude noncompliant dogs from the area. Therefore, assuming compliance, the preferred alternative would result in negligible impacts on wetland and aquatic vegetation at this site because no measurable or perceptible changes in wetland and aquatic plants would occur as a result of this alternative.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Muir Beach to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking activity is not common at Muir Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on wetland and aquatic vegetation.

Cumulative Impacts. Projects and actions in and near Muir Beach were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. The Park Stewardship Programs Initiative at Pirates Cove, just south of Muir Beach, included efforts to control invasive non-native plants such as pampas grass to support the dense and relatively undisturbed coastal scrub, prairie, and riparian habitats (GGNPC 2010c, 1). Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Muir Beach. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Muir Beach. The Muir Beach Wetland and Creek Restoration Project restored the lagoon in 2009 to provide a functional, resilient ecosystem while also providing habitat for special-status species and reducing flooding on Pacific Way. This project restored and enhanced ecological processes near the mouth of Redwood Creek, contributing to the quality of habitat, particularly as a result of restoration and enhancement of habitat and improvement of erosion and sedimentation conditions (NPS 2009r, 1). Similarly, the NPS and the California State Lands Commission formulated the Giacomini Wetland Restoration Project (Marin County, near Tomales Bay), which restored 560 acres of pastures to wetlands of increased complexity and diversity of vegetation and aquatic habitats (NPS 2009l; NPS and CSLC 2007). The Lower Redwood Creek Floodplain and Salmonid Habitat Restoration restored channel

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function to reduce flooding and reconnect the creek to its floodplain as well as expanding vegetation at the Banducci site (NPS 2010d, 1). The *Dias Ridge Restoration and Trail Improvement Project* is currently realigning trail segments and restoring degraded areas on Dias Ridge above Muir Beach (NPS 2009q, 1). Additional vegetation benefits would be expected from wetland and creek restoration at the tidal lagoon, which would reduce flooding on Pacific Way.

Additional actions have had or have the potential to have adverse effects on wetland and aquatic habitat at or in the vicinity of GGNRA sites. Larger, more regional development projects like the GGNRA *Long-range Transportation Plan Update* and the *Doyle Drive Project* will impact or have the potential to negatively affect wetland resources within and beyond park boundaries. However, wetland and aquatic impacts from the implementation of these and other proposed projects in the area should be sufficiently offset by mitigation, project by project, such that there should be no net loss of wetland acreage, functions, or values.

The negligible impacts on wetland and aquatic vegetation from dogs at Muir Beach under the preferred alternative were considered together with the effects of the projects mentioned above. There would be a combination of beneficial and adverse effects from projects in and around Muir Beach; when combined, these projects would balance out, resulting in negligible impacts. Therefore, these negligible impacts combined with the negligible impacts from the preferred alternative would result in negligible cumulative impacts on wetland and aquatic vegetation.

MUIR BEACH PREFERRED ALTERNATIVE CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Physically restraining dogs would protect wetlands along the shoreline of the lagoon because dogs would not be allowed along the lagoon shoreline; dogs would be allowed on leash on the Pacific Way Trail, which supports some wetland habitat	Beneficial, assuming compliance	Negligible cumulative impacts

Rodeo Beach/South Rodeo Beach (Rodeo Lagoon)

Alternative A: No Action. Under current conditions, dogs are allowed on leash or under voice control in all beach areas (Rodeo Beach and South Rodeo Beach). On-leash dog walking is allowed on the footbridge and access trail to the beach. Rodeo Lagoon and Rodeo Lake (discussed under "Marin Headlands Trails" for Wetlands and Aquatic Habitat Impacts) are currently closed to dogs. The NPS has restricted people and their pets from accessing the lagoon and its shoreline for overall resource protection. A fence is proposed along the western shoreline of the lagoon that will deter but not physically exclude dogs from accessing the lagoon from the beach. The voice-control areas are located immediately adjacent to the shoreline of the lagoon. The area receives moderate to high use by beachgoers and low to moderate use by dog owners/walkers (table 9). Park staff members have estimated that they observe dogs in the lagoon at least once a week, and on a daily basis during good weather. Trampling can affect wetland and aquatic plant species either directly, by reducing the integrity of the plants' root systems, or indirectly, by causing increased turbidity (sedimentation) that may smother emergent plants.

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Therefore, because dogs would continue to access Rodeo Lagoon and its shoreline, alternative A would result in continued long-term minor adverse impacts on wetland and aquatic vegetation at Rodeo Lagoon because effects would be measurable and perceptible, but would be localized in a relatively small area.

Under alternative A, no permit system exists for commercial dog walking. At Rodeo Beach/South Rodeo Beach, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on wetland vegetation.

Cumulative Impacts. Projects and actions in and near Rodeo Beach/South Rodeo Beach were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Rodeo Beach/South Rodeo Beach. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Rodeo Beach/South Rodeo Beach. A specific example of a project that will provide beneficial effects to wetlands is the Giacomini Wetland Restoration Project (Marin County, near Tomales Bay), which restored 560 acres of pastures to wetlands of increased complexity and diversity of vegetation and aquatic habitats (NPS 2009l; NPS and CSLC 2007).

Additional actions have had or have the potential to have adverse effects on wetlands at or in the vicinity of GGNRA sites. Larger, more regional development projects like the GGNRA *Long-range Transportation Plan Update* and the *Doyle Drive Project* will impact or have the potential to negatively affect wetland resources within and beyond park boundaries. However, wetland and aquatic impacts from the implementation of these and other proposed projects in the area should be sufficiently offset by mitigation, project by project, such that there should be no net loss of wetland acreage, functions, or values.

The loss of more than 90 percent of California's original wetlands is the largest loss of any state in the nation and is directly related to economic development (NOAA 2010a, 1). The *Clean Water Act* and the state's coastal wetlands statute have succeeded in reducing the rate of wetland loss in California, but development pressures remain a threat (NOAA 2010a, 1). Therefore, projects that protect or degrade wetland and aquatic habitats will have a cumulative effect, whether beneficial or adverse, on wetlands.

The long-term minor adverse impacts on wetland and aquatic vegetation from dogs at Rodeo Beach/South Rodeo Beach under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from wetland restoration/creation projects should reduce some of the adverse impacts on wetland and aquatic vegetation from alternative A. However, the impacts resulting from any development projects at or in the vicinity of GGNRA and the loss of more than 90 percent of California's original wetlands may add adversely to the cumulative impacts on wetland and aquatic vegetation, even with mitigation. There would be a combination of beneficial and adverse effects from projects in and around Rodeo Beach/South Rodeo Beach; when combined, these projects would balance out, resulting in negligible impacts. Therefore, the cumulative analysis for this park site will mainly focus on the results of the impact analysis for each alternative. Cumulative impacts on wetland vegetation under this alternative would be expected to be long term, minor, and adverse.

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RODEO BEACH/SOUTH RODEO BEACH (RODEO LAGOON) ALTERNATIVE A CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor, adverse impacts	Wetland vegetation around lagoon would be affected by dogs through trampling and turbidity; no physical barrier would exist to prevent dogs from accessing the lagoon, and closures would continue to be violated regularly	N/A	Long-term, minor, adverse cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Under alternative B, on-leash dog walking would be allowed on Rodeo Beach, South Rodeo Beach, and on the footbridge and access trail to the beaches. Rodeo Lagoon and Rodeo Lake are currently closed to dogs. As part of an already approved project, a post-and-cable fence would be constructed on the western edge of Rodeo Lagoon that would discourage visitors but not physically exclude visitors or dogs from accessing the lagoon. If dogs at this site are physically restrained on leash and deterred by the fence, they should not gain access to the lagoon or its shoreline. Therefore, assuming compliance, alternative B would result in negligible impacts on the wetland and aquatic vegetation associated with Rodeo Lagoon because no measurable or perceptible changes in wetland and aquatic plants would occur as a result of this alternative.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking is not common at Rodeo Beach/South Rodeo Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on wetland and aquatic vegetation.

Cumulative Impacts. The negligible impacts on wetland and aquatic vegetation from dogs at Rodeo Beach/South Rodeo Beach under alternative B were considered together with the effects of the projects mentioned above under alternative A. There would be a combination of beneficial and adverse effects from projects in and around Rodeo Beach/South Rodeo Beach; when combined, these projects would balance out, resulting in negligible impacts. Therefore, these negligible impacts combined with the negligible impacts from alternative B would result in negligible cumulative impacts on wetland and aquatic vegetation.

RODEO BEACH/SOUTH RODEO BEACH (RODEO LAGOON) ALTERNATIVE B CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Physically restraining dogs would protect wetlands along the shoreline of the lagoon	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Under alternative C, on-leash dog walking would be allowed on trails adjacent to the lagoon and lake and on the footbridge to the beach, and dogs would be allowed under voice and sight control in a ROLA on Rodeo Beach. Rodeo Lagoon and Rodeo Lake are currently closed to dogs. The ROLA would include portions of the sparsely vegetated

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foredunes that extend from the crest of the beach east to the lagoon and south to the ridge on the beach just north of South Rodeo Beach. The installation of a post-and-cable fence along the beach end of Rodeo Lagoon to be constructed as part of a concurrent project would discourage visitors from accessing the lagoon, but would not physically exclude noncompliant dogs from the lagoon. With the addition of the fence as a deterrent, assuming compliance, this alternative would result in negligible impacts on wetland and aquatic vegetation, because no measurable or perceptible changes in wetland and aquatic plants would occur as a result of this alternative.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash, and the permit may restrict use by time and area. Permits would be allowed for Rodeo Beach/South Rodeo Beach. Impacts on wetland and aquatic vegetation from permit holders with four to six dogs off leash would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Rodeo Beach/South Rodeo Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on wetland and aquatic vegetation.

Cumulative Impacts. The negligible impacts on wetland and aquatic vegetation from dogs at Rodeo Beach/South Rodeo Beach under alternative C were considered together with the effects of the projects mentioned above under alternative A. There would be a combination of beneficial and adverse effects from projects in and around Rodeo Beach/South Rodeo Beach; when combined, these projects would balance out, resulting in negligible impacts. Therefore, these negligible impacts combined with the negligible impacts from alternative C would result in negligible cumulative impacts on wetland and aquatic vegetation.

RODEO BEACH/SOUTH RODEO BEACH (RODEO LAGOON) ALTERNATIVE C CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Compliance in the ROLA and physical restraint of dogs would protect wetlands along the shoreline of the lagoon	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Under alternative D, on-leash dog walking would be allowed on the beach in areas north of the footbridge and on the footbridge to the beach only. Rodeo Lagoon and Rodeo Lake (discussed under "Marin Headlands Trails" for Wetlands and Aquatic Habitat Impacts) are currently closed to dogs. If dogs at this site are physically restrained on leash and deterred by the fence, they should not gain access to the lagoon or its shoreline. Therefore, assuming compliance, alternative D would result in negligible impacts on the wetland and aquatic vegetation associated with Rodeo Lagoon because no measurable or perceptible changes in wetland and aquatic plants would occur as a result of this alternative.

No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on wetland and aquatic vegetation.

Cumulative Impacts. The negligible impacts on wetland vegetation from dogs at Rodeo Beach/South Rodeo Beach under alternative D were considered together with the effects of the projects mentioned above under alternative A. There would be a combination of beneficial and adverse effects from projects

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in and around Rodeo Beach/South Rodeo Beach; when combined, these projects would balance out, resulting in negligible impacts. Therefore, these negligible impacts combined with the negligible impacts from alternative D would result in negligible cumulative impacts on wetland and aquatic vegetation.

RODEO BEACH/SOUTH RODEO BEACH (RODEO LAGOON) ALTERNATIVE D CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Physically restraining dogs would protect wetlands along the shoreline of the lagoon	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Under alternative E, dog walking under voice and sight control would be allowed in a ROLA on Rodeo Beach and South Rodeo Beach. A total of 0.56 mile of beach would be available for off leash dog walking. On-leash dog walking would be allowed on the footbridge and access trails to the beaches. Rodeo Lagoon and Rodeo Lake would remain closed to dogs. The installation of a post-and-cable fence along the beach side of Rodeo Lagoon proposed as part of an already approved project would discourage visitors from accessing the lagoon, but would not physically exclude noncompliant dogs. Although this alternative includes a ROLA, the addition of the fence as deterrent and compliance with regulations would result in protection of wetland vegetation surrounding Rodeo Lagoon. Assuming compliance with proposed regulations, alternative E would result in negligible impacts on wetland and aquatic vegetation; habitat would be protected and no measurable or perceptible changes in the vegetation would occur.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash, and the permit may restrict use by time and area. Permits would be allowed for Rodeo Beach/South Rodeo Beach. Impacts on wetland vegetation from permit holders with four to six dogs off leash would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Rodeo Beach/South Rodeo Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on wetland vegetation.

