

Special Status Species

Affected Environment

Special status species are plants and animals that are legally protected under the federal Endangered Species Act (ESA) of 1973 or other regulations, and species that are considered sufficiently rare by the scientific community to qualify for such status. Additional federal regulations protect special status species, including the Fish and Wildlife Coordination Act of 1934 (as amended), the Bald Eagle and Golden Eagle Protection Act, and the Migratory Bird Treaty Act. These are discussed in more detail in the paragraphs that follow.

The California ESA, administered by the California Department of Fish and Game [CDFG], does not supersede the federal ESA, but operates in conjunction with it to provide additional protection to threatened and endangered species in California, as well as species that are not protected through federal regulations. In addition to threatened and endangered state-listed species, the CDFG maintains an informal list of 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 California Native Plant Society (CNPS) has also developed lists of plants of special concern in California. The National Park Service (NPS) makes every reasonable effort to conduct its actions in a manner consistent with relevant state laws and regulations, per NPS policy.

Regulations and Policies Pertaining to Special Status Species

Federal Laws and Regulations

Endangered Species Act. The U.S. Fish and Wildlife Service (USFWS) has jurisdiction over species formally listed as threatened or endangered under the ESA (16 USC 1531–1544). An endangered species is one that is considered in danger of becoming extinct throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future. In addition to endangered and threatened species, which are legally protected under the ESA, there are lists of candidate species for which the USFWS currently has enough information to support a proposal for listing as threatened or endangered species.

Section 7 of the ESA outlines procedures for federal interagency cooperation to conserve federally listed species and designated critical habitat. The NPS is required to consult with USFWS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species. This consultation may be either informal or formal consultation. Under a formal consultation, the USFWS issues a biological opinion. Section 9 of the ESA prohibits the “take” of federally listed species, which is broadly defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” The biological opinion generally describes some level of incidental take, and details reasonable and prudent measures that the action agency needs to implement to ensure that critical habitat is not destroyed or degraded and that a listed species is not jeopardized by the federal action. The USFWS has interpreted the definition of “harm” to include significant habitat modification. An activity may be defined as a take even if it is unintentional or accidental.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act, which was first enacted in 1918, implements a series of treaties between the United States and Great Britain (on behalf of Canada), Mexico, Japan, and Russia, which provide for international migratory bird protection and authorize the Secretary of the Interior to regulate the take of migratory birds. There is a list of bird species that are protected by the Migratory Bird Treaty Act. The act makes it unlawful, except as allowed by regulations, “at any time, by any means, or in any manner, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird, included in the terms of conventions” with certain other countries (16 USC 703). This includes direct and indirect acts, although harassment and habitat modification are not included unless they result in the direct loss of birds, nests, or eggs.

Bald and Golden Eagle Protection Act. The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald eagles, including their parts, nests, or eggs. The act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle’s return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

Fish and Wildlife Coordination Act. The Fish and Wildlife Coordination Act (16 USC 661–667e, March 10, 1934, as amended 1946, 1958, 1978, and 1995) requires federal agencies to consult with USFWS, National Marine Fisheries Service (NMFS), and the CDFG before they undertake or approve projects that control or modify surface water. The consultation is intended to prevent the loss of or damage to fish and wildlife in connection with water projects and to develop and improve these resources. Compliance with this act is incorporated into a project’s National Environmental Policy Act (NEPA) process.

Executive Order 13186—Responsibilities of Federal Agencies to Protect Migratory Birds. Executive Order (EO) 13186 directs executive departments and agencies to take certain actions to further implement the Migratory Bird Treaty Act. EO 13186 creates a more comprehensive strategy for the conservation of migratory birds by the federal government, and fulfills the government’s duty to lead in the protection of this international resource. EO 13186 also provides a specific framework for the federal government’s compliance with its treaty obligations to Canada, Mexico, Russia, and Japan and provides broad guidelines on conservation responsibilities and requires the development of more detailed guidance in memoranda of understanding. For example, EO 13186 aids in incorporating national planning for bird conservation into agency programs and provides the formal presidential guidance necessary for agencies to incorporate migratory bird conservation more fully into their programs.

National Park Service Regulations and Policies. Servicewide NPS regulations and policies, including the NPS Organic Act of 1916, *NPS Management Policies 2006* (NPS 2006), and the NPS Natural Resource Management Reference Manual 77, direct national parks to provide for the protection of park resources. The Organic Act directs national parks to conserve “wild life” unimpaired for future generations and is interpreted to mean that native animal and plant life is to be protected and perpetuated as part of a park unit’s natural ecosystem.

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” (NPS 2006). 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
- minimizing human impacts on native plants, animals, populations, communities, and ecosystems, and the processes that sustain them (NPS 2006)

Section 4.1 of NPS *Management Policies 2006* states that “natural resources will be managed to preserve fundamental physical and biological processes, as well as individual species, features, and plant and animal communities. The Service will not attempt to solely preserve individual species (except threatened or endangered species) or individual natural processes; rather, it will try to maintain all the components and processes of naturally evolving park ecosystems, including the natural abundance, diversity, and genetic and ecological integrity of the plant and animal species native to those ecosystems” (NPS 2006). According to section 8.2.2.1 of the NPS *Management Policies 2006*, “Superintendents will develop and implement visitor use management plans and take action, as appropriate, to ensure that recreational uses and activities in the park are consistent with its authorizing legislation or proclamation and do not cause unacceptable impacts on park resources or values” (NPS 2006).

Overall, goal of the NPS is to minimize human impacts (including impacts on individual wildlife) and avoid significant effects from disturbance to the abundance, diversity, dynamics, distributions, habitats, and behaviors of wildlife populations and communities and ecosystems in which they occur, pursuant to 36 CFR 2.18 and NPS *Management Policies 2006*, section 4.4.1. Although the focus of the impact analysis is predominantly the impacts on wildlife populations, the NPS acknowledges that adverse impacts on individual animals would likely occur and seeks to minimize them. In addition to NPS management policies, federally listed species in national parks are protected by the ESA, which mandates all federal agencies consider the potential effects of their actions on species listed as threatened or endangered (16 USC 1531 et seq.). If the NPS determines that an action may affect a federally listed species, consultation with the USFWS is required to ensure that the action would not jeopardize the species’ continued existence or result in the destruction or adverse modification of critical habitat. NPS *Management Policies 2006* state that the NPS will survey for, protect, and strive to recover all species native to NPS units that are listed under the ESA, and proactively conserve listed species and prevent detrimental effects on these species (NPS 2006, section 4.4.2.3). NPS *Management Policies 2006* also state that “[the NPS will] manage state and locally listed species in a manner similar to its treatment of federally listed species to the greatest extent possible” (NPS 2006, sec. 4.4.2.3).

State Laws and Regulations

California Endangered Species Act. Pursuant to the California ESA, which is administered by the CDFG, state-listed threatened or endangered species are protected from any take (California Code of Regulations [CFR], title 14, sections 670.2 and 670.5; California ESA, section 2080). The California ESA is similar to the federal ESA both in process and substance; it is intended to provide additional protection to threatened and endangered species in California. The California ESA does not supersede the federal ESA but operates in conjunction with it. Species may be listed as threatened or endangered under both acts (in which case the provisions of both state and federal laws apply) or under only one act. The take of state-listed species incidental to otherwise lawful activities requires an incidental take permit.

California Native Plant Protection Act. In addition to the California ESA, the California Native Plant Protection Act provides protection to endangered and rare plant species, subspecies, and varieties of wild native plants in California. The definitions of “endangered” and “rare” closely parallel the definitions of “endangered” and “threatened” plant species in the California ESA. The California Native Plant Protection Act lists are used by both the CDFG and the USFWS when considering formal species protection under the ESA and the California ESA.

California Fish and Game Code, Protection of Birds. The California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird (section 3503). Specifically, it is unlawful to take, possess, or destroy any raptors (i.e., eagles, hawks, owls, and falcons), including their nests or eggs (section 3503.5). The code adopts the provisions of the Migratory Bird Treaty Act and states that it is unlawful to take or possess any designated migratory nongame bird or any part of such migratory nongame bird (section 3513). The state code offers no statutory or regulatory mechanism for obtaining an incidental take permit for the loss of nongame migratory birds. Typical violations include destruction of active nests resulting from removal of vegetation in which the nests are located. Violation of the code could also include failure of active raptor nests resulting from disturbance of nesting pairs by nearby project construction.

This Merced Wild and Scenic River Comprehensive Management Plan (Merced River Plan) is consistent with California laws and regulations, including those protecting state-listed threatened and endangered species. For this reason, species listed under the California ESA or accorded special status by the CDFG (i.e., considered rare or sensitive and monitored by the California Natural Diversity Database) are included in this analysis.

Informal Species Designations

Yosemite National Park recognizes state and local rare and sensitive plant species, and in addition maintains its own list of park sensitive plant species. These species include those that may have extremely limited distributions, represent relict populations from past climatic or topographic conditions, have unique adaptations to local conditions, may be at the extreme extent of their range in the park, or may be listed by the California Native Plant Society or the California Natural Diversity Database as rare or sensitive. Park sensitive species are included in this analysis because they could be affected (due to proximity to human-use zones or susceptibility of individual plants or populations to

loss from natural or unnatural events), and their existence is considered when evaluating consequences for any proposed management action.

The CNPS is a professional society of plant biologists, scientists, and associated professionals which has accumulated a statewide database on California native plants and their distributions. The CNPS has created five categorical rankings of plants to identify their respective concern for these species as potentially rare, threatened, or endangered species. These listings do not afford legal status or protection for these species, but the lists are used by agencies in their planning processes for activities that could affect the species or habitat. Vascular plants listed as rare or endangered by the CNPS (CNPS 2012) are defined as follows:

1. California Rare Plant Rank 1A – Plants presumed extinct in California
2. California Rare Plant Rank 1B – Plants rare, threatened, or endangered in California and Elsewhere
3. California Rare Plant Rank 2 – Plants rare, threatened, or endangered in California, but More Common Elsewhere
4. California Rare Plant Rank 3 – Plants about which we need more information – a review list
5. California Rare Plant Rank 4 – Plants of limited distribution – a watch list

In general, plants listed by CNPS as Rank 1A, 1B, or 2 meet the definition of section 1901, chapter 10 (Native Plant Protection Act) and sections 2062 and 2067 (CESA) of the California Fish and Game Code as rare or endangered species.

Special Status Plant Species

For purposes of this analysis, special status plant species are defined as those listed by the USFWS as endangered, threatened, proposed, or candidate species; those identified by the CDFG as an endangered, threatened, or rare species; those identified by Yosemite National Park as sensitive; or those listed by the CNPS as Rank 1A, 1B, or 2.

Based on this broad information and professional judgment on the part of park staff, the NPS prepared a list of those special status plant species that could potentially occur within the boundaries of the park. Park staff then reduced the list to only those special status species that are known to occur, or have the potential to occur, in the study area and that could be affected by actions proposed in the alternatives. Based on this updated list, previous studies, recent surveys, and professional judgment by the park staff, 50 special status plant species are known to occur or have the potential to occur in the project vicinity.

The NPS recently completed a report entitled *Special Status Plant Species in the Merced River Corridor within Yosemite National Park (Special Status Plant Species Report)* (Colwell and Taylor 2011b), which summarizes the results of targeted botanical surveys undertaken in the following areas of high human impact along the Merced River corridor within Yosemite National Park: Merced Lake, Little Yosemite Valley, Yosemite Valley, El Portal, and Wawona. In preparing the report, NPS staff reviewed prior plant studies within

the park, identified gaps in existing data and, in order to fill those gaps, undertook plant surveys across four areas: Merced Lake, Little Yosemite Valley, El Portal Administrative Site, and Wawona. The surveys were conducted in the summer and fall of 2010 and the spring of 2011. The report was published in May 2011.

Botanical surveys have identified no federally listed and two state-listed plants within the Merced River corridor in Yosemite.

The *Special Status Plant Species Report* (Colwell and Taylor 2011b) concluded that the characteristic pattern of special status species occurrence along the Merced River corridor within Yosemite was found to be within unique habitat types that are often restricted in size. These habitat types are typically associated with specific kinds of water availability, such as waterfall spray zones, braided river channel oxbow cutoffs, gravel bars resulting from periodic flooding, water seepage on rock walls, vernal pools resulting from snowmelt flooding, and the average high water margin of streams and rivers. Common threats to special status plant species and their habitats include trampling and invasive species encroachment. Other adverse impacts on special status plant species within Yosemite include human activity at the Merced Lake High Sierra Camp; changed hydrology as a result of past wetland draining, removal of natural dams, ditching, and piping; and landscaping (transplanting wild plants to landscaping areas).

Federal Special Status Plant Species

The NPS initiated consultation with the USFWS and obtained an updated species list from the USFWS on June 27, 2012. Based on this list and professional judgment by the park staff, one federally listed candidate species has been identified as known to occur or as having the potential to occur in the areas under consideration in this plan: whitebark pine. Consultation with the USFWS will continue throughout the environmental compliance process for the Merced River Plan, and the NPS will consult with the USFWS to obtain an updated list of federally endangered or threatened species and complete the consultation process prior to project implementation.

State of California Special Status Species

Of the 50 special status plant species known to occur or having the potential to occur in the areas under consideration in this plan, three are listed by the State of California as Rare (see **table 9-99**).

Table 9-99 presents the 50 special status plant species known to occur or having the potential to occur within the park's Merced River corridor. The table provides information regarding species designation, habitat requirements, and potential location within the study area. Data regarding the latter two elements are generally drawn from the *Special Status Plant Species Report* (Colwell and Taylor 2011b). Locations of potential occurrence are estimated based on recorded observations and best professional judgment of NPS biologists.

TABLE 9-99: SPECIAL STATUS PLANT SPECIES POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name Common Name	Listing Status: Park/CNPS/ State	General Habitat	Segment(s) with Potential for Species to Occur
Plants and Fungi			
<i>Antirrhinum leptaleum</i> Spurred snapdragon	SSP	Small washes, shallow ditches, disturbed areas, in foothill woodland, yellow pine forest; historic collection from Wawona; elevations between 300 meters-2,100 meters	7
<i>Asarum lemmonii</i> Lemmon's wild ginger	SSP	Shady wet places along creeks, north-facing river banks; Yosemite Valley, Wawona; elevations between 1,100 meters-1,900 meters	2,7
<i>Bolandra californica</i> California bolandra	SSP/4.3	Lower and upper montane coniferous forest, mesic, rocky shaded places; Lyell Fork Merced River; elevations between 2,000 meters-3,000 meters	1
<i>Bulbostylis capillaris</i> Threadleaf beakseed	SSP/4.2	Meadows and seeps, meadow habitats, vernal moist gravel pans; Yosemite Valley; elevations between 1,000 meters-2,000 meters	2
<i>Camissonia sierrae</i> ssp. <i>alticola</i> Mono Hot Spring evening primrose	SSP/1B.2	On vernal moist gravel and sand pans; Merced Lake; elevations between 2,000 meters-2,350 meters	1
<i>Camissonia sierrae</i> ssp. <i>sierrae</i> Sierra suncup	SSP/4.3	Granite gravel seepage areas; Yosemite Valley; elevations between 500 meters-1,300 meters	2
<i>Carex buxbaumii</i> Buxbaum's sedge	SSP/4.2	Montane and subalpine fens; coastal prairie, yellow pine forest, red fir forest, lodgepole forest, subalpine forest, meadows and seeps, wet conditions in meadow habitats. Yosemite Valley; elevations between 1,200 meters-3,300 meters	2
<i>Carex canescens</i> Silvery sedge	SSP	Lake margins, drainages in wet meadows; historic collection from Clark's Wawona; elevations between 1,000 meters-3,200 meters	7
<i>Carex fissuricola</i> Cleft sedge	SSP	Meadow slopes and flats, among rocks, wet areas, spray zones; Nevada Fall; elevations between 1,500 meters-3,500 meters	1
<i>Carex sartwelliana</i> Yosemite sedge	SSP	Moist forest openings and meadow borders; Wildcat Creek; elevations between 1,200 meters-2,600 meters	1,2,5,7
<i>Carex tompkinsii</i> Thompkins' sedge	SSP/4.3/ Rare	Canyon slopes and river bottomlands under conifer-oak woodland canopy; El Portal area; elevations between 1,200 meters-1,800 meters	4
<i>Cinna bolanderi</i> Bolander's woodreed	SSP/1B.2	Montane stringer meadows and fens; Wawona and Little Yosemite Valley; elevations between 1,670 meters-2,440 meters	1,7
<i>Collinsia linearis</i> Narrow leaf collinsia	SSP	Rocky, metamorphic substrates of broad-leaved upland forest, chaparral, cismontane woodland; El Portal & Wawona; elevations between 200 meters-2,000 meters	4,7

TABLE 9-99: SPECIAL STATUS PLANT SPECIES POTENTIALLY OCCURRING IN THE STUDY AREA (CONTINUED)

Scientific Name Common Name	Listing Status: Park/CNPS/ State	General Habitat	Segment(s) with Potential for Species to Occur
Plants and Fungi (cont.)			
<i>Cordylanthus rigidus</i> ssp. <i>brevibracteatus</i> Short-bracted bird's beak	SSP/4.3	North side Yosemite Valley, dry sandy roadside full sun, 1 mile east of Cascade Creek; elevations between 1,100 meters-2,500 meters	2
<i>Cypripedium montanum</i> Mountain lady's slipper	SSP/4.2	Deep humus and shade of canyon bottoms; Wawona and below Yosemite Valley; elevations between 200 meters -2,200 meters	3,7
<i>Epipactis gigantea</i> Stream orchid	SSP	Moist conditions in meadows, streambank habitats and cliff basins; Yosemite Valley; elevations between 1,500 meters-2,600 meters	2
<i>Eriophyllum congdonii</i> Congdon's woolly sunflower	SSP/1B.2/ Rare	Sunny rocky slopes on metamorphic talus; next to river in El Portal; elevations between 500 meters-1,900 meters	4
<i>Erythronium purpurascens</i> Purple fawnlily	SSP	Open forests, meadows, rocky places; Yosemite Valley - possibly extinct; elevations between 1,500 meters-2,700 meters	2
<i>Glyceria borealis</i> Northern mannagrass	SSP	Marshes and shallow lake borders; Yosemite Valley; elevations between 800 meters-1,250 meters	2
<i>Helianthus californicus</i> California sunflower	SSP	Meadows, seeps, streambanks, seasonally inundated areas; Wawona; elevations between 1,600 meters-2,000 meters.	7
<i>Hippuris vulgaris</i> Common mare's tail	SSP	Lakes, ponds, springs, rivers. Little Yosemite Valley; elevations between 0 meters-2,600 meters	1
<i>Hulsea heterochroma</i> Redray alpinegold	SSP	Chaparral, openings in yellow pine forest, Yosemite Valley, 5 miles above Nevada Fall; elevations between 300 meters-2,500 meters	1,2
<i>Isoetes occidentalis</i> Western quillwort	SSP	Mountain lakes and rivers; in Merced River Little Yosemite Valley; elevations between 1,500 meters-2,500 meters	1
<i>Leucothoe davisiae</i> Sierra laurel	SSP	Moist, shaded drainage bottoms along creeks and rivers; Yosemite Valley; elevations between 1,300 meters-2,600 meters	2
<i>Lewisia congdonii</i> Congdon's lewisia	SSP/1B.3/ Rare	Lower montane coniferous forest, metamorphic cliffs; El Portal; elevations between 500 meters-2,800 meters	4
<i>Lindernia dubia</i> var. <i>anagallidea</i> False pimpernel	SSP	Exposed margins of lakes and ponds, mudflats; Yosemite Valley; elevations between 500 meters-1,600 meters	2
<i>Lithocarpus densiflorus</i> var. <i>echinoides</i> Tanoak	SSP	Dry shady forest conditions in slope habitats; Merced River below Yosemite Valley; elevations between 600 meters-2,000 meters	2,3

TABLE 9-99: SPECIAL STATUS PLANT SPECIES POTENTIALLY OCCURRING IN THE STUDY AREA (CONTINUED)

Scientific Name Common Name	Listing Status: Park/CNPS/ State	General Habitat	Segment(s) with Potential for Species to Occur
Plants and Fungi (cont.)			
<i>Lycopus uniflorus</i> Northern bugleweed	SSP/4.3	Moist areas, marshes, near springs; Merced River banks from El Portal up; elevations between 1,600 meters-2,000 meters	3,4
<i>Mimulus bicolor</i> Yellow and white monkeyflower	SSP	Occurs under vernal moist conditions; usually in nonwetlands, but occasionally found on wetlands & river bottomlands; Wawona; elevations between 360 meters-2,100 meters	7
<i>Mimulus inconspicuus</i> Small flowered monkeyflower	SSP/4.3	Chaparral, cismontane woodland, lower montane coniferous forest, mesic, shady areas; mouth of Moss Creek; elevations between 160 meters-2,000 meters	2,3,7,8
<i>Mimulus laciniatus</i> Cutleaf monkeyflower	SSP/4.3	Chaparral, lower and upper montane coniferous forest, mesic areas of granitic substrate, vernal moist seepage areas; Yosemite Valley; elevations between 900 meters-2,000 meters	2
<i>Mimulus pulchellus</i> Yellowlip pansy monkeyflower	SSP/1B.2	Lower montane coniferous forest, vernal mesic meadows; Yosemite Valley; elevations between 600 meters-2,000 meters	2
<i>Myrica hartwegii</i> Sierra sweet bay	SSP	Stream and riverbanks; Along Merced below Wawona; elevations between 300 meters-1,500 meters	7,8
<i>Narthecium californicum</i> California bog asphodel	SSP	Fens, seeps; occurs under wet conditions by streams and waterfalls; Bridalveil Fall; elevations between 700 meters-2,600 meters	2
<i>Penstemon azureus ssp. angustissimus</i> Azure penstemon	SSP	Chaparral, Yellow Pine Forest, Sagebrush Scrub, Foothill Woodland; occurs under dry conditions in slope habitats; Yosemite Valley; elevations between 300 meters-700 meters	2
<i>Penstemon heterophyllus var. purdyi</i> Purdy's foothill penstemon	SSP	chaparral, foothill woodland, yellow pine forest; occurs under dry conditions in slope habitats; Yosemite Valley; elevations between 50 meters-1,600 meters	2
<i>Phacelia tanacetifolia</i> Tansy leafed phacelia	SSP	Habitat variable, occurs in slope habitats; Bridalveil Falls, Yosemite Valley; elevations between 1,000 meters-2,000 meters	2
<i>Pinus albicaulis</i> Whitebark pine	FC	Cold, windy high elevation sites between 3,000 meeters-3,750 meters	1
<i>Piperia colemanii</i> Coleman's piperia	G3/4.3	Chaparral, lower montane coniferous forest; Little Yosemite Valley; elevations between 1,200 meters-2,300 meters	1
<i>Plagiobothrys torreyi var. torreyi</i> Torrey's popcornflower	SSP/1B.2	Moist meadows and flats, forest edges; Yosemite Valley; elevations between 1,200 meters-3,400 meters	2

TABLE 9-99: SPECIAL STATUS PLANT SPECIES POTENTIALLY OCCURRING IN THE STUDY AREA (CONTINUED)

Scientific Name Common Name	Listing Status: Park/CNPS/ State	General Habitat	Segment(s) with Potential for Species to Occur
Plants and Fungi (cont.)			
<i>Potamogeton epihydrus</i> ssp. <i>nuttallii</i> Nuttall's pondweed	SSP/2.2	Freshwater marshes, tanks; Yosemite Valley; elevations between 400 meters-1,900 meters	2
<i>Quercus lobata</i> Valley oak	SSP	Deep soil on slopes and in valleys; one small population occurs in El Portal; elevation 720 meters	4
<i>Saxifraga mertensiana</i> Wood saxifrage	SSP	Mossy rocks, cliffs; Yosemite Valley; elevations between 1,000 meters-2,500 meters	2
<i>Saxifraga oregana</i> Oregon saxifrage	SSP	Meadows and seeps; occurs under wet conditions in meadow habitats; Yosemite Valley & Little Yosemite Valley; elevations between 150 meters-2,500 meters.	1,2
<i>Scutellaria bolanderi</i> ssp. <i>bolanderi</i> Sierra skullcap	SSP	Gravelly soils, stream and riverbanks, meadows in oak or pine woodland; Wawona; elevations between 300 meters-2,000 meters	7
<i>Senecio clarkianus</i> Clark's ragwort	SSP	Damp montane meadows; Wawona; elevations between 1,400 meters-2,700 meters	7
<i>Sparganium natans</i> Small bur reed	SSP/4.3	Freshwater wetlands, in lake margin and edge habitats, tanks in meadows; tributaries of Merced River; elevations between 2,000 meters-2,500 meters	2,7
<i>Staphylea bolanderi</i> Sierra bladdernut	SSP	chaparral, foothill woodland, yellow pine forest; occurs in shaded canyon habitats; Merced River Canyon in El Portal; elevations between 240 meters-1,720 meters	3,4
<i>Trillium angustipetalum</i> Narrowpetal wakerobin	SSP	Shaded bottomlands; Wawona, Yosemite Valley; elevations between 100 meters-2,000 meters	2,7
<i>Vaccinium parvifolium</i> California red huckleberry	SSP	Moist, shaded drainage bottoms along creeks and rivers; South Fork Merced River Wawona area; elevations between 1,400 meters-2,500 meters	7
<i>Wyethia elata</i> Hall's mule ears	SSP/4.3	Open woodland, forest; Wawona; elevations between 1,000 meters-1,400 meters	7
<p>Abbreviations: CNPS = California Native Plant Society; SSP = special status species</p> <p>STATUS: Rare = Designated as rare by the State of California SSP = Park Designated Special Status Species</p> <p>CNPS RANKINGS: List 1A = Plants presumed extinct in California List 1B = Plants Rare, Threatened, or Endangered in California and Elsewhere List 2 = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere List 3 = Need more information</p> <p>List 4 = Plants of Limited Distribution Threat Ranks: .1 = Seriously endangered in California .2 = Fairly endangered in California .3 = Not very endangered in California</p> <p>SOURCE: Special Status Plant Species in the Merced River Corridor within Yosemite National Park (Colwell and Taylor 2011b)</p>			

Special Status Wildlife Species

For the purposes of this analysis, special status wildlife species are defined as those listed by the USFWS as an endangered, threatened, proposed, or candidate species; or identified by the CDFG as an endangered, threatened, or candidate species; or a CDFG species of special concern or fully protected species.

Based on this broad information and professional judgment on the part of Yosemite National Park staff, the NPS prepared a list of those special status wildlife species that could possibly occur within the boundaries of the park. Park staff then reduced the list to only those special status species that are known to occur, or have the potential to occur, in the study area and that could be affected by actions proposed in the alternatives. Based on this updated list, previous studies, recent surveys, and professional judgment by the park staff, 33 special status wildlife species are known to occur or have the potential to occur in the study area: 1 invertebrate species (beetle), 1 fish species, 3 amphibian species, 14 bird species, and 14 mammal species.

The NPS recently completed a report entitled *Special Status Wildlife Species Report for the Merced River Corridor in Yosemite National Park* (NPS 2011a), which summarizes the current state of knowledge regarding special status wildlife species within the Merced River corridor. The report includes observations from scientific studies, surveys, and reports from park staff and members of the public. Drawing from data spanning the period 1915 to 2011, the report describes the general distribution, habitat requirements, documented observations, and known threats to all special status wildlife species known or have the potential to occur within the Merced River corridor within the study area. The report was published in May 2011 and represents the most current and complete assessment of its kind for the Merced River corridor.

Wildlife populations and habitats in Yosemite have been affected by human activities and development. For some special status wildlife species, reasons for species decline are known and documented. For example, decline of Sierra Nevada bighorn sheep at the Sierra crest is historically due to overhunting and, more recently, to exposure to diseases that all domestic sheep carry that fatally infect the bighorn sheep. For other special status wildlife species such as the Pacific fisher, not enough information is available to determine causative factors of decline. A common threat among special status wildlife species that is within the purview of the NPS to manage is the presence of nonnative species. Nonnative species such as the smallmouth bass, signal crayfish, bullfrog, and nonnative trout have a substantial impact on native species inhabiting aquatic or riparian habitats (NPS 2011a). Other common threats within the purview of the NPS to manage include altered fire regimes, recreational activities and administrative activities, park infrastructure and development, and water withdrawals from the river. Common threats that are not wholly within the purview of the NPS to manage include anthropogenic climate change, air pollution, regional habitat fragmentation or loss, diseases, and human disturbance.

Federal Special Status Wildlife Species

The NPS initiated informal consultation with the USFWS and obtained an updated species list from the USFWS on June 27, 2012. Based on this list and professional judgment by the park staff, six federally listed threatened, endangered, proposed, or candidate species have been identified as known

to occur or as having the potential to occur in the areas under consideration in this plan: one invertebrate species (valley elderberry longhorn beetle), two amphibian species (Yosemite toad and Sierra Nevada yellow-legged frog), and three mammal species (California wolverine, Pacific fisher, and Sierra Nevada bighorn sheep) (see table 9-100). Consultation with the USFWS will continue throughout the environmental compliance process for the Merced River Plan, and the NPS will consult with the USFWS to obtain an updated list of federally endangered or threatened species and complete the consultation process prior to project implementation.

TABLE 9-100: SPECIAL STATUS WILDLIFE SPECIES POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name Common Name	Listing Status: Federal/State	General Habitat	Potential to Occur in Study Area Segment
Invertebrates			
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	FT	Breeds and forages exclusively on elderberry shrubs (<i>Sambucus</i> spp.) typically associated with riparian forests, riparian woodlands, elderberry savannas, and other Central Valley and foothill habitats below 3,000 feet in elevation.	3,4
Fish			
<i>Mylopharodon conocephalus</i> Hardhead	CSC	Inhabits larger middle- and low elevation streams and rivers, from sea level to 4,750 feet in elevation. Typically found in undisturbed streams with clear, deep pools that have sand-gravel-boulder substrates and slow water velocities.	4,6,7
Amphibians			
<i>Hydromantes platycephalus</i> Mount Lyell salamander	CSC	Occurs in massive rock areas between 4,000 feet and 12,139 feet in elevations, in rock fissures, seeps, shade, and low-growing plants. Commonly found in talus slopes of granite where water is flowing. Also found near streams and within the spray zones of waterfalls, under rocks and moss.	1,2,5
<i>Anaxyrus canorus</i> Yosemite toad	FC/CSC	Restricted to wet mountain meadows, lakes, ponds, and shallow spring channels in the central high Sierra Nevada, between elevations of 6,400 feet–11,200 feet. Wet meadow habitat is the focal habitat for this species	1,5
<i>Rana boylei</i> ^a Foothill yellow-legged frog	CSC	Primarily found in streams with riffles, rocky substrates, and open banks from sea level to 6,390 feet in elevation.	2,3,4,6,7,8
<i>Rana sierrae</i> Sierra Nevada yellow-legged frog	FC/CT/CSC	Inhabits high mountain lakes, ponds, tarns and streams at elevations ranging from 4,000 to 12,500 feet; rarely found more than 3 feet from water.	1,5
Reptiles			
<i>Emys marmorata</i> ^a Western pond turtle	CSC	Inhabits a wide range of permanent and ephemeral aquatic habitats, including ponds, marshes, rivers, streams, and ditches to an elevation of about 6,700 feet, but are uncommon anywhere above 5,000 feet. Prefers open, grassy south-facing slopes for nest sites.	2,3,4,6,7,8

TABLE 9-100: SPECIAL STATUS WILDLIFE SPECIES POTENTIALLY OCCURRING IN THE STUDY AREA (CONTINUED)

Scientific Name Common Name	Listing Status: Federal/State/ CNPS	General Habitat	Potential to Occur in Study Area Segment
Birds			
<i>Histrionicus histrionicus</i> Harlequin duck	CSC	Breeds along large, swift-moving mountain rivers with vegetated banks for cover. At the end of the breeding season, they move back to the coast, where they forage in intertidal areas.	1-8
<i>Accipiter gentilis</i> Northern goshawk	CSC	Favors moderately dense coniferous forests broken by meadows and other openings, between 5,000 feet and 9,000 feet in elevation. Typically nests in mature conifer stand near streams. Forages in mature and old-growth forests that have relatively dense canopies and open understories, but also hunts among a variety of vegetative cover, including meadow edges.	1,5
<i>Aquila chrysaetos</i> Golden eagle	CFP	Forages in open terrain such as grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats; nests in canyons and large trees in open habitats. In the Sierra Nevada, golden eagles favor grasslands and areas of shrubs or saplings, and open-canopied woodlands of young blue oaks.	1-8
<i>Circus cyaneus</i> Northern harrier	CSC	Favors open areas such as grasslands, meadows, wetlands, and agricultural clearings. Rarely seen migrant in that passes through Yosemite.	2,7
<i>Haliaeetus leucocephalus</i> Bald eagle	FD/CE/CFP	Nests in tall trees, usually over 100 feet in height, or on cliffs, usually near water. Favor lakes and rivers with abundance prey (mostly fish).	2,3,4,7
<i>Falco peregrinus</i> Peregrine falcon	CFP	Nests on vertical cliff habitat, with large potholes or ledges, that is inaccessible to land predators. Hunts in a wide variety of habitats including meadows, woodlands, marshes, and mudflats.	1,2,3,5,7
<i>Asio otus</i> Long-eared owl	CSC	In the Sierra Nevada, found from blue oak savannah up to ponderosa pine and black oak habitats, usually in association with riparian habitats.	2,3,4,5,6,7,8
<i>Strix nebulosa</i> Great gray owl	CE	Entire California population of this species is restricted to the Yosemite region. Breeds in mixed conifer/red fir forests bordering meadows. Winters in mixed conifer down to blue oak woodlands.	2,7
<i>Strix occidentalis occidentalis</i> California spotted owl	CSC	Strongly associated with areas of mature and old forest with thick dense canopy closure that contains many dense, old, live trees and snags and fallen logs.	1,2,3,5,7
<i>Chaetura vauxi</i> Vaux's swift	CSC	Inhabits montane-hardwood and Douglas-fir habitats. Uses large hollow trees and snags, especially tall, burned-out stubs for nest sites. Breeding occurs in Yosemite Valley, usually in forested habitat near meadows.	2,3,7,8
<i>Cypseloides niger</i> Black swift	CSC	In Yosemite, only nests near or behind waterfalls, though elsewhere in their range nests are found on sea cliffs or other sheer rock faces.	2

TABLE 9-100: SPECIAL STATUS WILDLIFE SPECIES POTENTIALLY OCCURRING IN THE STUDY AREA (CONTINUED)

Scientific Name Common Name	Listing Status: Federal/State/ CNPS	General Habitat	Potential to Occur in Study Area Segment
Birds (cont.)			
<i>Contopus cooperi</i> Olive-sided flycatcher	CSC	Breeds in montane and northern coniferous forests, at forest edges and openings, such as meadows and ponds. Winters at forest edges and clearings where tall trees or snags are present.	1,2,5,7
<i>Empidonax traillii</i> Willow flycatcher	CE	Breeds in moist, shrubby areas, often with standing or running water. Winters in shrubby clearings and early successional growth. Deciduous trees and shrubs interspersed with open areas enhances the quality of foraging habitat.	2,6,7
<i>Setophaga petechia</i> Yellow warbler	CSC	Prefers riparian woodlands but also breeds in chaparral, ponderosa pine, and mixed conifer habitats with substantial amounts of brush.	1-8
Mammals			
<i>Sorex lyelli</i> Mount Lyell shrew	CSC	Found primarily in wetland communities, near streams, in grassy areas, under willows, and in sagebrush steppe communities. Requires moist soil and uses logs, stumps, and other surface objects for cover.	1,5
<i>Antrozous pallidus</i> Pallid bat	CSC	Common species of low elevations in California. Occupies grasslands, desert, shrublands, woodlands, and forests from sea level up through mixed conifer forests. Is quite versatile in its choice of roosting sites and has been documented using tree hollows, rock crevices, caves, abandoned mines, and structures.	1-8
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	CSC	Found in all habitat types from low to moderate elevations. Not found in high elevation subalpine and alpine habitats. Requires caves, mines, or buildings for roosting. Prefers mesic habitats where it gleans from brush or trees along habitat edges.	2,3,4,7,8
<i>Euderma maculatum</i> Spotted bat	CSC	Occupies a wide variety of habitats from arid deserts and grasslands through mixed conifer forests. In montane habitats, forages over meadows, along forest edges, or in open coniferous woodland. Feeds almost entirely on moths. Needs rock crevices in cliffs or caves for roosting.	1,2,5,7
<i>Lasiurus blossevillii</i> Western red bat	CSC	Typically found in trees, hedgerows, and forest edges. Roosts in foliage in summer.	1-8
<i>Eumops perotis</i> Western mastiff bat	CSC	Found in a variety of habitats, from desert scrub and chaparral to montane coniferous forest. Typically found in rocky cliff and canyon areas. Its presence is determined by the availability of significant rock features offering suitable roosting habitat.	1,2,5,7
<i>Lepus americanus tahoensis</i> Sierra Nevada snowshoe hare	CSC	Inhabits boreal riparian areas in the Sierra Nevada; favors thickets of deciduous trees in riparian areas and thickets of young conifers.	1,5
<i>Lepus townsendii townsendii</i> Western white-tailed jackrabbit	CSC	Inhabits a variety of habitats, including sagebrush, perennial grasslands, alpine dwarf-shrub, early successional conifer habitats, and wet meadows to timberline and above.	1,5

from the *Special Status Wildlife Species Report*. Locations of potential occurrence are estimated based on recorded observations and best professional judgment of NPS biologists.