Cumulative Impacts. The negligible impacts on wetland vegetation from dogs at Rodeo Beach/South Rodeo Beach under alternative E were considered together with the effects of the projects mentioned above under alternative A. There would be a combination of beneficial and adverse effects from projects in and around Rodeo Beach/South Rodeo Beach; when combined, these projects would balance out, resulting in negligible impacts. Therefore, these negligible impacts combined with the negligible impacts from alternative E would result in negligible cumulative impacts on wetland vegetation.

RODEO BEACH/SOUTH RODEO BEACH (RODEO LAGOON) ALTERNATIVE E CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Compliance in the ROLA and physical restraint of dogs would protect wetlands along the shoreline of the lagoon	Beneficial, assuming compliance	Negligible cumulative impacts

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Alternative F: Preferred Alternative. Under the preferred alternative, on-leash dog walking would be allowed on trails adjacent to the lagoon and lake and on the footbridge to the beach, and dogs would be allowed under voice and sight control in a ROLA on Rodeo Beach. Rodeo Lagoon and Rodeo Lake are currently closed to dogs. The ROLA would include portions of the sparsely vegetated foredunes that extend from the crest of the beach east to the lagoon and south to the ridge on the beach just north of South Rodeo Beach. The installation of a post-and-cable fence along the beach end of Rodeo Lagoon to be constructed as part of a concurrent project would discourage visitors from accessing the lagoon, but would not physically exclude noncompliant dogs from the lagoon. With the addition of the fence as a deterrent, and assuming compliance, this alternative would result in negligible impacts on wetland vegetation, because no measurable or perceptible changes in wetland and aquatic plants would occur as a result of this alternative.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash, and the permit may restrict use by time and area. Permits would be allowed for Rodeo Beach/South Rodeo Beach. Impacts on wetland vegetation from permit holders with four to six dogs off leash would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Rodeo Beach/South Rodeo Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on wetland vegetation.

Cumulative Impacts. Projects and actions in and near Rodeo Beach/South Rodeo Beach were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Rodeo Beach/South Rodeo Beach. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Rodeo Beach/South Rodeo Beach. A specific example of a project that will provide beneficial effects to wetlands is the Giacomini Wetland Restoration Project (Marin County, near Tomales Bay), which restored 560 acres of pastures to wetlands of increased complexity and diversity of vegetation and aquatic habitats (NPS 2009l; NPS and CSLC 2007).

Additional actions have had or have the potential to have adverse effects on wetlands at or in the vicinity of GGNRA sites. Larger, more regional development projects like the GGNRA *Long-range Transportation Plan Update* and the *Doyle Drive Project* will impact or have the potential to negatively affect wetland resources within and beyond park boundaries. However, wetland and aquatic impacts from the implementation of these and other proposed projects in the area should be sufficiently offset by mitigation, project by project, such that there should be no net loss of wetland acreage, functions, or values.

The negligible impacts on wetland and aquatic vegetation from dogs at Rodeo Beach/South Rodeo Beach under the preferred alternative were considered together with the effects of the projects mentioned above. There would be a combination of beneficial and adverse effects from projects in and around Rodeo Beach/South Rodeo Beach; when combined, these projects would balance out, resulting in negligible

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impacts. Therefore, these negligible impacts combined with the negligible impacts from the preferred alternative would result in negligible cumulative impacts on wetland and aquatic vegetation.

RODEO BEACH/SOUTH RODEO BEACH (RODEO LAGOON) PREFERRED ALTERNATIVE CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Compliance in the ROLA and physical restraint of dogs would protect wetlands along the shoreline of the lagoon	Beneficial, assuming compliance	Negligible cumulative impacts

Marin Headlands Trails

Alternative A: No Action. Currently, on-leash dog walking is allowed along portions of the Coastal Trail (Hill 88 to Muir Beach), the Battery Smith – Guthrie Fire Road Loop, North Miwok Trail from Tennessee Valley to Highway 1, and County View Road. Dog walking under voice control (or on leash) is allowed along other portions of the Coastal Trail (Golden Gate Bridge to Hill 88 and includes portions of the Lagoon Trail), the Coastal, Wolf Ridge, and Miwok Loop, and the Old Bunker Fire Road Loop (includes section of the Coastal Trail). These trails experience low to moderate use by dog walkers, but dog-related incidents are high at this site with a total of 269 from 2008 through 2011. The majority of dog-related incidents at the Marin Headlands Trails was for having dogs within closed areas (table G). The Marin Headlands Trails area contains wetland vegetation around Rodeo Lake (which is currently closed) and extensive areas of wetlands in the valley bottom along Rodeo Valley Trail. These wetlands are being affected by dogs through trampling and turbidity; there is no physical barrier to prevent dogs from accessing the lake and closures are violated regularly. Physical disturbance and nutrient addition are currently happening along the trails and fire roads and in off-trail areas throughout the site due to unleashed dogs.

Exemption 5

Since dogs would continue to be allowed under voice control in portions of the site under alternative A, there is a higher likelihood that dogs would go off trail than if they were on leash, thus affecting vegetation in adjacent undisturbed areas. Therefore, impacts on wetland and aquatic vegetation as a result of this alternative would continue to be long term, minor, and adverse because effects would be measurable and perceptible, but would be localized in a relatively small area.

Under alternative A, no permit system exists for dog walking. At the Marin Headlands Trails, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on wetland vegetation.

Cumulative Impacts. Projects and actions in and near the Marin Headlands Trails were considered for the cumulative impacts analysis (appendix K). Many wetland restoration/creation projects have been completed or are proposed in GGNRA and beyond the boundaries of the park. Impacts resulting from completed, ongoing, and future restoration/creation projects at the Marin Headlands Trails and projects beyond the park boundaries will generally provide an overall benefit to wetland (including tidal marsh) and aquatic habitats. A specific example of a project that will provide beneficial effects to wetlands is the Giacomini Wetland Restoration Project (Marin County, near Tomales Bay), which restored 560 acres of pastures to wetlands of increased complexity and diversity of vegetation and aquatic habitats (NPS 2009l; NPS and CSLC 2007). Another such project is the Gulf of the Farallones National Marine Sanctuary's proposed Bolinas Lagoon Ecosystem Restoration Project (near Stinson Beach), which will benefit the vegetation at the Bolinas Lagoon (GFNMS Working Group 2008).

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Additional actions have had or have the potential to have adverse effects on wetlands at or in the vicinity of GGNRA sites. Larger, more regional development projects like the GGNRA *Long-range Transportation Plan Update* and the *Doyle Drive Project* will impact or have the potential to negatively affect wetland resources within and beyond park boundaries. However, wetland and aquatic impacts from the implementation of these and other proposed projects in the area should be sufficiently offset by mitigation, project by project, such that there should be no net loss of wetland acreage, functions, or values.

As stated previously, the loss of more than 90 percent of California's original wetlands is the largest loss of any state in the nation and is directly related to economic development (NOAA 2010a, 1). The *Clean Water Act* and the state's coastal wetlands statute have succeeded in reducing the rate of wetland loss in California, but development pressures remain a threat (NOAA 2010a, 1). Therefore, projects that protect or degrade wetland and aquatic habitats will have a cumulative effect, whether beneficial or adverse, on wetlands.

The long-term minor adverse impacts on wetland and aquatic vegetation from dogs at the Marin Headlands Trails under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from wetland restoration/creation projects should reduce some of the adverse impacts on vegetation from alternative A. However, the impacts resulting from any development projects at or in the vicinity of GGNRA and the loss of more than 90 percent of California's original wetlands may add adversely to the cumulative impacts on vegetation, even with mitigation. There would be a combination of beneficial and adverse effects from projects in and around the Marin Headlands Trails; when combined, these projects would balance out, resulting in negligible impacts. Therefore, the cumulative analysis for this park site will mainly focus on the results of the impact analysis for each alternative. Cumulative impacts on wetland and aquatic vegetation under this alternative would be expected to be long term, minor, and adverse.

MARIN HEADLANDS TRAILS ALTERNATIVE A CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Wetland vegetation around Rodeo Lake would be affected by dogs through trampling and turbidity; no physical barrier would exist to prevent dogs from accessing the lake and closures would continue to be violated regularly; extensive areas of wetlands exist in the valley bottom along Rodeo Valley Trail	N/A	Long-term, minor, adverse cumulative impacts

N/A = not applicable.

Exemption 5

Alternative B: NPS Leash Regulation. Alternative B would prohibit dogs on the trails at the Marin Headlands Trails. Not allowing dog walking on the Marin Headlands Trails would eliminate physical disturbance by dogs and nutrient addition from dog waste. Therefore, assuming compliance, alternative B would result in no impact on wetland vegetation at the site.

Since dogs would not be allowed at the Marin Headlands Trails, there would be no impact from commercial dog walkers on the wetland vegetation.

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Cumulative Impacts. The lack of impacts on wetland and aquatic vegetation from dogs at the Marin Headlands Trails under alternative B was considered together with the effects of the projects mentioned above under alternative A "Cumulative Impacts." There would be a combination of beneficial and adverse effects from projects in and around the Marin Headlands Trails; when combined, these projects would balance out, resulting in negligible impacts. Cumulatively, there would be negligible impacts on wetland and aquatic vegetation at this park site.

MARIN HEADLANDS TRAILS ALTERNATIVE B CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact assuming compliance	Dogs would be prohibited at the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Under alternative C, on-leash dog walking would be allowed along the Lower Rodeo Valley Trail Corridor. This corridor includes the Rodeo Beach parking lot to the intersection of Bunker and McCullough Roads via Lagoon Trail, Miwok Trail, and Rodeo Valley Trail including the connector trails from the Rodeo Valley Trail to Smith Road Trailhead. On-leash dog walking would also be allowed on the Old Bunker Fire Road Loop, including a section of the coastal Trail and the Battery Smith-Guthrie Fire Road Loop. This alternative would allow dog access only on these perimeter trails in the Marin Headlands, while preserving and maintaining the integrity of interior habitat. The valley bottom along the Rodeo Valley Trail Corridor is adjacent to extensive areas of freshwater vegetation and the Miwok Trail is adjacent to Rodeo Lake, which supports shoreline wetland vegetation and is currently closed. Impacts in areas adjacent to the trails/fire roads (LOD area) would be long term, minor, and adverse since this wetland and aquatic vegetation would be affected by trampling, digging, and dog waste. Impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail, and dogs would not be allowed in Rodeo Lake. Therefore, assuming compliance, the overall impact on wetland and aquatic vegetation from on-leash dog walking would be negligible because impacts would result in no measurable or perceptible changes in these plant communities.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at the Marin Headlands Trails to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at the Marin Headlands Trails, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on wetland vegetation.

Cumulative Impacts. The negligible impacts on wetland vegetation from dogs at the Marin Headlands Trails under alternative C were considered together with the effects of the projects mentioned above under alternative A. There would be a combination of beneficial and adverse effects from projects in and around the Marin Headlands Trails; when combined, these projects would balance out, resulting in negligible impacts. Therefore, these negligible impacts combined with the negligible impacts from alternative C would result in negligible cumulative impacts on wetland and aquatic vegetation.

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MARIN HEADLANDS TRAILS ALTERNATIVE C CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect Rodeo Lake wetland vegetation and habitat off trail along the Rodeo Valley Trail Corridor, which supports wetlands	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Alternative D would have the same restrictions as alternative B (dogs would be prohibited on the trails) and impacts would be the same, assuming compliance: no impact.

Since dogs would not be allowed at the Marin Headlands Trails, there would be no impact from commercial dog walkers on the wetland vegetation.

Cumulative Impacts. Under alternative D, the cumulative impacts on wetland and aquatic vegetation at this park site would be the same as those under alternative B: negligible cumulative impacts.

MARIN HEADLANDS TRAILS ALTERNATIVE D CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact assuming compliance	Dogs would be prohibited at the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would allow on-leash dog walking on the Coastal Trail from 101 following Conzelman Road to McCullough intersection and then the Coastal Trail Bike Route including Julian Fire Road from 101 to Rodeo Beach parking lot. On-leash dog walking would also be available on the Old Bunker Fire Road Loop which includes a section of the Coastal trail, Battery Smith-Guthrie Fire Rood Loop, North Miwok Trail from Tennessee Valley to Highway 1, County View Trail, Marin Drive, Rodeo Avenue Trail, and Morning Sun Trail. This alternative would allow dog access only on these perimeter trails in the Marin Headlands, while preserving and maintaining the integrity of interior habitat. The valley bottom along Rodeo Valley Trail Corridor is adjacent to extensive areas of freshwater vegetation and the Miwok Trail is adjacent to Rodeo Lake, which supports shoreline wetland vegetation and is currently closed. Impacts in areas adjacent to the trails/fire roads (LOD area) would be long term, minor, and adverse since this wetland and aquatic vegetation would be affected by trampling, digging, and dog waste. Impacts would be measurable and perceptible, but would be localized in a relatively small area. Even though alternative E would allow more dog access at the site, the difference in dog use between alternatives E and C is not considered large enough to cause a change in the intensity of the impact relative to the area of the site.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Although more trails would be available to dogs in alternative E compared to alternative C, the overall impacts on wetland vegetation from on-leash dog walking would be the same. The continued closure of Rodeo Lake and physically restraining dogs on leash would protect wetland vegetation off trail. Therefore, assuming compliance, the overall impact on wetland and aquatic vegetation would be negligible because impacts would result in no measurable or perceptible changes in the plant communities.