Species Accounts

Invertebrates

Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)

Status. Federally threatened

General Distribution. The valley elderberry longhorn beetle is found in areas below 915 meters (3,000 feet) in elevations that support species of elderberry (*Sambucus* sp.). At the time of listing in 1980, the beetle was known from fewer than 10 locations on the American River, Putah Creek, and Merced River. Current distribution ranges from southern Shasta County to Fresno County.

Habitat Requirements. The valley elderberry longhorn beetle is an invertebrate species that is completely dependent on its host plant, elderberry, throughout its one-year to two-year life cycle. The beetle spends most of its life in the larval stage, living in the stems of elderberry shrubs. Adults emerge from late March through June, when feeding and mating occurs, about the same time the elderberry flowers. The adult stage is short-lived; females lay their eggs on the bark, larvae hatch and burrow into the stems, and the cycle is repeated. Although elderberry shrubs are relatively common in riparian habitat, it appears that to serve as suitable habitat, shrubs must have stems that are 1 inch or greater in diameter at ground level (Barr 1991). Use of elderberry by the beetle is rarely apparent. Frequently, the only exterior evidence of the use by the beetle is a distinct exit hole created by the larva just before the pupal stage.

Status in Merced River Corridor. The El Portal Administrative Site is the only area in Yosemite National Park that lies below 915 meters (3,000 feet) in elevation. In El Portal, elderberry plants represent a subdominant species within live oak forests, interior live oak forests, interior live oak woodlands, blue oak woodlands, canyon live oak forests, mixed north slope forests, foothill pine/live oak/chaparral woodlands, northern mixed chaparral, interior live oak chaparral, and westside ponderosa pine forests. Elderberry shrubs are scattered throughout the El Portal Administrative Site, including approximately 124 elderberry plants of a size sufficient to support the Valley elderberry longhorn beetle that occur in areas of potential development or management activities in El Portal.

Fish

Hardhead (*Mylopharodon conocephalus*)

Status. California species of special concern

General Distribution. Hardhead are endemic to California and native to the Sacramento and San Joaquin River basins and the Russian River watershed. Hardhead are typically found in undisturbed areas of larger middle- and low-elevation streams and rivers. This species ranges from sea level to 1,450 meters (4,750 feet) in elevation. Historically, hardhead were regarded as a widespread and locally abundant species. Hardhead still appear to be widespread in foothill streams, but their

specialized habitat requirements combined with widespread alteration of downstream habitats has resulted in isolated populations making them more susceptible to local extinction (Moyle et al. 1995).

Habitat Requirements. Hardhead are typically found in undisturbed streams with clear, deep pools that have sand-gravel-boulder substrates and slow water velocities (Moyle et al. 1995). This species distribution might be limited to well-oxygenated streams because they are relatively intolerant of low oxygen levels, especially at higher temperatures (Cech et al. 1990). Most streams in which they occur have summer temperatures in excess of 20 °Celsius (C) (68 °Fahrenheit [F]); optimal temperatures for hardhead appear to 24–28 °C (75–82 °F).

Status in the Merced River Corridor. Hardhead observations have been recorded on two occasions in Yosemite, both from the Merced River. It is unlikely that hardheads occurred above El Portal on the Merced River. The Merced River gorge likely prevented them from migrating any farther up the river. The only documented observations of hardheads in the Merced River corridor were in 1987 and 2006 in El Portal (Stillwater Sciences 2008). Electrofishing surveys conducted by CDFG in 2008 at two sites in El Portal did not detect any hardhead.

Amphibians

Mount Lyell Salamander (*Hydromantes platycephalus*)

Status. California species of special concern

General Distribution. The Mount Lyell salamander, endemic to the Sierra Nevada, ranges from the Sonora Pass (Sonora County) to Silliman Gap, Sequoia National Park (Tulare County). Isolated populations have also been documented in the Desolation Wilderness (El Dorado County) and on the Sierra Buttes (Sierra County). They inhabit high elevation (2,100 meters to 3,700 meters [6,890 feet to 12,139 feet]) snowmelt seep and waterfall habitat throughout the Sierra Nevada. There are also several populations of Mount Lyell salamander at lower elevations in the spray zones of waterfalls in Yosemite Valley (1,200 meters to 1,300 meters [3,937 feet to 4,265 feet]) and in riparian areas at lower elevation (1,400 meters to 2,000 [4,593 feet to 6,562 feet]) on the arid eastern slope of the Sierra Nevada, near the floor of the Owens Valley. The Owens Valley population was treated by CDFG as a separate species (Jennings and Hayes 1994), but recent genetics analysis does not support treating this as a separate species (Rovito 2009). Although the species has the broadest geographic range of any members of its genus *Hydromantes*, within that range, Mount Lyell salamanders may be very patchily distributed with small local populations that might be especially susceptible to local extirpation (Jennings and Hayes 1994). Consequently, they are a California species of special concern. According to Wake and Papenfuss in Lannoo 2005, there is no indication that either the size of the range or the density of this species has changed recently. In fact, new populations are continuing to be discovered. In Yosemite, the species has been observed at a number of sites in recent years.

Habitat Requirements. Juveniles and adults are commonly found in talus slopes of granite where water is flowing. They appear to favor habitats that are downslope of melting snowfields that persist long into or through the entire summer. Mount Lyell salamander may also be found near streams and

within the spray zones of waterfalls, under rocks and moss. They are nocturnal and take refuge under rocks during the daytime.

Status in the Merced River Corridor. Mount Lyell salamander observations have been recorded on 140 occasions in Yosemite National Park. Of these observations, 24 records are from the Merced River corridor. Between 1950 and 1954, there were 12 observations at a site along the John Muir Trail between Yosemite Valley and Little Yosemite Valley, and at two sites in Yosemite Valley. In 1969 and again in 1995, there were single observations in Yosemite Valley. One individual was observed along the John Muir Trail between Yosemite Valley and Little Yosemite Valley in 1995. From 2000–2006, there were four sightings along the John Muir Trail between Yosemite Valley and Little Yosemite Valley and five sightings in Yosemite Valley (CNDDDB 2012). In 2006, there were also two individuals observed in Yosemite Valley immediately outside of the river corridor buffer.

Yosemite Toad (*Anaxyrus canorus*)

Status. Federal candidate, California species of special concern

General Distribution. The historic range of Yosemite toads in the Sierra Nevada occurs from the Blue Lakes region north of Ebbetts Pass (Alpine County) to 5 kilometers (3.1 miles) south of Kaiser Pass in the Evolution Lake/Darwin Canyon area (Fresno County) (Jennings and Hayes 1994). Historically, the toad ranged from 1,460 meters to 3,630 meters (4,790 feet to 11,910 feet) in elevation (Stebbins 1985) throughout its range and from 1,950 meters to 3,444 meters (6,400 feet to 11,300 feet) in elevation in Yosemite (Karlstrom 1962). The toad is currently known from 179 sites in Yosemite between the elevations of 2,134 meters to 3,505 meters (7,000 feet to 11,500 feet) (Knapp 2003). Estimates suggest that the toad has disappeared from between 47% and 79% of the sites that it previously occupied (Jennings and Hayes 1994, Drost and Fellers 1996). Remaining populations appear more scattered across the landscape and consist of a small number of breeding adults (Kagarise Sherman and Morton 1993).

The NPS surveyed 446 meadows for Yosemite toads during the summer of 2010, 166 of which had been surveyed at least once between 1992 and 2009. The remaining 280 meadows had never been surveyed. The surveys documented 44 new breeding populations of toads, and increased the number of documented breeding populations from 135 to 179. Toads were not found in approximately 50% of the sites where toads had been previously documented, while 9% of meadows where toads had not been documented previously had breeding during the 2010 survey.

Habitat Requirements. The Yosemite toad has been recorded in a broad range of high montane, subalpine, and alpine habitats, including wet meadows, lakes, ponds, and shallow spring channels. The Yosemite toad is most commonly found, however, in shallow, warm water areas, including standing and flowing water in wet meadows, small permanent and ephemeral ponds, and flooded shallow grassy areas and meadows adjacent to lakes (Karlstrom 1962). Wet meadow habitat is the focal habitat for this species.

Status in the Merced River Corridor. Yosemite toad observations have been recorded on 2,142 occasions in Yosemite. Of these observations, 11 records are from the Merced River corridor. There are no records of Yosemite toads within the Merced River corridor prior to 1999, which is likely due

to a lack of survey efforts targeting the toad. Between 1999 and 2010, there were a multiple sightings at higher elevation sites around Triple Divide, Isberg, and Rodgers peaks.

Foothill Yellow-Legged Frog (*Rana boylei*)

Status. California species of special concern

General Distribution. Historically, foothill yellow-legged frogs occurred from the Santiam River (Marion County), Oregon, in the north to the San Gabriel Mountains (Los Angeles County), California (Hayes and Jennings 1988) in the south. They occupied the western slopes of the Cascade Mountains, the western foothills of the Sierra Nevada and Coast Ranges, and the Tehachapi and San Gabriel Mountains. An isolated population also occurred in the Sierra San Pedro Martir, Baja California, Mexico (Loomis 1965). Today, foothill yellow-legged frogs continue to occur across their historical range in Oregon and California but in greatly reduced numbers (Lannoo 2005). In California, they inhabit elevations from sea level to 1,939 meters (6,360 feet) (Hemphill 1952). The species is believed to have disappeared from 51% of its historic localities throughout its range and is estimated to have disappeared from approximately two-thirds of its historic localities within the Sierra Nevada (Jennings 1996).

Habitat Requirements. Foothill yellow-legged frogs are primarily found in streams with riffles, rocky substrates, and open banks (Lannoo 2005). Adults have also been found in deep, isolated pools and vegetated backwaters (Hayes and Jennings 1988). Breeding and rearing habitat is located in gently flowing water where there is a reduced risk to egg masses and tadpoles from high water events and scouring (Kupferberg 1996a).

Status in the Merced River Corridor. There are only four recorded observations of foothill yellow-legged frogs in Yosemite. All four of those sightings were in Yosemite Valley and near Cascade Creek. The first specimen was collected near Cascade Creek in July 1948 (University of Michigan Museum of Zoology). Three additional observations were reported for Yosemite Valley in 1974 (Yosemite Wildlife Observation Database 2011). No individuals have been reported in the park since the mid-1970s, and the species is believed to be extirpated from the park. The low number of historic records is likely a reflection of the limited habitat for foothill yellow-legged frogs in the park.

Sierra Nevada Yellow-Legged Frog (*Rana sierrae*)

Status. Federal candidate, California candidate

General Distribution. Sierra Nevada yellow-legged frogs currently range from north of the Feather River in northern Plumas County, California, south, including all of Yosemite, to the divide between the South and Middle Forks of the Kings Rivers in Kings Canyon National Park. The majority of their range is in federally designated wilderness. Despite the fact that most of their habitat is fully protected, the Sierra Nevada yellow-legged frog has disappeared from >93% of their historic range. The declines have escalated since the late 1970s, and most of the remaining populations are much smaller than those that would have occurred historically (Knapp 2005). Consequently, the Sierra Nevada yellow-legged frog has gone from being one of the most abundant species in the Sierra Nevada (Grinnell and Storer 1924) to one that is considered critically endangered. This species is currently known to occur at

approximately 166 sites in Yosemite at elevations ranging from 1,676 meters to 3,536 meters (5,500 feet to 11,600 feet). The Sierra Nevada yellow-legged frog is a candidate species for listing under the federal ESA, and the USFWS plans to initiate a proposed rule to list this species in 2013. A listing decision would occur within 12 months of proposed ruling.

Habitat Requirements. The Sierra Nevada yellow-legged frog occupies aquatic habitats for almost all of their seasonal life history; they breed, tadpoles develop, and they overwinter in lakes and ponds or low-flowing streams and use flowing water to move between sites. This species is rarely found more than a few feet from water. Because it overwinters in water and has a multi-year tadpole phase, it requires waters that are deep enough that they don't freeze solid in the winter and they don't dry out during the summer.

Status in the Merced River Corridor. Sierra Nevada yellow-legged frog observations have been recorded on 4,581 occasions in Yosemite. Of these observations, 20 records are from the Merced River corridor. Most of the sites where Sierra Nevada yellow-legged frogs are known to exist fall outside of the Merced River corridor. Concerted efforts to survey amphibians in the park have been conducted between 1992 and 2010. Before 1992, there were five records of Sierra Nevada yellow-legged frogs within the river corridor at Wawona (1922), Yosemite Valley (1922, 1958), Triple Peak (1940), and Horsethief Canyon (1991). One of the historic records from Yosemite Valley may have been from farther up Tamarack Creek rather than from the Valley. During a comprehensive survey of all mapped and unmapped lakes and ponds in Yosemite conducted in 2000–2002, Knapp (2005) observed Sierra Nevada yellow-legged frogs at 13 sites around Red and Rodgers peaks. A total of 30 adults or subadults and about 1400 tadpoles were recorded at these sites. Between 1992 and 2010, there were two additional observations in the upper reaches of the Merced River.

Reptiles

Western Pond Turtle (*Emys marmorata*)

Status. California Species of Special Concern

General Distribution. The historic range of western pond turtles included the Pacific slope from Puget Sound to Sierra San Pedro Martir in Baja California Norte and isolated inland populations in Washington, Oregon, California, Nevada, and Idaho. Some of these isolated populations may represent introductions (Holland 1994). Western pond turtles have an elevation range from sea level to about 2,042 meters (6,700 feet) but are uncommon anywhere above about 1,524 meters (5,000 feet) (Holland 1994). The species is believed to be declining throughout 75%–80% of its range primarily due to habitat loss, nonnative predators (bullfrogs, large-mouth bass, and possums), and overharvesting for food. According to Jennings and Hayes (1994), the western pond turtle still occurs in 90% of its historic range in the Central Valley and west of the Sierra Nevada, but in greatly reduced numbers.

Habitat Requirements. Western pond turtles inhabit a wide range of permanent and ephemeral aquatic habitats, including ponds, marshes, rivers, streams, and ditches (Stebbins 1985, Behler 2002). In rivers and streams, they usually occupy slow-moving, deep pools with rocky or muddy bottoms and abundant vegetation (Stebbins 1985, Behler 2002). There is also a high correlation between turtle

abundance and availability of logs, boulders, vegetation mats, and mud banks to use as basking sites (Bury and Germano 2008). Emergent basking sites such as logs are preferred because they offer some protection from terrestrial predators and offer quick escapes into deep water. This species may also spend a substantial amount of time in upland terrestrial habitats. Terrestrial habitat includes basking sites and nesting habitat. Western pond turtles deposit their eggs on land, usually above the floodplain, up to several hundred feet from water. For nesting, gravid (with eggs) females tend to seek out open areas with sparse, low vegetation (annual grasses and herbs), low slope angle, and dry hard soil.

Status in the Merced River Corridor. Western pond turtle observations have been recorded on 16 occasions in Yosemite. Of these observations, there have only been two sightings of western pond turtles in the Merced River corridor; both sightings were in Yosemite Valley in the 1950s. In 1950, there was a sighting in Sentinel Meadow and, in 1958, another turtle was observed in Stoneman Meadow (CNDDDB 2012). There have been no sightings since the 1950s in the Merced River corridor, and the species is believed to be extirpated from the Merced River within Yosemite.

Birds

Harlequin Duck (*Histrionicus histrionicus*)

Status. California species of concern

General Distribution. Harlequin ducks are found on both the western and eastern seaboard of North America. In western North America, their breeding range extends from western Alaska and the northern Yukon south to the Sierra Nevada. From April to September, they migrate inland to breed along turbulent mountain rivers with vegetated banks for cover (Beedy 2008). At the conclusion of the breeding season, they move back to the coast where they forage in intertidal areas. Harlequin duck population decline has been noted across much of their range (Robertson and Goudie 1999). Harlequin duck is a rare breeder in Yosemite.

Habitat Requirements. Yosemite features the clear, fast-flowing river and stream conditions associated with the breeding grounds of harlequin ducks. These conditions include low acidity, steep banks, and substantial streamside vegetation (Beedy 2008). They feed primarily by diving into the water and searching among rocks for aquatic insects, although they will occasionally take fish (Robertson and Goudie 1999).

Status in Merced River Corridor. As of 2011, there are 43 records of harlequin ducks in Yosemite's Wildlife Observation Database. Of these records, 39 observations are from the Merced River corridor. According to Gaines (1992), harlequin ducks were found in every major Yosemite watershed from 1,200 meters in elevation to timberline until the 1920s. After an absence of nearly 20 years, a female harlequin was observed in Wawona in 1940 (Gaines 1992). It wasn't until 1977 that harlequins were again observed in the Merced River, and they were seen with some regularity until 1985. After a 15-year absence, harlequin ducks were documented repeatedly in the Merced River between 2000–2007 (Yosemite Wildlife Observation Database 2011).

Northern Goshawk (*Accipiter gentilis*)

Status. California species of special concern

General Distribution. Northern goshawks occupy temperate and boreal forests throughout the Holarctic (Brown and Amadon 1968, Squires and Reynolds 1997). They are year-round residents throughout all or most of the California range, although in winter some individuals remain on or near breeding territories while others migrate short distances to winter elsewhere (Keane 1999).

Throughout their range, they inhabit moderately dense coniferous forests broken by meadows and other openings, at elevations between 1,500 meters and 2,700 meters (4,920 feet and 8,860 feet).

Northern goshawk is an uncommon year-round resident in Yosemite.

Habitat Requirements. Northern goshawks forage in mature and old-growth forests that have relatively dense canopies and open understories (Beier and Drennan 1997) but also hunt among a variety of vegetative cover, including meadow edges (Younk and Bechard 1994). Goshawks hunt from tree perches, scanning the ground and lower canopy for prey. As such, an open understory improves the chances of detection and capture of prey (Reynolds et al. 1992).

Status in Merced River Corridor. Northern goshawk observations have been recorded on 160 occasions in Yosemite. Of these records, 54 observations were in the Merced River corridor, mostly in Yosemite Valley. Besides in the Valley, one bird was seen in flight near Wawona Dome (1982), three were recorded from Little Yosemite Valley (1990, 1994), and two were recorded from Merced Lake (1982, 1990) (Yosemite Wildlife Observation Database 2011). Gaines (1992) indicates Little Yosemite Valley as a “representative nesting locality.”

Golden Eagle (*Aquila chrysaetos*)

Status. California fully protected

General Distribution. Golden eagles occur across most of North America, ranging from high alpine habitats to low deserts. Nearly all nesting in the United States occurs west of the Great Plains, with the rest of the range used primarily by migrants (Palmer 1988). In California, they inhabit foothills, mountainous areas, sage-juniper flats, and desert habitats (Zeiner et al. 1990). In the Sierra Nevada, golden eagles favor grasslands and areas of shrubs or saplings, and open-canopied woodlands of young blue oaks. In late summer, they often range to above timberline (Zeiner et al. 1990). The golden eagle is a locally uncommon breeder at Yosemite.

Habitat Requirements. Golden eagles feed mostly on rabbits and rodents but may also take other mammals, birds, reptiles, and carrion. They hunt in meadows, clearings, rock outcroppings, granite shelves, fell-fields, talus, and other open or openly wooded habitats, but they avoid dense forests (Gaines 1992). They employ three main strategies to search for prey: soaring, still-hunting from a perch, and low contouring flight (Edwards 1969, Dunstan et al. 1978, Dekker 1985, Palmer 1988).

Status in Merced River Corridor. Golden eagle observations have been recorded on 273 occasions in Yosemite. Of these observations, there are 74 records from the Merced River corridor. These records span the years from 1915–2008. The majority of these observations are from locations in Yosemite

Valley. Golden eagles have also been observed near Wawona Dome (1983) and at Washburn Lake (1940), as well as in the Merced Gorge between the Valley and El Portal (Yosemite Wildlife Observation Database 2011). Nevada Fall is a representative nesting location (Gaines 1992).

Northern Harrier (*Circus cyaneus*)

Status. California species of special concern

General Distribution. The northern harrier is found as a breeding species throughout North America and Eurasia (where it is called the hen harrier). It is a long-distance migrant, and its range extends from northern South America to breeding grounds north of the Arctic Circle (Macwhirter and Bildstein 1996). Throughout its range, the northern harrier favors open areas such as grasslands, meadows, wetlands, and agricultural clearings. Northern harrier is a rarely seen migrant that passes through Yosemite.

Habitat Requirements. Northern harriers nest on the ground and in winter will roost communally on the ground. Their densest populations on the breeding grounds are typically associated with large tracts of undisturbed habitats dominated by thick vegetation growth (Apfelbaum and Seelbach 1983, Toland 1986, Kantrud and Higgins 1992). Northern harriers winter in a variety of open habitats dominated by herbaceous cover, including upland grasslands, open-habitat floodplains, and freshwater marshes (Temeles 1986, Collopy and Bildstein 1987). They typically hunt by flying low over habitats while searching for mammals and small birds (Macwhirter and Bildstein 1996).

Status in Merced River Corridor. Northern harriers observations have been recorded on 47 occasions in Yosemite. Of these observations, 19 records are from the Merced River corridor (Yosemite Wildlife Observation Database 2011). The majority of the records are from meadows in Yosemite Valley during the fall. Three records are from Wawona; two of those observations were in the same location on the same day (Wawona Meadow, August 1, 1977), and one was from 2006. The earliest documentations of northern harriers in the Valley are two records from 1926 and 1928 (Gaines 1992). Following these records is an observation of two birds from 1954. Beginning in 1977, there are records of several northern harriers per decade in the Valley through 2006 (Yosemite Wildlife Observation Database 2011).

Bald Eagle (*Haliaeetus leucocephalus*)

Status. California State endangered, California fully protected

General Distribution. Bald eagles are found throughout North America, and there are breeding populations in almost all U.S. states and Canadian provinces. Once far more numerous than they are today, bald eagle populations suffered tremendously during the 20th century due to state-enacted bounties (Robards and King 1966) and poisoning from pesticides like DDT (Buehler 2000). Stricter protection measures and a reduced exposure to environmental toxins has led to the large-scale recovery of bald eagles, a feat widely regarded as one of the most successful modern conservation efforts. Bald eagles are uncommon but occasional breeders in Yosemite.

Habitat Requirements. Bald eagles favor lakes and rivers with abundant prey (mostly fish) and large trees in which to nest. The relative paucity of bald eagle observations in Yosemite indicates that there may be insufficient fish in Yosemite rivers to support a robust eagle population. Bald eagles also compete directly with ospreys, occasionally stealing food from them. Bald eagles are regularly observed in Sierra foothill reservoirs and at lakes east of Tioga Pass; in both locations the eagles are feeding on stocked fish populations that are higher in elevation than what would naturally be present.

Status in Merced River Corridor. Bald eagle observations have been recorded on 123 occasions in Yosemite. Of those observations, 25 records are from the Merced River corridor (Yosemite Wildlife Observation Database 2011). Roughly half of the bald eagle observations in the river corridor are from areas downstream of Yosemite Valley. The first records of bald eagles in Yosemite are from Wawona (November 1957). From the late 1970s to 1992, bald eagles were documented in the river corridor at a rate of one every few years.

Peregrine Falcon (*Falco peregrinus*)

Status. California fully protected

General Distribution. Peregrine falcons can be found on nearly every ice-free landmass on earth. They will frequently migrate enormous distances; individuals from northern populations might travel 25,000 kilometers (15,530 miles) annually (White et al. 2002). In California, they breed along the coast as well as in most northern mountain ranges, including the Sierra Nevada (Polite and Pratt 1990). Peregrine falcon nests are often scrapes on ledges or cliffs, a habit they practice in the Valley on features like El Capitan and Glacier Point. The use of dichlorodiphenyltrichloroethane (DDT) as a pesticide in the mid-to-late 1900s decimated peregrine falcon populations, and as recently as 1981 there may have been as few as 39 breeding pairs in California (Monk 1981). Intensive management of peregrines falcons, including captive rearing, led to a resurgence of their populations in the last three decades. The peregrine falcon is a rare but regular breeder in Yosemite.

Habitat Requirements. Peregrine falcons will hunt in a wide variety of habitats, including meadows, woodlands, marshes, and mudflats, but typically nest on cliff ledges with expansive views (Gaines 1992). Peregrine falcons feed almost exclusively on birds, which are taken in flight. They require cliffs and ledges for cover and usually breed and hunt near water (Polite and Pratt 1990).

Status in Merced River Corridor. Peregrine falcon observations have been recorded on 118 occasions in Yosemite. Of those observations, 65 records are from the Merced River corridor (Yosemite Wildlife Observation Database 2011). The first documented peregrine sighting in Yosemite Valley was in 1940. Following this record are three observations from the summer of 1949, one of which involved two peregrines. In the 1950s and 1960s, DDT sent peregrine falcon populations plummeting all over the world. In 1972, the use of DDT was essentially banned; and in 1973, the peregrine was one of the first species to be listed under the federal ESA. By the early 1970s, peregrine falcons had all but disappeared in Yosemite. In 1978, rock climbers scaling the face of El Capitan in Yosemite Valley discovered nesting peregrine falcons; the first time in over 35 years that this species had been confirmed as breeding in the park. Since 1978, over 30 years ago, peregrine falcons have continued to recover in the park. Breeding surveys conducted in 2010 revealed eight active nests in

Yosemite, the most ever documented in one season. Yosemite has a policy of temporarily closing rock climbing routes between March and August that pass through active peregrine falcon nesting sites.

Long-Eared Owl (*Asio otus*)

Status. California species of special concern

General Distribution. The long-eared owl inhabits open and sparsely forested habitats across North America and Eurasia between 30° and 65°North latitude (Marks et al. 1994). Long-eared owls are found across most of the United States but are uncommon throughout their range. In the Sierra Nevada, this species is found from blue oak savannah up to ponderosa pine and black oak habitats, usually in association with riparian habitats. In Yosemite, they are known to nest in riparian forests and oak-conifer woodlands (Gaines 1992). Long-eared owls will also use live oak thickets and other dense stands of trees for roosting and nesting (Zeiner et al. 1990). Long-eared owl is a rare summer resident and breeder at Yosemite.

Habitat Requirements. Long-eared owls nest in riparian, oak-conifer, and eastside pine and juniper forests in the Sierra Nevada, and are associated with edges between forests and grasslands or shrublands (Gaines 1992, Marks et al. 1994, Hunting 2008). These owls might be more numerous than is known; little is known of their population status, habitat requirements, and prey in the park (Gaines 1992).

Status in Merced River Corridor. In Yosemite, little is known about the status of the long-eared owl. During one year of meadow surveys for great gray owls, long-eared owls were detected at 5 out of 15 meadows (Keane et al. 2011); none of these meadows were within the Merced River corridor. The species has been recorded on 22 different occasions in Yosemite, of which only three records are from Yosemite Valley (Yosemite Wildlife Observation Database 2011). Long-eared owls are only known to have nested in the Valley on one occasion, and that bird was shot and collected by the Grinnell/MVZ survey in 1915. Two records are from the same date and general location (Yosemite School and Leidig Meadow, October 1, 1987).

Great Gray Owl (*Strix nebulosa*)

Status. California Endangered

General Distribution. The great gray owl is a large forest owl that ranges across northern boreal and temperate forests in both North America and Eurasia. Throughout its circumpolar range, the species is considered rare. In California, great gray owls are restricted to the Sierra Nevada and southern Cascades. The core breeding distribution is centered on Yosemite and the immediately adjacent and surrounding Stanislaus, Sierra, and Sequoia National Forests (Winter 1986, Rich 2000, Keane et al. 2011). The Sierra Nevada population is the southernmost population in the world, with the closest known breeding population occurring in southern Oregon. An estimated 100 to 200 pairs of great gray owls occur in California, with a limited geographic distribution centered in Yosemite and adjacent National Forest lands in the central Sierra Nevada (Keane et al. 2011). Recent genetic work by Hull et al. (2010a) has revealed that the Yosemite population of great gray owls has been demographically isolated from other *S. nebulosa* populations for an extensive period of time, and the authors recommend designating a separate

subspecies *S. n. yosemitensis* for the Sierra Nevada lineage. Genetic diversity also was extremely low for this subspecies, which is typical of recent population bottlenecks and likely attributable to habitat loss and fragmentation (Hull et al. 2010a). Given that *S. n. yosemitensis* is essentially restricted to Yosemite and immediate environs, this park is unequivocally imperative for the conservation of this subspecies (Hull et al. 2010a). The great gray owl is a rare year-round resident and regular breeder in Yosemite.

Habitat Requirements. In the Sierra Nevada, the owls require extensive, densely vegetated wet or moist meadows margined by old-growth coniferous forest from the mixed conifer through the red fir to the lower lodgepole pine zones (Siegel and DeSante 1999) between 750 meters to 2,700 meters elevation (Greene 1995). Great gray owls breed in conifer stands with large snags and high canopy closure in the immediate vicinity of a montane meadow. The vast majority of known nesting sites have been within 250 meters of a meadow, with most averaging 150 meters from the meadow's edge (Maurer 2006, Siegel 2006). In the greater Yosemite area, great gray owls tend to nest in large, broken-topped conifer snags, particularly red fir (*Abies magnifica*) or white fir (*Abies concolor*), and in lower elevations have also been found in black oak (*Quercus kellogi*) (Greene 1995, Keane et al. 2011).

Status in Merced River Corridor. Great gray owl observations have been recorded on 204 occasions in Yosemite. Of these observations, 21 records are from the Merced River corridor. The majority of these observations were in or around Wawona Meadow, with just five observations in Yosemite Valley (Yosemite Wildlife Observation Database 2011).