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Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at the Marin Headlands Trails to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at the Marin Headlands Trails, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on wetland and aquatic vegetation.

Cumulative Impacts. The negligible impacts on wetland vegetation from dogs at the Marin Headlands Trails under alternative E were considered together with the effects of the projects mentioned above under alternative A. There would be a combination of beneficial and adverse effects from projects in and around the Marin Headlands Trails; when combined, these projects would balance out, resulting in negligible impacts. Therefore, these negligible impacts combined with the negligible impacts from alternative E would result in negligible cumulative impacts on wetland vegetation.

MARIN HEADLANDS TRAILS ALTERNATIVE E CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect Rodeo Lake wetland vegetation and habitat off trail along the Rodeo Valley Trail Corridor, which supports wetlands	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking along the Lower Rodeo Valley Trail Corridor, which includes the Rodeo Beach parking lot to the intersection of Bunker and McCullough Roads via Lagoon Trail, Miwok Trail, Rodeo Valley Trail, and the connector trail from Rodeo Valley Trail to Smith Road Trailhead. On-leash dog walking would also be available on the Old Bunker Fire Road Loop (including a section of the Coastal Trail), Battery Smith-Guthrie Fire Road Loop, Rodeo Avenue Trail, and Morning Sun Trail. This alternative would allow dog access only on these perimeter trails in the Marin Headlands, while preserving and maintaining the integrity of interior habitat. The valley bottom along Rodeo Valley Trail Corridor is adjacent to extensive areas of freshwater vegetation and the Miwok Trail is adjacent to Rodeo Lake, which supports shoreline wetland vegetation and is currently closed. Impacts in areas adjacent to the trails/fire roads would be long term, minor, and adverse since this wetland and aquatic vegetation would be affected by trampling, digging, and dog waste. Impacts would be measurable and perceptible, but would be localized in a relatively small area. Even though alternative E would allow more dog access at the site, the difference in dog walking use between alternatives E and C is not considered large enough to cause a change in the intensity of the impact relative to the area of the site.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect wetland and aquatic vegetation off trail. Therefore, assuming compliance, the overall impact on wetland and aquatic vegetation from on-leash dog walking would be negligible because impacts would result in no measurable or perceptible changes in the plant communities.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at the Marin Headlands Trails to walk more than three dogs on leash, so individual and commercial dog walkers would only be

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allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Marin Headlands Trails, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on wetland and aquatic vegetation.

Cumulative Impacts. Projects and actions in and near the Marin Headlands Trails were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as the Marin Headlands Trails. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact the Marin Headlands Trails. Another project that will provide beneficial effects to wetlands is the Giacomini Wetland Restoration Project (Marin County, near Tomales Bay), which restored 560 acres of pastures to wetlands of increased complexity and diversity of vegetation and aquatic habitats (NPS 2009l; NPS and CSLC 2007).

Additional actions have had or have the potential to have adverse effects on wetlands at or in the vicinity of GGNRA sites. Larger, more regional development projects like the GGNRA *Long-range Transportation Plan Update* and the *Doyle Drive Project* will impact or have the potential to negatively affect wetland resources within and beyond park boundaries. However, wetland and aquatic impacts from the implementation of these and other proposed projects in the area should be sufficiently offset by mitigation, project by project, such that there should be no net loss of wetland acreage, functions, or values.

The negligible impacts on wetland and aquatic vegetation from dogs at the Marin Headlands Trails under the preferred alternative were considered together with the effects of the projects mentioned above. There would be a combination of beneficial and adverse effects from projects in and around the Marin Headlands Trails; when combined, these projects would balance out, resulting in negligible impacts. Therefore, these negligible impacts combined with the negligible impacts from the preferred alternative would result in negligible cumulative impacts on wetland vegetation.

MARIN HEADLANDS TRAILS PREFERRED ALTERNATIVE CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

SAN FRANCISCO COUNTY SITES

Crissy Field

Common to All Alternatives. Impacts from dogs as a result of the two different definitions of the Crissy Field WPA [the 36 CFR 7.97(d) definition for alternative A and the Warming Hut to approximately 900 feet east of the former Coast Guard Pier definition for alternatives B–F] will be the same for all

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alternatives. Even though the WPA would be expanded for alternatives B–F, this change would not influence the overall impacts analysis at this site because it would neither increase nor decrease the impacts at Crissy Field described in the paragraphs that follow. Further explanation of these two definitions can be found in the "Current Regulations and Policies" section of chapter 2.

Alternative A: No Action. Both freshwater and tidal wetlands are present at Crissy Field. A restoration project reestablished a narrow and steep fringe of salt marsh vegetation at approximately 18 acres of an unvegetated tidal lagoon that links with San Francisco Bay (referred to as the tidal marsh). As part of the restoration, California seablite (a federally listed plant species) and Point Reyes bird's-beak (a CNPS-listed species) were introduced into the tidal marsh. Despite protection of the restored tidal marsh (which is currently closed) by installed fencing, dogs under voice control have been documented as gaining access to the tidal marsh through the tidal inlet that allows exchange of water between the marsh and San Francisco Bay. In general, compliance with dog walking regulations at Crissy Field is low, from 2008 through 2011 a total of 510 incidents were reported. Of the 510 incidents, 283 incidents were for having dogs within the Crissy Field WPA during the seasonal restriction (table J) and 73 incidents involved dogs in closed areas at Crissy Field (table 6). Specifically, the park has documented that dogs entering the marsh typically go under that spans the inlet and onto the flood shoal and adjacent areas along the marsh (NPS 2010b). Alternative A would continue to result in long-term minor adverse impacts on salt marsh vegetation from physical damage by dogs (trampling and increased turbidity). The freshwater wetlands at Crissy Field would continue to receive negligible impacts from dog activities because they are fenced to prohibit access by dogs and people.

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No permit system exists for commercial dog walking under alternative A. However, commercial dog walking at Crissy Field occurs regularly. Commercial dog walking would continue to contribute to the long-term minor adverse impacts on salt marsh vegetation. Commercial dog walkers with multiple dogs under voice control would impact wetland and aquatic vegetation through trampling.

Cumulative Impacts. Projects and actions in and near Crissy Field were considered for the cumulative impacts analysis (appendix K). Many wetland restoration/creation projects have been completed or are proposed in GGNRA and beyond the boundaries of the park. Impacts resulting from completed, ongoing, and future restoration/creation projects at Crissy Field and projects beyond the park boundaries will generally provide an overall benefit to wetland and aquatic habitats. A specific example of a project that will provide beneficial effects to wetlands is the Giacomini Wetland Restoration Project (Marin County, near Tomales Bay), which restored 560 acres of pastures to wetlands of increased complexity and diversity of vegetation and aquatic habitats (NPS 2009l; NPS and CSLC 2007). Another such project is the Gulf of the Farallones National Marine Sanctuary's proposed Bolinas Lagoon Ecosystem Restoration Project (near Stinson Beach), which will benefit wildlife species that currently use Bolinas Lagoon (GFNMS Working Group 2008). Beginning in 1997, efforts to remediate and restore Crissy Field included the removal of hazardous waste and the re-creation of the 18-acre tidal marsh. The subsequent 5-year monitoring program included tracking of hydrology and geomorphology, water quality, soils and sedimentation, vegetation, fish, invertebrates, and birds (NPS 2010i, 1-2).

The PTMP was adopted in 2002 and includes the preservation of the Presidio's cultural, natural, scenic, and recreational resources in Area B, managed by the Presidio Trust. The PTMP focuses on the long-term preservation of the park, including replacing pavement with green space, improving and enlarging the park's trail system, restoring stream corridors and natural habitats, and reusing historic structures (Presidio Trust 2002, 3). Management objectives in the PTMP that are applicable to vegetation include identifying and protecting sensitive wildlife species, and restoring and maintaining their habitats. The PTMP also preserves, enhances, and increases natural habitats managed by the Presidio Trust. For example, historic forest is being rehabilitated, wetlands are being enhanced, and native plant and wildlife species are being protected (Presidio Trust 2002b, ii). As a result, the PTMP has beneficial impacts on

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wetland vegetation at or in the vicinity of Crissy Field. In addition to the PTMP at the Presidio, the Quartermaster Reach Project is also being conducted and will benefit wetlands at the Presidio and Crissy Marsh. The Quartermaster Reach Project includes "daylighting" about 850 feet of stream currently in a subsurface culvert that discharges to Crissy Marsh (Presidio Trust 2012b, 1). The project will provide an ecological corridor and pedestrian trail through Quartermaster Reach that will connect a recently restored 450-foot stretch of stream and native habitat to the south (known as Thompson Reach) to Crissy Field Tidal Marsh (Presidio Trust 2012b, 1).

Finally, the SNRAMP would also improve wetland plant communities and would have a beneficial impact on vegetation and sensitive habitats over the long term in "Natural Areas" that are managed by SFRPD in San Francisco (located near Crissy Field).

Additional actions have had or have the potential to have adverse effects on wetlands at or in the vicinity of GGNRA sites. Larger, more regional development projects like the GGNRA *Long-range Transportation Plan Update* and the *Doyle Drive Project* will impact or have the potential to negatively affect wetland resources within and beyond park boundaries. However, wetland impacts from the implementation of these and other proposed projects in the area should be sufficiently offset by mitigation, project by project, such that there should be no net loss of wetland acreage, functions, or values.

The loss of more than 90 percent of California's original wetlands is the largest loss of any state in the nation and is directly related to economic development (NOAA 2010a, 1). The *Clean Water Act* and the state's coastal wetlands statute have succeeded in reducing the rate of wetland loss in California, but development pressures remain a threat (NOAA 2010a, 1). Therefore, projects that protect or degrade wetlands and aquatic habitats will have a cumulative effect, whether beneficial or adverse, on wildlife species that inhabit wetlands.

The negligible to long-term minor adverse impacts on wetland vegetation from dogs at Crissy Field under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from wetland restoration/creation projects should reduce some of the adverse impacts on vegetation from alternative A. However, the impacts resulting from any development projects at or in the vicinity of GGNRA and the loss of more than 90 percent of California's original wetlands may add adversely to the cumulative impacts on vegetation, even though mitigation has contributed to reducing impacts. There would be a combination of beneficial and adverse effects from projects in and around Crissy Field; when combined, these projects would balance out, resulting in negligible impacts. Therefore, the cumulative analysis for this park site will mainly focus on the results of the impact analysis for each alternative. Cumulative impacts on wetland and aquatic vegetation under this alternative would be expected to be negligible to long term, minor, and adverse.

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CRISSY FIELD ALTERNATIVE A CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts on tidal wetlands; negligible impacts on freshwater wetlands	Tidal marsh vegetation would be affected by dogs through trampling and increased turbidity; despite fencing, dogs under voice control would continue to gain access to the tidal marsh through the tidal inlet; freshwater wetland areas would be fenced to prohibit access by dogs and people	N/A	Negligible to long-term minor adverse cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking on the promenade, Crissy Airfield, East and Central beaches, paths leading to Central Beach, trails and grassy areas near East Beach, around the Old Coast Guard Station, and on the multi-use trail along Mason Street. Dogs would be prohibited from the WPA and would remain prohibited from the tidal marsh. Since dogs would be physically restrained on leash (or prohibited from portions of the site), they should not gain access to the tidal marsh through the tidal inlet. Therefore, assuming compliance, negligible impacts on wetland and aquatic vegetation could occur as a result of this alternative; no measurable or perceptible changes in wetland and aquatic plants would occur as a result of this alternative.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Even though the percentage of commercial dog walkers is considered moderate to high at Crissy Field, dogs would be required to be on leash, preventing dog access to the tidal marsh and wetland vegetation. Therefore, impacts on wetland and aquatic vegetation from dogs walked by both commercial dog walkers and private individuals would be negligible.

Cumulative Impacts. The negligible impacts on wetland vegetation from dogs at Crissy Field under alternative B were considered together with the effects of the projects mentioned above under alternative A. Cumulatively, alternative B would have negligible impacts on wetland vegetation at or in the vicinity of Crissy Field.

CRISSY FIELD ALTERNATIVE B CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	The existing fence and physical restraint of dogs would protect tidal marsh wetlands, which would be closed to dogs	Beneficial to no change, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. The addition of one ROLA on Central Beach and a second on Crissy Airfield in alternative C would allow dog walking under voice and sight control. On-leash dog walking would be available along the promenade, the eastern and western sections of Crissy Airfield, the multi-use trail along Mason Street, trails and grassy areas near East Beach, around the Old Coast Guard Station, paths to Central Beach, picnic areas, and parking areas. All fenced

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areas, including the tidal marsh, are currently closed to dogs, and the WPA and East Beach would be closed under this alternative. Since dogs would be physically restrained on leash in areas surrounding the tidal marsh, dogs should not gain access to the tidal marsh through the tidal inlet. Therefore, assuming compliance, alternative C would result in negligible impacts on wetland and aquatic vegetation because no measurable or perceptible change in the wetland and aquatic plant community would be anticipated at this site.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash, and the permit may restrict use by time and area. Permits would be allowed at Crissy Field. Even though the percentage of commercial dog walkers is considered moderate to high at Crissy Field, dogs would be required to be on leash, preventing dog access to the tidal marsh and wetland vegetation. Impacts on wetland and aquatic vegetation from commercial dog walkers would be similar to impacts from other dog walkers, as summarized in the previous paragraph; therefore, impacts from commercial dog walking would be negligible.

Cumulative Impacts. The negligible impacts on wetland and aquatic vegetation from dogs at Crissy Field under alternative C were considered together with the effects of the projects mentioned above in alternative A. Cumulatively, alternative C would have negligible impacts on wetland and aquatic vegetation at or in the vicinity of Crissy Field when added to the effects from these projects.

CRISSY FIELD ALTERNATIVE C CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	The existing fence and physical restraint of dogs would protect tidal marsh wetlands, which would be closed to dogs	Beneficial to no change, assuming compliance	Negligible cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Alternative D would prohibit dogs on all beaches, but would establish a ROLA on the western section of Crissy Airfield. On-leash dog walking would be allowed on the trails and other areas open to dogs in this alternative. All fenced areas, including the tidal marsh, are currently closed to dogs, and the WPA, Central Beach, and East Beach would be closed to dogs under this alternative. Assuming compliance, negligible impacts on wetland and aquatic vegetation would occur as a result of alternative D because no measurable or perceptible changes in wetland and aquatic plants would occur as a result of this alternative.

No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on wetland and aquatic vegetation.

Cumulative Impacts. The negligible impacts on wetland and aquatic vegetation from dogs at Crissy Field under alternative D were considered together with the effects of the projects mentioned above in alternative A. Cumulatively, alternative D would have negligible impacts on wetland and aquatic vegetation at or in the vicinity of Crissy Field when added to the effects from these projects.

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CRISSY FIELD ALTERNATIVE D CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Compliance in the ROLA, physical restraint of dogs, and the existing fence would protect tidal marsh wetlands, which would be closed to dogs	Beneficial to no change, assuming compliance	Negligible cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would allow on-leash dog walking in the WPA, on the promenade, East Beach, paths to Central Beach, trails and grassy areas near East Beach, around the Old Coast Guard Station, and on the multi-use trail along Mason Street. Dogs would not be allowed in the tidal marsh, but dogs would be allowed under voice and sight control in two ROLAs established on the Crissy Airfield and Central Beach. Compliance in the ROLAs, physical restraint of dogs on leash in other areas of the site, and the existing fence would protect tidal marsh wetlands at the site. Assuming compliance, alternative E would result in negligible impacts on wetland and aquatic vegetation in the tidal marsh because no measurable or perceptible change in the wetland and aquatic plant community would be anticipated as a result of this alternative.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash, and the permit may restrict use by time and area. Permits would be allowed at Crissy Field. Even though the percentage of commercial dog walkers is considered moderate to high at Crissy Field, compliance in the ROLAs, physical restraint of dogs on leash in other areas of the site, and the existing fence would protect tidal marsh wetlands at the site. Impacts on wetland and aquatic vegetation from commercial dog walkers would be similar to impacts from other dog walkers, as summarized in the above paragraph; therefore, impacts from commercial dog walking would be negligible.

Cumulative Impacts. The negligible impacts on wetland and aquatic vegetation from dogs at Crissy Field under alternative E were considered together with the effects of the projects mentioned above in alternative A. Cumulatively, alternative E would be negligible impacts on vegetation at or in the vicinity of Crissy Field.

CRISSY FIELD ALTERNATIVE E CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Compliance in the ROLA, physical restraint of dogs, and the existing fence would protect tidal marsh wetlands, which would be closed to dogs	Beneficial to no change, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. The addition of one ROLA on Central Beach and a second on the eastern section of Crissy Airfield in the preferred alternative would allow dog walking under voice and sight control; on-leash dog walking would be required in all other areas of Crissy Field that would be open to dog walking in this alternative. All fenced areas, including the tidal marsh, are currently closed to dogs, and the WPA and East Beach would be closed under this alternative. Since dogs would be

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physically restrained on leash in areas surrounding the tidal marsh, dogs should not gain access to the tidal marsh through the tidal inlet. Therefore, assuming compliance, the preferred alternative would result in negligible impacts on wetland and aquatic vegetation because no measurable or perceptible change in the wetland and aquatic plant community would be anticipated at this site.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs. In a ROLA, permit holders may walk one to six dogs off leash, and the permit may restrict use by time and area. Permits would be allowed at Crissy Field. Even though the percentage of commercial dog walkers is considered moderate to high at Crissy Field, dogs would be required to be on leash, preventing dog access to the tidal marsh and wetland vegetation. Impacts on wetland and aquatic vegetation from commercial dog walkers would be similar to impacts from other dog walkers, as summarized in the above paragraph; therefore, impacts from commercial dog walking would be negligible.

Cumulative Impacts. Projects and actions in and near Crissy Field were considered for the cumulative impacts analysis (appendix K). Many wetland restoration/creation projects have been completed or are proposed in GGNRA and beyond the boundaries of the park. Impacts resulting from completed, ongoing, and future restoration/creation projects at Crissy Field and projects beyond the park boundaries will generally provide an overall benefit to wetland and tidal marsh habitats. Specific examples of projects and plans that will cumulatively provide beneficial effects to wetlands include the Giacomini Wetland Restoration Project (Marin County, near Tomales Bay), which restored 560 acres of pastures to wetlands of increased complexity and diversity of vegetation and aquatic habitats (NPS 2009l; NPS and CSLC 2007). The Gulf of the Farallones National Marine Sanctuary has proposed the Bolinas Lagoon Ecosystem Restoration Project (near Stinson Beach), which will benefit wildlife species that currently use Bolinas Lagoon (GFNMS Working Group 2008). Beginning in 1997, efforts to remediate and restore Crissy Field included the removal of hazardous waste and the re-creation of the 18-acre tidal marsh. The subsequent 5-year monitoring program included tracking of hydrology and geomorphology, water quality, soils and sedimentation, vegetation, fish, invertebrates, and birds (NPS 2010i, 1-2).

The PTMP was adopted in 2002 and includes the preservation of the Presidio's cultural, natural, scenic, and recreational resources in Area B, managed by the Presidio Trust. The PTMP focuses on the long-term preservation of the park, including replacing pavement with green space, improving and enlarging the park's trail system, restoring stream corridors and natural habitats, and reusing historic structures (Presidio Trust 2002, 3). Management objectives in the PTMP that are applicable to vegetation include identifying and protecting sensitive wildlife species, and restoring and maintaining their habitats. The PTMP also preserves, enhances, and increases natural habitats managed by the Presidio Trust. For example, historic forest is being rehabilitated, wetlands are being enhanced, and native plant and wildlife species are being protected (Presidio Trust 2002b, ii). As a result, the PTMP has beneficial impacts on wetland vegetation at or in the vicinity of Crissy Field. In addition to the PTMP at the Presidio, the Quartermaster Reach Project is also being conducted and will benefit wetlands at the Presidio and Crissy Marsh. The Quartermaster Reach Project includes "daylighting" about 850 feet of stream currently in a subsurface culvert that discharges to Crissy Marsh (Presidio Trust 2012b, 1). The project will provide an ecological corridor and pedestrian trail through Quartermaster Reach that will connect a recently restored 450-foot stretch of stream and native habitat to the south (known as Thompson Reach) to Crissy Field Tidal Marsh (Presidio Trust 2012b, 1).

Finally, the SNRAMP would also improve wetland plant communities and would have a beneficial impact on vegetation and sensitive habitats over the long term in "Natural Areas" that are managed by SFRPD in San Francisco (located near Crissy Field).

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Additional actions have had or have the potential to have adverse effects on wetlands at or in the vicinity of GGNRA sites. Larger, more regional development projects like the GGNRA *Long-range Transportation Plan Update* and the *Doyle Drive Project* will impact or have the potential to negatively affect wetland resources within and beyond park boundaries. However, wetland and aquatic impacts from the implementation of these and other proposed projects in the area should be sufficiently offset by mitigation, project by project, such that there should be no net loss of wetland acreage, functions, or values.

The loss of more than 90 percent of California's original wetlands is the largest loss of any state in the nation and is directly related to economic development (NOAA 2010a, 1). The *Clean Water Act* and the state's coastal wetlands statute have succeeded in reducing the rate of wetland loss in California, but development pressures remain a threat (NOAA 2010a, 1). Therefore, projects that protect or degrade wetland and aquatic habitats will have a cumulative effect, whether beneficial or adverse, on wildlife species that inhabit wetlands.

Under the preferred alternative, the negligible impacts on wetland and aquatic vegetation from dogs at Crissy Field were considered together with the effects of the projects mentioned above. There would be a combination of beneficial and adverse effects from projects in and around Crissy Field; when combined, these projects would balance out, resulting in negligible impacts. Therefore, the cumulative analysis for this park site will mainly focus on the results of the impact analysis for this alternative. Cumulatively, the preferred alternative would have negligible impacts on wetland and aquatic vegetation at or in the vicinity of Crissy Field.

CRISSY FIELD PREFERRED ALTERNATIVE CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Compliance in the ROLAs, physical restraint of dogs, and the existing fence would protect tidal marsh wetlands, which would be closed to dogs	Beneficial to no change, assuming compliance	Negligible cumulative impacts

SAN MATEO COUNTY SITES

Mori Point

Alternative A: No Action. Dogs are currently allowed on leash on all trails at Mori Point. This site has moderate visitor use by dog walkers and some visitors are not complying with the leash law; off-leash violations totaled 146 from 2008 through 2011 (table Q). Although current GGNRA regulations require dogs to be leashed at Mori Point, unleashed dogs are often observed at the site. The NPS created four ponds at Mori Point to enhance the freshwater wetland habitat for California red-legged frog and to provide foraging habitat for the San Francisco garter snake (NPS 2009b). Educational signs and fences have been placed around the ponds and wetland habitat at Mori Point to prevent direct impacts on frogs and frog habitat; however, dogs have occasionally been observed in the ponds.

Alternative A would result in continued negligible impacts on freshwater wetland vegetation because impacts would generally result in no measurable or perceptible changes in the plant community due to the exclusionary fences that protect wetland vegetation.

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No permit system exists for co421421ercial dog walking under alternative A. At Mori Point, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on wetland vegetation.

Cumulative Impacts. Projects and actions in and near Mori Point were considered for the cumulative impacts analysis (appendix K). Many wetland restoration/creation projects have been completed or are proposed in GGNRA and beyond the boundaries of the park. Impacts resulting from completed, ongoing, and future restoration/creation projects at Mori Point and projects beyond the park boundaries will generally provide an overall benefit to wetland and aquatic habitats. 54 USC 100707

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54 USC 100707

54 USC 100707 Under the SNRAMP, plans at the from restoration to entirely natural habitat, to minor modifications that would improve habitat connectivity for frogs and snakes. The *Mori Point Restoration and Trail Plan* includes preserving and restoring habitat by reducing threats to native plant communities and natural processes, ensuring habitat connectivity between upland and wetland areas, and developing a safe and sustainable trail system to improve recreational experiences and reduce impacts on park resources (NPS 2010j, 1). These projects would provide long-term beneficial impacts on wetland vegetation.

Additional actions have had or have the potential to have adverse effects on wetlands at or in the vicinity of GGNRA sites. Larger, more regional development projects like the GGNRA *Long-range Transportation Plan Update* could negatively affect wetland and aquatic resources within and beyond park boundaries. However, wetland impacts from the implementation of these and other proposed projects in the area should be sufficiently offset by mitigation, project by project, such that there should be no net loss of wetland acreage, functions or values.