California Spotted Owl (*Strix occidentalis occidentalis*)

Status. California species of concern

General Distribution. The California spotted owl ranges from the southern Cascades south throughout the entire Sierra Nevada and in the central Coast Ranges. Population density in Yosemite is higher than elsewhere in the Sierra Nevada. In Yosemite, owl density was estimated from 0.25 to 0.46 owls per square kilometer (km²) (1,000 square miles [m²]), whereas the mean density in surrounding areas in the Sierra Nevada was estimated from 0.10 to 0.21 km² (1,000 m²) (Roberts 2008). Although Roberts (2008) did not calculate home ranges, California spotted owl pairs in Yosemite [1 pair per 5.6 km² (3.48 m²)] exceeded the mean home range estimate throughout California [10.5 km² (6.52 m²)] (Zabel et al. 1992). Roberts (2008) estimated 315 spotted owl pairs in Yosemite, with 154 pairs in burned mixed-conifer forest and 161 pairs in unburned forest. Spotted owl is an uncommon year-round resident and regular breeder in Yosemite.

Habitat Requirements. The California spotted owl is strongly associated with areas of mature and old forest with thick canopy that contains many dense, old, live, and dead trees and fallen logs (Blakesley et al. 2005, Seamans 2005). Spotted owls prey mainly on small to medium-sized mammals, primarily rodents in the Sierra Nevada. It mostly consumes northern flying squirrels (*Glaucomys sabrinus*) in the higher elevations (conifer forests) and woodrats (*Neotoma* spp.) at lower elevations (burned mixed-conifer, oak woodlands, and riparian forests) and throughout southern California (Verner et al. 1992a, Roberts 2008). Downed woody debris in higher-elevation forests of the Sierra Nevada is strongly associated with underground fungi, which are important food for spotted owl prey species, such as northern flying squirrels (Davis and Gould 2008).

Status in Merced River Corridor. The Sierra Nevada offers the only extensive, nearly continuous habitat for the California spotted owl and is of critical importance for protecting this subspecies (Siegel and DeSante 1999). California spotted owl observations have been recorded on 72 occasions in Yosemite. Of these observations, 14 records are from the Merced River corridor. The first documented observation of a California spotted owl in Yosemite Valley was in 1940. Sightings of California spotted owls are sporadic in the Valley. Yosemite's wildlife observation database only contains one reference to a California spotted owl in Wawona in 1972 and one high-elevation observation at Merced Lake in 2004 (Yosemite Wildlife Observation Database 2011).

Vaux's Swift (*Chaetura vauxi*)

Status. California species of special concern

General Distribution. Vaux's swifts breed from southwestern Canada through the western United States to Mexico, Central America, and northern Venezuela. In winter, northern migrant populations of this species overlap southern residents (Bull and Collins 2007). Vaux's swifts are an uncommon breeder in Yosemite.

Habitat Requirements. Vaux's swifts require older trees and hollow snags for nesting and roosting habitat. To maintain nest and roost trees over time, both live and dead large-diameter hollow trees should be maintained, as well as green trees with some indication of decay to replace those that fall or become unsuitable (Bull and Collins 2007).

Status in Merced River Corridor. Vaux's swift observations have been recorded on 24 different occasions in Yosemite. Of these observations, five records are from the Merced River corridor (Yosemite Wildlife Observation Database 2011). They are a rare summer resident in the Merced River corridor, although Gaines (1992) suspects that Wawona Meadow is a regular nesting site for them. Furthermore, Gaines (1992) suspects that Vaux's swifts are "thinly but widely distributed" through old-growth forests with suitable nesting sites, and that the many documentations of them near meadows may not reflect the true nature of their habitat preferences.

Black Swift (*Cypseloides niger*)

Status. California species of special concern

General Distribution. Black swifts are found throughout the western United States and Canada, and as far south as Costa Rica. Despite their large range, black swift populations are poorly understood and probably small; fewer than 100 of their breeding sites have been documented (Lowther and Collins 2002). In California, their populations are focused in the central coast, the central and southern Sierra Nevada, and in the San Bernardino and San Jacinto mountains (Roberson and Collins 2008).

Habitat Requirements. In Yosemite, black swifts only nest near or behind waterfalls, although elsewhere in their range nests are found on sea cliffs or other sheer rock faces (Lowther and Collins 2002). Their primary food source during the breeding season are events of emergent winged ants, which in southern California accounts for as much as 90% of what adults feed a fledgling (Foerster 1987, Marin 1999, Rudalevige et al. 2003).

Status in Merced River Corridor. Black swifts have been observed on 32 occasions in Yosemite National Park. Of these observations, 21 records are from the Merced River corridor. Despite suitable habitat elsewhere in Yosemite, the vast majority of black swift observations in the park are in or near the main stem of the Merced River (Yosemite Wildlife Observation Database 2011). There is only one documented observation of a black swift in the Tuolumne River drainage (Hetch Hetchy Reservoir, 2001). In the 1920s, local naturalists located black swift nests near Yosemite Valley (Gaines 1992), and Grinnell and Miller (1944) indicate the Valley and other locations in Mariposa County as nesting sites. Bridalveil Fall is suspected to be one of only three sites in California where nesting populations of black swifts exceed 10 pairs (Roberson and Collins 2008). Gaines also indicates Nevada Fall as a nesting site.

Olive-Sided Flycatcher (*Contopus cooperi*)

Status. California species of special concern

General Distribution. The olive-sided flycatcher breeding range extends from Alaska across Canada south into the United States, where it occupies forested areas. In California, the general outline of its current breeding range is largely unchanged from historic range. However, local extirpations have been reported for a few areas (Marshall 1988, Raphael et al. 1988). The olive-sided flycatcher is well sampled by Breeding Bird Surveys, which show that while the species is still abundant in the state, populations declined steadily from 1968 to 2004 (Sauer et al. 2005). Likewise, migration data from Southeast Farallon Island also show significant declines over a 25-year period (1968–1992) (Pyle et al. 1994). Olive-sided flycatchers are a fairly common summer resident in Yosemite.

Habitat Requirements. Olive-sided flycatchers forage in unobstructed canopies with high perches (Altman and Sallabanks 2000). Grinnell and Miller (1944) described their foraging and singing-post perches as apical tips of snags that protrude above the surrounding canopy. Altman (1999) observed that most foraging took place from the upper third of trees or snags.

Status in Merced River Corridor. Olive-sided flycatcher observations have been recorded on 81 occasions in Yosemite. Of these observations, 15 records are from the Merced River corridor. The first recorded observations of olive-sided flycatchers in Yosemite Valley were in the 1920s. Between 1923 and 1939, there were nine observations of this species in the Valley. Four records are from the 1970s, with one of these being the sole Wawona observation. An observation at Washburn Lake from 1990 is the highest-elevation observation from the Merced River corridor (Yosemite Wildlife Observation Database 2011).

Willow Flycatcher (*Empidonax traillii*)

Status. California endangered

General Distribution. The willow flycatcher is a neotropical migrant that breeds in riparian and moist meadow willow thickets in the United States and southern Canada (American Ornithologists' Union 1983). The willow flycatcher winters from Mexico to northern South America. Currently, about half of the willow flycatcher breeding population in California occurs in the Sierra Nevada (Zeiner et al. 1990, Kus et al. 2000). Most willow flycatchers in the Sierra Nevada are found at elevations from 366 meters to 2,900 meters (1,200 feet to 9,500 feet), although most of the known willow flycatcher sites (88%)

occur at elevations between 1,200 meters and 2,400 meters (3,900 feet to 7,900 feet) (Serena 1982, Harris et al. 1988, Stafford and Valentine 1985). Willow flycatchers are a rare former breeder in Yosemite.

Habitat Requirements. As their name suggests, willow flycatchers frequent the willows found along languid streams and, to a lesser degree, within moist meadows (Gaines 1992). Deciduous trees and shrubs interspersed with open areas enhance the quality of foraging habitat. Willow flycatchers forage by either gleaning insects from vegetation while flying, or by waiting on an exposed perch and capturing insects in flight (Ettinger and King 1980, Sanders and Flett 1989).

Status in Merced River Corridor. Once a commonly observed bird in Yosemite Valley, willow flycatchers are now exceedingly rare in the park as a whole. Willow flycatcher observations have been recorded on 50 occasions in Yosemite. Of these observations, 26 records are from the Merced River corridor. The first documented observation of a willow flycatcher in Yosemite was made by the Grinnell survey in 1915. Almost all of the river corridor's willow flycatcher observations fall between 1915 and 1931 (Yosemite Wildlife Observation Database 2011). Gaines (1992) indicates that they had stopped breeding in the Valley by 1966. Two observations from the 1970s (Yosemite Valley 1974, Wawona 1977) are the most recent sightings of willow flycatchers in the river corridor, although they are still seen on rare occasions elsewhere in the park. A recent study found that willow flycatchers no longer breed in Yosemite National Park (Siegel et al. 2008)

Yellow Warbler (*Setophaga petechia*)

Status. California species of special concern

General Distribution. Breeding range of the yellow warbler extends over most of North America, and wintering range extends to northern South America. In California, yellow warblers breed over much of the state where suitable breeding habitat occurs. Some yellow warblers winter in extreme southern California. Yellow warbler is a locally common summer resident and regular breeder in Yosemite.

Habitat Requirements. Yellow warblers breed primarily in riparian woodlands from coastal, valley, and desert lowlands, up to 2,400 meters in elevation in the Sierra Nevada. Other breeding habitat types includes montane chaparral, ponderosa pine, and mixed conifer where substantial amounts of brush occur (Zeiner et al. 1990). In the Merced River corridor, they generally inhabit areas of willow and cottonwood.

Status in Merced River Corridor. Yellow warbler observations have been recorded on 53 occasions in Yosemite (Yosemite Wildlife Observation Database 2011). Of these observations, 24 records are from the Merced River corridor. The first documented observation of yellow warblers in Yosemite Valley was in 1926 (Gaines 1992). Gaines (1992) characterized the Valley and Little Yosemite Valley as representative nesting localities. In 2010, bird surveys detected 49 individual yellow warblers in Yosemite Valley and confirmed breeding based on two specific observations: (1) an adult carrying food for young and (2) recently fledged young.

Mammals

Mount Lyell Shrew (*Sorex lyelli*)

Status. California species of special concern

General Distribution. The known range of this species spans a small area of the east-central Sierra Nevada, California, including areas in and around Yosemite in Tuolumne, Mariposa, and Mono counties, at elevations of 2,100 meters–3,150 meters (6,900 feet–10,350 feet) (Grinnell 1933, Williams 1984). This shrew might possibly occur in similar habitat from Mono County to Modoc County, but the area outside its known range has not been adequately surveyed. Recent surveys by the Grinnell Resurvey Project in 2007 documented this species at the two original localities where it was recorded in the Grinnell era (upper Lyell Basin and Vogelsang Lake) (Moritz 2007). The Mount Lyell shrew was also found to have expanded its known range to the north, and to lower elevations, at Glen Aulin (2,408 meters [7,900 feet]), Kerrick Meadow (2,926 meters [9,600 feet]) and upper Return Creek in Virginia Canyon (3,018 meters [9,900 feet]). This species was found to be uncommon at each locality (Moritz 2007).

Habitat Requirements. Mount Lyell shrew specimens have been found primarily in wetland communities, near streams, in grassy areas, under willows, and in sagebrush steppe communities (Grinnell 1933, Williams 1984, Museum of Vertebrate Zoology Database 2011). This shrew requires moist soil (Ingles 1965) and uses logs, stumps, and other surface objects for cover (Grinnell and Storer 1924). This species eats insects and other invertebrates found while foraging on the ground, in stumps, and in logs (Grinnell and Storer 1924, Ingles 1965).

Status in Merced River Corridor. Surveys for the Mount Lyell shrew in and near Yosemite in 2003–2007 yielded specimens from several locations, one of which was within the Merced River corridor at Cathedral Pass in July 2007 (Museum of Vertebrate Zoology Database 2011). In addition, one male specimen was collected in July 1915 1.5 kilometer from the river corridor at the head of Lyell Canyon (Museum of Vertebrate Zoology Database 2011).

Pallid Bat (*Antrozous pallidus*)

Status. California species of special concern

General Distribution. The pallid bat is found from southern British Columbia and Montana to central Mexico and Cuba, and east to Texas, Oklahoma, and Kansas. Throughout California, the species inhabits primarily low to mid elevations, although it has been found up to 3,400 meters (11,000 feet) in the Sierra Nevada (Barbour and Davis 1969). Habitats range from desert to coniferous forest and nonconiferous woodlands. The pallid bat occurs in Yosemite, but its status is not well known. There are eight museum specimens for pallid bats for Yosemite, all from Yosemite Valley (Museum of Vertebrate Zoology Database 2011) collected between 1934 and 1940 (Pierson et al. 2006).

Habitat Requirements. This species is quite versatile in its choice of roosting sites and has been documented using tree hollows (both oak and ponderosa pine), rock crevices, caves, abandoned

mines, and other anthropogenic structures such as buildings and bridges (Barbour and Davis 1969, Hermanson and O'Shea 1983, Lewis 1996, Orr 1954, Pierson et al. 1996, Pierson et al. 2001). This species is gregarious and roosts in nursery colonies of typically between 30 and several hundred individuals. The pallid bat feeds primarily on large, flightless arthropods such as scorpions, Jerusalem crickets, cicadas, wolf spiders, and centipedes (Pierson et al. 2006). Large cerambycid beetles, particularly *Prionus californicus*, and ten-lined June beetles (*Polyphylla decemlineata*) are also major prey items (Orr 1954, Pierson et al. 2004).

Status in Merced River Corridor. The pallid bat has been detected within the Merced River corridor in Yosemite Valley and in Little Yosemite Valley, and recent acoustic surveys by park biologists in 2010 have detected the pallid bat in El Portal, Little Yosemite Valley, and along the South Fork Merced River. In Yosemite, the species shows an association with oak habitat (Rainey and Pierson 1996), mixed deciduous forest (for example, in Yosemite Valley and Wawona), and giant sequoia habitat (Pierson and Heady 1996, Rainey et al. 1992, Pierson et al. 2006). This species occurs at elevations of at least 1,890 meters (6,200 feet) in Yosemite (Pierson and Rainey 1993, 1995, Pierson et al. 2001).

Townsend's Big-Eared Bat (*Corynorhinus townsendii*)

Status. California species of special concern

General Distribution. The Townsend's big-eared bat occurs throughout the west and is distributed from the southern portion of British Columbia south along the Pacific coast to central Mexico and east into the Great Plains, with isolated populations occurring in the central and eastern United States. In California, the majority of records are from low-to-moderate elevations, although the species has been found to almost 3,000 meters (9,800 feet) in elevation. In the Sierra Nevada, maternity colonies have been found to up over 1,500 meters (5,000 feet) in elevation. The Townsend's big-eared bat is concentrated in areas with mines (particularly in the desert regions to the east and southeast of the Sierra Nevada) or caves (in the northeast portion of California and karstic regions in the Sierra Nevada and Trinity Alps) as roosting habitat (Pierson and Fellers 1998).

Habitat Requirements. The Townsend's big-eared bat feeds primarily on small moths, with over 90% of its diet composed of lepidopterans. Foraging associations include edge habitats along streams, adjacent to and within a variety of wooded habitats (Fellers and Pierson 2002, Sherwin 2005). All known nursery sites in the Sierra Nevada occur at relatively low elevations (the highest being at 1,650 meters (5,400 feet) along the Yuba River), although males have been detected much higher (Pierson et al. 2001). Szewczak et al. (1998) reported two nursery roosts in the White Mountains at elevations higher than 1,700 meters (5,500 feet).

Status in Merced River Corridor. In Yosemite, Townsend's big-eared bats have been detected at Mirror Lake (Pierson and Rainey 1993), Wawona (Pierson and Rainey 1995), and at the barium mine on U.S. Forest Service (USFS) land in El Portal. This mine is fenced and protected from disturbance. This species was detected within the Merced River corridor at two sites in Yosemite Valley in 1996 and 2004. Acoustic surveys conducted by park biologists in summer of 2010 did not detect this species within the Merced River corridor.

Spotted Bat (*Euderma maculatum*)

Status. California species of special concern

General Distribution. Although considered one of North America's rarest mammals (Zeiner et al. 1990), the spotted bat is widely distributed throughout much of the western United States, with its range extending as far north as southern British Columbia and as far south as Durango, Mexico (Pierson et al. 2006). In the Sierra Nevada, spotted bats are widely distributed in habitats ranging from desert scrub to montane coniferous forest, with acoustic detections at elevations up to 3,000 meters (9,800 feet) (Pierson et al. 2006).

Habitat Requirements. Limited information suggests that spotted bats do not roost in colonies, predominantly in crevices in high cliff faces (Wai-Ping and Fenton 1989). Surveys in the Sierra Nevada suggest that they are most abundant in areas with fractured rock (Pierson and Rainey 1996, 1998a, b). The spotted bat is capable of long distance and rapid flight, thus foraging ranges can be large. Radio-tracking studies in Arizona documented this species traveling up to 40 kilometers each night (Chambers et al. 2005). In montane habitats, the spotted bat forages over meadows, along forest edges, or in open coniferous woodland. Spotted bats feed primarily on large [(5–12 millimeter (0.20 inch–0.47 inch))] moths, particularly noctuids (Chambers and Herder 2005).

Status in Merced River Corridor. Studies conducted in Yosemite have shown that spotted bats are relatively abundant in many areas where suitable cliff-roosting habitat is prevalent. The majority of detections are from relatively open foraging settings (such as wet meadows) at lower elevations (for example, Yosemite Valley and Wawona) and from a number of sites with elevations up to 3,000 meters (9,800 feet) (Pierson and Rainey 1993, 1995, 1996, Pierson et al. 2001). Yosemite Valley had the highest population of spotted bats of any location surveyed in California (Pierson and Rainey 1995, 1996). Surveys have revealed spotted bats foraging on the north side of El Capitan Meadow, just below El Capitan, Bridalveil Meadow, Leidig Meadow, and Ahwahnee Meadow (Pierson and Rainey 1993). Pierson and Rainey (1993) suggest that spotted bats roost on or near Half Dome and El Capitan. Acoustic surveys conducted in 2010 detected this species in Yosemite Valley, Little Yosemite Valley, Merced Lake, and along the South Fork Merced River.

Western Red Bat (*Lasiurus blossevillii*)

Status. California species of special concern

General Distribution. The western red bat is broadly distributed from southern British Columbia in Canada, through much of the western United States, through Mexico and Central America, to Argentina and Chile in South America (Bolster 2005). In California, the majority of records are from the coastal areas from the San Francisco Bay Area south, plus the Central Valley and bordering foothills, with a limited number of records from southern California extending as far east as western Riverside and central San Diego Counties (Pierson et al. 2006). There are a few records from higher elevations and the east side of the Sierra Nevada (Constantine 1998, Pierson et al. 2000). Winter populations of both sexes are concentrated along the central and southern coast (Pierson et al. 1999). Grinnell (1918) suggested that western red bats in California were sexually segregated in summer, with males moving to higher elevations, a pattern more recently noted in other species (e.g., Cryan et al.

2000). Western red bats (most likely males or nonreproductive females) have been documented at elevations up to 2,500 meters (8,200 feet) in the Sierra Nevada (Pierson et al. 2000 and 2001).

Habitat Requirements. Western red bats roost on the underside of overhanging leaves. Recent studies in the Central Valley found that summering populations (and breeding females) are substantially more abundant in remnant stands of cottonwood/sycamore riparian that extend greater than 50 meters (164 feet) back from the river than they are in younger, less extensive stands (Pierson et al. 1999). Red bats forage on a number of insect taxa and fly at both canopy height and low over the ground (Shump and Shump 1982). Studies have reported diets consisting of primarily small moths, in addition to a variety of other insects, primarily *Orthoptera* (Ross 1961) but also *Homoptera*, *Coleoptera*, *Hymenoptera*, and *Diptera* (Shump and Shump 1982).

Status in Merced River Corridor. The first record of a western red bat in Yosemite was the capture of three individuals (two adult males and one nulliparous female) over the South Fork Merced River on September 16, 1998. Since then, the species has been documented acoustically at multiple localities up as high as Siesta Lake at 2,422 meters (8,000 feet) (Pierson et al. 2001). Previous acoustic detections have been obtained in association with black cottonwood in both Yosemite and Sequoia National Parks; however, acoustic surveys conducted in 2010 did not detect this species within the Merced River corridor.

Western Mastiff Bat (*Eumops perotis*)

Status. California species of special concern

General Distribution. The subspecies of western mastiff bat that occurs in North America, *E. p. californicus*, ranges from central Mexico across the southwestern United States (parts of California, southern Nevada, Arizona, southern New Mexico and western Texas) (Eger 1977, Bradley and O'Farrell 1967). The western mastiff bat is found along the west side of the Sierra Nevada, primarily at low to mid-elevations but has been detected up to 3,000 meters (9,800 feet) in the summer (Pierson et al. 2006).

Habitat Requirements. Western mastiff bats are found in a variety of habitats, from desert scrub and chaparral to montane coniferous forest. Its presence is determined by the availability of significant rock features offering suitable roosting habitat (Pierson et al. 2006). This species may forage in flocks, regularly 30 inches to 60 meters over the substrate and can forage considerable distances from their roosting sites (Siders 2005). Foraging habitats include dry desert washes, floodplains, chaparral, oak woodland, open ponderosa pine forest, grassland, agricultural areas, and high-elevation meadows surrounded by mixed-conifer forests (Siders 2005). The diet of western mastiff bats consists primarily of moths (*Lepidoptera*) but also includes beetles, crickets, and katydids (Siders 2005).

Status in Merced River Corridor. In Yosemite, western mastiff bats have been detected in Yosemite Valley in Bridalveil Meadow, El Capitan Meadow, Leidig Meadow, Cook's Meadow, Ahwahnee Meadow, Stoneman Meadow, Wosky Pond, and wetlands near Happy Isles. They were also detected in a few upland habitats east of El Capitan Meadow and Sentinel Beach Picnic Area (Pierson and Rainey 1995). A radio-telemetry study in 1996 detected a large colony in the cliffs west of Cascade Creek (Pierson 1997). Yosemite Valley has the highest population of the western mastiff bat of any

locality surveyed in California (Pierson and Rainey 1995). In addition, the species has been captured in Wawona (Pierson and Rainey 1995). Acoustic surveys conducted in 2010 detected this species in El Portal, Yosemite Valley, Little Yosemite Valley, and Merced Lake.

Sierra Nevada Snowshoe Hare (*Lepus americanus tahoensis*)

Status. California species of special concern

General Distribution. Sierra Nevada snowshoe hares inhabit the mid-elevations (914 meters to 2,133 meters [3,000 feet to 7,000 feet) of the northern and central Sierra Nevada from approximately Mount Lassen in southeastern Shasta County south through Yosemite National Park to Mono and Mariposa counties (Bolster 1998). They have also been recorded from Nevada in the general vicinity of Lake Tahoe (Hall 1946, Richardson 1954). The southern locality is north of Mammoth in Mono County (Bolster 1998). The population status of the Sierra Nevada snowshoe hare is poorly known.

Habitat Requirements. In California, the Sierra Nevada snowshoe hare is primarily found in montane riparian habitats with thickets of alders and willows, and in stands of young conifers interspersed with chaparral. The early seral stages of mixed conifer, subalpine conifer, red fir, Jeffrey pine, lodgepole pine, and aspen are likely snowshoe hare habitats, primarily along edges and especially near meadows (Orr 1940, Ingles 1965). This species' abundance is highly cyclic in parts of its range, and may be in California as well, but there is little evidence. They prefer dense cover, either in understory thickets of montane riparian habitats or in shrubby understories of young conifer habitats. The snowshoe hares' summer food primarily consists of grasses, forbs, sedges, and low shrubs (Zeiner et al. 1990). They eat needles and the bark of conifers, and leaves and green twigs of willow and alder in the winter (Wolff 1980).

Status in Merced River Corridor. Sierra Nevada snowshoe hare favor dense streamside vegetation. This species typically occurs at elevations below 2,438 meters (8,000 feet); however, its upper elevation limits are unknown. There are a number of apparent sightings from Yosemite above 2,438 meters, although these have not been verified (Yosemite Wildlife Observation Database 2011). Other unconfirmed snowshoe hare sightings within the Merced River corridor include the Merced Lake Ranger Station in 1991 and at the junction of the Merced River and Echo Creek in 1990 (Yosemite Wildlife Observation Database 2011).

Western White-Tailed Jackrabbit (*Lepus townsendii townsendii*)

Status. California species of special concern

General Distribution. The western white-tailed jackrabbit ranges from the high Sierra crest and upper east slope from the Mount Whitney region at elevations up to 3,657 meters (12,000 feet) in sagebrush, subalpine conifers, alpine dwarf-shrub, and grasslands; it is also found on flat areas east of the mountains, especially in winter.

Habitat Requirements. This species inhabits a variety of habitats, including sagebrush, perennial grasslands, alpine dwarf-shrub, and wet meadows to timberline and above, and early successional stages of a variety of conifer habitats, including lodgepole pine, yellow pine, western juniper, dwarf

juniper, red fir, and mixed conifers (Verner and Boss 1980, Williams 1986, Zeiner et al. 1990). In most of these habitats, western white-tailed jackrabbits prefer open or sparsely wooded areas with young or stunted conifers, or scattered shrubs which they use for protective cover during the day (Grinnell and Storer 1924, Verner and Boss 1980, Harris 1982). During the spring through fall, they eat grasses and a variety of herbaceous plants, including cultivated crops (as encountered) (Zeiner et al. 1990). In winter, they prefer buds, bark, and twigs of shrubs, particularly sagebrush, creambush, and small trees (Bailey 1931, Orr 1937).

Status in Merced River Corridor. Unverified sightings of western white-tailed jackrabbit within the Merced River corridor include two sightings in Little Yosemite Valley in 1974 and 1975 and a sighting near Merced Lake in 1951 (Yosemite Wildlife Observation Database 2011).

Sierra Nevada Mountain Beaver (*Aplodontia ruga californica*)

Status. California species of special concern

General Distribution. The Sierra Nevada mountain beaver is endemic and restricted to western North America. Currently seven subspecies are recognized (Dalquest and Scheffer 1945, Hall 1981), including the isolated population *A.r. californica* that extends through much of the Sierra Nevada in eastern California into the western extreme portion of Nevada (Arjo 2007). Sierra Nevada mountain beavers can be found up to 3,000 meters (9,800 feet) in elevation in portions of the Sierra Nevada; however, they are more commonly found at lower elevations in humid, densely vegetated understory areas (Feldhamer et al. 2003). Sierra Nevada mountain beavers are confined to well-vegetated, moist, cool environments and require a large daily intake of water due to their poor ability to concentrate urine and low tolerance for temperature extremes (Nungesser and Pfeiffer 1965).

Habitat Requirements. Sierra Nevada mountain beavers require abundant riparian plants for harvesting, but the species composition is relatively unimportant (Todd 1990). Good forage cover (e.g., ferns, forbs, and shrubs) as well as large amounts of small-diameter woody debris or uprooted stumps are usually found in areas selected by Sierra Nevada mountain beaver (Todd 1992, Hacker and Coblenz 1993). Willow (*Salix* sp.), alder (*Alnus* sp.), and fir (*Abies* sp.) dominate areas preferred by mountain beavers in the higher elevations of the Sierra Nevada (Arjo 2007).

Status in Merced River Corridor. Todd (1990) estimated that Sierra Nevada mountain beavers occupy approximately 200 to 550 sites in Yosemite. By extrapolating the number of Sierra Nevada mountain beaver sites to the numbers of animals, Todd (1990) estimated from 400 to 6,600 adults living in the park. Of the 41 sites Todd (1990) found occupied by mountain beaver, none fell within the Merced River corridor. Unverified sightings of Sierra Nevada mountain beaver within the corridor include the Civilian Conservation Corps (CCC) camp near El Capitan Meadow in 1993 and along the south fork of the Merced River in Wawona in 1960 (Yosemite Wildlife Observation Database 2011). Although no Museum of Vertebrate Zoology specimens have been taken from within the corridor, several were taken just outside the corridor at the head of Lyell Canyon in 1915 (Museum of Vertebrate Zoology Database 2011). More recently during the Grinnell Resurvey Project, a mountain beaver specimen was recorded from Indian Creek at Chinquapin (Moritz 2007). Mountain beaver sign

was also observed along both Lyell Fork and Maclure Creek (at elevations of 2,987 meters to 3,200 meters or 9,800 feet to 10,500 feet) during the Grinnell Resurvey Project (Moritz 2007).

Sierra Nevada Red Fox (*Vulpes vulpes necator*)

Status. California threatened

General Distribution. The Sierra Nevada red fox is one of 10 currently recognized red fox subspecies in North America (Hall 1981). *Vulpes vulpes necator* is one of three subspecies of mountain red fox, along with the foxes of the Cascade Mountains (*V. v. cascadiensis*) and the Rocky Mountains (*V. v. macroura*) (Perrine et al. 2010). The Sierra Nevada red fox has historically been found throughout high elevations of the Sierra Nevada from Tulare County northward to Sierra County, and from Mount Shasta and Lassen Peak westward to the Trinity Mountains (Trinity County) (Grinnell et al. 1937). The Sierra Nevada red fox elevation range is approximately 1,200 meters to 3,600 meters (4,000 feet to 11,800 feet); it is seldom observed below 1,500 meters (4,900 feet) and most often is seen above 2,100 meters (6,900 feet) (Grinnell et al. 1937, Perrine et al. 2010). This fox occurs at low densities, even in areas of high relative abundance (Perrine et al. 2010). Current Sierra Nevada red fox distribution and range are uncertain (CDFG 1996); until recently, the Lassen Peak region accounted for the only verified contemporary detections of mountain red fox (Kucera 1993 and 1995, Perrine and Arnold 2001, Perrine 2005). In August 2010, biologists on the Humboldt-Toiyabe National Forest detected a Sierra Nevada red fox at an automatic camera station near Sonora Pass at an elevation of 3,048 meters (10,000 feet) along the border of Tuolumne and Mono counties. Since this detection, three (and possibly five) individual Sierra Nevada red foxes have been detected within 80 miles of this area, with the lowest detection at 1,828 meters (6,000 feet).

Habitat Requirements. The Sierra Nevada red fox occupied habitats are typical of the high Sierra Nevada: high-elevation barren, conifer, and shrub habitats, montane meadows, talus slopes, subalpine woodlands, and fell-fields (Perrine et al. 2010, Grinnell et al. 1937, Ingles 1965). Possible den sites include natural cavities in talus slopes or rockslides, earthen dens, boulder piles, or even the space beneath vacant cabins (Grinnell et al. 1937, Aubry 1983). In the winter, Sierra Nevada red foxes may follow the forested edge of openings, possibly avoiding areas where they would be exposed to attack by other carnivores, while ski tracks and other packed snow may also facilitate travel (Perrine et al. 2010). Red foxes are opportunistic predators and scavengers that eat a wide variety of foods, depending on their seasonal availability, including small and medium-sized mammals, birds, insects, invertebrates, fruit, carrion, and garbage (Perrine et al. 2010).

Status in Merced River Corridor. Until recently, the last verified Sierra Nevada red fox sighting (confirmed by photograph) near Yosemite National Park occurred during the winter of 1990-1991 at the Tioga Pass Resort 2,940 m (9,645 ft) on the Inyo National Forest, just outside the park (Les Chow, NPS Inventory and Monitoring Network, pers. comm.). However, in the last few years there have been several more detections. In 2009, the CDFG began surveying high-elevation habitats in the southern Cascade and Sierra Nevada ranges for Sierra Nevada red fox with the goal of determining current red fox distribution as well as genetic make-up of existing individuals or populations. Using baited remote, motion-sensing camera stations and passive hair-snaring devices, a total of nine individual Sierra Nevada red foxes have been detected in high elevation wilderness areas in the Sierra (C. Stermer, Pers.

Comm.). In April 2012, a Sierra Nevada red fox was detected on the northern border of Yosemite National Park near Dorothy Lake in Toiyabe National Forest. Surveys targeting other carnivores, such as *Martes*, are not adequate for detecting Sierra Nevada red fox (Perrine et al. 2010). Surveys in the park targeting red fox are being proposed; however, based on previous survey and sighting data, it is unlikely that a significant red fox population exists in Yosemite National Park

California Wolverine (*Gulo gulo*)

Status. Federal candidate, California threatened

General Distribution. The California wolverine is an uncommon resident of north Coast Range mountains and the Sierra Nevada. Sightings range from Del Norte and Trinity counties east through Siskiyou and Shasta counties, and south through Tulare County (Zeiner et al. 1990). Wolverines have not been scientifically confirmed in California since the 1920s, but a remote camera sighting detected an individual wolverine in Tahoe National Forest in March 2008.

Habitat Requirements. Habitats used by the California wolverine in the southern Sierra Nevada include red fir, mixed conifer, lodgepole, subalpine conifer, alpine dwarf-shrub, barren, wet meadows, montane chaparral, and Jeffrey pine, while their elevation range in the southern Sierra Nevada is 2,000 meters to 3,400 meters (6,400 feet to 10,800 feet) (Zeiner et al. 1990). The wolverine uses caves, hollows in cliffs, logs, rock outcrops, and burrows for cover and denning, generally in denser forest stages (Zeiner et al. 1990). The wolverine may dig dens in the snow. Wolverines are hunters and scavengers and feed primarily on small mammals and carrion but might kill large snowbound prey (Grinnell et al. 1937, Ingles 1965). Wolverines have extremely large home ranges; in Montana, their yearly home range was 422 km² (156 mi²) for males and 388 km² (144 mi²) for females (Hornocker and Hash 1981).

Status in Merced River Corridor. Two California wolverine specimens were collected at the head of Lyell Canyon in 1915, just 2 kilometers from the Merced River corridor (Museum of Vertebrate Zoology Database 2011). There have been three unconfirmed sightings within the corridor; along the south fork of the Merced River in 1959, near Pohono Bridge in 1990, and near the junction of Iron Creek and the Merced River in 1959 (Yosemite Wildlife Observation Database 2011). The likelihood of these latter three sightings being legitimate is highly unlikely, however.

Pacific Fisher (*Martes pennant pacifica*)

Status. Federal candidate, California species of special concern

General Distribution. Although the historic distribution of Pacific fisher was once contiguous across California and the Pacific Northwest, including the northern Coast range, Klamath Mountains, southern Cascades, and western slope of the Sierra Nevada, the fisher has declined during the past century. Remaining populations are geographically and, in some cases, genetically isolated from one another (Grinnell et al. 1937, Zielinski et al. 1995). Pacific fisher currently occur in only two regions of the state, which are separated by over 430 kilometers: the northwest, including the northern Coast Range and Klamath Province; and the southern Sierra Nevada, including Yosemite National Park

(Zielinski et al. 1995). Yosemite lies at the northern tip of the fisher's southern range. The fisher's elevation range is approximately 1,219 meters to 2,134 meters (4,000 feet to 7,000 feet).

Habitat Requirements. The Pacific fisher is one of the most habitat-specific mammals in North America (Buskirk and Powell 1994). Fishers den and bear young in the cavities of large trees or snags and are strongly associated with mid-elevation, mature and late successional coniferous or mixed forests (Powell and Zielinski 1994, Zielinski et al. 2004a, 2004b). In particular, fisher are generally found in stands with high canopy closure, large trees and snags, large wood, large hardwoods, and multiple canopy layers. Fisher generally avoid entering open areas that have no overstory or shrub cover (Buskirk and Powell 1994), while Chow (2009) found that fisher in Yosemite prefer habitat near permanent streams. The fisher has a varied diet consisting primarily of small mammals, such as squirrels, but they also consume porcupines, birds, invertebrates, vegetation, and fruit (Powell and Zielinski 1994).

Status in Merced River Corridor. Fisher are elusive and more challenging to detect compared with other carnivores, but recent fisher surveys (2009–2011) conducted in collaboration with U.C. Berkeley have confirmed the presence of 5–8 individual fisher south of the Merced River near Chinquapin, Wawona, Mariposa Grove, and along the South Fork Merced River. Previous fisher surveys in the park conducted by Chow (2009) during 1992–1994 detected relatively few fisher despite the availability of suitable habitat and use of a combination of survey methods, including remote cameras and track plates. Chow (2009) concluded that Pacific fisher inhabit Yosemite at very low population densities. The Merced River may be one of multiple barriers currently preventing northward expansion of their range. Two fisher specimens were collected within the Merced River corridor in Yosemite Valley in 1919 and 1920 (Museum of Vertebrate Zoology Database 2011).

American Badger (*Taxidea taxus*)

Status. California species of special concern

General Distribution. American badgers are uncommon but found throughout most of California, irrespective of elevation, from the Central Valley over the Sierra Nevada east into the Great Basin. The badger is most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils (Zeiner et al. 1990).

Habitat Requirements. The American badger prefers open areas and may also frequent brushlands with little groundcover. During periods of inactivity, badgers occupy underground burrows. They frequently reuse old burrows, although some may dig a new den each night, especially in summer (Messick and Hornocker 1981). They are usually found in relatively dry grasslands and open forests (Rahme et al. 1995) and may be active at any hour but are mainly nocturnal. Badgers feed primarily on small rodents usually captured by digging out their burrows. Their main prey species includes ground squirrels, pocket gophers, kangaroo rats, prairie dogs, and mice. Badgers also eat reptiles, insects, earthworms, eggs, birds, and carrion, especially when ground squirrel populations are low (Messick and Hornocker 1981, Zeiner et al. 1990). The American badger is active all year, but it may sleep in its den for several days or weeks during severe winter weather (Nowak 2005).

Status in Merced River Corridor. Unverified American badger sightings within the Merced River corridor include the CCC Camp in El Capitan Meadow in 1993, at the Yosemite Valley Visitor Center in 1954 (Yosemite Wildlife Observation Database 2011), and in Wawona in 2004 (California Natural Diversity Database 2012).

Sierra Nevada Bighorn Sheep (*Ovis canadensis sierrae*)

Status. Federal Endangered, California Endangered, California Fully Protected

General Distribution. Sierra Nevada bighorn sheep use habitats ranging from the highest elevations along the crest of the Sierra Nevada (4,000 meters [13,120 feet]) to winter ranges at the eastern base of the range as low as 1,450 meters (4,760 feet) (USFWS 2007). The Sierra Nevada bighorn sheep population has increased from a low of 100 individuals in 1995 to more than 400 animals since the species was listed as endangered under the federal ESA in 1999. The Yosemite Recovery Unit consists of approximately 40 individuals at high elevations along the northeastern section of Yosemite.

Habitat Requirements. Habitats used by Sierra Nevada bighorn sheep include alpine dwarf-shrub, low sage, sagebrush, bitterbrush, pinyon-juniper, palm oasis, desert riparian, desert succulent shrub, desert scrub, subalpine conifer, perennial grassland, montane chaparral, and montane riparian (DeForge 1980, Monson and Sumner 1980, Wehausen 1980). Bighorn sheep use rocky, steep terrain for escape and bedding and remain near rugged terrain while feeding in open habitat (Zeiner et al. 1990). Low-elevation winter ranges provide this species an important source of high quality forage early in the growing season (USFWS 2007). They use steep, rugged slopes and canyons for lambing areas (Wehausen 1980).

Status in Merced River Corridor. Historically, bighorn sheep occupied alpine and subalpine areas along the Sierra Crest and in the Cathedral Range. It is generally believed that they seasonally migrated from the crest to winter on the eastern escarpment. Given that they occupied the Cathedral Range, it is very likely that bighorn sheep historically occupied the upper reaches of the Merced River drainage. A Museum of Vertebrate Zoology specimen was taken from the east lobe of Lyell Glacier within 1 kilometer (0.62 mile) of the Merced River corridor in October 1933. Another specimen was taken within 3 kilometers of the river corridor east of Crescent Lake near Wawona in 1921 (Museum of Vertebrate Zoology Database 2011). In 1976, a bighorn sheep was sighted near Donohue Pass, approximately 3.5 kilometers northeast of the Merced River corridor (Yosemite Wildlife Observation Database 2011). Although rams might occasionally (rarely) wander into the upper (along the crest) Merced River drainage, it is highly unlikely that bighorn sheep currently occupy the Merced River drainage (Chow, pers. comm.). In addition, bighorn sheep critical habitat (designated in 2008 by USFWS) does not occur within the Merced River corridor.

Plants

Spurred snapdragon (*Antirrhinum leptaleum*)

General Ecology and Distribution. Spurred snapdragon, an annual herb, is endemic to California and limited to the seasonally moist areas in the foothill and Sierra Nevada counties between 300 and 1,200 meters.

Habitat and Status in the Project Area. The snapdragon is restricted to small washes and shallow ditches in disturbed areas in Foresta and Wawona.

Lemmon's wild ginger (*Asarum lemmonii*)

General Ecology and Distribution. This perennial herb in the birthwort family is endemic to California and is found in yellow pine forests, red fir forests, and wetland-riparian habitats within the park between 1,100 and 1,900 meters. It occurs almost always under natural conditions in wetlands.

Habitat and Status in the Project Area. Lemmon's wild ginger occurs in shady wet places along creeks and north-facing river banks; it is found in Yosemite Valley and Wawona.

California bolandra (*Bolandra californica*)

General Ecology and Distribution. This perennial herb in the saxifrage family is endemic to California and is restricted to lower and upper montane coniferous forests within the park, in mesic areas and rocky soils. It is restricted to elevations between 2,000-3,000 meters.

Habitat and Status in the Project Area. The California bolandra occurs at Lyell Fork of the Merced River in Segment 1 of the Merced River corridor.

Threadleaf beakseed (*Bulbostylis capillaris*)

General Ecology and Distribution. Threadleaf beakseed is a monocot annual herb in the sedge family; it is native to California and occurs in yellow pine forests and wetland-riparian habitats at elevations between 1,000-2,000 meters.

Habitat and Status in the Project Area. The threadleaf beakseed occurs in meadows and seeps, meadow habitats, and vernal moist areas. It is found in Yosemite Valley (Segment 2).

Mono Hot Spring evening primrose (*Camissonia sierrae ssp. alticola*)

General Ecology and Distribution. This annual herb in the evening primrose family is endemic to California and is found in lodgepole and red fir forests (lower and upper montane coniferous forests) in granitic, gravel and sand pans. The Mono Hot Spring evening primrose is found at elevations of 2,000-2,350 meters.

Habitat and Status in the Project Area. This evening primrose is found on vernal moist gravel and sand pans and at Merced Lake in Segment 1.

Sierra suncup (*Camissonia sierrae ssp. sierrae*)

General Ecology and Distribution. This annual herb in the evening primrose family is endemic to California and is restricted to cismontane woodlands and lower montane coniferous forests at elevations between 500 and 1,300 meters.

Habitat and Status in the Project Area. The milkvetch occurs on granite gravel seepage areas within Yosemite Valley.

Buxbaum's sedge (*Carex buxbaumii*)

General Ecology and Distribution. Buxbaum's sedge is a monocot and perennial herb in the sedge family. It occurs in montane and subalpine fens. It favors wet conditions in meadow habitats at elevations between 1,200-3,300 meters.

Habitat and Status in the Project Area. Buxbaum's sedge occurs in Yosemite Valley.

Silvery sedge (*Carex canescens*)

General Ecology and Distribution. This monocot, perennial herb belongs to the sedge family and is found throughout the Sierra Nevada as well as other mid- to high-elevation sites in North America. It occurs in meadow and perennially moist areas in subalpine and alpine forests at elevations between 1,000-3,200 meters.

Habitat and Status in the Project Area. The silvery sedge is found in lake margins and drainages in wet meadows. Historic collections were taken from Wawona, where this species is commonly found (Segment 7).

Cleft sedge (*Carex fissuricola*)

General Ecology and Distribution. This perennial herb in the sedge family is native to California, but is confined to western North America. It is found in red fir and subalpine forests and wetland-riparian habitats at elevations between 1,500 and 3,500 meters.

Habitat and Status in the Project Area. This sedge occurs in meadow slopes and flats, among rocks, wet areas, and spray zones. It is found at Nevada Falls within Segment 1.

Yosemite sedge (*Carex sartwelliana*)

General Ecology and Distribution. This perennial herb in the sedge family is endemic to California and occurs in yellow pine and red fir forests, as well as wetland-riparian habitats at elevations of 1,200 to 2,600 meters.

Habitat and Status in the Project Area. This sedge is found in meadow borders and moist forest openings. It can be found at Wildcat Creek and in Segments 1, 2, 5, and 7.

Thompkins' sedge (*Carex tompkinsii*)

General Ecology and Distribution. This perennial herb in the sedge family is endemic to California and occurs in chaparral, foothill woodland, red fir forest, and yellow pine forest habitats at elevations of 1,200 to 1,800 meters.

Habitat and Status in the Project Area. It is found in canyon slopes and river bottomlands under conifer-oak woodland canopy. This species occurs in the El Portal area (Segment 4).

Bolander's woodreed (*Cinna bolanderi*)

General Ecology and Distribution. This perennial herb in the grass family is endemic to California and occurs in wetland-riparian habitat, but occasionally is found in non wetlands. It is found in elevations ranging between 1,670 to 2,440 meters.

Habitat and Status in the Project Area. Bolander's woodreed is found in montane stringer meadows and fens in Wawona and Little Yosemite Valley (Segments 7 and 1, respectively).

Narrow leaf Collinsia (*Collinsia linearis*)

General Ecology and Distribution. This annual herb in the plantain family is primarily limited to California, with some extensions into adjacent states. It is found in lower- to mid-elevation (200 to 2,000 meters) coniferous forests on rock outcrops and dry slopes. It reaches the southern extent of its range in Mariposa County.

Habitat and Status in the Project Area. Narrow leaf collinsia is found in El Portal and Wawona (Segments 4 and 7, respectively), where it is restricted to dry, metamorphic rock outcrops along the metamorphic-granitic contact zone.

Short-bracted bird's beak (*Cordylanthus rigidus ssp. brevibracteus*)

General Ecology and Distribution. Short-bracted bird's beak is an annual herb in the broomrape family and is endemic to California. It is widely distributed in the Sierra Nevada from Mariposa County southward to Kern County at elevations ranging between 1,100 to 2,500 meters.

Habitat and Status in the Project Area. This plant occurs on the north side of Yosemite Valley, where it receives full sun on dry sandy roadside habitats. Known populations occur one mile east of Cascade Creek in Segment 2 (Yosemite Valley).

Mountain lady's slipper (*Cypripedium montanum*)

General Ecology and Distribution. Mountain lady's slipper is a perennial herb in the orchid family; it is native to California and is confined to western North America in yellow pine forests, mixed evergreen forests, and wetland-riparian habitats at elevations between 200 to 2,200 meters. In the Sierra Nevada, it occurs in Tuolumne, Mariposa, and Madera Counties. It also occurs in northwestern California, the Cascade Range, southwest San Francisco Bay Area, and Modoc Plateau.

Habitat and Status in the Project Area. This herb occurs on deep humus and shade of canyon bottoms. It is found in Wawona and below Yosemite Valley.

Stream orchid (*Epipactis gigantea*)

General Ecology and Distribution. This species, a perennial herb in the orchid family, is widely distributed throughout California and North America. In Yosemite, it is restricted to moist granitic ledges and planted in landscaped areas at elevations between 1,500 to 2,600 meters.

Habitat and Status in the Project Area. This species occurs in Yosemite Valley within a number of landscaped areas. Former populations above Happy Isles were obliterated by the rockfall in 1996. Natural habitat for this species exists throughout the Valley in perennially moist, shaded areas.

Congdon's woolly-sunflower (*Eriophyllum congdonii*)

General Ecology and Distribution. This species, a native annual herb in the aster family, is endemic to California and restricted to Mariposa County. It is found on dry, mostly south-facing metamorphic and metasedimentary outcrops in chaparral and oak woodlands. It is endemic to the main stem of the Merced River canyon near El Portal and the South Fork of the Merced River downstream of Wawona at elevations between 500 to 1,900 meters.

Habitat and Status in the Project Area. Habitat for this species occurs on sunny rocky slopes next to the river in El Portal (Segment 4).

Purple fawn-lily (*Erythronium purpurascens*)

General Ecology and Distribution. This perennial herb is endemic to California and the Sierra Nevada. It grows along shaded streams and river corridors in montane coniferous forests at elevations of 1,500 to 2,700 meters.

Habitat and Status in the Project Area. This species is known from riparian corridors in the eastern end of Yosemite Valley. It was collected in the past for its showy flowers and is possibly extinct.

Northern mannagrass (*Glyceria borealis*)

General Ecology and Distribution. This perennial herb in the grass family is native to California and is also found elsewhere in North America and beyond. It occurs in yellow pine and red fir forests, as well as wetland-riparian habitats. In Yosemite, it is found in elevations ranging between 800-1,250 meters.

Habitat and Status in the Project Area. Northern managrass grows in marshes and shallow lake borders in Yosemite Valley (Segment 2).

California sunflower (*Helianthus californicus*)

General Ecology and Distribution. This perennial herb in the aster family is native to California and is confined to western North America. It occurs in foothill woodland, valley grassland, freshwater wetlands, and wetland-riparian habitats at elevations ranging between 1,600 and 2,000 meters.

Habitat and Status in the Project Area. California sunflower grows along streambanks, within meadows and freshwater marshes, seeps, and seasonally inundated areas. It occurs in Wawona (Segment 7).

Common mare's tail (*Hippuris vulgaris*)

General Ecology and Distribution. This perennial aquatic herb in the plantain family is native to California but is also found elsewhere in North America and beyond. It occurs in a variety of habitats, including yellow pine, red fir, lodgepole, and subalpine forests; foothill woodland, chaparral, valley grassland, and wetland-riparian habitats at elevations ranging between 0 to 2,600 meters. It occurs almost always under natural conditions in wetlands.

Habitat and Status in the Project Area. This species occurs within lakes, ponds, springs, rivers in Little Yosemite Valley (Segment 1).

Redray alpinegold (*Hulsea heterochroma*)

General Ecology and Distribution. This perennial herb in the aster family is native to California and elsewhere outside of California, but is confined to western North America. It occurs in chaparral and openings in yellow pine forests between 300 and 2,500 meters in elevation.

Habitat and Status in the Project Area. This species occurs in Yosemite Valley and 5 miles above Nevada Fall (Segments 2 and 1, respectively).

Western quillwort (*Isoetes occidentalis*)

General Ecology and Distribution. This fern is native to California and belongs to the quillworts family. It occurs in wetland-riparian habitats in the high Sierra Nevada, Klamath Ranges within California at elevations between 1,500 and 2,500 meters. Outside of California, it can be found in British Columbia and Colorado.

Habitat and Status in the Project Area. Western quillwort occurs in mountain lakes and rivers. In the Project Area, it is found in Segment 1 (Little Yosemite Valley).

Sierra laurel (*Leucothoe davisiae*)

General Ecology and Distribution. This shrub, a perennial in the heath family, is found slightly beyond California's boundaries and is restricted to wetland, bog, and moist habitats at elevations between 1,300 and 2,600 meters.

Habitat and Status in the Project Area. Within the Merced River corridor, Sierra laurel is found in moist, shaded drainage bottoms along creeks and rivers within Yosemite Valley (Segment 2).

Congdon's lewisia (*Lewisia congdonii*)

General Ecology and Distribution. This perennial herb in the montia family is endemic to California and occurs in chaparral, foothill woodland, red fir forest, and yellow pine forest. It is only found within Mariposa and Fresno Counties at elevations between 500 and 2,800 meters.

Habitat and Status in the Project Area. This species is known from approximately ten occurrences in the canyons of the Kings and Merced Rivers. In the Project Area, it occurs on metamorphic cliffs within lower montane coniferous forests in El Portal (Segment 3).

False pimpernel (*Lindernia dubia* var. *anagallidea*)

General Ecology and Distribution. This annual herb in the plantain family is found in freshwater wetlands and meadows at low to mid elevations (500 to 1,600 meters) in California and North America.

Habitat and Status in the Project Area. False pimpernel is found in meadow soils throughout Yosemite Valley (Segment 2) that remain moist for the duration of the plant's seasonal life span.

Tanoak (*Lithocarpus densiflorus* var. *echinoides*)

General Ecology and Distribution. Tanoak is a tree or shrub in the oak family and is native to California. It occurs on dry shady forest conditions in slope habitats at elevations ranging between 600 and 2,000 meters.

Habitat and Status in the Project Area. Tanoak occurs along the Merced River below Yosemite Valley (Segment 2) and in the El Portal area (Segment 3).

Northern bugleweed (*Lycopus uniflorus*)

General Ecology and Distribution. This perennial herb in the mint family is native to California and is also found elsewhere in North America and beyond. It occurs in freshwater wetlands and wetland-riparian habitat at elevations ranging between 1,600 and 2,000 meters.

Habitat and Status in the Project Area. Northern bugleweed occurs in moist areas, marshes, adjacent to springs, and along the Merced River banks from El Portal up to the Merced Gorge (Segments 4 and 3, respectively).

Yellow and white monkeyflower (*Mimulus bicolor*)

General Ecology and Distribution. Yellow and white monkeyflower, an annual herb from the lopseed family, is endemic to California. It occurs in foothill woodland, yellow pine forest, and chaparral habitats at elevations ranging between 360 and 2,100 meters.

Habitat and Status in the Project Area. This species occurs under vernal moist conditions, usually in non-wetlands, but occasionally found in wetlands and river bottomlands. In the Project Area, it is found in Wawona (Segment 7).

Small flowered monkeyflower (*Mimulus inconspicuus*)

General Ecology and Distribution. This annual herb in the lopseed family is endemic to California. It is restricted to wetlands and seasonally moist sites in lower montane forests and foothill woodlands in partial shade at elevations between 160 and 2,000 meters.

Habitat and Status in the Project Area. Small flowered monkeyflower occurs at the mouth of Moss Creek and also in Segments 2, 3, 7, and 8.

Cutleaf monkeyflower (*Mimulus laciniatus*)

General Ecology and Distribution. This annual herb in the lopseed family is endemic to California. It typically occurs in red fir and yellow pine forests and wetland-riparian habitats at elevations ranging between 900 and 2,000 meters.

Habitat and Status in the Project Area. Cutleaf monkeyflower occurs in chaparral, lower and upper montane coniferous forests, vernal moist seepage areas, and mesic areas with granitic substrate in Yosemite Valley (Segment 2).

Yellow-lip pansy monkeyflower (*Mimulus pulchellus*)

General Ecology and Distribution. This annual herb in the lopseed family is endemic to California and limited to Mariposa, Tuolumne, and Calaveras Counties. It is restricted to wetlands and seasonally moist sites at elevations ranging between 600 and 2,000 meters.

Habitat and Status in the Project Area. This species occurs in vernal mesic meadows and lower montane coniferous forests within Yosemite Valley (Segment 2).

Sierra sweet-bay (*Myrica hartwegii*)

General Ecology and Distribution. This perennial shrub in the wax-myrtle family is endemic to California. It is limited in occurrence to streambanks and riparian communities at low to moderate elevations (300 to 1,500 meters) in the Sierra Nevada, where it forms small thickets along the river.

Habitat and Status in the Project Area. Patchy distribution of Sierra sweet-bay occurs along the South Fork of the Merced River through Wawona as well as along tributaries to the South Fork and Big Creek near the South Entrance Station.

California bog asphodel (*Narthecium californicum*)

General Ecology and Distribution. This perennial shrub in the Nartheciaceae family and is endemic to California. It occurs along streambanks and in meadows within yellow pine, red fir, and douglas-fir forests, as well as wetland-riparian habitat. Elevation range for this species is between 700 to 2,600 meters.

Habitat and Status in the Project Area. This species occurs in fens, seeps, and adjacent to streams and waterfalls. In the Project Area, it can be found at Bridalveil Falls in Yosemite Valley (Segment 2).

Azure penstemon (*Penstemon azureus* ssp. *angustissimus*)

General Ecology and Distribution. This perennial herb in the plantain family is endemic to California and is near its southern extent in Yosemite. It is generally found in moist woodlands and open forests at lower to moderate elevations in the Sierra Nevada at elevations of 300 to 700 meters.

Habitat and Status in the Project Area. This herb is found in scattered locations in Yosemite Valley (Segment 2). It was first described from collections taken in Yosemite Valley, although that original population appears to have disappeared.

Purdy's foothill penstemon (*Penstemon heterophyllus* var. *purdyi*)

General Ecology and Distribution. This perennial herb in the plantain family is endemic to California. It is generally found under dry conditions in slope habitats of chaparral, foothill woodland, and yellow pine forest habitats. It occurs at elevations of 50 to 1,600 meters.

Habitat and Status in the Project Area. This penstemon occurs in Yosemite Valley (Segment 2).

Tansy Leafed Phacelia (*Phacelia tanacetifolia*)

General Ecology and Distribution. This annual herb in the borage family is found throughout California and is confined to western North America. It grows in seasonally moist, sandy and gravelly open areas.

Habitat and Status in the Project Area. This species occurs at scattered locations throughout Yosemite Valley at elevations of 1,000 to 2,000 meters, where it blooms and sets seed early each spring.

Whitebark pine (*Pinus albicaulis*)

General Ecology and Distribution. Whitebark pine, a tree from the pine family, is native to California. It occurs in subalpine and upper montane forests at elevations ranging between 3,000 to 3,750 meters. It is considered a keystone species and a major food source for many species of birds and mammals. Whitebark pine is rapidly declining throughout most of its range, primarily due to a combination of white pine blister rust, periodic mountain pine beetle outbreaks, fire suppression, and climate change (Natural Resources Defense Council [NRDC], 2008 and Fryer, 2002).

Habitat and Status in the Project Area. This species occurs on cold and windy, high-elevation sites in isolated stands in the subalpine zone. However, it also co-occurs with a diversity of conifers that vary by location and elevation (NRDC, 2008 and Fryer, 2002). In the Project Area, it is found in Segments 1, 2, and 5 (Merced River above Nevada Fall, Yosemite Valley, and South Fork above Wawona, respectively).

Coleman's piperia (*Piperia colemanii*)

General Ecology and Distribution. This perennial native herb is endemic to California and limited to the high North Coast Ranges, high Cascade Range, and the Sierra Nevada. It grows on sandy substrates in lower montane coniferous forests and is also found in chaparral habitat at 1,200-2,300 meters in elevation.

Habitat and Status in the Project Area. This species occurs in Little Yosemite Valley (Segment 1).

Torrey's popcornflower (*Plagiobothrys torreyi* var. *torreyi*)

General Ecology and Distribution. This annual herb in the borage family is endemic to California and occurs in Mariposa, Fresno, and Kern Counties. Suitable habitat includes meadows within yellow pine, red fir, and lodgepole pine forests, as well as subalpine forests at elevations ranging between 1,200 and 3,400 meters.

Habitat and Status in the Project Area. This herb is found within moist meadows and flats, as well as forest edges within Yosemite Valley (Segment 2).

Nuttall's pondweed (*Potamogeton epihydrus* [previously *P. ephydrus* ssp. *nuttallii*])

General Ecology and Distribution. This perennial herb in the pondweed family is native to California at elevations ranging between 400 and 1,900 meters; it occurs in the outer North Coast Ranges, high Sierra Nevada, Modoc Plateau, and elsewhere in North America.

Habitat and Status in the Project Area. Nuttall's pondweed is restricted to freshwater wetlands and wetland-riparian habitats. In Yosemite Valley (Segment 2), it can be found in freshwater marshes and tanks.

Valley oak (*Quercus lobata*)

General Ecology and Distribution. This tree is endemic to California and occurs throughout California, with the exception of eastern California and desert areas.

Habitat and Status in the Project Area. Valley oak occurs on deep soil on slopes and in valleys. It is known from a few majestic specimens in El Portal (Segment 4) at elevations of approximately 720 meters.

Wood saxifrage (*Saxifraga mertensiana*)

General Ecology and Distribution. This perennial herb in the saxifrage family is endemic to California and limited to the northern and central Sierra Nevada at elevations of 1,000 to 2,500 meters. It reaches its southern extent in Mariposa County, where it grows on mossy rocks and moist cliffs in lower to montane coniferous forests.

Habitat and Status in the Project Area. This species occurs at scattered locations in moist, shaded sites throughout Yosemite Valley (Segment 2).

Oregon saxifrage (*Micranthes oregana* (previously *Saxifraga oregana*))

General Ecology and Distribution. This perennial herb in the saxifrage family is native to California but is also found in other areas of western North America. It occurs in meadows within yellow pine, red fir, lodgepole pine, and subalpine forests, as well as wetland-riparian communities at elevations of 150 to 2,500 meters.

Habitat and Status in the Project Area. This species occurs in meadows and seeps, almost always under wet conditions, in Yosemite Valley and Little Yosemite Valley (Segments 2 and 1, respectively).

Bolander's skullcap (*Scutellaria bolanderi*)

General Ecology and Distribution. This perennial herb in the mint family is endemic to California. It is primarily found in lower montane forests in the Sierra Nevada, where it occurs in gravelly soils along streambanks and in California black oak woodlands and ponderosa pine forests at elevations between 300-2,000 meters.

Habitat and Status in the Project Area. This species is known from isolated populations scattered throughout the Wawona basin (Segment 7).

Clark's ragwort (*Senecio clarkianus*)

General Ecology and Distribution. This perennial herb in the aster family is endemic to California and occurs in red fir and lodgepole forests, as well as wetland-riparian habitats at elevations ranging between 1,400 and 2,700 meters.

Habitat and Status in the Project Area. It occurs in damp montane meadows within Wawona (Segment 7).

Small bur reed (*Sparganium natans*)

General Ecology and Distribution. This perennial herb in the Typhaceae family is native to California, but is also found elsewhere in North America and beyond. It occurs at lake margins and edges of freshwater wetlands and wetland-riparian habitats at elevations ranging between 2,000 and 2,500 meters.

Habitat and Status in the Project Area. This species is found in tributaries of the Merced River in Segments 2 and 7 (Yosemite Valley and Wawona, respectively).

Sierra bladdernut (*Staphylea bolanderi*)

General Ecology and Distribution. This tree or shrub belongs to the Staphyleaceae and is endemic to California; it occurs in canyons within chaparral, foothill woodland, and yellow pine forest communities at elevations between 240 and 1,720 meters.

Habitat and Status in the Project Area. This species occurs in shaded canyon habitats along the Merced River Canyon in El Portal and the Merced Gorge Area (Segments 4 and 3, respectively).

Narrowleaf trillium (*Trillium angustipetalum*)

General Ecology and Distribution. This perennial herb in the Melanthiaceae family is almost entirely restricted to California. It is most common in the coastal ranges of the state, but occurs in limited, small populations in the Sierra Nevada where it is found in shady areas within mature montane coniferous forests with well-developed duff and litter layers. Elevations range from 100 to 2,000 meters. This species may be at risk due to the lack of natural fire patterns, which allows an unnatural buildup of duff and litter to the exclusion of the plant, as well as overly intense fire behavior resulting in loss of root and plant materials through overheating.

Habitat and Status in the Project Area. This species is scattered over a 10-acre area along the south side of the South Fork of the Merced River in Wawona (Segment 7), near the eastern end of River Road. It also occurs in Yosemite Valley (Segment 2).

California red huckleberry (*Vaccinium parvifolium*)

General Ecology and Distribution. This shrub belongs to the heath family and is endemic to California. It occurs in canyons within redwood forest, red fir forest, and mixed evergreen forest communities at elevations between 1,400 and 2,500 meters.

Habitat and Status in the Project Area. This species prefers moist, shaded drainage bottoms along creeks and rivers. It occurs in Wawona (Segment 7).

Hall's wyethia (*Wyethia elata*)

General Ecology and Distribution. This species, a perennial herb in the aster family, is endemic to California. It is restricted to the southern Sierra Nevada foothills and lower montane forests at elevations between 1,000 and 1,400 meters and reaches the northern extent of its range in Yosemite.

Habitat and Status in the Project Area. It is found in open woodlands and forests in the Wawona basin (Segment 7).

Environmental Consequences Methodology

The impact evaluation for special status species is based on the following: (1) the known or likely occurrence of a species or its preferred habitat in the vicinity of the study area; (2) the direct physical loss or adverse modification of habitat; (3) the effective loss of habitat (through avoidance or abandonment) due to construction activity or noise, or species sensitivity to human disturbance.

Impacts on listed or candidate species will be analyzed in accordance with USFWS guidelines. Federal agencies must consult with the USFWS to ensure their actions would not jeopardize the continued existence of any federally listed or proposed threatened or endangered species, or adversely modify designated or proposed critical habitat (ESA section 7 (a) (2)).

If listed species or their critical habitat has the potential to be affected by proposed actions, the federal agency must determine if the action would have adverse impacts on species and/or critical habitats. This analysis has three possible conclusions for listed species and designated critical habitat.

1. **No Effect** – the appropriate conclusion if the project (or action) is located outside suitable habitat and there would be no disturbance or other direct, indirect, or cumulative impacts on the species. The action would not affect the listed species or its designated critical habitat.
2. **May Affect, Not Likely to Adversely Affect** – the appropriate conclusion when effects on a listed species or critical habitat are expected to be *discountable*, *insignificant*, or completely *beneficial*.
 - a. **Beneficial effects** – contemporaneous positive effects without any adverse effects.
 - b. **Insignificant effects** – relate to the size of the impact and should never reach the scale where take would occur.
 - c. **Discountable effects** – those that are extremely unlikely to occur. Based on best judgment, a person would not (1) be able to meaningfully measure, detect, or evaluate insignificant effects or (2) expect discountable effects to occur.
3. **May Affect, Likely to Adversely Affect** – the appropriate conclusion if any adverse effect may occur to listed species or critical habitat as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial.

In the case of *proposed* species or *proposed* critical habitat, the possible conclusions are:

1. **Proposed Species**
 - a. likely to jeopardize the continued existence
 - b. not likely to jeopardize the continued existence
2. **Proposed Critical Habitat**
 - a. likely to destroy or adversely modify
 - b. not likely to destroy or adversely modify

The effects analysis includes assessment of the following:

1. direct and indirect effects (including stressors and subsidies) of the action(s) under consultation, including conservation and minimization measures
2. direct and indirect effects (including stressors and benefits) of interrelated or interdependent actions
3. the effects of the action on the species when *added to* the environmental baseline and cumulative effects in the action area

Under the ESA, direct effects are those that are caused by the action(s) and occur at the time of the action(s), and indirect effects are those that are caused by the action(s) and are later in time, but are

still reasonably certain to occur. For an ongoing action, such as operation of a tidal gate, the distinction between direct and indirect effects may be difficult to finely distinguish. What is critical is that the scope of the analysis considers stressors and subsidies that occur beyond when (and where) an action initially occurs.