The loss of more than 90 percent of California's original wetlands is the largest loss of any state in the nation and is directly related to economic development (NOAA 2010a, 1). The *Clean Water Act* and the state's coastal wetlands statute have succeeded in reducing the rate of wetland loss in California, but development pressures remain a threat (NOAA 2010a, 1). Therefore, projects that protect or degrade wetland and aquatic habitats will have a cumulative effect, whether beneficial or adverse, on wetlands.

The negligible impacts on wetland and aquatic vegetation from dogs at Mori Point under alternative A were considered together with the effects of the projects mentioned above. There would be a combination of beneficial and adverse effects from projects in and around Mori Point; when combined, these projects would balance out, resulting in negligible impacts. Therefore, the cumulative impacts on wetland vegetation under this alternative would be expected to be negligible.

MORI POINT ALTERNATIVE A CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts on freshwater wetlands	Exclusionary fences have been placed around the ponds and wetland habitat; however, dogs have occasionally been observed in ponds	N/A	Negligible cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking on the Coastal Trail and the portion of beach owned by the NPS, but dogs would not be allowed on Old Mori Road or

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the Pollywog Trail, which is located adjacent to the ponds. Impacts on freshwater wetland vegetation under alternative B would be negligible because impacts would result in no measurable or perceptible changes in the plant community due to the on-leash requirements, no dogs on the Pollywog Trail or Old Mori Road, and the exclusionary fences that protect wetland and aquatic vegetation.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking is not common in this area, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on wetland vegetation.

Cumulative Impacts. The negligible impacts on wetland and aquatic vegetation from dogs at Mori Point under alternative B were considered together with the effects of the projects mentioned above in alternative A. There would be a combination of beneficial and adverse effects from projects in and around Mori Point; when combined, these projects would balance out, resulting in negligible impacts. Therefore, the cumulative impacts on wetland and aquatic vegetation under this alternative would be expected to be negligible.

MORI POINT ALTERNATIVE B CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Physical restraint of dogs, fewer on-leash dog walking areas, and existing fences would protect wetlands	No change, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would allow on-leash dog walking on Old Mori Road, the Coastal Trail, and the portion of beach owned by the NPS, but dogs would not be allowed on the Pollywog Trail, which is located adjacent to the ponds. In addition, the ponds and the vegetation surrounding them are enclosed by exclusionary fences. Impacts would be similar to those for alternative B. Therefore, assuming compliance, the impacts on freshwater wetland vegetation from dogs would be negligible because impacts would result in no measurable or perceptible changes in the plant community due to the on-leash requirements, no dogs on the Pollywog Trail, and the exclusionary fences that protect wetland and aquatic vegetation.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Mori Point to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Mori Point, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on wetland and aquatic vegetation.

Cumulative Impacts. The negligible impacts on wetland and aquatic vegetation from dogs at Mori Point under alternative C were considered together with the effects of the projects mentioned above in alternative A. There would be a combination of beneficial and adverse effects from projects in and around Mori Point; when combined, these projects would balance out, resulting in negligible impacts. Therefore, the cumulative impacts on wetland and aquatic vegetation under this alternative would be expected to be negligible.

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MORI POINT ALTERNATIVE C CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Existing fences and physical restraint of dogs would protect wetlands	No change, assuming compliance	Negligible cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Alternative D would prohibit dogs at the entire Mori Point site. Therefore, assuming compliance, alternative D would result in no impact on freshwater wetland vegetation.

Since dogs would not be allowed at Mori Point, there would be no impact from commercial dog walkers on the wetland and aquatic vegetation.

Cumulative Impacts. The lack of impacts on wetland and aquatic vegetation from dogs at Mori Point under alternative D was considered together with the effects of the projects mentioned above in alternative A. There would be a combination of beneficial and adverse effects from projects in and around Mori Point; when combined, these projects would balance out, resulting in negligible impacts. Therefore, the cumulative impacts on wetland and aquatic vegetation under this alternative would be expected to be negligible.

MORI POINT ALTERNATIVE D CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact	Dogs would be prohibited at the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would allow on-leash dog walking on the same trails and beach as alternative C, with the addition of on-leash dog walking on the Pollywog Trail. The Pollywog Trail, which borders the freshwater wetland vegetation, would be open for dog walking, but there are exclusionary fences surrounding the ponds that would protect the vegetation. Therefore, assuming compliance, impacts on freshwater wetland vegetation from dogs would be negligible because impacts would result in no measurable or perceptible changes in the plant community due to the on-leash requirements and the exclusionary fences that protect wetland vegetation.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Mori Point to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Mori Point, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on freshwater wetland vegetation.

Cumulative Impacts. The negligible impacts on wetland and aquatic vegetation from dogs at Mori Point under alternative E were considered together with the effects of the projects mentioned above in alternative A. There would be a combination of beneficial and adverse effects from projects in and around Mori Point; when combined, these projects would balance out, resulting in negligible impacts. Therefore, the cumulative impacts on wetland and aquatic vegetation under this alternative would be expected to be negligible.

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MORI POINT ALTERNATIVE E CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Existing fences and physical restraint of dogs would protect wetlands	No change, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on Old Mori Road, the Coastal Trail, and the portion of beach owned by the NPS, but dogs would not be allowed on the Pollywog Trail, which is located adjacent to the ponds. In addition, the ponds and the vegetation surrounding them are enclosed by exclusionary fences. Assuming compliance, impacts on freshwater wetland vegetation from dogs would be negligible because impacts would result in no measurable or perceptible changes in the plant community due to the on-leash requirements, no dogs on the Pollywog Trail, and the exclusionary fences that protect wetland vegetation.

Exemption 5

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Mori Point to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking activity is not common at Mori Point, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on wetland and aquatic vegetation.

Cumulative Impacts. Projects and actions in and near Mori Point were considered for the cumulative impacts analysis (appendix K). Many wetland restoration/creation projects have been completed or are proposed in GGNRA and beyond the boundaries of the park. Impacts resulting from completed, ongoing, and future restoration/creation projects at Mori Point and projects beyond the park boundaries will generally provide an overall benefit to wetland and tidal marsh habitats. T 54 USC 100707

54 USC 100707

54 USC 100707. Under the SNRAMP, plans 54 USC 100707 range from restoration to entirely natural habitat, to minor modifications that would improve habitat connectivity for frogs and snakes. The *Mori Point Restoration and Trail Plan* includes preserving and restoring habitat by reducing threats to native plant communities and natural processes, ensuring habitat connectivity between upland and wetland areas, and developing a safe and sustainable trail system to improve recreational experiences and reduce impacts on park resources (NPS 2010j, 1). These projects would provide long-term beneficial impacts on wetland vegetation.

Additional actions have had or have the potential to have adverse effects on wetlands at or in the vicinity of GGNRA sites. Larger, more regional development projects like the GGNRA *Long-range Transportation Plan Update* could negatively affect wetland resources within and beyond park boundaries. However, wetland and aquatic impacts from the implementation of these and other proposed projects in the area should be sufficiently offset by mitigation, project by project, such that there should be no net loss of wetland acreage, functions or values.

The loss of more than 90 percent of California's original wetlands is the largest loss of any state in the nation and is directly related to economic development (NOAA 2010a, 1). The *Clean Water Act* and the state's coastal wetlands statute have succeeded in reducing the rate of wetland loss in California, but development pressures remain a threat (NOAA 2010a, 1). Therefore, projects that protect or degrade wetland and aquatic habitats will have a cumulative effect, whether beneficial or adverse, on wetlands.

The negligible impacts on wetland and aquatic vegetation from dogs at Mori Point under the preferred alternative were considered together with the effects of the projects mentioned above. There would be a combination of beneficial and adverse effects from projects in and around Mori Point; when combined, these projects would balance out, resulting in negligible impacts. Therefore, the cumulative impacts on wetland vegetation under this alternative would be expected to be negligible.

MORI POINT PREFERRED ALTERNATIVE CONCLUSION TABLE

Wetland and Aquatic Habitat Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Negligible impacts, assuming compliance	Existing fences and physical restraint of dogs would protect wetlands	No change, assuming compliance	Negligible cumulative impacts

NATIVE HARDWOOD FORESTS AND DOUGLAS-FIR/COAST REDWOODS

In the planning area at GGNRA, native hardwood forests exist at Oakwood Valley, Alta Trail/Orchard Fire Road/Pacheco Fire Road, and Fort Baker. The Douglas-fir and coast redwood community is found sporadically in portions of Homestead Valley and in Oakwood Valley but outside the area accessed by dogs; therefore, impacts on this community at these sites is not discussed further in this section. Therefore, the native hardwood forest and/or Douglas-fir/coast redwood communities exist at Oakwood Valley, Alta Trail/Orchard Fire Road/Pacheco Fire Road, and Fort Baker, and impacts on these communities at these sites are discussed in more detail in the paragraphs that follow.

Alta Trail/Orchard Fire Road/Pacheco Fire Road

Alternative A: No Action. Under current conditions, dogs are allowed under voice control or on leash on the trails and roads from Marin City to Oakwood Valley. These areas experience high use by commercial dog walkers (table 9), with typically 5 to 12 dogs under voice control per commercial walker. However, native hardwood communities occur adjacent to Alta Trail, Orchard Fire Road, and Pacheco Fire Road.

Under alternative A, physical damage to vegetation from dogs through trampling, digging, and dog waste would continue to occur since dogs would be allowed under voice control and there is a higher likelihood of dogs going off the trail and fire roads than if they were on leash. Impacts in these areas could prevent the growth of vegetation or allow the establishment of non-native invasive species. These impacts would be considered long term, minor, and adverse due to the high use by commercial dog walkers and because effects would be measurable and perceptible, but would be localized in a relatively small area.

No permit system exists for commercial dog walking under alternative A. However, commercial dog walking at Alta Trail, Orchard Fire Road, and Pacheco Fire Road is common, with commercial dog walkers having 5 to 12 dogs under voice control at one time. Commercial dog walking would continue to create long-term minor adverse impacts on vegetation. Dogs under voice control would continue to disturb vegetation due to trampling, digging, and dog waste.

Cumulative Impacts. Projects and actions in and near Alta Trail, Orchard Fire Road, and Pacheco Fire Road were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007),

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can also beneficially affect vegetation at GGNRA park sites such as Alta Trail, Orchard Fire Road, and Pacheco Fire Road. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Alta Trail, Orchard Fire Road, and Pacheco Fire Road.

The long-term minor adverse impacts on native hardwood communities from dogs at Alta Trail, Orchard Fire Road, and Pacheco Fire Road under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from the restoration and trail rehabilitation projects should reduce some of the adverse impacts on native hardwood communities from alternative A. Therefore, cumulative impacts on native hardwood communities under this alternative would be expected to be negligible.

ALTA TRAIL/ORCHARD FIRE ROAD/PACHECO FIRE ROAD ALTERNATIVE A CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Impacts on vegetation from dogs would be caused through physical damage such as trampling, digging, and dog waste; these effects, as well as fragmentation, could lead to the spread of invasive plant species	N/A	Negligible cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking on the Alta Trail to Orchard Fire Road and on Orchard and Pacheco fire roads. Impacts on native hardwood vegetation could include physical damage from trampling and digging, as well as nutrient addition from dog waste and urine. Impacts in areas adjacent to the trail (LOD area) would be long term, minor, and adverse since this habitat supports the growth of native vegetation, some of it rare, such as the Oakland mariposa lily. Impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively reduced area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impact on native hardwood vegetation from on-leash dog walking at Alta Trail, Orchard Fire Road, and Pacheco Fire Road would be negligible because impacts would result in no measurable or perceptible changes in the plant community.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since the percentage of commercial dog walkers is considered high at Alta Trail/Orchard Fire Road/Pacheco Fire Road, dogs walked by commercial dog walkers would cause the majority of the adverse impacts on native hardwood vegetation from dogs at the site. Overall impacts on native hardwood vegetation from dogs walked by both commercial dog walkers and private individuals are summarized above.

Cumulative Impacts. The negligible impacts on native hardwood communities from dogs at Alta Trail/ Orchard Fire Road/Pacheco Fire Road under this alternative were considered together with the effects of the projects mentioned above under alternative A "Cumulative Impacts." The beneficial effects from the

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Park Stewardship Programs and other restoration projects combined with the negligible impacts from alternative B would result in negligible impacts on native hardwood communities at this park site.