The NPS makes the determination of effect for the alternatives following guidance outlined in the *Endangered Species Act Consultation Handbook: Procedures for Conducting Section 7 Consultations and Conference Activities* (USFWS and NMFS 1998). Although special status species include state listed and sensitive species, park sensitive species, and species with other federal (i.e., Bureau of Land Management or Forest Service sensitive), state, or local special status, in addition to species protected under the federal ESA, impacts are determined following the same guidance. A biological assessment was presented to the USFWS in compliance with section 7 of the federal ESA in January 2000. A revised Biological Assessment, based on this *Merced River Plan/DEIS*, will be submitted to the USFWS.

In addition, the impacts on special status species were evaluated in terms of the NEPA and NPS Director's Order 12 considerations of the context, duration, intensity, and type of impacts, as defined below. This impact assessment considers the potential effects that implementation of the Merced River Plan could have on special status species. Information on habitats and species in the study area derives from the Yosemite Parkwide Vegetation Map (1997) and other studies, including the *Wildlife Conditions Assessment for the Merced River Corridor in Yosemite Valley, Yosemite National Park* (NPS 2011c), the *Special Status Wildlife Species Report for the Merced River Corridor in Yosemite National Park* (NPS 2011a), and the *Status of Rare Plants in the Merced River Corridor within Yosemite National Park* (Colwell and Taylor 2011b). Quantitative analysis was used wherever possible; however, when quantitative analysis was not feasible, qualitative analysis was used. Qualitative analysis relies substantially on professional judgment, supported by extrapolation of relevant research, where appropriate, to reach reasonable conclusions as to the context, intensity, duration, and type of potential impact.

- **Context.** The context of the impact considers whether the impact would be local, segmentwide, parkwide, or regional. For the purposes of this analysis, local impacts would be those that occur in a specific area within a segment of the Merced River. This analysis will further identify if there would be local impacts in multiple segments. Segmentwide impacts would consist of a number of local impacts within a single segment or larger-scale impacts that would affect the segment as a whole. Parkwide impacts would extend beyond the river corridor and the study area within Yosemite National Park. Regional impacts would have an influence in a Sierra-wide context. Context suggests that certain impacts depend on the setting of the proposed action. For instance, impacts that would reduce the connectivity between habitat types could be minor if such connections are abundant in a given region, moderate or major if they are not.
- **Intensity.** Impacts can be adverse or beneficial. A negligible impact means that special status species would not be affected, or effects would not be measurable. A minor impact would be detectable; both short-term and long-term impacts could potentially affect breeding success and habitat availability. Mitigation measures would be sufficient to offset minor adverse effects. A moderate impact would be readily apparent and would result in the reduction or expansion of potential habitat required to meet life requisite needs of one or more species. Mitigation would be required to offset moderate adverse impacts. A major impact would be readily apparent and would result in the direct or indirect gain or loss of occupied breeding

sites, take of individuals, or changes to habitat affecting potential for occupancy or reproductive potential. Extensive mitigation would be necessary to offset adverse effects and its success could not be guaranteed. Impacts to rare, threatened, and endangered species would be quantified where possible by determining the acreage of habitat for each species altered. The amount of each habitat type that would be directly affected would be determined by a comparative analysis of suitable habitat spatial data representing existing conditions and conditions under proposed management actions. Effects associated with habitat distribution and patch size will also be addressed quantitatively where baseline data are available to support such an analysis. Other potential direct and indirect effects to rare, threatened, and endangered species habitats, such as effects associated with invasive species or the potential for disturbance to populations due to increases in human activity, will be analyzed qualitatively.

- **Duration.** A short-term impact would have an immediate effect on native habitat, diversity, and native populations but would not cause long-term declines in populations or diversity. Short-term impacts are normally associated with transitional types of activities, such as facility construction. Long-term impacts would lead to a loss of native habitat, diversity, and species populations as exhibited by a decline in species abundance, viability, and/or survival.
- **Type.** The type of impact considers whether the impact would be beneficial or adverse. Adverse impacts are those that alter the range, location, number, or population of a species or its habitat. Beneficial impacts would improve one or more of these characteristics.

Environmental Consequences of Alternative 1 (No Action)

The following discussion provides an overview of the types of impacts to rare, threatened, and endangered species that could occur within each segment of the Merced River corridor from application of Alternative 1 (No Action).

All River Segments

Alternative 1 (No Action) would be a continuation of current conditions and management. There would be no comprehensive changes to the management of the Merced River corridor. Under Alternative 1, the NPS would retain (and potentially revise) current management policies pertaining to rare, threatened, and endangered species.

There are 50 special status plant species and 33 special status wildlife species known to occur or have the potential to occur within the Merced River Wild and Scenic River corridor in Yosemite. Tables 9-55 and 9-56 in the “Affected Environment” subsection provide information regarding species designation, habitat requirements, and potential location within the study area.

Impacts of Actions to Protect and Enhance River Values

All riprap and abandoned infrastructure within the Merced River channel and meadow floodplains would remain, which may continue to alter the free-flowing condition of the river and constrain the river from naturally migrating and changing course. Although some large wood would be left in place within the river channel, the park would continue to remove large wood where there are threats to human safety or infrastructure. This action would continue to influence habitat characteristics within

the channel, such as riffle/pool complexes, cover for aquatic species, and stability of riverbanks. These ongoing effects would be long term and negligible to those species using the aquatic habitats associated with the Merced River (California Wildlife Habitat Relationships System [WHR]: riverine); this potentially includes hardhead and western pond turtle.

Informal meadow trails would largely remain under Alternative 1 (No Action). Riparian habitat would continue to be protected at current levels. However, riverbank erosion and scouring effects associated with existing bridges would continue as well as continued visitor presence along sensitive banks of the Merced River. Conifer encroachment into meadows would continue to be managed with fire reintroduction. These ongoing effects, with the exception of managing encroaching conifers, would result in continued impacts on meadow and riparian habitats, including habitat fragmentation, reduced productivity of riparian and adjacent aquatic communities, and potential disruption of connectivity between terrestrial and aquatic habitats. These ongoing effects would be long term and negligible to those species using the meadow and riparian habitats (WHR: wet meadow, montane riparian). Special status wildlife species that may be affected by these actions over the long term include western pond turtle, northern harrier, peregrine falcon, bald eagle, harlequin duck, great gray owl, pallid bat, spotted bat, western white-tailed jackrabbit, Sierra Nevada red fox, long-eared owl, yellow warbler, willow flycatcher, Sierra Nevada mountain beaver, and western red bat.

Despite some of these ongoing impacts that would occur under Alternative 1 (No Action), the NPS would also continue restoration projects to mitigate for impacts on biological values. The NPS would also continue invasive species control where such plants are present, as well as conifer removal from some meadows. These ecological management actions would increase habitat integrity by reducing fragmentation and providing connectivity between habitat communities, reduce erosion along riverbanks, enhance habitat quality for terrestrial and aquatic wildlife, and continue to protect water quality. Thus, current ecological management actions under Alternative 1 would enhance biological values, thereby offsetting some of the adverse trends described previously. Overall, these actions would result in long-term, minor, beneficial effects on special status species throughout the Merced River corridor.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Alternative 1 (No Action) would perpetuate the kinds and amounts of visitor use that exist today. No new structures would be constructed in the river corridor under Alternative 1 except for minor structures that are small; temporary; easily removed; not habitable; designed to support existing uses, systems, and programs; located within existing building footprints; and not created solely for commercial purposes. Temporary housing for employees would continue as needed. Housing for NPS employees and park partner staff would remain in current locations and at current levels.

Many resource impacts deriving from visitor and administrative use in all segments would continue to be present. Informal trails, bicycle paths, campsites, roads, bridle paths, parking, staging areas, and trails would remain in some sensitive habitat areas, such as meadows and riparian habitat adjacent to or within the 100-year floodplain. Traffic congestion, lack of parking spaces, and improper parking adjacent to or on edges of meadows would continue to affect meadow habitats. Adverse impacts would be mitigated through continuation of current policies, including protection of natural

processes, visitor education with an emphasis on Leave-No-Trace practices, and restrictions on amounts and locations of overnight use. Thus, current visitor use and facility management actions under Alternative 1 (No Action) would result in long-term, minor, adverse impacts on special status species throughout the Merced River corridor.

Segment 1: Merced River Above Nevada Fall

Impacts of Actions to Protect and Enhance River Values

The continuation of current wilderness policies, including protection of natural processes, visitor education with an emphasis on Leave-No-Trace practices, use of the wilderness trailhead quota system, and restrictions on amounts and locations of overnight use, would protect intact natural habitats within wilderness areas, including the distribution, numbers, population composition, and interaction of special status species. The NPS would continue efforts to monitor use, eliminate inappropriate uses (such as informal trails), and restore affected sites to natural conditions. Overall, habitat for special status species in the Yosemite Wilderness within Segment 1 would remain undisturbed excluding trail corridors, as noted below, and no effect would result.

Special status wildlife habitat adjacent to trail corridors would continue to be affected by ongoing use. Habitat in lightly used alpine areas would remain relatively undisturbed. Impacts in these Wilderness areas would be very minor associated with occasional noise, human presence, and some modification to habitat from vegetation loss and soil compaction along trail corridors. In subalpine areas, site-specific impacts would result from foot and stock traffic along trail corridors. These activities would include disturbances such as noise, human presence, stock presence and impacts to habitat such as vegetation trampling, soil compaction, and manure deposition by pack stock. These actions could affect the reproductive success of some special status bird species within Segment 1, such as northern goshawk and olive-sided flycatcher. If campground and trail use continues at current levels, adverse impacts could occur at scarcer wet-meadow habitats, thereby affecting special status species associated with these habitats, such as Yosemite toad. However, as noted above, the NPS would continue to implement site-specific restoration projects to halt or reverse these adverse effects. Therefore adverse impacts on special status wildlife associated with trail use would be local, minor, and long term.

While no federally listed or state-listed plant species have been documented in Segment 1, three park-designated sensitive plant species occur or have the potential to occur in Segment 1 (California bolandra, Mono Hot Springs evening primrose, and cleft sedge). Currently, all of these species or their habitats are affected by occasional trampling. Impacts from habitat loss and competition for resources also affect these species through nonnative species encroachment. These adverse impacts would continue under Alternative 1 and be local, minor, and long-term.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Although administrative and concessioner stock (horses and mules) is typically contained in corrals and pastures away from the Merced River, special status wildlife would continue to be potentially affected from these uses (for example, by use of these areas by cowbirds). Likewise, the continued use of trails by horses and mules could increase cowbird parasitism, as well as result in runoff from trails;

runoff can affect adjacent aquatic habitats by introducing unnaturally high levels of nutrients. Horse and mule droppings could, furthermore, lead to the introduction of nonnative plant species and cause locally increased populations of insects such as flies. Habitats in the Wilderness reaches of the Merced River are generally intact, except where visitor use is intense (for example, in the vicinity of the Little Yosemite Valley Backpackers Campground, Moraine Dome Backpackers Campground, Merced Lake High Sierra Camp and Backpackers Campground, and along major trail routes). Under Alternative 1 (No Action), site-specific impacts on suitable habitat for special status wildlife species from foot and stock traffic would continue as under existing conditions. Habitats at these locations would continue to be negatively affected by existing trails and visitor and stock use. Types of adverse effects associated with continued visitor and stock use include potential introduction or spread of noxious weeds (primarily by stock), grazing, trampling, soil compaction and erosion, which could result in a loss of natural habitat structure, diversity, and productivity. Stock and/or visitor use also results in the creation of informal trails in some meadow areas, which causes habitat fragmentation, soil compaction, and potential hydrologic disruption.

The following examples describe general actions and related adverse effects that could occur in the vicinity of facilities and areas of concentrated visitor and stock use under Alternative 1. These effects are generally considered local, long-term, minor, and adverse. In all other areas of the Wilderness reaches of the main stem of the Merced River, continued use of existing facilities (e.g., trails) at a similar level of intensity would have negligible effects on rare, threatened, and endangered species.

- Trampling, grazing, or camping within meadows could have direct effects on habitat for ground-dwelling special status wildlife, including Sierra Nevada mountain beaver.
- Stock use would continue to support the local abundance of brown-headed cowbirds (a nest parasite), to the detriment of species such as willow flycatcher, olive-sided flycatcher, and yellow warbler.
- Continued concentrated visitor use along the north side of the Merced River within Little Yosemite Valley could have site-specific, adverse effects on forest communities located north of the river and may have long-term, adverse effects on habitat for northern goshawk at this location because repeated disturbances near nest trees can result in nest failure or abandonment.

The degree to which rare, threatened, and endangered wildlife species would be affected depends on individual species habitat requirements, their position relative to facilities and use, and their sensitivity to disturbance. Based on these considerations, populations of rare, threatened, and endangered wildlife species that occur in proximity to Merced Lake High Sierra Camp and Backpackers Campground, Little Yosemite Valley Backpackers Campground, Moraine Dome Backpackers Campground, and major trail routes could experience local, long-term, minor, adverse effects.

Based on these factors, adverse impacts associated with Alternative 1 (No Action) on special status species in Segment 1 would be local, long-term, and minor. Special status wildlife species that might be affected by these actions over the long term include Yosemite toad, Mount Lyell salamander, Sierra Nevada yellow-legged frog, northern goshawk, golden eagle, olive-sided flycatcher, yellow warbler, harlequin duck, California spotted owl, pallid bat, Sierra Nevada mountain beaver, spotted bat,

western mastiff bat, Sierra Nevada snowshoe hare, western white-tailed jackrabbit, Mount Lyell shrew, Pacific fisher, and Sierra Nevada red fox.

Segment 2: Yosemite Valley

Impacts of Actions to Protect and Enhance River Values

The meadow and riparian habitats within Segment 2 are highly productive, structurally diverse habitats that support high diversity of wildlife species. Existing developments, such as roads, bridges, ditches, and campgrounds, would continue to have adverse effects on rare, threatened, and endangered species where these features impose barriers to wildlife movements or alter hydrology. Under Alternative 1 (No Action), meadow size would continue to gradually decrease in some areas within Segment 2 from conifer encroachment and existing alterations to natural meadow hydrology. Riparian zones along the Merced River would continue to be adversely affected by trampling caused by undirected visitor use of the river edge. Heavy use of the riverbank in some areas would continue, causing vegetation trampling and soil compaction, which leads to riverbank erosion, damaged wildlife habitat, and river channel widening. Roads, parking lots, and other impervious surfaces in or near the river corridor could continue to release pollutants into stormwater runoff that could subsequently discharge to low-lying wetlands and the aquatic habitat of the Merced River. As described previously, the NPS would continue to implement site-specific restoration projects to halt or reverse these adverse effects. These impacts would therefore be local, minor, and adverse on special status wildlife in Segment 2 that use meadow and riparian habitats (WHR: montane riparian, wet meadow). Special status species that may be affected by these actions over the long term include western pond turtle, harlequin duck, bald eagle, peregrine falcon, long-eared owl, great gray owl, California spotted owl, black swift, willow flycatcher, yellow warbler, pallid bat, spotted bat, western red bat, and Pacific fisher.

No federally or state-listed plant species and 27 park-designated sensitive plant species inhabit or have the potential to inhabit Segment 2 (see table 9-99). Most of these species are found in areas with at least seasonally wet. Meadows maintained by high water tables that have been affected by hydrologic alterations might continue to gradually decrease in size as conifers become further established. Existing improvements, such as roads, bridges, ditches, structures, and campgrounds, would continue to indirectly affect meadow vegetation patterns. For example, roads that dissect meadows would continue to affect the hydrologic connectivity of wet meadows. These hydrological alterations would continue to influence meadow plant species composition as soil conditions trend towards drier conditions. This trend would also encourage the invasion of drier areas by nonnative plant species, with a resulting loss of native diversity and productivity. Hydrologic impacts are thus the greatest threat to the survival of most special status plant species in Yosemite Valley. However, ongoing meadow maintenance activities, including the removal of encroaching conifers, would offset some of these adverse impacts. These adverse impacts would continue under Alternative 1 and would be local, long term, and minor.

Currently, all of these species or their habitats experience impacts from occasional trampling. Nonnative species encroachment can result in habitat loss and competition for resources. These adverse impacts would continue under Alternative 1 (No Action) and would be local, long-term, and minor.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

General human-related effects on special status species within Yosemite Valley include trampling, litter, noise, night lighting, erosion, compaction, and unintentional introduction and spread of nonnative plants and wildlife. Visitor use could continue to affect habitat for rare, threatened, and endangered wildlife species in Segment 2 under Alternative 1 by compacting soils, reducing vegetative cover, altering streambanks, and inducing erosion. Modifications to the river channel and floodplain (through soil compaction, loss of riparian vegetation, and accelerated erosion) influence important stream characteristics that may combine to accelerate widening of the Merced River and alter local vegetative patterns. Trampling and visitor use could continue to adversely affect understory vegetation, introduce and spread nonnative species, and impede natural regeneration of native oaks, woody shrubs, and riparian and meadow vegetation. These impacts would be local, long term, minor, and adverse.

The following examples describe general actions and related effects that could occur to rare, threatened, and endangered species within the Valley:

- Trampling of meadows (such as at El Capitan Meadow) could have direct effects on habitat for ground-dwelling wildlife species.
- Continued high visitor use and continuation of the stables within the Valley would promote brown-headed cowbirds to the detriment of species such as yellow warbler.
- Riparian-dependent species would continue to be adversely affected by the overall amount of noise, traffic, and human presence at facilities such as North and Lower Pines campgrounds and Camp 6.
- Continued expansion of coniferous forests throughout the Valley could adversely affect wildlife species that depend more heavily on meadow and oak woodland habitats.
- Continued nonnative predation, fragmentation of aquatic and floodplain habitats, use of nonmotorized watercraft, swimming, and fishing may adversely affect western pond turtles.
- Increased human presence and human-related effects associated with the use of facilities (such as night lighting, reduction of habitat, noise, and erosion) would likely result in long-term, adverse effects on owls (e.g., great horned owl) within the Valley.
- Implementation of Alternative 1 could negatively affect the success of recolonization of species, such as willow flycatcher, now extirpated from the Valley.

Under Alternative 1 (No Action), the NPS would continue to implement existing goals and policies (e.g., the 1916 Organic Act, *Yosemite Natural Resources Management Plan*, *Yosemite Vegetation Management Plan*, *the GMP*, *Invasive Plant Management Plan*) and make incremental improvements on an ad-hoc basis as opportunities and resource problems present themselves. For example, oak

woodlands hampered by existing development and infrastructure, and these woodlands enhancement and reestablishment of would continue on a site-by-site rather than a Valleywide basis. Although substantial improvements can take place under current direction and implementation, “reactive” resource management is not always effective at protecting sensitive resources over the long term.

In general, when combined with existing habitat management programs, the ongoing adverse effects on habitat combined with continued visitor use and the foreseeable increase in visitors under Alternative 1 would result in local, long-term, minor, adverse effects on rare, threatened, and endangered species within Segment 2.

Based on these factors, adverse impacts on special status species in Segment 2 associated with Alternative 1 (No Action) would be local, long term, and minor on those species in Segment 2. Special status wildlife species that may be affected by these actions over the long term include Mount Lyell salamander, western pond turtle, harlequin duck, golden eagle, bald eagle, peregrine falcon, long-eared owl, great gray owl, California spotted owl, Vaux’s swift, black swift, olive-sided flycatcher, willow flycatcher, yellow warbler, pallid bat, Townsend’s big-eared bat, spotted bat, western red bat, western mastiff bat, and Pacific fisher.

Segments 3 and 4: Merced Gorge and El Portal

Impacts of Actions to Protect and Enhance River Values

Direct human intrusion into the majority of riparian and riverine areas of the Merced River gorge (Segment 3) is minimal because of the topography. In some areas under Alternative 1 (No Action), the riparian zone would continue to be affected by improvements, including roads and turnouts, as well as contaminated stormwater runoff, nonnative species, use of nonmotorized watercraft (and associated visitor trampling at launch and removal locations), and riprap. Roads, parking lots, and other impervious surfaces in or near the river corridor would continue to release nonpoint-source pollutants into stormwater runoff that could subsequently discharge to Merced River aquatic habitats. These ongoing adverse impacts on special status wildlife would be local, long-term, and negligible in Segments 3 and 4.

Two federally or state-listed plant species (which are also park designated) and five additional park-designated sensitive plant species occur or have the potential to occur in Segments 3 and 4 (Thompkins’ sedge, narrow leaf collinsia, Congdon’s woolly sunflower, Congdon’s lewisia, northern bugleweed, valley oak, and Sierra bladdernut). Currently, all of these species or their habitats experience impacts from occasional trampling. Impacts from habitat loss and competition for resources occur to these species from nonnative species encroachment. These adverse impacts on special status plants would continue under Alternative 1 and are considered to be local, long term, and minor.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Continued concentrated visitor use and management policies under Alternative 1 (No Action) would have local, negligible, adverse effects on oak communities and the rare, threatened, and endangered

species that use them in Segment 4. In all other areas of the Merced River gorge, human-related effects on rare, threatened, and endangered species and their habitats are expected to be negligible.

The following examples describe general actions and related adverse effects that could affect rare, threatened, and endangered species within Segment 4

- Use of the El Portal Road (and associated pollutant discharges), presence of nonnative species, and trampling (e.g., at river access sites for visitors) could have adverse effects on special status species, such as valley elderberry longhorn beetle.
- Noise and lighting associated with vehicle traffic and developed areas could adversely affect nesting habitat for California spotted owl over the long term.

In general, the ongoing effect on suitable habitat combined with continued visitor use would result in local, long-term (depending on specific effects on particular species), minor, adverse effects on rare, threatened, and endangered species within Segments 3 and 4.

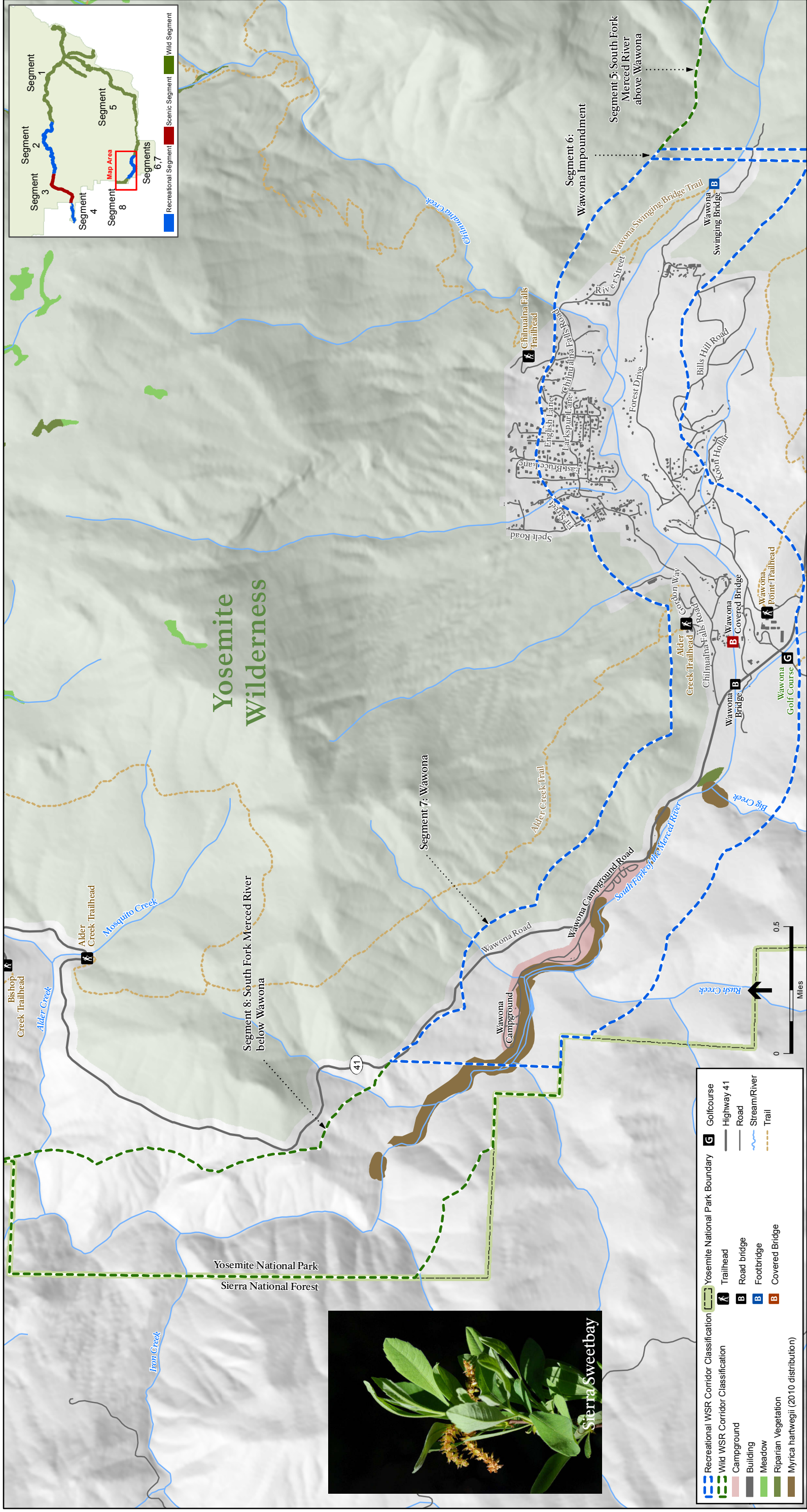
Based on these actions and effects, adverse impacts on special status species in Segments 3 and 4 associated with Alternative 1 would be local, long term, and minor. Special status wildlife species that may be affected by these actions over the long term include valley elderberry longhorn beetle, hardhead, golden eagle, long-eared owl, yellow warbler, bald eagle, harlequin duck, pallid bat, and Townsend's big-eared bat.

Segments 5– 8: South Fork Merced River

Impacts of Actions to Protect and Enhance River Values

Under Alternative 1 (No Action), continuation of current wilderness policies, including protection of natural processes, visitor education with an emphasis on Leave-No-Trace practices, and restrictions on amounts and locations of overnight use, would protect intact natural habitats, including the distribution, numbers, population composition, and interaction of special status species. In general, adverse impacts on special status species in Segments 5– 8 under Alternative 1 would be local, long term, and minor.

Of particular concern along Segments 7 and 8 is Sierra sweet bay (*Myrica hartwegii*), a regionally rare species in the Wawona area, which contributes to the outstandingly remarkable values (ORVs) in these segments (**figure 9-37**). Surveys of Sierra sweet bay in the vicinity of the Wawona Campground revealed a low level of adverse effect from human impact. The most frequent and ongoing impact is foot traffic, as informal trails are worn through its habitat along the river, and sandbars attract distributed foot traffic. These continued adverse impacts on Sierra sweet bay in the Wawona area under Alternative 1 would be local, long term, and minor.



SOURCE: NPS, 1997, 2011

Merced River Comprehensive Management Plan and EIS . 210436
Figure 9-37
 Segments 7 and 8: Sierra Sweet Bay Distribution

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Habitats along the South Fork (Segment 7)—including meadow, riparian, scrub, chaparral, and coniferous and deciduous forests—comprise a wide range of terrestrial wildlife habitats. A survey in 1998 found willow flycatcher in Segment 7, but breeding by this species along this segment has not been confirmed since. The presence of willow flycatcher is indicative of an intact meadow-riparian complex.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

No developments (other than a few trails) currently are in the upper and lower portions of the South Fork Merced River (Segments 5 and 8). Access is difficult, and visitor and stock use is low. Rare, threatened, and endangered species of plants and wildlife reported in the South Fork Merced River corridor generally occur in Wilderness portions of the corridor or relatively inaccessible habitats. The anticipated increase in overall visitors to the park also may increase pressure on relatively unused portions of the South Fork Merced River in the Wawona vicinity. Although any increases in visitor use of the upper and lower reaches of the South Fork Merced River under Alternative 1 (No Action) could adversely affect habitats, these effects would be minor because topography would continue to limit the majority of visitors that can access Segments 5 and 8.

Under Alternative 1, wildlife habitats within Segments 6 and 7 would continue to be affected by existing developments and visitor use. Potential effects on habitats that may be used by rare, threatened, and endangered wildlife species include conifer encroachment, visitor trampling, spread of nonnative species, continued use of existing development, and loss of natural drainage patterns caused by roads and hydrologic alterations. Visitor use would continue to affect some habitats of Segment 7 by compacting soils, reducing vegetative cover, altering streambanks, and inducing erosion. Roads, parking lots, and other impervious surfaces in or near the river corridor would continue to release nonpoint-source pollutants into stormwater runoff that could subsequently discharge to low-lying wetlands and the South Fork Merced River aquatic habitat. These effects would be local, long term, minor, and adverse.

While no federally listed or state-listed plants have been documented in Segment 7, 11 park-designated sensitive plant species occur or have the potential to occur in Segment 7 (spurred snapdragon, Lemmon's wild ginger, slivery sedge, Bolander's woodreed, narrow leaf collinsia, California sunflower, yellow and white monkeyflower, Sierra sweet bay, Sierra skullcap, Clark's ragwort, narrowpetal wakerobin, California red huckleberry, and Hall's mule ears). Currently, occasional trampling affects all of these species or their habitats. Impacts from habitat loss and competition for resources affect these species from non-native species encroachment. These adverse impacts would continue under Alternative 1 and would be local, long term, and minor.

Based on these actions, adverse impacts on special status species in Segments 5– 8 associated with Alternative 1 (No Action) would be local, long term, and minor. Special status wildlife species that may be affected by these actions over the long term include Yosemite toad, Mount Lyell salamander, Sierra Nevada yellow-legged frog, northern goshawk, golden eagle, long-eared owl, Vaux's swift, northern harrier, olive-sided flycatcher, yellow warbler, willow flycatcher, bald eagle, harlequin duck, great gray owl, California spotted owl, pallid bat, Sierra Nevada mountain beaver, Townsend's big-eared bat,

spotted bat, western mastiff bat, Sierra Nevada showshoe hare, western white-tailed jackrabbit, Pacific fisher, Sierra Nevada red fox, and American badger.

Summary of Alternative 1 (No Action) Impacts

Development and visitor activity in the South Fork Merced River corridor has affected rare, threatened, and endangered species. Implementation of Alternative 1 (No Action) would continue to alter natural habitat and ecosystem patterns that in turn may directly or indirectly affect some rare, threatened, and endangered species. The NPS would continue to implement existing goals and policies (for example, the 1916 Organic Act, *Yosemite Natural Resources Management Plan*, *Yosemite Vegetation Management Plan*, *General Management Plan*, and *Invasive Plant Management Plan*) and make incremental improvements on an ad-hoc basis, as opportunities and resource problems present themselves. Furthermore, the NPS would continue to implement the provisions of the federal ESA and other management policies that are directed toward the protection and recovery of rare, threatened, and endangered species.

Overall, effects on rare, threatened, and endangered species would be considered local, long term, minor, and adverse under Alternative 1 (No Action). Adverse effects would continue in some instances as visitor use increases and natural ecosystem patterns are not restored in a more comprehensive manner. These adverse effects would be concentrated in areas of heavy visitor use, such as Yosemite Valley in Segment 2. In areas of little use (e.g., a majority of the upper main stem of the Merced River [Segment 1] and the upper and lower portions of the South Fork Merced River [Segments 5–8]), continued use of existing facilities (such as trails) at a similar level of intensity would have a negligible effect on rare, threatened, and endangered species. Therefore, overall implementation of Alternative 1 would have long-term, minor, adverse effect on rare, threatened, and endangered species. Therefore, Alternative 1 may affect, but is not likely to adversely affect, special status species in the Merced River corridor, including federally listed and candidate species such as valley elderberry longhorn beetle, Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, and Pacific fisher.

Cumulative Impacts of Alternative 1 (No Action)

Cumulative effects on rare, threatened, and endangered species discussed herein are based on analysis of past, present, and reasonably foreseeable actions in the Yosemite region. The intensity of impact depends on whether the impacts are anticipated to interact cumulatively. For example, factors external to the park, such as broad regional habitat loss and pesticide use, can combine with existing, in-park impacts, such as from nonnative species, to cause declines in rare, threatened, or endangered amphibians (such as Sierra Nevada yellow-legged frog and Yosemite toad), which would be an adverse, cumulative impact. The projects identified below are those that have the potential to affect populations of rare, threatened, or endangered species (i.e., within the Merced River corridor) as well as large-scale or regional populations of the same species.

Past Actions

Natural habitats in Yosemite have been manipulated almost since the beginning of the park. Regional wildlife and vegetation patterns have been historically affected by logging, fire suppression, rangeland

clearing, grazing, mining, draining, damming, diversions, and the introduction of nonnative species. Mammal species that survive but are extremely rare are the Pacific fisher and Sierra Nevada red fox. Several bird species have probably been reduced in Yosemite Valley by visitor activity but are present in less disturbed areas of the park. Willow flycatchers no longer nest in the Valley—probably due as much to parasitism by brown-headed cowbirds as to destruction of riparian and meadow habitat. Amphibians in Yosemite have suffered population declines similar to those seen in the rest of the Sierra Nevada (Drost and Fellers 1996). Red-legged frogs likely were found in the Valley in the past but are now are presumed extirpated. Significant factors in their disappearance probably include reduction in perennial ponds and wetlands, and predation by bullfrogs. At higher elevations, Sierra Nevada yellow-legged frogs and Yosemite toads are still present in a number of areas but are severely reduced in population and range. Foothill yellow-legged frogs have disappeared completely from the park, if not the entire Sierra Nevada. Research continues to identify the causes of Sierra Nevada-wide amphibian declines; known and possible causes include habitat destruction, nonnative fish, pesticides, and diseases. Past and ongoing activities that affect rare, threatened, or endangered species include construction of dams, diversion walls, bridges, roads, pipelines, riprap, recreational use, buildings, campgrounds, and other recreational features.

In 1991, the USFS and the Bureau of Land Management developed a joint *South Fork and Merced Wild and Scenic River Implementation Plan* for the main stem Merced River and South Fork Merced River that are under their jurisdiction; this plan is also a general management plan with many prescriptive goals and few actions. The plan endeavors to limit or end consumptive uses such as grazing within the river corridor and calls for the formalization of camping and launch facilities for nonmotorized watercraft. Implementation of these actions has a beneficial effect by eliminating impacts where feasible (grazing does not currently occur within the river corridor), concentrating impacts in areas able to withstand visitor use, and providing facilities that mitigate adverse effects associated with visitor use (e.g., restrooms).

Past projects and plans that could have a cumulative effect on special status species in the Merced River Wild and Scenic corridor include the following:

Management and Restoration – *South Fork and Merced Wild and Scenic River Implementation Plan*, Cascades Diversion Dam Removal, Cook’s Meadow Ecological Restoration, Fern Springs Restoration, Happy Isles Dam Removal, Happy Isles Fen Habitat Restoration Project, Happy Isles Gauging Station Bridge Removal, Merced River Ecological Restoration at Eagle Creek Project

Present Actions

Current facility-related projects and plans that could have a cumulative effect on special status species include the following:

Facility Development – Crane Flat Utilities, *East Yosemite Valley Utilities Improvement Plan/Environmental Assessment*, Wahhoga Indian Cultural Center, Parkwide Communication Data Network, South Entrance Station Kiosk Replacement, Tioga Road Rehabilitation

Beneficial impacts of present management and restoration actions are similar to those discussed for past actions. Specific examples of present projects and plans with beneficial effects include the following:

Management and Restoration – Yosemite Vegetation Management Plan, General Ecological Restoration, 2004 Fire Management Plan/EIS, Fuels reductions/forest rehabilitation projects (USFS), Tuolumne Wild and Scenic River Comprehensive Management Plan

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions proposed in the region that could have a cumulative effect on regional special status species include:

- Changing demographics of visitors in Yosemite
- Climate change
- Concessioner Parking Lot Restoration
- Restoration of the Mariposa Grove Ecosystem
- *Yosemite Wilderness Stewardship Plan/EIS*

Planned restoration projects listed above would generally contribute towards beneficial cumulative effects to special status species by increasing the quantity and quality of affected habitats. Cumulative adverse effects are related to increased facilities, access, and regional population growth as well as changes in climate. Facility-related projects would in many cases have local, adverse effects on rare, threatened, and endangered species due to construction activities (short term) and the direct loss of habitat (long term). Increased population and visitation to the region to the over time would also contribute towards adverse effects. Regional population growth and visitation primarily affects regional rare, threatened, and endangered species through habitat loss and fragmentation due to new housing and infrastructure and use. Examples of construction- and human-use-related effects on rare, threatened, and endangered species include direct displacement of rare, threatened, and endangered species (e.g., nest trees removed and replaced with structures), introduction of nonnative species that invade into adjacent natural areas and displace native species (e.g., the spread of yellow star thistle by construction equipment and its subsequent adverse impacts on special status plant species), fragmentation of habitats, alteration of natural patterns (e.g., the introduction of night light), and increased erosion and sedimentation (e.g., during grading activities, overuse of trails). In total, regional development and growth could have a net long-term, moderate to major (depending on species-specific impacts), adverse effect on regional rare, threatened, and endangered species that would not be compensated by regional planning and restoration projects discussed above.

Changes in climate also pose a threat to several special status species, including American pika, yellow-legged frog and bighorn sheep. These species, as well as a variety of amphibians and plants, would be affected by warming temperatures through transitions in vegetation communities, changes in snow pack and runoff, and increasing competition from other species (including invasives) as habitat for competitors becomes more suitable over time.

Although past, current and proposed restoration actions would have a long-term, beneficial cumulative effect on rare, threatened, and endangered species within the Merced River corridor, throughout the Sierra Nevada and larger region, past, present, and reasonably foreseeable future actions related to increase regional growth (construction and human-use-related effects) and climate change would have

long-term, moderate to major (depending on species-specific impacts), adverse cumulative impacts on regional rare, threatened, and endangered species. While these affects would be lessened by restoration projects, they would not fully compensate the adverse effects discussed above. These cumulative actions in combination with Alternative 1 (No Action) would therefore have a net long-term, minor, adverse effect on regional rare, threatened, and endangered species.

Environmental Consequences of Actions Common to Alternatives 2–6

All River Segments

Impacts of Actions to Protect and Enhance River Values

Biological Resource Actions. The following discussion provides an overview of the types of impacts to special status species that would be common to all segments under all action alternatives. All action alternatives include general programmatic restorative management actions that would occur across all segments of the Merced River Corridor. Program level actions include the removal of underground infrastructure, removal of riprap, and the management of large wood. In order to improve the hydrologic function and restore ecological integrity, the NPS would remove abandoned underground infrastructure throughout the corridor. This infrastructure currently contributes to dewatering of meadows and wetlands, and alteration of the natural hydrologic regime of the Merced River. Removal of these facilities would have a long-term, moderate, beneficial impact on meadow, riparian, and wetland habitats. The park would implement bioengineered riverbank stabilization techniques and selective large woody debris management as appropriate to support riverbank stabilization and improve aquatic habitat complexity. All areas from which infrastructure and riprap are removed would be returned to natural conditions, including revegetating with appropriate native plants. Removal of this infrastructure and riprap would result in a local, moderate, long-term beneficial impacts on special status plant and animal species that occur in aquatic and riparian habitats.

Program level actions include the protection of the riparian zone from new development within 150 feet of the ordinary high water mark and the removal of campsites from within 100 feet of the ordinary high-water mark. The park would undertake certain measures to address ongoing habitat impacts, including those resulting from unauthorized river access points, informal trails, and conifer encroachment into meadow areas, through various restoration techniques, fencing and area closures, and visitor education and visual cues. Toward that end, the park would utilize brochures, maps, signage, and improved trail delineation techniques to direct visitors away from sensitive areas. These programmatic restoration management actions would improve hydrologic function and restore ecological integrity of the Merced River corridor and associated plant communities and wetlands, address ongoing and future impacts on park resources and infrastructure, and manage visitor use and development along the river corridor. Removing abandoned underground infrastructure, restoring informal trails, removing conifers from meadows, directing visitor use, removing riprap, and restoring free-flowing conditions along the Merced River corridor would be part of a comprehensive strategy to reduce existing adverse impacts on meadow and riparian habitats. Thus, these programmatic management measures would be expected to have a long-term, moderate, beneficial impact on special status species associated with the Merced River corridor.

Special status wildlife and their habitats may be adversely affected in the short term by the above management actions as a result of construction/removal, restoration, and monitoring activities. Potential impacts include disturbance associated with noise from construction/restoration activities, human presence, and modification to habitat. These activities could cause wildlife to relocate or avoid the area and cause breeding birds to abandon their nests or avoid using the immediate area. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird, and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, over time the actions would have long-term, moderate, beneficial impacts on special status wildlife species that use Merced River corridor habitats.

Vegetation that would need to be removed for restoration actions under Alternatives 2–6 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities along the Merced River corridor. These impacts would be local and occur within or adjacent to the river corridor. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Special status plant populations would be avoided by management activities.

Hydrologic/Geologic Resource Actions. Specific projects to protect and enhance the river’s hydrologic and geologic values that would occur across all segments under Alternatives 2-6 include removing 3,400 feet of riprap from the river bank and revegetating with riparian species, and replacing an additional 2,300 feet of riprap with bioengineered riverbank stabilization devices. Riprap placed along the banks of the Merced River inhibits the establishment of riparian vegetation. The removal of riprap and subsequent restoration of riparian habitat would result in a local, long-term, moderate, beneficial impact on native riparian plant communities.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

There would be no actions to manage visitor use and facilities applicable to Segments 1–8 under Alternatives 2–6.

Segment 1: Merced River Above Nevada Fall

Impacts of Actions to Protect and Enhance River Values

Restorative management projects that would occur within Segment 1 under Alternatives 2–6 would include measures to reduce impacts on special status species or sensitive habitats. Under Alternatives 2–6, trails in Segment 1 would either rerouted out of sensitive habitats. New trail routes would avoid wetlands and special status species habitats. Under Alternatives 2–6, the park would relocate sections of trail through wetlands in Echo Valley and a mineral spring outflow between

Merced Lake and Washburn Lake to less sensitive areas. The trail along wet sections of the Mist Trail would be hardened to avoid trail widening. Formal trails through meadows along the Triple Creek Fork cause extensive rutting and headcutting; under Alternatives 2–6, these trails would be rerouted to upland habitats where possible. Informal trails in the Merced Lake Shore Meadow, adjacent to the Merced Lake High Sierra Camp, fragment meadow plant communities, stunt vegetation lining the lakeshore, interrupt meadow hydrology, and compact soils. Under Alternatives 2–6, the park would decompact soils along informal trails at the Merced Lake Shore Meadow, fill ruts with native soils, and revegetate denuded areas with native plants.

These management actions could result in local, short-term, adverse impacts on special status wildlife from noise associated with restoration activities, human presence, and potential sedimentation of adjacent aquatic habitats. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, over time the actions would have long-term, moderate, beneficial impacts on species of special status wildlife that use high-elevation meadow habitats (WHR type: wet meadow). Special status wildlife species that may benefit from these actions over the long term include Yosemite toad, northern goshawk, peregrine falcon, pallid bat, spotted bat, Mount Lyell shrew, western white-tailed jackrabbit, and Sierra Nevada red fox.

Special status plants may be adversely affected in the short term by construction/removal, restoration, and monitoring activities associated with these management actions. Potential impacts include temporary disturbance and loss of habitat, potential loss of individual plants or populations, and the potential introduction and spread of invasive nonnative species. These impacts would be local. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Overall, restorative management actions proposed under Alternatives 2-6 would result in a local, long-term, minor, beneficial impact on special status plant species associated with meadow habitats in Segment 1.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Actions to manage visitor use and facilities applicable to Segment 1 would differ under Alternatives 2–6 and are discussed under each alternative subsection.

Segment 2: Yosemite Valley

Impacts of Actions to Protect and Enhance River Values

Actions to protect and enhance river values that would occur in Yosemite Valley under Alternatives 2-6 involve removal of abandoned infrastructure and other development affecting the Merced River's hydrologic function, extensive meadow restoration, and management of high visitor-use areas to address associated impacts on riparian habitats. The park would also restore six miles of informal trails in Yosemite Valley meadows. Removal of abandoned or obsolete infrastructures would reduce ongoing impacts on meadow hydrology and lessen channel scour. Upland restoration activities, including removal of informal trails, roadbeds, and parking areas, would improve meadow health.

Programmatic restorative management actions to improve the free-flowing condition of the river that would occur within Segment 2 under Alternatives 2–6 include in-channel improvements, such as strategically placing large wood (logjams) to lessen the scouring from bridge structures. In the river reach upstream of the El Capitan moraine to the Sentinel picnic area, local restoration would enhance channel complexity. Water quality would be improved by relocating the Upper Pines dump station. These actions would result in enhanced channel free flow, increased channel complexity, reestablish riparian habitat, increased streambank stability, and improved habitat for special status species associated with the aquatic habitats of the Merced River. Short-term, adverse impacts resulting from construction and implementation of these actions would be local, adverse and minor due to a potential increase in suspended sediments resulting from in-water restoration activities and disturbance from noise and human activities. However, overall these measures would improve the free-flowing condition of the river and restore the ecological integrity of Segment 2 aquatic and riparian habitats, resulting in beneficial effects to special status species that use the aquatic environments of the Merced River.

High visitor use along sensitive riverbanks of channels in Yosemite Valley is causing vegetation trampling and soil compaction, resulting in riparian vegetation loss, riverbank erosion, and decreased soil infiltration. In some areas, trees are getting undercut as a result of trampling around the base of the tree, leading to potential channel widening. Under Alternatives 2–6, visitors accessing the river in Segment 2 would be redirected to resilient sandbar points and sandy beaches through signs, campground maps, and brochures. Specific river access points would be designated. Parking would be relocated to more suitable areas. Picnic areas would be delineated by fencing, and river terraces would be revegetated with native riparian species. Vulnerable steep slopes and riparian habitats would be fenced off to prevent further bank erosion. Some infrastructure (toilets, parking, and picnic tables) within the 10-year floodplain would be removed. The proposed redirection of visitor uses to resilient areas away from unstable slopes and sensitive locations along riverbanks, and the associated restoration of eroded and denuded areas, would generally have a local, long-term, beneficial effect on special status species.

As summarized in the “Wildlife” section of this chapter, a base amount of 151 acres of meadow, riparian, woodland, and forest habitats would be restored in Segment 2 under Alternatives 2–6, resulting in direct benefits to fish and wildlife that use these habitat types. Thus, over time these management actions would have long-term, moderate, beneficial impacts on species of special status wildlife that use the Merced River and adjacent meadows and riparian habitats in the Valley (WHR types: riverine, wet meadow, montane riparian). Special status wildlife species that may benefit from these actions over the long term include western pond turtle, harlequin duck, bald eagle, peregrine falcon, long-eared owl, great gray owl, California spotted owl, black swift, willow flycatcher, yellow warbler, pallid bat, spotted bat, western red bat, and Pacific fisher.

Some of the specific actions that could adversely affect special status species in Segment 2 under Alternatives 2–6 include filling ditches using heavy equipment, removing encroaching conifers, relocating and/or elevating trails onto boardwalks, revegetating with willows and other native species, removing abandoned infrastructure, removing and restoring informal trails and parking areas, decompacting soils, and improving road crossings in meadows. While these actions would ultimately be a beneficial impact, construction activities associated with these actions (e.g., mechanical decompaction of soil) could have short-term, minor, adverse impacts on special status species. Removing abandoned infrastructure, decompacting soils in former parking areas or roads, removing

encroaching conifers, preparing areas for revegetation, constructing improvements at road crossings, and rerouting trails could involve the use of heavy equipment, which could disturb special status species. Using fire to keep meadows open and ecologically productive could temporarily disturb special status species. However, overall these measures would also improve the hydrologic function and restore the ecological integrity of Yosemite Valley meadows, resulting in beneficial effects in special status species in Segment 2.

Actions also include improving the condition of plant communities at specific locations in Yosemite Valley (targeted 67 potential acres) by restoring the mosaic of meadow, riparian deciduous vegetation, black oak, and open mixed conifer forest. Management actions may include re-vegetation, prescribed fire, mechanical removal of conifers, and re-design of infrastructure. These actions would enhance the condition of the Merced River ecosystem by sustaining the diverse mosaic of interconnected plant communities.

Special status wildlife and their habitats in Segment 2 may be adversely affected in the short term by construction/removal, restoration, and monitoring activities associated with these management actions. Potential impacts include disturbance associated with noise from construction/restoration activities, human presence, discharge of sediments, and modification to habitat. The use of heavy equipment would create the potential for wildlife injuries or death. These activities could cause wildlife to relocate or avoid the area and cause breeding birds to abandon their nests or avoid using the immediate area. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations, in particular, in Segment 2. With the implementation of mitigation measures such as surveying potential habitat prior to construction (see mitigation measure MM-WL-1 through MM-WL-7, as applicable; see Appendix C), (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided.

Special status plant species would be avoided during management activities. Vegetation that is removed under actions that are common to Alternatives 2–6 would not substantially fragment existing native plant communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities along the Merced River corridor in Segment 2. These impacts would be local and occur within or adjacent to the Merced River corridor. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, these measures would improve the hydrologic function and restore the ecological integrity of Yosemite Valley meadows. Associated beneficial impacts would include reduced fragmentation and disturbance of meadows, increased opportunities for revegetation and restoration, and enhanced hydrological connectivity between the meadows and the Merced River. Thus, these management actions would be expected to have a local, long-term, moderate, beneficial impact on special status plant species occurring within Segment 2.

Biological Resource Actions.

Ahwahnee Meadow: Actions common to Alternatives 2-6 to protect and enhance river values at the Ahwahnee Meadow include restoring an impacted portion of the Ahwahnee Meadow to natural meadow conditions and removing the tennis courts from black oak woodland. Currently disjunct portions of Ahwahnee Meadow would be reconnected by selectively removing conifers to return

approximately 5.65 acres of meadow habitat. Enhancing meadow connectivity would reduce meadow fragmentation and removal of the tennis courts from black oak woodland would allow for woodland habitat to be restored. Natural meadow topography would be restored by removing abandoned irrigation lines and fill, filling in ditches, and revegetating with native meadow species. Actions to restore Ahwahnee Meadow would have local, long-term, moderate, and beneficial impacts on special status species due to an increased amount of meadow and oak woodland habitat, a reduction in habitat fragmentation, and enhanced habitat function (restored topography and hydrological connectivity). Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, long-eared owl, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Yosemite Valley Campgrounds: Common to Alternatives 2-6, the NPS would remove all campsites within 100' of the bed and banks of the Merced River in all Valley campgrounds and restore riparian habitat through the removal of asphalt parking spaces, base rock, and fill material. Soils would be decompacted and topography would be recontoured to natural conditions. Native riparian plant species would be used to revegetate denuded areas. Riparian habitat protection would be achieved through redirecting visitors to more stable and resilient areas, and installation of new fencing (or adjusting existing fencing) to protect newly restored riparian zones. Restoration of the 100' buffer of floodplain and riparian habitat throughout Yosemite Valley would result in segmentwide, long-term, moderate, and beneficial impacts to special status species including long-eared owl, yellow warbler, and Townsend's big-eared bat.

El Capitan Meadow: Common to Alternatives 2-6, the NPS would reroute the climber use trail at El Capitan to an appropriate upland area east of the current location to reduce impacts to El Capitan Meadow. Additionally, informal trails through meadow and oak woodland habitat would be removed and fencing or natural barriers and signs would be installed to keep visitors from trampling on native plants. Existing culverts would be replaced and additional culverts would be installed to improve water flow from at El Capitan to Northside Drive. Encroaching conifer saplings would be removed from El Capitan Meadow. Restoration of El Capitan Meadow would result in local, long-term, minor, and beneficial impacts on special status species from reduction in trampling from foot traffic, increased hydrological connectivity, and reduced conifer encroachment into meadow habitat. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, long-eared owl, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Additional actions common to Alternatives 2-6 in Yosemite Valley include: formalizing parking and river access from the Pohono Bridge to the Diversion Dam; adding 150' of boardwalk to the west of the existing boardwalk at Sentinel Meadow; expanding fenced areas to protect wetlands on the north end of Stoneman Meadow near Lower Pines Campground; restoring 20 acres of floodplains at the western portion of former Lower Pines Campground; removal of infrastructure and restoration of an additional 30 acres at the Former Upper and Lower Pines campgrounds; removing roadside parking along Sentinel Drive and restoring to natural conditions; relocating parking from Devil's elbow to the east of the current parking lot and delineating a formal trail to access the sandbar; focusing visitor use and river access at Housekeeping Camp to two resilient beach locations on the western edge of Housekeeping Camp and across the footbridge; designating formal river access at Cathedral Beach Picnic Area and restoring riparian habitat; and filling approximately 2,155 feet of ditches throughout Valley meadows that are

currently not serving current operational needs. Over time these management actions would have long-term, moderate, beneficial impacts on special status species occurring within Segment 2.

Hydrologic/Geologic Resource Actions. Specific projects to protect and enhance the river’s hydrologic and geologic values that would occur within Segment 2 under Alternatives 2-6 include: removing the abandoned gauging station at Pohono Bridge, removing the footings and former river gauge base at Happy Isles, and restoring these areas to natural conditions. In addition engineered log jams (ELJs) would be constructed in the channel between Clark’s and Sentinel Bridges to address river widening and low channel complexity. These actions would result in enhanced channel free flow, increased channel complexity, increased streambank stability, and restored riparian habitat segment. Overall these measures would improve the free-flowing condition of the river and restore the ecological integrity of Yosemite Valley riparian habitats. Thus, this management action would be expected to have a segmentwide, long-term, moderate, beneficial impact on special status species occurring within Segment 2.

Cultural Resource Actions. Specific actions to enhance cultural resources in Segment 2 and common to Alternatives 2-6 include removing campsite 208 and bear box from the East Valley Campground. Additionally, bathroom foot traffic at this campground would be rerouted away from the milling feature and the feature would be protected by fencing. The removal of campsite 208 and rerouting of foot traffic would have long-term, local, negligible, and beneficial impacts on special status species.

Scenic Resource Actions. Specific projects to protect and enhance the river’s scenic values that would occur within Segment 2 under Alternatives 2-6 include: selectively thinning conifers and other vegetation in the vicinities of The Ahwahnee and Meadow, Bridal Veil Falls and West Valley, Cooks and Sentinel Meadows, Curry Village, El Capitan, Housekeeping Camp, Yosemite Lodge, and other areas of the Valley; restoring grassland and oak habitat in the areas of Bridalveil Straight; repairing riverbank erosion at Clark’s Bridge; and addressing informal trails and trampling at the east end of El Capitan Meadow. The trees to be removed are summarized in table 9-101. The estimated number of trees removed is organized by species and size as they are in 2012. Trees less than 6 inches diameter at breast height (DBH) can be removed in order to maintain a vista without additional compliance, and are not included in the estimates.

TABLE 9-101: MAXIMUM NUMBER OF TREES REMOVED UNDER ALTERNATIVES 2–6 IN SEGMENT 2

Species	<12 inches DBH	<20 inches DBH	<30 inches DBH	<40 inches DBH	<50 inches DBH	<60 inches DBH	<70 inches DBH	Total
Black Oak	1	1	5	0	0	0	0	7
Cedar	794	476	234	147	36	2	1	1,690
Douglas Fir	1	6	1	0	3	0	0	11
Dogwood	1	0	0	0	0	0	0	1
White Fir	49	33	34	15	5	1	0	137
Live Oak	7	3	0	0	0	0	0	10
Ponderosa	355	277	443	386	94	9	3	1,567
Red Fir	0	0	0	0	0	0	0	0
Total	1,208	796	717	548	138	12	4	3,423

As discussed in the “Wildlife” section, the removal of trees less than 20 inches DBH would have a minor to negligible effect upon special status species, as many species of special status wildlife, including special status mammals, birds, and bats, primarily occur in habitats that contain larger, more mature trees (sometimes with suitable cavities). However, removal of trees measuring more than 30 inches in DBH would have a detrimental effect to these species, especially where they are removed near larger polygons of intact, late seral stage mixed conifer habitat. As discussed in the “Wildlife” section, based upon current plans, all trees proposed for removal are located near or adjacent to areas that receive a moderate to high level of human use, are near habitat edges, and/or adjacent to existing improvements such as roadways. Therefore, these actions would result in long-term, local, minor to moderate, adverse impacts on special status wildlife, especially species that inhabit mature forest habitats.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Actions to manage visitor use and facilities within Segment 2 that would occur under each action alternative involve changes to campsites, visitor and administrative facilities, employee housing, and transportation. Under each action alternative, the park would remove or repurpose several visitor-serving facilities, such as the Curry Village Ice Rink; Happy Isles Snack Stand; Yosemite Village Store; Yosemite Lodge Post Office, Pool, and Snack Stand; and Bank Building. The park would also construct new campsites and remove campsites from the rockfall hazard zone. Concessioner employee housing within Yosemite Valley would be affected through the removal of temporary units at the Yosemite Lodge, Highland Court, Huff House, and Boys Town. New housing developments would be constructed at Huff House. Each action alternative includes actions to improve pedestrian wayfinding and access. The park would also undertake a number of transportation and parking management measures; remediation, redesign, and expansion of existing parking areas; and construction of new parking lots in other areas. While a general reduction in focused visitor use at areas near special status species or their habitats would result in a reduction of ongoing minor, adverse impacts from disturbance, trampling, and erosion, construction, removal, relocating facilities to new areas may affect suitable habitat special status species. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Construction of new facilities would have the same effects, as well as a long-term, adverse affect associated with an increase in human presence.

The use of heavy equipment would create the potential for wildlife injuries or death, specifically for small wildlife. These activities could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. New parking areas and paths under Alternatives 2–6 in Segment 2 may require some tree removal; removing potentially occupied habitats such as mature conifer and hardwood trees, hollowed-out trees, or snags could affect breeding bats or birds by removing nests or roosts and could result in the harassment of adults from active nests or roosting sites located in the vicinity. Tree removal would be minimized through site design, and, if possible, older trees and snags would be retained for habitat. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife

would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse.

Vegetation removed under Alternatives 2–6 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 2 because new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce short-term impacts to minor and adverse. Overall, these actions would result in local, long-term, minor, beneficial impacts on special status plants that occur in riparian habitats in Segment 2.

Camp 6 & Yosemite Village. Actions in the Camp 6 and Yosemite Village areas that are common to Alternatives 2-6 include the relocation of visitor vehicle services and concessioner general office functions to other buildings and the removal of the existing garage structure and concessioner general office; and transportation actions that formalize parking and public movement in the Camp 6 and Village Sport Shop area.

Construction activities associated with removing the existing garage structure and concessioner general office, as well as actions to formalize parking and public movement in the Camp 6 and Village Sport Shop area could disturb special status wildlife habitat where facilities are removed, relocated and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts from these actions would occur in ponderosa pine forest and montane riparian habitat types. Special status species that could potentially be affected by actions within these habitat types are presented in **table 9-102**.

Construction of new facilities will require some tree removal. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for special status bird species would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

TABLE 9-102: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CAMP 6 & YOSEMITE VILLAGE – ALTERNATIVES 2-6¹

Scientific Name Common Name	WHR Habitat Type Impacted	Impact Summary
Birds		
<i>Asio otus</i> Long-eared owl	Ponderosa Pine Montane Riparian	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Chaetura vauxi</i> Vaux's swift	Montane Riparian	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Contopus cooperi</i> Olive-sided flycatcher	Montane Riparian	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Setophaga petechia</i> Yellow warbler	Montane Riparian	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
Mammals		
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine Montane Riparian	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	Ponderosa Pine Montane Riparian	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine Montane Riparian	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine Montane Riparian	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in the Camp 6 and Yosemite Village areas.
SOURCE: NPS 2012c		

It is unlikely that any special status plant species occur in the Camp 6 and Yosemite Village area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Camp 6 and Yosemite Village area (Colwell and Taylor 2011b). Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Camp 6 and Yosemite Village under actions common to Alternatives 2-6.

Yosemite Lodge & Camp 4. Actions in the Yosemite Lodge and Camp 4 areas that are common to Alternatives 2-6 include the removal of temporary employee housing and the reconstruction of new housing. Under all alternatives, the NPS Volunteer Office (former Wellness Center), post office, swimming pool, and snack stand would all be removed, and the convenience shop and nature shop would be re-purposed.

Construction and removal activities at Yosemite Lodge and Camp 4 could disturb special status wildlife habitat where facilities are removed, relocated and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of developed areas, impacts from these actions occur entirely in ponderosa pine forest habitat type. Special status species that could potentially be affected by actions within this habitat type is presented in **table 9-103**.

For the same reasons discussed above for the Camp 6 and Yosemite Village areas, actions common to Alternatives 2-6 at Yosemite Lodge and Camp 4 would result in local, short-term, minor, adverse impacts to special status wildlife species.

It is unlikely that any special status plant species occur in the Yosemite Lodge and Camp 4 area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Yosemite Lodge and Camp 4 p area (Colwell and Taylor 2011b). Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Yosemite Lodge and Camp 4 under actions common to Alternatives 2-6.

Segments 3 and 4: Merced Gorge and El Portal

Impacts of Actions to Protect and Enhance River Values

To protect and enhance river values within the Merced River gorge and El Portal, the Park would remove informal trails, nonessential roads, fill materials, and abandoned infrastructure throughout Segments 3 and 4. The Odger's fuel storage facility would be removed and the area restored. It would also develop best management practices for revetment construction and repair throughout the Merced River corridor. Valley oaks would be protected in El Portal through best management practices related to invasive species removal, overwatering, tree pruning, and protecting the ground surface within the dripline of oaks (mitigation measures MM-GEO-1 and MM-VEG-2, as applicable; see Appendix C). These restorative actions could result in local, short-term, negligible adverse impacts on special status wildlife within the adjacent riparian habitat, including noise associated with construction-related activities; ground disturbance; human presence; increases in sedimentation; and potential for

TABLE 9-103: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT YOSEMITE LODGE AND CAMP 4 – ALTERNATIVES 2-6

Scientific Name Common Name	WHR Habitat Type Impacted	Impact Summary
Birds		
<i>Asio otus</i> Long-eared owl	Ponderosa Pine	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
Mammals		
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Corynorhinus townsendii</i> Townsend’s big-eared bat	Ponderosa Pine	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in the Yosemite Lodge and Camp 4 areas.
SOURCE: NPS 2012c		

incidental spills to reach aquatic habitats (including the Merced River). Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, implementation of these restorative actions would restore the 100-year floodplain and associated riparian community, improve hydrological connectivity to the river, and improve habitat for riparian-dependent species.

As summarized in the “Wildlife” section of this chapter, a total of 12 acres of montane riparian and valley oak woodland habitat would be restored in Segment 4 under Alternatives 2–6, resulting in direct benefits to wildlife that use these habitat types. Thus, these restorative actions would be expected to have a local, long-term, minor, beneficial impact on special status wildlife species that use riparian habitats in El Portal (WHR: montane riparian). Special status wildlife species that may benefit from these actions over the long term include valley elderberry longhorn beetle, western pond turtle, long-eared owl, yellow warbler, and western red bat.

Biological resource surveys have identified suitable habitat (elderberry shrubs) in the El Portal area for valley elderberry longhorn beetle. Actions in the El Portal area (Segment 4) include the restoration of the Greenemeyer sand pit and the restoration of riverside habitat in Abbieville and the Trailer Village. The NPS would avoid all impacts within 100-feet of elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level when implementing these common to all restoration actions. If these actions were to result in unanticipated direct or indirect impacts on valley elderberry longhorn beetle habitat, the NPS would implement avoidance and mitigation measures outlined in the 1999 USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (mitigation measure MM-WL-4, as applicable; see Appendix C).

Vegetation removed under Alternatives 2–6 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 4. New construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce short-term impacts to minor and adverse. Overall, these actions would result in local, long-term, minor, beneficial impacts on special status plants that occur in riparian habitats in Segment 4.

Biological Resource Actions. Specific projects to protect and enhance the river’s biological values that would occur within Segment 4 under Alternatives 2-6 include removing development, asphalt and imported fill from the Abbieville and Trailer Village areas. The areas would be recontoured and planted with native riparian species and oaks within the 150 foot riparian buffer. The Greenemeyer Sandpit contains fill material that precludes natural flooding and regeneration of riparian plant communities. Under Alternatives 2-6 the Greenemeyer Sandpit would be restored to natural conditions. Fill material would be removed and the topography recontoured. Native riparian vegetation would be planted to restore the natural vegetation for the site. Off-street roadside parking areas between Foresta Road and the Merced River would be formalized. These restoration management actions would improve hydrologic function and restore ecological integrity of the Merced River corridor in Segment 4 and associated plant communities and wetlands. Over time these management actions would have long-term, moderate, beneficial impacts on special status species occurring within Segment 4.

Scenic Resource Actions. Specific projects to protect and enhance the river’s scenic values that would occur within Segment 3 under Alternatives 2-6 include: selectively thinning conifers in the area of the Cascade Falls viewpoint. The trees to be removed are summarized in **table 9-104**. The estimated number of trees removed is by species and size as they are in 2012. Trees less than 6 inches DBH can be removed in order to maintain a vista without additional compliance, and are not included in the estimates.

TABLE 9-104: MAXIMUM NUMBER OF TREES REMOVED COMMON TO ALTERNATIVES 2–6 IN SEGMENT 3

Species	<12 inches DBH	<20 inches DBH	<30 inches DBH	<40 inches DBH	<50 inches DBH	<60 inches DBH	<70 inches DBH	Total
Cedar	6	0	0	1	0	0	0	7
Live Oak	0	1	0	0	0	0	0	1
Ponderosa	1	1	1	0	0	0	0	3
Red Fir	3	0	0	0	0	0	0	3
Total	10	2	1	1	0	0	0	14

Because most trees removed are small in size, their contribution to wildlife habitat is not as significant as larger trees within a mature forest setting. Many terrestrial mammals, birds, and bat species prefer larger trees (sometimes with suitable cavities) for shelter, nesting, and foraging. In addition, the number of trees removed is small. Thus, the specific action to selectively remove trees would result in local, long-term, and negligible adverse impacts on special status wildlife.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Under Alternatives 2–6, the Park would construct infill housing in El Portal Village Center. All housing redevelopment in this area will be outside the 100-year floodplain. All other redevelopment will be outside the 150-foot riparian buffer. The introduction of additional housing in Segment 4 would result in a minor increase in human presence, thereby resulting in long-term, minor, adverse effect on some species of special status wildlife. In addition, construction activities would have several short-term effects.

The use of heavy equipment would create the potential for wildlife injuries or death, specifically for small wildlife. These activities could cause wildlife to relocate or avoid the construction area and could cause breeding birds to abandon their nests or avoid using the immediate area. New construction under Alternatives 2–6 may require removal of some trees; removal of potentially occupied habitats such as mature conifer and hardwood trees, hollowed-out trees, or snags could affect breeding bats or birds by removing nests or roosts and could result in the harassment of adults from active nests or roosting sites located in the vicinity. Tree removal would be minimized through site design, and, if possible, older trees and snags would be retained for habitat. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse.