ALTA TRAIL/ORCHARD FIRE ROAD/PACHECO FIRE ROAD ALTERNATIVE B CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would have the same dog walking restrictions as alternative B, and impacts would be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits would restrict use by time and area. Permits would be allowed for Alta Trail/Orchard Fire Road/Pacheco Fire Road. Impacts on native hardwood vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since the percentage of commercial dog walkers is considered high at Alta Trail/Orchard Fire Road/Pacheco Fire Road, dogs walked by commercial dog walkers would cause the majority of the adverse impacts on native hardwood vegetation from dogs at the site. Overall impacts on native hardwood vegetation from dogs walked by both commercial dog walkers and private individuals are summarized above. Since commercial dog walking is common at Alta Trail/Orchard Fire Road/Pacheco Fire Road, impacts on native hardwood vegetation would be expected. Impacts on native hardwood vegetation from commercial dog walkers would be similar to impacts from other dog walkers; therefore, impacts from commercial dog walking would be negligible.

Cumulative Impacts. Under alternative C, the cumulative impacts on native hardwood communities at this park site would be the same as those under alternative B: negligible cumulative impacts.

ALTA TRAIL/ORCHARD FIRE ROAD/PACHECO FIRE ROAD ALTERNATIVE C CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Under alternative D, dogs would not be allowed at this site. Therefore, assuming compliance, no impact on native hardwood vegetation from dogs would occur at this site.

Since dogs would not be allowed at Alta Trail, Orchard Fire Road, and Pacheco Fire Road, there would be no impact from commercial dog walkers on native hardwood forest and Douglas-fir/coast redwood vegetation.

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Cumulative Impacts. The lack of impacts on native hardwood communities from dogs at Alta Trail, Orchard Fire Road, and Pacheco Fire Road under alternative D was considered together with the effects of the projects mentioned above in alternative A. The beneficial effects from the restoration and trail rehabilitation projects combined with the lack of impacts on native hardwood communities from alternative D would result in beneficial cumulative impacts.

ALTA TRAIL/ORCHARD FIRE ROAD/PACHECO FIRE ROAD ALTERNATIVE D CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
No impact assuming compliance	Dogs would be prohibited at the site	Beneficial, assuming compliance	Beneficial cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Under alternative E on-leash dog walking would be allowed on the Alta Trail from Donahue Street to the junction with the Morning Sun Trail and on the Orchard and Pacheco Fire Roads. Impacts on native hardwood vegetation could include physical damage from trampling and digging, as well as nutrient addition from dog waste and urine. Impacts in areas adjacent to the trail (LOD area) would be long term, minor, and adverse since this habitat supports the growth of native vegetation, some of it rare, such as the Oakland mariposa lily. Impacts would be measurable and perceptible, but would be localized in a relatively small area.

Exemption 5

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impact on native hardwood vegetation from on-leash dog walking at Alta Trail, Orchard Fire Road, and Pacheco Fire Road would be negligible because impacts would result in no measurable or perceptible changes in the plant community.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits would restrict use by time and area. Permits would be allowed for Alta Trail/Orchard Fire Road/Pacheco Fire Road. Impacts on native hardwood vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since the percentage of commercial dog walkers is considered high at Alta Trail/Orchard Fire Road/Pacheco Fire Road, dogs walked by commercial dog walkers would cause the majority of the adverse impacts on native hardwood vegetation from dogs at the site. Impacts on native hardwood vegetation from dogs walked by both commercial dog walkers and private individuals are summarized above.

Cumulative Impacts. Under alternative E, the cumulative impacts on native hardwood communities at this park site would be the same as those under alternative B: negligible cumulative impacts.

ALTA TRAIL/ORCHARD FIRE ROAD/PACHECO FIRE ROAD ALTERNATIVE E CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

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Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on the Alta Trail from Donahue Street to the junction with the Morning Sun Trail and on the Orchard and Pacheco Fire Roads. Impacts on native hardwood vegetation could include physical damage from trampling and digging, as well as nutrient addition from dog waste and urine. Impacts in areas adjacent to the trail (LOD area) would be long term, minor, and adverse since this habitat supports the growth of native vegetation, some of it rare, such as the Oakland mariposa lily. Impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively reduced area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impact on native hardwood vegetation from on-leash dog walking at Alta Trail, Orchard Fire Road, and Pacheco Fire Road would be negligible because impacts would result in no measurable or perceptible changes in the plant community.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits would restrict use by time and area. Permits would be allowed for Alta Trail/Orchard Fire Road/Pacheco Fire Road. Impacts on vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since the percentage of commercial dog walkers is considered high at Alta Trail/Orchard Fire Road/ Pacheco Fire Road, dogs walked by commercial dog walkers would cause the majority of the adverse impacts on native hardwood vegetation from dogs at the site. Overall impacts on native hardwood vegetation from dogs walked by both commercial dog walkers and private individuals are summarized above.

Cumulative Impacts. Projects and actions in and near Alta Trail, Orchard Fire Road, and Pacheco Fire Road were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Alta Trail/Orchard Fire Road/Pacheco Fire Road. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Alta Trail, Orchard Fire Road, and Pacheco Fire Road.

Under the preferred alternative, the negligible impacts on native hardwood communities from dogs at Alta Trail/Orchard Fire Road/Pacheco Fire Road under this alternative were considered together with the effects of the projects mentioned above. The beneficial effects from the Park Stewardship Programs and other restoration projects combined with the negligible impacts from the preferred alternative would result in negligible impacts on native hardwood communities at this park site.

ALTA TRAIL/ORCHARD FIRE ROAD/PACHECO FIRE ROAD PREFERRED ALTERNATIVE CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off	Beneficial, assuming compliance	Negligible cumulative impacts

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	trail; trails and the LOD area are a small portion of the site		

Oakwood Valley

Alternative A: No Action. Currently, dogs are allowed under voice control or on leash on the Oakwood Valley Fire Road and Oakwood Valley Trail from the junction with the fire road to the junction with Alta Trail. On-leash dog walking is also available on the Oakwood Valley Trail from the trailhead to the junction with Oakwood Valley Fire Road. However, many dog walkers allow their dogs off leash as soon as they exit their cars along Tennessee Valley Road. On-leash dog walking is allowed on the lower section of the Oakwood Valley Trail. This site is moderately used by dog walkers (table 9) and the number of commercial dog walkers using this site is relatively low. Oakwood Valley contains native hardwood vegetation; this site also contains Douglas-fir and coast redwood communities, but these occur outside the areas accessed by dogs.

Under alternative A, physical disturbance from dog activities would continue to occur along the fire road and trail and in off-trail areas throughout the site. Due to their nature, dogs are not expected to stay on the fire road/trail. Since dogs would be allowed under voice control in some areas of the site, there is a higher likelihood that dogs would go off trail than if they were on leash, creating impacts on native hardwood vegetation in adjacent areas. Therefore, these impacts would be considered long term, minor, and adverse because effects would be measurable and perceptible, but would be localized in a relatively small area.

No permit system exists for commercial dog walking under alternative A. At Oakwood Valley, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on native hardwood vegetation.

Cumulative Impacts. Projects and actions in and near Oakwood Valley were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Oakwood Valley. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/ Urban Interface Initiative on private lands could also impact Oakwood Valley.

The long-term minor adverse impacts on native hardwood communities from dogs at Oakwood Valley under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from trail rehabilitation projects should reduce some of the adverse impacts on native hardwood communities from alternative A. Therefore, cumulative impacts on native hardwood communities under this alternative would be expected to be negligible.

OAKWOOD VALLEY ALTERNATIVE A CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Impacts on vegetation from dogs would be caused through physical damage such as trampling, digging,	N/A	Negligible cumulative impacts

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	and dog waste; these effects, as well as fragmentation, could lead to the spread of invasive plant species		

N/A = not applicable.

Alternative B: NPS Leash Regulation. Under alternative B, on-leash dog walking would be allowed on the Oakwood Valley road and trail loop in the lower section of the site. No dogs would be allowed above the junction of the road and trail. Impacts in areas adjacent to the trail (LOD area) would be long term, minor, and adverse since this habitat supports the growth of existing vegetation, which would be affected by trampling, digging, and dog waste. Impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on vegetation from on-leash dog walking at Oakwood Valley would be negligible because impacts would result in no measurable or perceptible changes in the plant community.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking is not common at Oakwood Valley, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on native hardwood vegetation.

Cumulative Impacts. The negligible impacts on native hardwood communities from dogs at Oakwood Valley under alternative B were considered together with the effects of the projects mentioned above. The beneficial effects from the Park Stewardship Programs and other restoration projects combined with the negligible impacts from alternative B would result in negligible impacts on native hardwood communities at this park site.

OAKWOOD VALLEY ALTERNATIVE B CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C proposes a ROLA on the Oakwood Valley Fire Road to the junction with Oakwood Valley Trail. Double gates would be located at both ends, with continuous fencing to protect sensitive habitat. Oakwood Valley Trail would allow on-leash dog walking from the junction with Oakwood Valley Fire Road to a new gate at Alta Trail. Dogs under voice and sight control in the ROLA on the Oakwood Valley Fire Road would have access to the land between the edge of the trail and the fence (LOD area). The vegetation in this area would be affected by physical disturbance from dog activities. Dogs in the ROLA would be confined to a smaller area, potentially increasing the impacts on the adjacent natural habitat and vegetation. There would be impacts from locating and constructing the fence and gates that would extend beyond the ROLA. After the ROLA is open to dogs, the area would be devoid of any vegetation; therefore, there would be impacts in the ROLA where the shoulders of the trails, which are currently vegetated, would become part of the

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ROLA. There is also a potential for an increase in nutrient loading from dog waste due to having more dogs confined to a smaller area directly adjacent to natural habitat. Dogs would affect vegetation in the LOD area of the on-leash portion of Oakwood Valley Trail as well. Impacts would result from physical disturbance, such as trampling, digging, and dog waste. Impacts on vegetation in the LOD area and ROLA would be long term, minor, and adverse because effects would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area and the ROLA would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash in all areas outside the ROLA would protect vegetation off trail, and the areas in the ROLA would be fenced. Therefore, assuming compliance, the overall impact on native hardwood vegetation from dog walking at Oakwood Valley would be negligible because impacts would result in no measurable or perceptible changes in the plant community.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Oakwood Valley to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Oakwood Valley, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on native hardwood vegetation.

Cumulative Impacts. The negligible impacts on native hardwood communities from dogs at Oakwood Valley under alternative C were considered together with the effects of the projects mentioned above. The beneficial effects from the Park Stewardship Programs and other restoration projects combined with the negligible impacts from alternative C would result in negligible impacts on native hardwood communities at this park site.

OAKWOOD VALLEY ALTERNATIVE C CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; LOD area and ROLAs are a small portion of the entire site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Alternative D would have the same dog walking restrictions as alternative B, and impacts would also be the same. Impacts on native hardwood vegetation in the LOD area would be long term, minor, and adverse and would be caused by trampling, digging and dog waste; impacts would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impact on native hardwood vegetation from on-leash dog walking at Oakwood Valley would be negligible because impacts would result in no measurable or perceptible changes in the plant community.

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No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on native hardwood vegetation.

Cumulative Impacts. Under alternative D, the cumulative impacts on native hardwood communities at this park site would be the same as those under alternative B: negligible cumulative impacts

OAKWOOD VALLEY ALTERNATIVE D CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E proposes a ROLA on the Oakwood Valley Fire Road to the junction with Oakwood Valley Trail. Double gates would be located at both ends, with non-continuous fencing where needed to protect sensitive habitat. Oakwood Valley Trail would allow on-leash dog walking from the junction with Oakwood Valley Fire Road to a new gate at Alta Trail. Alternative E would have the same impacts as alternative C, assuming compliance: long term, minor, and adverse in the LOD area and ROLA and negligible overall.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Oakwood Valley to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Oakwood Valley, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on native hardwood vegetation.

Cumulative Impacts. Under alternative E, the cumulative impacts on native hardwood communities at this park site would be the same as those under alternative B: negligible cumulative impacts

OAKWOOD VALLEY ALTERNATIVE E CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and LOD areas and ROLAs are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on the Oakwood Valley Fire Road and on the Oakwood Valley Trail from the junction with the fire road to the junction with Alta Trail. Dogs would affect vegetation in the LOD area of the on-leash portion of Oakwood Valley Trail as well. Impacts would result from physical disturbance, such as trampling, digging, and dog waste. Impacts on vegetation in the LOD area and ROLA would be long term, minor, and adverse because effects would be measurable and perceptible, but would be localized in a relatively small area.

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The long-term minor adverse impacts from dogs in the LOD would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail areas. Therefore, assuming compliance, the overall impact on native hardwood vegetation from dog walking at Oakwood Valley would be negligible because impacts would result in no measurable or perceptible changes in the plant community.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Oakwood Valley to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Oakwood Valley, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on native hardwood vegetation.