Biological resource surveys have identified suitable habitat (elderberry shrubs) in the El Portal area for valley elderberry longhorn beetle. Approximately 124 elderberry plants of a size sufficient to support the Valley elderberry longhorn beetle occur in areas of potential development or management

activities in El Portal. Valley elderberry longhorn beetle exit holes that verify beetle activity were found in 11 of these elderberry plants, though beetle larvae could still be present in elderberry plants without exit holes. Actions in Segment 4, including moving temporary housing units to El Portal and development at the Abbeville and Trailer Village, would result in potential indirect or direct impacts on elderberry shrubs, including removal of shrubs. Approximately 37 elderberry plants were documented within potential areas of ground disturbance, seven with exit holes. Complete impact avoidance would not be possible for these plants. The infill in El Portal would affect up to nine elderberry shrubs with stems greater than one inch in diameter. The development at Abbeville would affect up to 16 shrubs, while the development at Trailer Village would affect up to 12 shrubs. Direct or indirect impacts on valley elderberry longhorn beetle habitat would result in local, long-term, minor, adverse impacts on this beetle species. If these actions were to result in direct or indirect impacts on valley elderberry longhorn beetle habitat, the NPS would implement avoidance and mitigation measures outlined in the 1999 USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (mitigation measure MM-WL-4, as applicable; see Appendix C).

Vegetation removed under Alternatives 2–6 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 4 because new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce short-term impacts to minor and adverse.

Segment 5– 8: South Fork Merced River

Impacts of Actions to Protect and Enhance River Values

Actions to protect and enhance river values that would occur within segments 6 and 7 under Alternatives 2–6 include measures to maintain river flows, manage campground waste, and protect cultural resources. The park would improve Wawona Campground wastewater and refuse management and facilities, remove abandoned infrastructure, and undertake numerous site-specific management measures to counteract or minimize ongoing impacts on cultural resources. Abandoned metal pipes in side channels on the South Fork Merced River causes dewatering of the floodplain terrace adjacent to the river. This infrastructure affects the natural hydrologic regime of the river. Under Alternatives 2–6, abandoned metal pipes would be removed. The South Fork Wawona Picnic Area, Wawona Store Picnic Area, and Wawona Swinging Bridge receive high levels of use. There are no formal river access points at either site, and visitors access the river by creating informal trails, thus causing loss of riparian vegetation and riverbank erosion. Under Alternatives 2–6, formal access points to the river would be established. This would help reduce impacts on riparian habitat and erosion. These actions would result in local, short-term, adverse impacts on wildlife associated with abandonment, construction and restoration activities (i.e., noise, ground disturbance, and human presence). Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse.

As summarized in the “Wildlife” section of this chapter, a total of three acres of montane riparian habitat would be restored in Segment 7 under Alternatives 2–6 from moving improvements away from the riparian zone, resulting in direct benefits to fish and wildlife that use these habitat types. Therefore, the action would restore habitat and in the long term and would provide local, long-term, minor, beneficial impacts on special status wildlife species that use the Merced River and adjacent riparian habitats in Wawona (WHR: riverine, montane riparian). Special status wildlife species that may benefit from restoration of riparian habitat actions over the long term include western pond turtle, harlequin duck, long-eared owl, and yellow warbler.

Special status plants may be adversely affected in the short term by construction, removal, restoration, and monitoring activities associated with management actions proposed in Segment 7. Potential impacts include temporary disturbance and loss of habitat, potential loss of individual plants or populations, and the potential introduction and spread of invasive nonnative species. These impacts would be local. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Overall, restoration management actions would result in a local, long-term, minor, beneficial impact on special status plant species that occur in riparian habitats.

Hydrologic/Geologic Resource Actions. Specific projects to protect and enhance the river’s hydrologic values that would occur within Segment 6 under Alternatives 2-6 include implementation of the water conservation plan related to the minimum flow analysis for the South Fork. Although the NPS would retain current water collection and distribution system associated with the Wawona Impoundment, implementation of this action would reduce water withdrawal rates and improve the free-flowing condition of the South Fork Merced River by implementing the water conservation plan related to the minimum flow analysis for the South Fork. This management action would improve hydrologic function and restore ecological integrity of the river corridor in Segment 6 and associated plant communities and wetlands. Overall, this action would result in a local, long-term, minor, beneficial impact on special status species in Segment 6.

Cultural Resource Actions. Specific projects to protect and enhance the river’s cultural values that would occur within Segment 7 under Alternatives 2-6 include removing 7 campsites from Wawona Campground that cause potential impacts to sensitive archeological resources. Overall, this action would result in a local, long-term, minor, beneficial impact on special status species in Segment 6.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Proposed actions to manage visitor use and facilities in Segment 7 under Alternatives 2–6 include replacing current restroom facilities at the Wawona Store with larger facilities; increasing picnic facilities at the Wawona Store; constructing new river access, restrooms, and other visitor amenities at the Wawona Swinging Bridge area; and removing roadside parking between the store and Chilnualna Falls Road.

The use of heavy equipment would create the potential for wildlife injuries or death, specifically for small wildlife. These activities could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. New construction may

require some tree removal; removing potentially occupied habitats such as mature conifer and hardwood trees, hollowed-out trees, or snags could affect breeding bats or birds by removing nests or roosts and could result in the harassment of adults from active nests or roosting sites located in the vicinity. Tree removal would be minimized through site design, and, if possible, older trees and snags would be retained for habitat. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse.

Vegetation that is removed under Alternatives 2–6 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities at Wawona because new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species (including Sierra sweet bay) would be avoided during construction activities.

The Wawona Maintenance yard currently extends to the riverbank and affects riparian habitat from soil compaction, storage of nonnative fill material, and storage of vehicles and other supplies. To reduce riparian impacts and restore the area, the NPS would remove staged materials, abandoned utilities, vehicles, and the parking lot from the riparian buffer and restore the area to natural conditions. NPS would also remove roadside parking between the Wawona Store and Chilnualna Falls Road. These restoration management actions would result in local, short-term, negligible adverse impacts on wildlife associated with abandonment and restoration activities (i.e., noise, ground disturbance, and human presence). Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, the action would restore habitat and in the long term would provide local, long-term, minor, beneficial impacts on special status wildlife species that use the Merced River and adjacent riparian habitats in Wawona (WHR: riverine, montane riparian). Special status wildlife species that may benefit from these restoration actions over the long term include hardhead, western pond turtle, harlequin duck, long-eared owl, and yellow warbler. These restoration actions would result in local, long-term, minor, beneficial impacts on special status plants (including Sierra sweet bay) that occur in riparian vegetation communities in the area.

Wawona. The only project-level action in the Wawona area that is common to Alternatives 2-6 involves the redesign of a bus stop to accommodate visitor use. This action would have local, long-term, negligible, adverse impacts on special status species.

Summary of Impacts Common to Alternatives 2–6

Past development and human activity in the Merced River corridor have in some cases adversely affected special status species habitat and use of those habitats. As described in the paragraphs above, under Alternatives 2–6, the park would address some existing adverse impacts on habitats for special status species. This includes actions targeted to improve habitat quality for aquatic, riparian-dependent, and meadow-dependent special status species where these habitats are near or adjacent to existing developments and high visitor use areas. Additionally, the park would implement measures to reduce the ecological integrity of riparian, meadow, and aquatic habitat in targeted areas; increase channel free flow; improve water quality; and reduce erosion and scouring. Towards these ends, the park would remove abandoned infrastructure within or adjacent to the river, remove or relocate facilities that contribute to erosion/sedimentation/water quality issues, strategically place large wood within the channel, and use best management practices for revetment construction and repair throughout the river corridor. To restore meadow and riparian habitat, the park would remove informal trails and abandoned infrastructures, selectively remove encroaching conifers, improve or relocate trails that are unstable or traverse through meadow/wet habitats, restrict or manage the use of pack stock, revegetate denuded areas, and install fencing and visual cues to direct visitors away from sensitive areas. Existing natural resource management actions, such as removal of nonnative invasive plants, would continue. These actions would be part of a comprehensive strategy to reduce existing adverse impacts on meadow, wetland, and riparian habitats.

Implementation of a comprehensive ecological restoration program to restore natural processes to the Merced River corridor, in combination with much lower visitor use levels and extensive site-specific restoration, would result in a corridorwide, long-term, major, beneficial impact on special status species habitat. In the long term, these measures would improve hydrologic connectivity of meadows and floodplains to the river; enhance habitat complexity in riparian, meadow, and aquatic areas; reduce human and pack-related disturbances; and reduce nonnative species and conifer intrusion into sensitive habitats. Adverse effects related to the construction phase of these actions would be local, short term, and minor or negligible.

Actions common to Alternatives 2–6 would have no effect on the following federally listed and candidate species: Sierra Nevada bighorn sheep and whitebark pine.

Actions common to Alternatives 2–6 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, and Pacific fisher.

Actions in Segment 4 would result in potential indirect or direct impacts on elderberry shrubs, including possible removal of shrubs. Direct or indirect impacts on valley elderberry longhorn beetle habitat would result in local, long-term, minor, adverse impacts on this beetle species. Therefore, it is the determination of the NPS that the actions proposed may affect, and are likely to adversely affect, the valley elderberry longhorn beetle.

Environmental Consequences of Alternative 2: Self-Reliant Visitor Experiences and Extensive Floodplain Restoration

Segment 1: Merced River Above Nevada Fall

Impacts of Actions to Protect and Enhance River Values

Merced Lake East Meadow near the Merced Lake Ranger Station has high levels of pack stock use, which contributes to lower vegetation cover and higher levels of bare ground. Under Alternatives 2, grazing would be permanently removed from the Merced Lake East Meadow. The park would require administrative pack stock passing through the Merced Lake area to rely on pellet feed that is packed into the site instead of allowing pack stock to graze in the meadow. This would help protect meadow vegetation from high levels of grazing by reducing the level of vegetation trampling by administrative pack stock and reducing the dispersal of manure and roll pits. Special status wildlife species that may benefit from these actions over the long term include Yosemite toad, northern goshawk, pallid bat, spotted bat, Mount Lyell shrew, western white-tailed jackrabbit, and Sierra Nevada red fox.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Several actions related to management of visitor use and facilities under Alternative 2 would have the potential to affect special status species in Segment 1. Visitation within Segment 1 would be reduced through a decrease in the Little Yosemite Valley trailhead quota (from 150 to 25), closing of the Merced Lake High Sierra Camp, and wilderness campground modifications. Under Alternative 2, there would be a 100% reduction in the Merced River corridor's wilderness lodging units. All 60 units and associated facilities at the Merced Lake High Sierra Camp would be removed. The park would reduce the total number of designated campsites within the corridor's wilderness. This change would result from the elimination of designated camping at Moraine Dome and conversion of the Little Yosemite Valley Backpackers Campground to dispersed camping. Dispersed camping at the Merced Lake Backpackers Campground would be increased, but facilities would be reduced. Areas either closed or converted to dispersed camping would be restored to natural conditions, including restoration of native vegetation communities.

The removal of existing improvements could result in local, short-term, adverse impacts on special status wildlife, including noise related to removing infrastructures and human presence. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. In the long-term, the programmatic management actions described above would have a local, long-term, minor, beneficial impact on special status wildlife species that use coniferous forests in the upper Merced watershed (WHR: white fir, red fir, Douglas-fir). Special status wildlife species that may benefit from these actions over the long term include northern goshawk, golden eagle, California spotted owl, olive-sided flycatcher, yellow warbler, western white-tailed jackrabbit, Pacific fisher, and Sierra Nevada red fox.

Special status plants may be adversely affected in the short term by restoration and monitoring activities associated with the programmatic management actions proposed for Segment 1. Potential

impacts include temporary disturbance and loss of habitat. These impacts would be local. Special status plant species would be avoided during management activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Overall, these actions would result in local, long-term, minor, beneficial impacts on special status plants that occur in upper montane coniferous forests in the area.

Merced Lake High Sierra Camp. The actions in the Merced Lake High Sierra Camp area proposed under Alternative 2 involve the conversion of the area to designated Wilderness, the closure of the Merced Lake High Sierra Camp, and the expansion of dispersed camping at Merced Lake Backpackers Camping Area into the High Sierra Camp footprint. As described above, construction activities associated with the demolition and removal of the Merced Lake High Sierra Camp could result in short-term, local, adverse impacts on special status species related to noise, potential for sediment discharge from disturbed soils, and human presence. Adhering to proposed mitigation measures MM-WL-1 and MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Once completed, these actions would result in a local, long-term, minor, beneficial impact on special status species in Segment 1 by reducing stresses related to concentrated human use.

Segment 1 Impact Summary: Overall, actions in Segment 1 under Alternative 2 would result in local, long-term, minor, beneficial impacts on special status species.

Actions in Segment 1 under Alternative 2 would have no effect on the following federally listed and candidate species: valley elderberry longhorn beetle, Sierra Nevada bighorn sheep, and whitebark pine.

Actions in Segment 1 under Alternative 2 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, and Pacific fisher.

Segment 2: Yosemite Valley Impacts of Actions to Protect and Enhance River Values

Ecological management actions that would occur within Segment 2 under Alternative 2 include measures to restore and protect meadows, riparian habitat, and areas within the 100-year floodplain of the Merced River. Projects proposed in Segment 2 to protect and enhance river values involve removal of buildings from the Yosemite Lodge area; restoration of 10.9 acres of riparian habitat at the former Yosemite Lodge units and cabins; rerouting and revegetating the Valley Loop Trail through Slaughterhouse Meadow out of wetlands and meadows to an upland area; moving 780 feet of the Valley Loop Trail out of Bridalveil Meadow; removing several buildings at Yosemite Lodge out of the 100-year floodplain and restoring the area.

Special status species inhabiting wetlands, riparian habitat, and riverine ecosystems would benefit from actions that remove infrastructure from the floodplain. Restoration of these areas would prevent further riverbank erosion, provide hydrologic connectivity for meadows and riparian habitats, reduce vegetation trampling, enhance the hydrologic function within the 2-year to 10-year floodplains, enhance water quality, increase the amount of wildlife habitat, increase productivity within riparian and aquatic ecosystems, and reduce human presence and human-related impacts.

Special status wildlife and their habitats may be adversely affected in the short-term by construction/removal, restoration, and monitoring activities associated with these management actions. Potential impacts include disturbance associated with noise from construction/restoration activities, human presence, and modification to habitat. These activities could cause wildlife to relocate or avoid the area and cause breeding birds to abandon their nests or avoid using the immediate area. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular.

The use of heavy equipment would create the potential for wildlife injuries or death, specifically for small wildlife. These activities could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, these measures would also improve hydrologic function and restore ecological integrity of the river corridor and associated habitats, in particular meadow, riparian, and wetland habitats; address ongoing and future impacts on park resources and infrastructure; and manage visitor use and development along the river corridor in Segment 2.

As summarized in the “Wildlife” section of this chapter, a total of 271 acres of riparian, floodplain meadow, woodland, and forest habitat would be restored in Segment 2 under Alternative 2 (this includes restoration actions common to Alternatives 2-6), resulting in direct benefits to fish and wildlife that use these habitat types. Thus, over time these management actions would have long-term, moderate, beneficial impacts on species of special status wildlife that use the Merced River and adjacent meadows and riparian habitats in Yosemite Valley (WHR types: lacustrine, wet meadow, montane riparian). Special status wildlife species that may benefit from these actions over the long term include western pond turtle, harlequin duck, bald eagle, peregrine falcon, long-eared owl, great gray owl, California spotted owl, black swift, willow flycatcher, yellow warbler, pallid bat, spotted bat, western red bat, and Pacific fisher.

Vegetation that is removed under Alternative 2 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities along the Merced River corridor in Segment 2. These impacts would be local and occur within or adjacent to the Merced River corridor. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Special status plant species would be avoided during management activities. However, these measures would improve the hydrologic function and restore the ecological integrity of Valley meadows. Associated beneficial impacts would include reduced fragmentation and disturbance of meadows, increased opportunities for revegetation and restoration, and enhanced hydrological connectivity between the meadows and the Merced River. Thus, restoration management actions would be expected to have a local, long-term, moderate, beneficial impact on special status species occurring within Segment 2 plant communities.

Biological Resource Actions.

Yosemite Valley Campgrounds: Under Alternative 2, specific restoration actions to enhance the river's biological values in Segment 2 include removing all campsites within 100' of the bed and banks of the Merced River and restoring 25.1 acres of floodplain/riparian habitat, and removing all informal trails and reducing roadside parking at El Capitan Meadow. Restoration of riparian habitat throughout Yosemite Valley would result in segmentwide, long-term, moderate, and beneficial impacts to special status species including long-eared owl, yellow warbler, and Townsend's big-eared bat.

El Capitan Meadow: In addition to actions common to Alternatives 2-6, the NPS would remove all informal trails and reduce roadside parking through alternative striping and consolidate parking to the west end of the meadow to reduce impacts to El Capitan Meadow. Restoration of El Capitan Meadow and elimination of roadside parking adjacent to the meadow would result in local, long-term, minor, and beneficial impacts on special status species from reduction in trampling from foot traffic and impacts to meadow habitat associated with roadside parking. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, long-eared owl, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Ahwahnee Meadow: Specific actions under Alternative 2 in Segment 2 to enhance the river's biological values at the Ahwahnee Meadow include: rerouting or removing trails which traverse wetlands in the Ahwahnee meadow and consolidating trail use with the Housekeeping Footbridge trail where possible, removing 900 feet of Northside Drive and relocating the bike path to the south of Ahwahnee Meadow, and restoring meadow contours and native vegetation. Meadow restoration, trail rerouting and removal, and removal of a portion of Northside Drive would result in local, long-term, moderate, and beneficial impacts on special status species at the Ahwahnee Meadow as wetland fragmentation and vegetation trampling is reduced, and wetland connectivity to the river is enhanced. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, long-eared owl, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Stoneman Meadow: Under Alternative 2, the park would restore Stoneman Meadow by removing 1,335 feet of Southside Drive and re-aligning the road through Boystown area. The Orchard Parking Lot would be redesigned and engineering solutions would be applied to promote water flow and improve meadow health to increase drainage from the cliff walls to Stoneman Meadow. The meadow boardwalk would be extended through wet areas to Curry Village (up to 275'). Restoration of Stoneman Meadow and protection of sensitive wetland habitat would result in local, long-term, minor to moderate, and beneficial impacts on special status species. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Former Upper and Lower Rivers Campgrounds: Specific actions to enhance biological values of the Merced River at the Former Upper and Lower Rivers Campgrounds in Alternative 2 include restoring 35.6 acres of the 10-year floodplain. Under Alternative 2, the park would remove the remaining asphalt, decompact soils of former roads and campsites, and re-establish seasonal channels and natural topography that have been filled. Additionally, the park would remove the Lower River amphitheater structure and fill. Following habitat restoration, temporary fencing would be installed to protect the restoration areas and to allow for recovery. Restoration of the Former Upper and Lower River

Campgrounds would result in local, long-term, moderate, and beneficial impacts on special status species including long-eared owl, yellow warbler, and Townsend's big-eared bat.

These restoration management actions would improve hydrologic function and restore ecological integrity of the Merced River corridor in Segment 2 and associated plant communities and wetlands, address ongoing and future impacts on park resources and infrastructure, and manage visitor use and development along the river corridor. These actions would be part of a comprehensive strategy to reduce existing adverse impacts on meadow and riparian vegetation. Overall, these actions would result in a segmentwide, long-term, moderate, beneficial impact on special status species in Segment 2.

Hydrologic/Geologic Resource Actions. Specific projects to protect and enhance the river's hydrologic and geologic values that would occur within Segment 2 under Alternative 2 include: relocating unimproved Camp 6 parking and rerouting a portion of Northside Drive; removing the Stoneman, Ahwahnee and Sugarpine Bridges; and restoring these areas to natural conditions. These actions would result in enhanced channel free flow, increased channel complexity, increased streambank stability, and restored riparian habitat segmentwide. Overall, these actions would result in a segmentwide, long-term, moderate, beneficial impact on special status species in Segment 2.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Alternative 2 would significantly reduce the maximum daily visitation to Yosemite Valley from current levels to facilitate maximum resource restoration and reduce crowding and congestion within Segment 2. Actions to manage visitor use and facilities under Alternative 2, specifically those concerning vehicle access and number of overnight accommodations, would result in a 33% decrease in daily Yosemite Valley visitation, from approximately 20,900 to 13,900. Day use visitation would decrease by 36%, while overnight visitation would decrease by 26%. Under Alternative 2, there would also be a reduction in Valley lodging units. Changes in lodging would include the removal of units from Housekeeping Camp, conversion of the Yosemite Lodge to a day use facility, and an increase in units at Curry Village. The park would reduce the total number of campsites within the Valley. This change stems largely from campsite removals at Upper Pines, Lower Pines, and North Pines campgrounds, and additions at Yosemite Lodge.

A general reduction in focused visitor use at areas near special status species or their habitats would result in a reduction of ongoing minor, adverse impacts from disturbance, trampling, and erosion; however, construction activities associated with proposed management actions could disturb special status wildlife habitat where facilities are removed and restored as well as where new facilities are constructed. Construction activities would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence.

The use of heavy equipment would create the potential for wildlife injuries or death, specifically for small wildlife. These activities could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. New parking areas and paths may require some tree removal; removing potentially occupied habitats such as mature conifer and hardwood trees, hollowed-out trees, or snags could affect breeding bats or birds by removing nests or roosts and could result in the harassment of adults from active nests or roosting sites located in the vicinity. Tree removal would be minimized through site design, and, if possible, older trees and snags

would be retained for habitat. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse.

Vegetation that is removed under Alternative 2 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 2 because new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce short-term impacts to minor and adverse. Overall, these actions would result in local, short-term, minor, adverse impacts on special status plants that occur in habitats in Segment 2.

Curry Village & Campgrounds. Actions under Alternative 2 in Segment 2 related to managing visitor use and facilities at Curry Village include the construction of 78 hard-sided units. The units would be constructed within previously developed areas as well as within habitats adjacent to the existing Curry Village site.

Construction activities associated with proposed actions at Curry Village could disturb special status wildlife habitat where new facilities are constructed. These activities would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts to wildlife habitats would occur in ponderosa pine forest (6.35 acres impacted) and, to a much lesser extent, wet meadow (0.03 acres impacted) habitat. Special status species that could be affected by actions at Curry Village are presented in **table 9-105**. As described in the “Vegetation” section, the proposed actions at Curry Village would primarily affect ponderosa pine habitat surrounding areas that are currently developed and experience a high level of human disturbance.

Construction of new facilities will require some tree removal. As noted in **table 9-65**, up to 6.35 acres of ponderosa pine habitat would be affected by the actions proposed for Curry Village under Alternative 2. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for long-eared owls or spotted owls would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have

TABLE 9-105: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CURRY VILLAGE & CAMPGROUNDS – ALTERNATIVE 2

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Asio otus</i> Long-eared owl	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 6.35 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 6.35 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
Mammals				
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine Wet Meadow Urban	6.35 0.03 N/A	0.4% <0.1% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	Ponderosa Pine Wet Meadow Urban	6.35 0.03 N/A	0.4% <0.1% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine Wet Meadow	6.35 0.03	0.4% <0.1%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.

TABLE 9-105: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CURRY VILLAGE & CAMPGROUNDS – ALTERNATIVE 2 (CONTINUED)

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Mammals (cont.)				
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in Curry Village.
^a This is a comparison of the acres of habitat impacted to the total acres of that habitat type in the segment. SOURCE: NPS 2012c				

an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

It is unlikely that any special status plant species occur in the Curry Village area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Curry Village area. Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Curry Village under Alternative 2.

Camp 6 and Yosemite Village. Actions under Alternative 2 in Segment 2 related to managing visitor use and facilities at Camp 6 and Yosemite Village include measures to formalize and relocate parking facilities and Northside Drive outside the 10-year floodplain. The Camp 6/Village Center Parking Area would be formalized to include 550 designated parking spaces by redeveloping part of the current administrative footprint. In addition, 100 parking spaces would be added at Yosemite Village. Northside Drive would be rerouted south of the parking areas and out of the dynamic 10-year floodplain. Fill material would be removed from the floodplain and the area would be restored to meadow and floodplain ecosystems.

Construction activities at Camp 6 and Yosemite Village could disturb special status wildlife habitat where facilities are removed, relocated and restored as well as where new facilities are constructed.

Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts to wildlife habitats would occur in montane riparian (1.37 acres impacted) and ponderosa pine forest (9.03 acres impacted) habitat types. Special status species that could be affected by actions at Camp 6 and Yosemite Village are presented in **table 9-106**. As described in the “Vegetation” section, the proposed actions at Camp 6 and Yosemite Village would primarily affect ponderosa pine forest and montane riparian habitats surrounding areas that are currently developed and experience a high level of human disturbance.

Construction of new facilities will require some tree removal. As noted in table 9-106, up to 9.03 acres of ponderosa pine habitat and 1.37 acres of montane riparian habitat would be affected by the actions proposed for Camp 6 and Yosemite Village under Alternative 2. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for special status bird species would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

The rerouting of Northside Drive outside the 10-year floodplain would result in the restoration of floodplain and meadow habitats. As discussed under the Impacts of Actions to Protect and Enhance River Values section above, this restoration management action would improve hydrologic function and restore ecological integrity of the Merced River corridor in Segment 2 and associated plant communities. Overall, this action would result in a localized, long-term, minor, beneficial impact on special status plant and wildlife species in Segment 2.

It is unlikely that any special status plant species occur in the Camp 6 and Yosemite Village area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Camp 6 and Yosemite Village area. Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Camp 6 and Yosemite Village under Alternative 2.

TABLE 9-106: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CAMP 6 & YOSEMITE VILLAGE – ALTERNATIVE 2

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Asio otus</i> Long-eared owl	Ponderosa Pine Montane Riparian	9.03 1.37	0.5% 0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 10.40 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine	9.03	0.5%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 9.03 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Chaetura vauxi</i> Vaux's swift	Montane Riparian	1.37	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 1.37 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Contopus cooperi</i> Olive-sided flycatcher	Montane Riparian	1.37	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 1.37 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Setophaga petechia</i> Yellow warbler	Montane Riparian	1.37	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 1.37 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
Mammals				
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine Montane Riparian Urban	9.03 1.37 N/A	0.5% 0.4% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.

TABLE 9-106: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CAMP 6 & YOSEMITE VILLAGE – ALTERNATIVE 2 (CONTINUED)

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Mammals (cont.)				
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	Ponderosa Pine	9.03	0.5%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Riparian	1.37	0.4%	
	Urban	N/A	N/A	
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine Montane Riparian	9.03 1.37	0.5% 0.4%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine Montane Riparian	9.03 1.37	0.5% 0.4%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine	9.03	0.5%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	9.03	0.5%	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in Camp 6 and Yosemite Village.
^a This is a comparison of the acres of habitat impacted to the total acres of that habitat type in the segment. SOURCE: NPS 2012c				

Yosemite Lodge and Camp 4. Specific actions under Alternative 2 in Segment 2 related to managing visitor use and facilities at Yosemite Lodge and Camp 4 include: the conversion of Yosemite Lodge to a day-use facility and the addition of 250 parking spaces; redevelopment west of Yosemite Lodge to provide an additional 150 day-use parking spaces and area for 15 tour buses; the removal of old and temporary housing at Highland Court and the Thousands Cabins; the conversion of Highland Court to a walk-in campground; and the relocation of the pedestrian crossing at Northside Drive and

Yosemite Lodge Drive to alleviate pedestrian/vehicle conflicts. The conversion of Yosemite Lodge to a day-use facility and the conversion of Highland Court to a walk-in campground would have a negligible effect on special status species.

Construction activities at Yosemite Lodge and Camp 4 could disturb special status wildlife habitat where facilities are removed, relocated and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts to wildlife habitats would occur in ponderosa pine forest (14.90 acres impacted), montane hardwood (0.57 acres impacted), and wet meadow (0.12 acres impacted). Special status species that could be affected by actions at Yosemite Lodge and Camp 4 are presented in table 9-107. As described in the “Vegetation” section, the proposed actions at Yosemite Lodge and Camp 4 would primarily affect ponderosa pine habitat surrounding areas that are currently developed and experience a high level of human disturbance.

Construction of new facilities will require some tree removal. As noted in table 9-107, up to 14.90 acres of ponderosa pine habitat and 0.57 acres of montane hardwood habitat would be affected by the actions proposed for Yosemite Lodge and Camp 4 under Alternative 2. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for long-eared owls or spotted owls would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

It is unlikely that any special status plant species occur in the Yosemite Lodge and Camp 4 area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Yosemite Lodge and Camp 4 area. Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Yosemite Lodge and Camp 4 under Alternative 2.

TABLE 9-107: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT YOSEMITE LODGE AND CAMP 4 – ALTERNATIVE 2

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Asio otus</i> Long-eared owl	Ponderosa Pine	14.90	0.08	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 15.47 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
	Montane Hardwood	0.57	<0.1%	
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine	14.90	0.08	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 15.47 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
	Montane Hardwood	0.57	<0.1%	
Mammals				
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine	14.90	0.8%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Hardwood	0.57	<0.1%	
	Wet Meadow	0.12	<0.1%	
	Urban	N/A	N/A	
<i>Corynorhinus townsendii</i> Townsend's big- eared bat	Ponderosa Pine	14.90	0.8%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Hardwood	0.57	<0.1%	
	Wet Meadow	0.12	<0.1%	
	Urban	N/A	N/A	
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine	14.90	0.08	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
	Wet Meadow	0.12	<0.1%	
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine	14.90	0.08	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.

TABLE 9-107: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT YOSEMITE LODGE AND CAMP 4 – ALTERNATIVE 2 (CONTINUED)

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Mammals (cont.)				
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine	14.90	0.08	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
	Montane Hardwood	0.57	<0.1 %	
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	14.90	0.08	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in Yosemite Lodge and Camp 4.
^a This is a comparison of the acres of habitat impacted to the total acres of that habitat type in the segment. SOURCE: NPS 2012c				

Segment 2 Impact Summary: Overall, actions in Segment 2 under Alternative 2 would result in segmentwide, long-term, minor to moderate, beneficial impacts on special status species.

Actions in Segment 2 under Alternative 2 would have no effect on the following federally listed and candidate species: valley elderberry longhorn beetle, Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, Sierra Nevada bighorn sheep, and whitebark pine.

Actions in Segment 2 under Alternative 2 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Pacific fisher.

Segments 3 and 4: Merced Gorge and El Portal

Impacts of Actions to Protect and Enhance River Values

Currently, vehicles park under the dripline of the 38 valley oak trees in Segment 4. This practice compacts soil under the trees and affects root health, water uptake, and soil aeration. Additionally, existing development and trampling in the vicinity limits the area where oak seedlings can be recruited. Under Alternative 2, valley oaks in El Portal would be enhanced by creating an oak recruitment area of 2.25 acres in Old El Portal in the vicinity of the current bulk fuel storage area, including the adjacent parking lots. Parking and new building construction within the oak recruitment area would be prohibited. Nonnative fill would be removed and soils decompacted. Appropriate native understory plant species would be planted. The fuel storage area would be relocated outside of the river corridor. Overall, these actions would result in local, long-term, moderate, beneficial impacts on valley oaks in

Segment 4. Valley oaks are a park-designated special status species. These restorative actions could result in local, short-term, adverse impacts on special status wildlife within the adjacent riparian habitat, including from noise associated with construction-related activities, ground disturbance, human presence, increases in sedimentation, and potential for incidental spills to reach aquatic habitats (including the Merced River). Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, implementation of these restorative actions would restore the 100-year floodplain and associated riparian community, improve hydrological connectivity to the river, and improve habitat for riparian-dependent species.

As summarized in the “Wildlife” section of this chapter, a total of 13 acres of riparian, floodplain, and valley oak woodland habitat would be restored in Segment 4 under Alternative 2 (this includes restoration actions common to Alternatives 2-6), resulting in direct benefits to fish and wildlife that use these habitat types. Thus, these actions would be expected to have a local, long-term, minor, beneficial impact on special status wildlife species that use riparian habitats in El Portal (WHR: montane riparian). Special status wildlife species that may benefit from these actions over the long term include valley elderberry longhorn beetle, western pond turtle, long-eared owl, yellow warbler, and western red bat.

Biological resource surveys have identified suitable habitat (elderberry shrubs) in the El Portal area for valley elderberry longhorn beetle. Actions in Segment 4) include the restoration of the Greenemeyer sand pit and the restoration of riverside habitat in Abbieville and the Trailer Village. The NPS would avoid all impacts within 100-feet of elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level when implementing these common to all restoration actions. If these actions were to result in unanticipated direct or indirect impacts on valley elderberry longhorn beetle habitat, the NPS would implement avoidance and mitigation measures outlined in the 1999 USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (mitigation measure MM-WL-4, as applicable; see Appendix C).

Vegetation that is removed under Alternative 2 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 4 because new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce short-term impacts to minor and adverse. Overall, restoration actions would result in local, long-term, minor, beneficial impacts on special status plants that occur in riparian habitats in Segment 4.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Under Alternative 2, user capacity would mostly be affected by the increase in employee housing at El Portal (Segment 4), where NPS employee housing would be added to Abbieville, El Portal Village Center, and Rancheria Flat and employee parking would be added at Rancheria Flat, El Portal, and Abbieville. While all new units would be built outside of the 100-year floodplain, units would fall within the river corridor. This increase in capacity in El Portal is a function of the decrease in

employee housing capacity in the Valley (Segment 2). Administrative campsites from the Yellow Pine Campground would also be relocated to Segment 4. The addition of employee housing and park facilities development would increase the total built environment within Segment 4.