Cumulative Impacts. Projects and actions in and near Oakwood Valley were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Oakwood Valley. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/ Urban Interface Initiative on private lands could also impact Oakwood Valley.

The negligible impacts on native hardwood communities from dogs at Oakwood Valley under the preferred alternative were considered together with the effects of the projects mentioned above. The beneficial effects from the Park Stewardship Programs and other restoration projects combined with the negligible impacts from the preferred alternative would result in negligible impacts on native hardwood communities at this park site.

OAKWOOD VALLEY PREFERRED ALTERNATIVE CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; LOD areas and ROLAs are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Fort Baker

Alternative A: No Action. Currently, dogs are required to be on leash throughout Fort Baker. Dogs are not allowed on the Chapel Trail or the pier. This site experiences low dog walking use, although there were 52 leash law violations at this site from 2008 through 2011 (table H). Dogs have been observed off leash at the Parade Ground, Drown Fire Road, Battery Yates, and behind the Bay Area Discovery Museum (NPS 2007c). Dogs off leash have access to the trails/fire roads, where viable plant communities exist. Impacts on this vegetation would include physical disturbance through trampling and digging, as well as nutrient addition, which would prevent the growth of new vegetation. Since compliance has been an434434ssue at this site, it is likely that many dogs are off leash and go beyond the trails and fire roads.

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Under alternative A, long-term minor adverse impacts would continue to occur on the native hardwood vegetation that occurs in the northeast portion of the Fort Baker site because impacts would be measurable and perceptible but would be localized in a relatively small area.

No permit system exists for commercial dog walking under alternative A. At Fort Baker, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on native hardwood vegetation.

Cumulative Impacts. Projects and actions in and near Fort Baker were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Fort Baker. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Fort Baker.

The long-term minor adverse impacts on native hardwood communities from dogs at Fort Baker under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from the projects provided by the Park Stewardship Programs should reduce some of the adverse impacts on native hardwood communities from alternative A. Therefore, cumulative impacts on native hardwood communities under this alternative would be expected to be negligible.

FORT BAKER ALTERNATIVE A CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Impacts on vegetation from dogs would be caused by physical damage such as trampling, digging, and dog waste; these effects, as well as fragmentation, could lead to the spread of invasive plant species	N/A	Negligible cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking on Drown Fire Road, the Bay Trail (not including Battery Yates Loop), Vista Point Trail (to be built), the Lodge/Conference Center Grounds, and the Parade Ground. Dogs would not be allowed on the Battery Yates Loop as part of this alternative, due to the presence of mission blue butterfly habitat. Impacts would result from dogs through physical disturbance from trampling and digging and nutrient addition, which would prevent the growth of new vegetation. The impacts in the LOD area under alternative B would be long term, minor, and adverse because the effects would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on native hardwood vegetation from on-leash dog

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walking at Fort Baker would be negligible because impacts would result in no measurable or perceptible changes in the plant community.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking is not common in this area, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on native hardwood vegetation.

Cumulative Impacts. The negligible adverse impacts on native hardwood communities from dog activities at this site under alternative B were considered together with the effects of the projects mentioned above under alternative A. The beneficial effects from the Park Stewardship Programs and other restoration projects combined with the negligible impacts from alternative B would result in negligible impacts on native hardwood communities at this park site.

FORT BAKER ALTERNATIVE B CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would have the same dog walking restrictions as alternative B, with the addition of on-leash dog walking on the Battery Yates Loop, and impacts would be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits would restrict use by time and area. Permits would be allowed for Fort Baker excluding Drown Fire Road. Impacts on vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Fort Baker, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on native hardwood vegetation.

Cumulative Impacts. Under alternative C, the cumulative impacts on native hardwood communities at this park site would be the same as those under alternative B: negligible cumulative impacts.

FORT BAKER ALTERNATIVE C CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

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Alternative D: Most Protective Based on Resource Protection/Visitor Safety. Under alternative D, on-leash dog walking would be allowed on the Lodge/Conference Center Grounds, Vista Point Trail (to be built), and on the Bay Trail (excluding the Battery Yates Loop), and no dogs would be allowed on the Parade Ground. Impacts in the LOD area would be long term, minor, and adverse since these areas support the growth of existing vegetation and would be affected by trampling, digging and dog waste. Effects would be measurable and perceptible, but would be localized in a relatively small area. Even though alternative D would allow less dog access at the site, the difference in dog impacts between alternatives D and B is not considered large enough to cause a change in the intensity of the impact due to the developed nature of the site.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on native hardwood vegetation from on-leash dog walking at Fort Baker would be negligible because impacts would result in no measurable or perceptible changes in the plant community.

No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on native hardwood vegetation.

Cumulative Impacts. The negligible adverse impacts on native hardwood communities from dog activities at this site under alternative D were considered together with the effects of the projects mentioned above under alternative A. The beneficial effects from the Park Stewardship Programs and other restoration projects combined with the negligible impacts from alternative D would result in negligible impacts on native hardwood communities at this park site.

FORT BAKER ALTERNATIVE D CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Alternative E would have the same dog walking restrictions as alternative C, and impacts would be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits would restrict use by time and area. Permits would be allowed for Fort Baker excluding Drown Fire Road. Impacts on native hardwood vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Fort Baker, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on native hardwood vegetation.

Cumulative Impacts. Under alternative E, the cumulative impacts on native hardwood communities at this park site would be the same as those under alternative B: negligible cumulative impacts.

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FORT BAKER ALTERNATIVE E CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on Drown Fire Road, the Bay Trail, Vista Point Trail (to be built), the Battery Yates Loop, the Lodge/Conference Center Grounds, and the Parade Ground. Dogs will not be allowed on the Battery Yates Trail as part of this alternative, due to the presence of mission blue butterfly habitat. Impacts would result from dogs through physical disturbance from trampling and digging and nutrient addition, which would prevent the growth of new vegetation. The impacts in the LOD area would be long term, minor, and adverse because the effects would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail. Therefore, assuming compliance, the overall impacts on native hardwood vegetation from on-leash dog walking at Fort Baker would be negligible because impacts would result in no measurable or perceptible changes in the plant community.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. Any dog walker, commercial or private, could obtain a permit to walk more than three dogs on leash, with a limit of six dogs; permits would restrict use by time and area. Permits would be allowed for Fort Baker excluding Drown Fire Road. Impacts on vegetation from permit holders with four to six dogs would be expected to increase under this alternative; however, impacts would not be expected to increase enough to cause a change in the threshold level. Since commercial dog walking is not common at Fort Baker, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on native hardwood vegetation.

Cumulative Impacts. Projects and actions in and near Fort Baker were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as Fort Baker. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Fort Baker.

Development or construction actions at or in the vicinity of GGNRA sites have had or may have the potential to have adverse impacts on native hardwood forest communities. Even though these efforts both within and beyond park boundaries would affect vegetation, mitigation for these projects would reduce the potential for impacts.

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The negligible impacts on native hardwood communities from dog activities at this site under the preferred alternative were considered together with the effects of the projects mentioned above. The beneficial effects from the Park Stewardship Programs and other restoration projects combined with the negligible impacts from the preferred alternative would result in negligible impacts on native hardwood communities at this park site.

FORT BAKER PREFERRED ALTERNATIVE CONCLUSION TABLE

Native Hardwood Forest and Douglas-fir/Coast Redwood Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect vegetation off trail; trails and the LOD area are a small portion of the site	Beneficial, assuming compliance	Negligible cumulative impacts

RIPARIAN FOREST AND STREAM CORRIDORS

Riparian plant communities in GGNRA include streamside corridors of forests, shrubs, and herbaceous vegetation that tolerate moist conditions. The sites in GGNRA that possess riparian habitat include: Easkoot Creek at Stinson Beach, Redwood Creek at Muir Beach in Marin County, Marin Headlands Trails along the Rodeo Valley Trail Corridor from Rodeo Beach to Capehart Housing, and Lobos Creek at Baker Beach. The area at the Lobos Creek inlet that supports riparian vegetation is generally not used by visitors with dogs and is not affected by this plan/EIS (NPS 2009l). At Easkoot Creek, the creek is densely vegetated with riparian plant species and generally difficult to access. Therefore, impacts on riparian vegetation as a result of alternatives A through E at both Lobos Creek at Baker Beach and Easkoot Creek at Stinson Beach would be negligible and are not discussed further in this section. Below and discussed in more detail include the following sites: Muir Beach (Redwood Creek) and Marin Headlands Trails (along the Rodeo Valley Trail Corridor from Rodeo Beach to Capehart Housing).

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Muir Beach

Alternative A: No Action. At Muir Beach, riparian forest habitat surrounds the parking lot to the north and east and continues south adjacent to the grassland habitat. Under alternative A, on-leash dog walking is allowed in the parking lot and dogs are allowed under voice control on the beach and on the bridge and path to the parking lot. This site has moderate to high visitor use by beachgoers and hikers (table 9). The park has closed the lagoon and Redwood Creek, although it has been observed that these closures have been violated and dogs have accessed Redwood Creek (appendix G).

Under alternative A, dogs in the parking lot could enter the areas containing riparian forest. As a result, continued long-term minor adverse impacts on riparian vegetation would occur under this alternative because the integrity of the plant community could be negatively affected by dogs through trampling, digging, and dog waste; these effects would be measurable and perceptible, but would be localized in a relatively small area.

No permit system exists for commercial dog walking under alternative A. At Muir Beach, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on riparian vegetation.

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Cumulative Impacts. Projects and actions in and near Muir Beach were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect riparian forest vegetation at GGNRA park sites such as Muir Beach. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact Muir Beach. The *Lower Redwood Creek Floodplain and Salmonid Habitat Restoration* plan restored channel function to reduce flooding and reconnect the creek to its floodplain, as well as expanding riparian vegetation at the Banducci site (NPS 2010d, 1). The *Dias Ridge Restoration and Trail Improvement Project* is currently realigning trail segments and restoring degraded areas on Dias Ridge above Muir Beach (NPS 2009q, 1). Additional vegetation benefits would be expected from the *Muir Beach Wetland and Creek Restoration*, through restoring and enhancing ecological processes near the mouth of Redwood Creek as well as enhancing habitat and improving erosion and sedimentation conditions (NPS 2009r, 1). The Park Stewardship Programs Initiative at Pirates Cove, just south of Muir Beach, included efforts to control invasive non-native plants such as pampas grass to support the dense and relatively undisturbed coastal scrub, prairie, and riparian habitats (GGNPC 2010c, 1).

Generally, construction and development projects that affect the riparian forest and stream corridor communities, such as the GGNRA *Long-range Transportation Plan Update*, require project-specific mitigation measures to address impacts on these communities and their wildlife. Therefore, these projects would not likely contribute to negative cumulative impacts. In addition to construction and development projects, implementation of some of the proposed fire management policies of the GGNRA *Fire Management Plan* may affect riparian areas and stream corridors through vegetation removal, although non-emergency fire management actions would not take place within 100 feet of riparian areas (NPS 2005a). Work in riparian and streamside areas for the GGNRA *Fire Management Plan* would be carefully managed to ensure that impacts are mitigated to an acceptable level and cumulative impacts would be long term and beneficial due to restoration of riparian habitat associated with this project (NPS 2005a). Loss of riparian vegetation can lead to elevated water temperatures, reducing the ability of the water to hold dissolved oxygen (NPS 2005a), which can ultimately affect the fisheries in the stream.

The long-term minor adverse impacts on riparian vegetation from dogs at Muir Beach under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from the rehabilitation and improvement projects should reduce some of the adverse impacts on riparian vegetation from alternative A. Therefore, cumulative impacts on riparian vegetation under this alternative would be expected to be negligible.

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MUIR BEACH ALTERNATIVE A CONCLUSION TABLE

Riparian Forest and Stream Corridor Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Long-term minor adverse impacts	Redwood Creek has been closed to dogs by the NPS to protect sensitive habitat in the watershed, but there is no physical barrier and off-leash dogs enter the riparian areas as well as the creek; this habitat would continue to be subject to impacts from dogs through trampling, digging, and dog waste	N/A	Negligible cumulative impacts

N/A = not applicable.

Alternative B: NPS Leash Regulation. Alternative B would allow on-leash dog walking on the beach, the bridge, and path to the beach, the parking area, and the proposed Pacific Way Trail (to be built). The riparian forest located adjacent to Muir Beach would be generally protected by physically restraining dogs on leash. Riparian forest vegetation located in the 6-foot areas adjacent to the trail and parking lot (LOD area) would receive long-term minor adverse impacts from dogs trampling and digging in vegetated areas; nutrient addition from dog waste would also occur. The effects would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail, and trails in riparian habitat constitute a small area in comparison to the entire site. Therefore, assuming compliance, the overall impacts on riparian vegetation from on-leash dog walking at Muir Beach would be negligible because impacts would result in no measurable or perceptible changes in the plant community.

Under alternative B, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs per person with no permit required. Since commercial dog walking is not common at Muir Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative B would have negligible impacts on riparian vegetation.

Cumulative Impacts. The negligible impacts on riparian vegetation from dogs at Muir Beach under alternative B were considered together with the effects of the projects mentioned above under alternative A "Cumulative Impacts." The beneficial effects from the rehabilitation and improvement projects combined with the negligible impacts from alternative B would result in negligible cumulative impacts on riparian vegetation at this park site.

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MUIR BEACH ALTERNATIVE B CONCLUSION TABLE

Riparian Forest and Stream Corridor Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect habitat off trail; trails and the LOD area are a small portion of the site; trails in riparian habitat are a small area in comparison to the entire site; trails generally receive low to moderate use	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative C: Emphasis on Multiple Use—Balanced by County. Alternative C would have the same dog walking restrictions as alternative B, and impacts would be the same, assuming compliance: long term, minor, and adverse in the LOD area and negligible overall.

Under alternative C, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Muir Beach to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Muir Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative C would have negligible impacts on riparian vegetation.

Cumulative Impacts. Under alternative C, the cumulative impacts on riparian vegetation at this park site would be the same as those under alternative B: negligible cumulative impacts.

MUIR BEACH ALTERNATIVE C CONCLUSION TABLE

Riparian Forest and Stream Corridor Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect habitat off trail; trails and the LOD area are a small portion of the site; trails in riparian habitat are a small area in comparison to the entire site; trails generally receive low to moderate use	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative D: Most Protective Based on Resource Protection/Visitor Safety. In the vicinity of Muir Beach, alternative D would allow on-leash dog walking in the parking area and on the Pacific Way Trail. The boardwalk/path to beach and the beach itself would be closed to dogs. These on-leash areas are surrounded by riparian forest; therefore, impacts would be expected to be similar to those described for alternative B. Riparian forest vegetation located in the 6-foot area adjacent to the trail and parking lot (LOD area) would receive long-term minor adverse impacts from dogs trampling and digging in vegetated areas; nutrient addition from dog waste would also occur. The effects would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail,

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and trails in riparian habitat constitute a small portion of the site. Therefore, assuming compliance, the overall impact on riparian vegetation from on-leash dog walking at Muir Beach would be negligible because impacts would result in no measurable or perceptible changes in the plant community.

No commercial dog walking would be allowed under alternative D; therefore, commercial dog walking would have no impact on riparian vegetation.

Cumulative Impacts. The negligible impacts on riparian vegetation from dogs at Muir Beach under alternative D was considered together with the effects of the projects mentioned above under alternative A. The beneficial effects from the rehabilitation and improvement projects combined with the negligible impacts from alternative D would result in negligible cumulative impacts on riparian vegetation at this park site.

MUIR BEACH ALTERNATIVE D CONCLUSION TABLE

Riparian Forest and Stream Corridor Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect habitat off trail; trails and the LOD area are a small portion of the site; trails in riparian habitat are a small area in comparison to the entire site; trails generally receive low to moderate use	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative E: Most Dog Walking Access/Most Management Intensive. Under alternative E at Muir Beach, the parking area, the Pacific Way Trail, and the boardwalk/path to the beach would be open to on-leash dog walking. The portion of Muir Beach south of the access path would be a designated ROLA and dogs would be prohibited on the remainder of the beach north of the access path. The ROLA designated as part of this alternative, the Pacific Way Trail, and the parking lot are located immediately adjacent to riparian forest. Riparian forest vegetation located in the 6-foot area adjacent to the trail and parking lot (LOD area) would receive long-term minor adverse impacts from dogs trampling and digging in vegetated areas; nutrient addition from dog waste would also occur. The effects would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash in areas beyond the ROLA would protect vegetation off trail, and trails in riparian habitat constitute a small area in comparison to the entire site. Therefore, assuming compliance, the overall impacts on riparian vegetation from on-leash dog walking at Muir Beach would be negligible because impacts would result in no measurable or perceptible changes in the plant community.

Under alternative E, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Muir Beach to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Muir Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under alternative E would have negligible impacts on riparian vegetation.

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Cumulative Impacts. The negligible impacts on riparian vegetation from dogs at Muir Beach under alternative E were considered together with the effects of the projects mentioned above under alternative A. The beneficial effects from the restoration and improvement projects combined with the negligible impacts from alternative E would result in negligible cumulative impacts on riparian vegetation at this park site.

MUIR BEACH ALTERNATIVE E CONCLUSION TABLE

Riparian Forest and Stream Corridor Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect habitat off trail; trails and the LOD area and ROLAs are a small portion of the entire site; trails in riparian habitat are a small area in comparison to the entire site; trails generally receive low to moderate use	Beneficial, assuming compliance	Negligible cumulative impacts

Alternative F: Preferred Alternative. The preferred alternative would allow on-leash dog walking on the beach, bridge and path to the beach, and the Pacific Way Trail. The tidal lagoon and Redwood Creek would remain closed to dogs and fencing would be installed along the dunes and lagoon as needed. Riparian forest vegetation located in the 6-foot area adjacent to the trail and parking lot (LOD area) would receive long-term minor adverse impacts from dogs trampling and digging in vegetated areas; nutrient addition from dog waste would also occur. The effects would be measurable and perceptible, but would be localized in a relatively small area.

The long-term minor adverse impacts from dogs in the LOD area would occur in a relatively small area compared to the site as a whole. Physically restraining dogs on leash would protect vegetation off trail, and trails in riparian habitat constitute a small area in comparison to the entire site. Therefore, assuming compliance, the overall impacts on riparian vegetation from on-leash dog walking at Muir Beach would be negligible because impacts would result in no measurable or perceptible changes in the plant community.

Under the preferred alternative, all dog walkers, including commercial dog walkers, would be allowed to walk one to three dogs with no permit required. No permits would be allocated at Muir Beach to walk more than three dogs on leash, so individual and commercial dog walkers would only be allowed to walk a maximum of three dogs on leash per person. Since commercial dog walking is not common at Muir Beach, it is likely that the new regulation would not have an impact on the number of dog walkers. Therefore, commercial dog walking under the preferred alternative would have negligible impacts on riparian vegetation.

Cumulative Impacts. Projects and actions in and near Muir Beach were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs Initiative projects provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect riparian forest vegetation at GGNRA park sites such as Muir Beach. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the

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Wildland/Urban Interface Initiative on private lands could also impact Muir Beach. The *Lower Redwood Creek Floodplain and Salmonid Habitat Restoration* restored channel function to reduce flooding and reconnect the creek to its floodplain, as well as expanding riparian vegetation at the Banducci site (NPS 2010d, 1). The *Dias Ridge Restoration and Trail Improvement Project* is currently realigning trail segments and restoring degraded areas on Dias Ridge above Muir Beach (NPS 2009q, 1). Additional vegetation benefits would be expected from the *Muir Beach Wetland and Creek Restoration Project*, through restoring and enhancing ecological processes near the mouth of Redwood Creek as well as enhancing habitat and improving erosion and sedimentation conditions (NPS 2009r, 1). The Park Stewardship Programs Initiative at Pirates Cove, just south of Muir Beach, included efforts to control invasive non-native plants such as pampas grass to support the dense and relatively undisturbed coastal scrub, prairie, and riparian habitats (GGNPC 2010c, 1).

Generally, construction and development projects that affect the riparian forest and stream corridor communities, such as the GGNRA *Long-range Transportation Plan Update*, require project-specific mitigation measures to address impacts on these communities and their wildlife. Therefore, these projects would not likely contribute to negative cumulative impacts. In addition to construction and development projects, implementation of some of the proposed fire management policies of the GGNRA *Fire Management Plan* may affect riparian areas and stream corridors through vegetation removal, although non-emergency fire management actions would not take place within 100 feet of riparian areas (NPS 2005a). Work in riparian and streamside areas for the GGNRA *Fire Management Plan* would be carefully managed to ensure that impacts are mitigated to an acceptable level and cumulative impacts would be long term and beneficial due to restoration of riparian habitat associated with this project (NPS 2005a). Loss of riparian vegetation can lead to elevated water temperatures, reducing the ability of the water to hold dissolved oxygen (NPS 2005a), which can ultimately affect the fisheries in the stream.

The negligible impacts on riparian vegetation from dogs at Muir Beach under the preferred alternative was considered together with the effects of the projects mentioned above. The beneficial effects from the rehabilitation and improvement projects combined with the negligible impacts from the preferred alternative would result in negligible cumulative impacts on riparian vegetation at this park site.

MUIR BEACH PREFERRED ALTERNATIVE CONCLUSION TABLE

Riparian Forest and Stream Corridor Impacts	Rationale	Impact Change Compared to Current Conditions	Cumulative Impacts
Overall negligible impacts, assuming compliance	Physically restraining dogs would protect habitat off trail; trails and the LOD area are a small portion of the site; trails in riparian habitat are a small area in comparison to the entire site; trails generally receive low to moderate use	Beneficial, assuming compliance	Beneficial cumulative impacts

Marin Headlands Trails

Alternative A: No Action. Under current conditions, on-leash dog walking is allowed along portions of the Coastal Trail (Hill 88 to Muir Beach), the Battery Smith-Guthrie Fire Road Loop, North Miwok Trail, County View Road. Dog walking under voice control (or on leash) is allowed along other portions of the Coastal Trail (Golden Gate Bridge to Hill 88, including portions of the Lagoon Trail); the Coastal, Wolf Ridge, and Miwok Trail Loop; and the Old Bunker Fire Road Loop. These trails experience low to moderate use by dog walkers. Dog-related incidents are high at this site with a total of 269 from 2008

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through 2011, with the majority of incidents for having dogs within closed areas (table G). Within the Marin Headlands Trails, the Rodeo Valley Trail Corridor parallels riparian habitat for its entire length and the Lagoon Trail both passes through and is adjacent to riparian habitat along both sides of Rodeo Lagoon; portions of both of these trails are currently open to dogs under voice control. Physical disturbance and nutrient addition are currently happening along the trails and in off-trail areas due to unleashed dogs.

Because only a portion of the entire site supports riparian vegetation in areas that would be open to dogs, alternative A would result in continued long-term minor adverse impacts on the riparian community as a result of dogs through trampling, digging, and dog waste; effects would be measurable and perceptible, but would be localized in a relatively small area.

Under alternative A, no permit system exists for dog walking. At the Marin Headlands Trails, commercial dog walking is uncommon; therefore, commercial dog walking would have negligible impacts on riparian vegetation.

Cumulative Impacts. Projects and actions in and near the Marin Headlands Trails were considered for the cumulative impacts analysis (appendix K). Long-term parkwide projects such as trail rehabilitation performed as part of Park Stewardship Programs provide improvements and enhancements that reduce erosion, improving conditions for vegetation and wildlife habitat and contributing to the quality of soils. Ongoing parkwide restoration and enhancement efforts, such as GGNRA natural resource stewardship programs and the *Marin Countywide Plan* (County of Marin 2007), can also beneficially affect vegetation at GGNRA park sites such as the Marin Headlands Trails. The GGNRA Maintenance Division conducts many ongoing operations throughout GGNRA that include but are not limited to road, trail, and stormwater system maintenance. Habitat restoration and the implementation of projects funded by the Wildland/Urban Interface Initiative on private lands could also impact the Marin Headlands Trails.

Generally, construction and development projects that affect the riparian forest and stream corridor communities, such as the GGNRA *Long-range Transportation Plan*, require project-specific mitigation measures to address impacts on these communities and their wildlife. Therefore, these projects would not likely contribute to negative cumulative impacts. In addition to construction and development projects, implementation of some of the proposed fire management policies of the GGNRA *Fire Management Plan* may affect riparian areas and stream corridors through vegetation removal, although non-emergency fire management actions would not take place within 100 feet of riparian areas (NPS 2005a). Work in riparian and streamside areas for the GGNRA *Fire Management Plan* would be carefully managed to ensure that impacts are mitigated to an acceptable level and cumulative impacts would be long term and beneficial due to restoration of riparian habitat associated with this project (NPS 2005a). Loss of riparian vegetation can lead to elevated water temperatures, reducing the ability of the water to hold dissolved oxygen (NPS 2005a), which can ultimately affect the fisheries in the stream.

The long-term minor adverse impacts on riparian vegetation from dogs at the Marin Headlands Trails under alternative A were considered together with the effects of the projects mentioned above. The beneficial effects from the rehabilitation and restoration projects should reduce some of the adverse impacts on riparian vegetation from alternative A. Therefore, negligible cumulative impacts on riparian vegetation would result from alternative A.