Construction, removal, and restoration activities associated with these management actions in Segment 4 could disturb special status wildlife habitat where facilities are removed and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence.

The use of heavy equipment would create the potential for wildlife injuries or death, specifically for small wildlife. These activities could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. New construction may require removal of some trees; removal of potentially occupied habitats such as mature conifer and hardwood trees, hollowed-out trees, or snags could affect breeding bats or birds by removing nests or roosts and could result in the harassment of adults from active nests or roosting sites located in the vicinity. Tree removal would be minimized through site design, and, if possible, older trees and snags would be retained for habitat. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts under Alternative 2 to minor and adverse.

Biological resource surveys have identified suitable habitat (elderberry shrubs) in the El Portal area for valley elderberry longhorn beetle. Approximately 124 elderberry plants of a size sufficient to support the Valley elderberry longhorn beetle occur in areas of potential development or management activities in El Portal. Valley elderberry longhorn beetle exit holes that verify beetle activity were found in 11 of these elderberry plants, though beetle larvae could still be present in elderberry plants without exit holes. Actions in Segment 4, including moving temporary housing units to El Portal and development at the Abbeville and Trailer Village, would result in potential indirect or direct impacts on elderberry shrubs, including removal of shrubs. Approximately 37 elderberry plants were documented within potential areas of ground disturbance, seven with exit holes. Complete impact avoidance would not be possible for these plants. The infill in El Portal would affect up to nine elderberry shrubs with stems greater than one inch in diameter. The development at Abbeville would affect up to 16 shrubs, while the development at Trailer Village would affect up to 12 shrubs. Direct or indirect impacts on valley elderberry longhorn beetle habitat would result in local, long-term, minor, adverse impacts on this beetle species. If these actions were to result in direct or indirect impacts on valley elderberry longhorn beetle habitat, the NPS would implement avoidance and mitigation measures outlined in the 1999 USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (mitigation measure MM-WL-4, as applicable; see Appendix C).

Vegetation that is removed under Alternative 2 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 4 because new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities.

Segments 3 and 4 Impact Summary: Overall, actions in Segments 3 and 4 under Alternative 2 would result in local, long-term, minor, beneficial impacts on most special status species.

Actions in Segments 3 and 4 under Alternative 2 would have no effect on the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, Pacific fisher, Sierra Nevada bighorn sheep, and whitebark pine.

It is the determination of the NPS that the actions proposed in Segment 4 under Alternative 2 may affect, and are likely to adversely affect, the valley elderberry longhorn beetle.

Segments 5–8: South Fork Merced River

Impacts of Actions to Protect and Enhance River Values

Under Alternative 2 in Segment 7, the Wawona Golf Course would be decommissioned and the area returned to a more natural setting through recontouring and revegetation. The Wawona Golf Course is located in a former meadow, which altered vegetation patterns, compacted soils, and interrupted meadow hydrology. Under Alternative 2, the golf course would be removed and the area would be restored to meadow habitat. This action could result in local, short-term, minor, adverse impacts on special status wildlife, including impacts from noise and ground disturbance associated with removal and restoration activities, increased human presence, and habitat modifications. In the long term, the park would reduce the built environment and increase meadow habitat in Wawona under Alternative 2.

As summarized in the “Wildlife” section in this chapter, a total of 52 acres of floodplain, riparian and meadow habitat would be restored in segment 7 under Alternative 2 (this includes restoration actions common to Alternatives 2-6), resulting in direct benefits to wildlife that use these habitat types. Thus, restoring the Wawona Golf Course to a more natural setting would likely have a segmentwide, long-term, moderate, beneficial impact on special status wildlife species that use meadow and riparian habitats in Wawona (WHR: wet meadow). Special status wildlife species that may benefit from this action over the long term include western pond turtle, golden eagle, northern harrier, long-eared owl, great gray owl, olive-sided flycatcher, willow flycatcher, yellow warbler, pallid bat, spotted bat, and western red bat.

Special status plants may be adversely affected in the short term by removal, restoration, and monitoring activities associated with restoration of the golf course. Potential impacts include temporary disturbance and loss of habitat, potential loss of individual plants or populations, and the potential introduction and spread of invasive nonnative species. These impacts would be local. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and

adverse. Overall, actions under Alternative 2 would result in local, long-term, minor, beneficial impacts on special status plants that occur in meadow habitats in the Wawona area.

Biological Resource Actions. Specific projects to protect and enhance the river's biological values that would occur within Segment 7 under Alternative 2 include the relocation of stock use campsites from sensitive resource areas to Wawona Stables. Overall, this action would result in a local, long-term, minor, beneficial impact on special status species in Segment 7.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Under Alternative 2 in Segment 7, Wawona stables operations would be eliminated and two stock campsites would be relocated to this area from the current Wawona stock camp. The Wawona tennis courts would be removed, and 32 campsites in the Wawona Campground would be removed from the floodplain and/or from cultural sites. Campsites in Wawona Campground are located in proximity to the river, which results in trampling of riparian vegetation and riverbank erosion. Under Alternative 2, campsites within the 100-year floodplain would be removed and the area would be restored. Soils would be decompacted, and the area would be replanted with riparian vegetation. This would reduce visitor use in this area, with a resulting decrease of vegetation trampling. These actions would result in short-term, adverse impacts on special status wildlife that uses riparian habitat. Adverse impacts include noise associated with demolition, removal, and restoration activities; ground disturbance; human presence; habitat modification; and potential increase in suspended sediments to immediate areas of the South Fork Merced River. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of riparian vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, implementation of these actions would reduce the built environment within Segment 7, restore riparian habitat, and reduce riverbank erosion. Thus, the actions would likely have a local, long-term, minor, beneficial impact on special status wildlife species that use riparian habitats in Wawona (WHR: montane riparian). These potentially include long-eared owl and yellow warbler.

Special status plants may be adversely affected in the short term by removal, restoration, and monitoring activities associated with these management actions. Potential impacts include temporary disturbance and loss of habitat, potential loss of individual plants or populations, and the potential introduction and spread of invasive nonnative species. These impacts would be local. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Overall, actions under Alternative 2 would result in local, long-term, negligible, beneficial impacts on special status plants that occur in the Wawona area.

Wawona Campground. Facilities actions at the Wawona Campground would involve removal of 32 sites that are either within the 100-year floodplain or in culturally sensitive areas. This would reduce visitor use in this area, resulting in a decrease of vegetation trampling. Overall, these actions would result in a local, long-term, minor, beneficial impact on special status species in Wawona.

Segments 5, 6, 7 and 8 Impact Summary: Overall, actions in Segments 5-8 under Alternative 2 would result in segmentwide, long-term, minor to moderate, beneficial impacts on special status species.

Actions in Segments 5-8 under Alternative 2 would have no effect on the following federally listed and candidate species: valley elderberry longhorn beetle, Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, Sierra Nevada bighorn sheep, and whitebark pine.

Actions in Segments 5-8 under Alternative 2 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Pacific fisher.

Summary of Impacts from Alternative 2: Self-Reliant Visitor Experiences and Extensive Floodplain Restoration

Past development and human activity in the Merced River corridor have in some cases adversely affected special status species habitat and use of those habitats. As described in the preceding paragraphs, many of the actions under Alternative 2 would address existing adverse impacts on habitats for special status species. This includes actions targeted to improve habitat quality for aquatic, riparian-dependent, and meadow-dependent special status species where these habitats are near or adjacent to existing developments and high visitor use areas. Additionally, the park would implement measures to restore the ecological integrity of riparian, meadow, and aquatic habitat in targeted areas, increase channel free flow, improve water quality, and reduce erosion and scouring. Notable actions the park would implement under Alternative 2 include the following:

- Restrict recreational use of rivers and riverbanks to reduce riverbank erosion.
- Remove, restore, relocate, or repurpose park facilities to efficiently use park facilities and reduce the built environment within the park; some facilities would be built to accommodate visitors or employees.
- Manage total visitors to the park and visitor demands for day parking space, lodging, and camping space.
- Remove facilities within the 100-year floodplain of the Merced River and restore riverbanks, meadows, and riparian habitat.
- Enhance meadow, riparian, and river hydrologic function, complexity, and connectivity.
- Improve the free flow, complexity, and water quality of the Merced River.

Generally, Alternative 2 is focused on intensive restoration of meadow, riparian, and riverbank habitats in Yosemite Valley (Segment 2), emphasizing day use of the Valley over overnight accommodations; removing many facilities that are located in the 100-year floodplain and are jeopardized by flood; repurposing park facilities to improve efficiency of use; and providing adequate lodging, camping, and parking space for visitors and employees. Adverse effects from these actions would be associated with the active construction or restoration phase, and would be local, short term, and minor or negligible. When combined, the long-term effect of all of these measures would be a moderate, beneficial impact on special status species as habitats are restored and fragmentation and indirect detriments to habitat are reduced. These effects would be most pronounced in areas of high human use such as Yosemite Valley and Wawona (Segments 2 and 7, respectively).

Implementation of a comprehensive ecological restoration program to restore natural processes to the Merced River corridor, in combination with much lower visitor use levels and extensive site-specific restoration, would result in a corridorwide, long-term, major, beneficial impact on special status species habitat. In the long term, these measures would improve hydrologic connectivity of meadows and floodplains to the river; enhance habitat complexity in riparian, meadow, and aquatic areas; reduce human and pack-related disturbances; and reduce nonnative species and conifer intrusion into sensitive habitats. Adverse effects related to the construction phase of these actions would be local, short term, and minor or negligible.

Actions under Alternative 2 would have no effect on the following federally listed and candidate species: Sierra Nevada bighorn sheep and whitebark pine.

Actions under Alternative 2 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, and Pacific fisher.

Actions in Segment 4 under Alternative 2 would result in potential indirect or direct impacts on elderberry shrubs, including possible removal of shrubs. Direct or indirect impacts on valley elderberry longhorn beetle habitat would result in local, long-term, minor, adverse impacts on this beetle species. Therefore, it is the determination of the NPS that the actions proposed may affect, and are likely to adversely affect, the valley elderberry longhorn beetle.

Cumulative Impacts from Alternative 2: Self-Reliant Visitor Experiences and Extensive Floodplain Restoration

The past, present, and reasonably foreseeable plans and projects that could have a cumulative impact on special status species in combination with Alternative 2 are the same as those listed under the “Environmental Consequences of Alternative 1 (No Action)” subsection above.

Overall Cumulative Impact from Alternative 2: Self-Reliant Visitor Experiences and Extensive Floodplain Restoration

The actions associated with Alternative 2 would generally result in long-term, minor to moderate, beneficial impacts on special status species habitats within the Merced River corridor, with the exception of valley elderberry longhorn beetle. These actions are focused on restoring and improving aquatic, meadow, and riparian habitat quality within the Merced River corridor; therefore, special status species associated with these habitat types are most likely to be affected cumulatively by the proposed actions. The past, present, and future actions in the region would have varying effects on special status species habitats, with some projects restoring or enhancing habitats, and many other projects resulting in habitat loss or decline.

In general, past actions have impaired and reduced the abundance and quantity of aquatic, meadow, and riparian habitats in the region. These past actions, especially at lower elevations from development and resource extraction, have resulted in a reduction in special status species populations and ranges. Present and reasonably foreseeable future actions also have the potential to further reduce or impair these habitat types; however, in general, potential effects on these habitat types are mitigated and/or

compensated through habitat preservation and/or enhancement at an off-site location (including mitigation banks). These actions provide the most benefit when coordinated with larger, regional conservation strategies that protect intact corridors or provide linkages to other areas of suitable habitat. Because the actions proposed for Alternative 2 would further increase the habitat value of the Merced River corridor, they would not contribute toward a cumulative adverse effect to special status species.

The actions under Alternative 2 would have long-term, beneficial effects on special-status species in the Merced River corridor. However, in relation to past, present, and reasonably foreseeable future actions throughout the Sierra Nevada and larger region, (e.g., introduction and spread of nonnative species, direct displacement of habitat) the actions under Alternative 2 would have a minimal beneficial effect. Overall, in conjunction with actions proposed in Alternative 2, cumulative actions on special status species would result in long-term, adverse effects on special status species.

Environmental Consequences of Alternative 3: Dispersed Visitor Experiences and Extensive Riverbank Restoration

Segment 1: Merced River Above Nevada Fall

Impacts of Actions to Protect and Enhance River Values

Under Alternatives 3, preliminary grazing capacities for the Merced Lake East Meadow would be developed. When the meadow recovers, administrative grazing at established capacities would be allowed. The meadow would be monitored annually for five years, and use levels would be adapted as needed. This adaptive management of grazing in the meadow would help protect meadow vegetation from the effects of high levels of grazing by reducing the level of vegetation trampling by administrative pack stock and reducing the dispersal of manure and roll pits, and would benefit habitat connectivity and meadow hydrology. Special status wildlife species that may benefit from these actions over the long term include Yosemite toad, northern goshawk, pallid bat, spotted bat, Mount Lyell shrew, western white-tailed jackrabbit, and Sierra Nevada red fox.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Several actions related to management of visitor use and facilities would have the potential to affect special status species in Segment 1 under Alternative 3. Visitation within Segment 1 would be reduced through a decrease in the Little Yosemite Valley trailhead quota (from 150 to 75), conversion of the Merced Lake High Sierra Camp, and wilderness campground modifications. Under Alternative 3, there would be a 100% reduction in the Merced River corridor's wilderness lodging units. All 60 units and associated facilities at the Merced Lake High Sierra Camp would be removed. The area would be used as a temporary pack camp for up to 15 people. The park would reduce the total number of designated campsites within the corridor's wilderness. This change would result primarily from the decrease in designated camping in Little Yosemite Valley Areas either closed or converted to dispersed camping would be restored to natural conditions, including restoration of native vegetation communities.

The removal of existing improvements could result in short-term, local, adverse impacts on special status wildlife, including from noise related to removal of infrastructures and human presence. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. In the long-term, the programmatic management actions described above would have a local, long-term, minor, beneficial impact on special status wildlife species that use coniferous forests in the upper Merced watershed (WHR: white fir, red fir, Douglas-fir). Special status wildlife species that may benefit from these actions over the long term include northern goshawk, golden eagle, California spotted owl, olive-sided flycatcher, yellow warbler, western white-tailed jackrabbit, Pacific fisher, and Sierra Nevada red fox.

Special status plants may be adversely affected in the short term by restoration and monitoring activities associated with the programmatic management actions proposed for Segment 1. Potential impacts include temporary disturbance and loss of habitat. These impacts would be local. Special status plant species would be avoided during management activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Overall, Alternative 3 would result in local, long-term, minor, beneficial impacts on special status plants that occur in upper montane coniferous forests in Segment 1.

Merced Lake High Sierra Camp. The actions in the Merced Lake High Sierra Camp area proposed under Alternative 3 involve the conversion of the area to designated Wilderness, removal of all infrastructure from the Merced Lake High Sierra Camp, and use of the former camp area as a temporary stock camp. As described above, construction activities associated with the demolition and removal of the Merced Lake High Sierra Camp could result in short-term, local, adverse impacts on special status species related to noise, potential for sediment discharge from disturbed soils, and human presence. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Once completed, these actions would result in a local, long-term, minor, beneficial impact on special status species in Segment 1 by reducing stresses related to concentrated human use.

Segment 1 Impact Summary: Overall, actions in Segment 1 under Alternative 3 would result in local, long-term, minor, beneficial impacts on special status species.

Actions in Segment 1 under Alternative 3 would have no effect on the following federally listed and candidate species: valley elderberry longhorn beetle, Sierra Nevada bighorn sheep, and whitebark pine.

Actions in Segment 1 under Alternative 3 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, and Pacific fisher.

Segment 2: Yosemite Valley

Impacts of Actions to Protect and Enhance River Values

Ecological management actions that would occur within Segment 2 under Alternative 3 include measures to restore and protect meadows, riparian habitat, and areas within the 100-year floodplain of the Merced River. Projects proposed in Segment 2 to protect and enhance river values involve removal of buildings from the Yosemite Lodge area; restoration of 10.9 acres of riparian habitat at the former Yosemite Lodge units and cabins; rerouting and revegetating the Valley Loop Trail through Slaughterhouse Meadow out of wetlands and meadows to an upland area; moving 780 feet of the Valley Loop Trail out of Bridalveil Meadow; and removing several buildings at Yosemite Lodge out of the 100-year floodplain and restoring the area.

Special status species inhabiting wetlands, riparian habitat, and riverine ecosystems would benefit from actions that remove infrastructure within a 150-foot buffer of the river in Segment 2. Restoration of these areas would prevent further riverbank erosion, provide hydrologic connectivity for meadows and riparian habitats, reduce vegetation trampling, enhance the hydrologic function within the 2-year to 10-year floodplains, enhance water quality, increase the amount of wildlife habitat, increase productivity within riparian and aquatic ecosystems, and reduce human presence and human-related impacts.

Special status wildlife and their habitats may be adversely affected in the short term by construction/removal, restoration, and monitoring activities associated with these management actions. Potential impacts include disturbance associated with noise from construction/restoration activities, human presence, and modification to habitat. These activities could cause wildlife to relocate or avoid the area and cause breeding birds to abandon their nests or avoid using the immediate area. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular.

The use of heavy equipment would create the potential for wildlife injuries or death, specifically for small wildlife, and could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, these measures would also improve hydrologic function and restore ecological integrity of the river corridor and associated habitats, in particular meadow, riparian, and wetland habitats; address ongoing and future impacts on park resources and infrastructure; and manage visitor use and development along the river corridor in Segment 2.

As summarized in the “Wildlife” section of this chapter, a total of 230 acres of riparian, floodplain, meadow, woodland, and forest habitat would be restored in Segment 2 under Alternative 3 (this includes restoration actions common to Alternatives 2-6), resulting in direct benefits to fish and wildlife that use these habitat types. Thus, over time these management actions would have segmentwide, long-term, moderate, beneficial impacts on species of special status wildlife that use the Merced River and adjacent meadows and riparian habitats in the Valley (WHR types: lacustrine, wet meadow, montane riparian). Special status wildlife species that may benefit from these actions over the long term include western pond turtle, harlequin duck, bald eagle, peregrine falcon, long-eared owl, great gray owl, California spotted owl, black swift, willow flycatcher, yellow warbler, pallid bat, spotted bat, western red bat, and Pacific fisher.

Vegetation that is removed under Alternative 3 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities along the Merced River corridor in Segment 2. These impacts would be local and occur within or adjacent to the river corridor. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Special status plant species would be avoided during management activities. However, these measures would improve the hydrologic function and restore the ecological integrity of Valley meadows. Associated beneficial impacts would include reduced fragmentation and disturbance of meadows, increased opportunities for revegetation and restoration, and enhanced hydrological connectivity between the meadows and the Merced River. Thus, restoration management actions would be expected to have a local, long-term, moderate, beneficial impact on special status species occurring within Segment 2 plant communities.

Biological Resource Actions.

Yosemite Valley Campgrounds: Under Alternative 3, specific restoration actions to enhance the river’s biological values in Segment 2 include removing all campsites within 150 feet of the bed and banks of the Merced River and restoring 12 acres of floodplain/riparian habitat, and designating river access at the North Pines Campground. Restoration of riparian habitat throughout Yosemite Valley would result in segmentwide, long-term, moderate, beneficial impacts to special status species including long-eared owl, yellow warbler, and Townsend’s big-eared bat.

El Capitan Meadow: In addition to actions common to Alternatives 2-6, the NPS would use restoration fencing and signing to designate appropriate meadow access points, remove all informal trails in sensitive and frequently inundated areas and in areas that trails incise meadow and promote habitat fragmentation. Restoration of El Capitan Meadow and rerouting or removal of informal trails would result in local, long-term, minor to moderate, beneficial impacts on special status species from reduction of trampling from foot traffic that causes habitat fragmentation. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, long-eared owl, Vaux’s swift, pallid bat, Townsend’s big-eared bat, and spotted bat.

Ahwahnee Meadow: Similar to Alternative 2, specific actions under Alternative 3 in Segment 2 to enhance the river’s biological values at the Ahwahnee Meadow include: rerouting or removing trails which traverse wetlands in the Ahwahnee meadow and consolidating trail use with the Housekeeping Footbridge trail where possible, removing 900 feet of Northside Drive and relocating the bike path to

the south of Ahwahnee Meadow, and restoring meadow contours and native vegetation. Meadow restoration, trail rerouting and removal, and removal of a portion of Northside Drive would result in local, long-term, moderate, and beneficial impacts on special status species at the Ahwahnee Meadow as wetland fragmentation and vegetation trampling is reduced, and wetland connectivity to the river is enhanced. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, long-eared owl, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Stoneman Meadow: Like Alternative 2, under Alternative 3 the park would restore Stoneman Meadow by removing 1,335 feet of Southside Drive and re-aligning the road through Boystown area. The Orchard Parking Lot would be redesigned and engineering solutions would be applied to promote water flow and improve meadow health to increase drainage from the cliff walls to Stoneman Meadow. The meadow boardwalk would be extended through wet areas to Curry Village (up to 275 feet). Restoration of Stoneman Meadow and protection of sensitive wetland habitat would result in local, long-term, minor to moderate, and beneficial impacts on special status species. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Former Upper and Lower Rivers Campgrounds: Specific actions to enhance biological values of the Merced River at the Former Upper and Lower Rivers Campgrounds in Alternative 3 are similar to Alternative 2, which include restoring 35.6 acres of the 10-year floodplain. Restoration of the Former Upper and Lower Rivers Campgrounds would result in local, long-term, moderate, and beneficial impacts on special status species including long-eared owl, yellow warbler, and Townsend's big-eared bat.

These restoration management actions would improve hydrologic function and restore ecological integrity of the Merced River corridor in Segment 2 and associated plant communities and wetlands, address ongoing and future impacts on park resources and infrastructure, and manage visitor use and development along the river corridor. These actions would be part of a comprehensive strategy to reduce existing adverse impacts on meadow and riparian vegetation. Overall, these actions would result in a segmentwide, long-term, moderate, beneficial impact on special status species in Segment 2.

Hydrologic/Geologic Resource Actions. Specific projects to protect and enhance the river's hydrologic and geologic values that would occur within Segment 2 under Alternative 3 include: relocating unimproved Camp 6 parking; removing the Stoneman, Ahwahnee and Sugarpine Bridges; and restoring these areas to natural conditions. These actions would result in enhanced channel free flow, increased channel complexity, increased streambank stability, and restored riparian habitat segmentwide. Overall, these actions would result in a segmentwide, long-term, moderate, beneficial impact on special status species in Segment 2.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Alternative 3 would reduce the maximum daily visitation allowed in Yosemite Valley from current levels to allow for increased resource restoration and reduce crowding and congestion. Actions to manage visitor use and facilities under Alternative 3, specifically those concerning vehicle access and

number of overnight accommodations, would result in a 37% decrease in daily Yosemite Valley visitation, from approximately 20,900 to 13,200. Day use visitation would decrease by 43%, while overnight visitation would decrease by 23%. Under Alternative 3, there would be a net reduction in Yosemite Valley lodging units. This is largely due to the removal of units from Housekeeping Camp, Curry Village, and Yosemite Lodge. The park would increase the total number of campsites within the Valley. This change is largely due to new campsite development east of Camp 4, west of Backpackers Campground, and in the Upper Pines Loop Addition.

Actions to significantly limit day use activities, overnight capacities, and day parking would effectively reduce the built environment and human presence within the Valley. Restoring habitat in Segment 2 after the removal of facilities and parking lots would increase the extent and contiguity of habitat for special status species; limiting day use activities and roadside parking would reduce impacts on sensitive habitats such as riparian woodland and wet meadows; and reducing overnight capacities would reduce human pressures on special status species in general.

A general reduction in focused visitor use at areas near special status species or their habitats under Alternative 3 would result in a long-term reduction of ongoing minor, adverse impacts in Segment 2 from disturbance, trampling, and erosion; however, in the short-term, construction, removal, and restoration activities associated with proposed management actions could disturb special status wildlife habitat where facilities are removed and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence.

The use of heavy equipment would create the potential for wildlife injuries or death, specifically for small wildlife. These activities could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. New parking areas and paths may require some tree removal; removing potentially occupied habitats such as mature conifer and hardwood trees, hollowed-out trees, or snags could affect breeding bats or birds by removing nests or roosts and could result in the harassment of adults from active nests or roosting sites located in the vicinity. Tree removal under Alternative 3 would be minimized through site design, and, if possible, older trees and snags would be retained for habitat. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided in Segment 2. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

Vegetation that is removed under Alternative 3 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 2 because new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce

local, short-term impacts to minor and adverse. Overall, these actions would result in local, short-term, minor, adverse impacts on special status plants in habitats in Segment 2.

Curry Village & Campgrounds. Actions under Alternative 3 in Segment 2 related to managing visitor use and facilities at Curry Village include the reorganization of Curry Village and the rerouting of South Side Drive at Boys Town. Construction activities associated with proposed actions at Curry Village could disturb special status wildlife habitat where facilities are removed, relocated and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts to wildlife habitats would occur in ponderosa pine forest (6.35 acres impacted) and, to a much lesser extent, wet meadow (0.03 acres impacted) habitat. Special status species that could be affected by actions at Curry Village are presented in **table 9-108**. As described in the “Vegetation” section, the proposed actions at Curry Village would primarily affect ponderosa pine habitat surrounding areas that are currently developed and experience a high level of human disturbance.

Construction of new facilities will require some tree removal. As noted in table 9-108, up to 6.35 acres of ponderosa pine habitat would be affected by the actions proposed for Curry Village under Alternative 3. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for long-eared owls or spotted owls would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

It is unlikely that any special status plant species occur in the Curry Village area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Curry Village area. Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Curry Village under Alternative 3.

Camp 6 and Yosemite Village. Actions under Alternative 3 in Segment 2 related to managing visitor use and facilities at Camp 6 and Yosemite Village include measures to formalize and relocate parking facilities and Northside Drive outside the 10-year floodplain. The Camp 6/Village Center Parking Area

TABLE 9-108: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CURRY VILLAGE & CAMPGROUNDS – ALTERNATIVE 3

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Asio otus</i> Long-eared owl	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 6.35 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 6.35 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
Mammals				
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine Wet Meadow Urban	6.35 0.03 N/A	0.4% <0.1% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	Ponderosa Pine Wet Meadow Urban	6.35 0.03 N/A	0.4% <0.1% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine Wet Meadow	6.35 0.03	0.4% <0.1%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.

TABLE 9-108: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CURRY VILLAGE & CAMPGROUNDS – ALTERNATIVE 3 (CONTINUED)

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Mammals (cont.)				
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in Curry Village.
^a This is a comparison of the acres of habitat impacted to the total acres of that habitat type in the segment. SOURCE: NPS 2012c				

would be formalized to include 550 designated parking spaces by redeveloping part of the current administrative footprint. 100 parking spaces would be added at Yosemite Village. Northside Drive would be rerouted south of the parking areas and out of the dynamic 10-year floodplain. Fill material would be removed from the floodplain and the area would be restored to meadow and floodplain ecosystems.

Construction activities at Camp 6 and Yosemite Village could disturb special status wildlife habitat where facilities are removed, relocated and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts to wildlife habitats would occur in montane riparian (1.37 acres impacted) and ponderosa pine forest (9.03 acres impacted) habitat types. Special status species that could be affected by actions at Camp 6 and Yosemite Village are presented in **table 9-109**. As described in the “Vegetation” section, the proposed actions at Camp 6 and Yosemite Village would primarily affect ponderosa pine forest and montane riparian habitats surrounding areas that are currently developed and experience a high level of human disturbance.

Construction of new facilities will require some tree removal. As noted in table 9-109, up to 9.03 acres of ponderosa pine habitat and 1.37 acres of montane riparian habitat would be affected by the actions proposed for Camp 6 and Yosemite Village under Alternative 3. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for

TABLE 9-109: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CAMP 6 & YOSEMITE VILLAGE – ALTERNATIVE 3

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Asio otus</i> Long-eared owl	Ponderosa Pine Montane Riparian	9.03 1.37	0.5% 0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 10.40 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine	9.03	0.5%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 9.03 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Chaetura vauxi</i> Vaux's swift	Montane Riparian	1.37	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 1.37 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Contopus cooperi</i> Olive-sided flycatcher	Montane Riparian	1.37	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 1.37 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Setophaga petechia</i> Yellow warbler	Montane Riparian	1.37	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 1.37 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
Mammals				
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine Montane Riparian Urban	9.03 1.37 N/A	0.5% 0.4% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.

TABLE 9-109: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CAMP 6 & YOSEMITE VILLAGE – ALTERNATIVE 3 (CONTINUED)

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Mammals (cont.)				
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	Ponderosa Pine	9.03	0.5%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Riparian	1.37	0.4%	
	Urban	N/A	N/A	
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine	9.03	0.5%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
	Montane Riparian	1.37	0.4%	
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine	9.03	0.5%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Riparian	1.37	0.4%	
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine	9.03	0.5%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	9.03	0.5%	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in Camp 6 and Yosemite Village.
^a This is a comparison of the acres of habitat impacted to the total acres of that habitat type in the segment. SOURCE: NPS 2012c				

special status bird species would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

The rerouting of Northside Drive outside the 10-year floodplain would result in the restoration of floodplain and meadow habitats. As discussed under the Impacts of Actions to Protect and Enhance River Values section above, this restoration management action would improve hydrologic function and restore ecological integrity of the Merced River corridor in Segment 2 and associated plant communities. Overall, this action would result in a localized, long-term, minor, beneficial impact on special status plant and wildlife species in Segment 2.

It is unlikely that any special status plant species occur in the Camp 6 and Yosemite Village area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Camp 6 and Yosemite Village area. Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Camp 6 and Yosemite Village under Alternative 3.

Yosemite Lodge and Camp 4. Actions under Alternative 3 in Segment 2 related to managing visitor use and facilities at Yosemite Lodge and Camp 4 include: the removal of old and temporary housing at Highland Court and the Thousands Cabins; the construction of two new concessioner housing areas and the construction of 78 employee parking spaces; redevelopment west of Yosemite Lodge to provide an additional 150 day-use parking spaces and area for 15 tour buses; relocation of existing tour bus drop off area to Highland Court to provide 3 bus loading/unloading spaces; and the relocation of the pedestrian crossing at Northside Drive and Yosemite Lodge Drive to alleviate pedestrian/vehicle conflicts.

Construction activities at Yosemite Lodge and Camp 4 could disturb special status wildlife habitat where facilities are removed, relocated and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts to wildlife habitats would occur in ponderosa pine forest (14.80 acres impacted) and montane hardwood (0.08 acres impacted). Special status species that could be affected by actions at Yosemite Lodge and Camp 4 are presented in **table 9-110**. As described in the “Vegetation” section, the proposed actions at Yosemite Lodge and Camp 4 would primarily affect ponderosa pine habitat surrounding areas that are currently developed and experience a high level of human disturbance.

TABLE 9-110: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT YOSEMITE LODGE AND CAMP 4 – ALTERNATIVE 3

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Asio otus</i> Long-eared owl	Ponderosa Pine	14.80	0.8%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 14.88acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
	Montane Hardwood	0.08	<0.1%	
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine	14.80	0.8%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 14.88acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
	Montane Hardwood	0.08	<0.1%	
Mammals				
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine	14.80	0.8%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Hardwood	0.08	<0.1%	
	Urban	N/A	N/A	
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	Ponderosa Pine	14.80	0.8%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Hardwood	0.08	<0.1%	
	Urban	N/A	N/A	
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine	14.80	0.8%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine	14.80	0.08%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Hardwood	0.08	<0.1%	

TABLE 9-110: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT YOSEMITE LODGE AND CAMP 4 – ALTERNATIVE 3 (CONTINUED)

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Mammals (cont.)				
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine	14.80	0.8%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	14.80	0.8%	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in Yosemite Lodge and Camp 4.
^a This is a comparison of the acres of habitat impacted to the total acres of that habitat type in the segment. SOURCE: NPS 2012c				

Construction of new facilities will require some tree removal. As noted in table 9-110, up to 14.80 acres of ponderosa pine habitat and 0.08 acres of montane hardwood habitat would be affected by the actions proposed for Yosemite Lodge and Camp 4 under Alternative 3. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for long-eared owls or spotted owls would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

It is unlikely that any special status plant species occur in the Yosemite Lodge and Camp 4 area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil

compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Yosemite Lodge and Camp 4 area. Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Yosemite Lodge and Camp 4 under Alternative 3. **Segment 2 Impact Summary:** Overall, actions in Segment 2 under Alternative 3 would result in segmentwide, long-term, minor to moderate, beneficial impacts on special status species.

Actions in Segment 2 under Alternative 3 would have no effect on the following federally listed and candidate species: valley elderberry longhorn beetle, Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, Sierra Nevada bighorn sheep, and whitebark pine.

Actions in Segment 2 under Alternative 3 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Pacific fisher.

Segments 3 and 4: Merced Gorge and El Portal

Impacts of Actions to Protect and Enhance River Values

Currently, vehicles park under the dripline of the 38 valley oak trees in Segment 4. This practice compacts soil under the trees and impacts root health, water uptake, and soil aeration. Additionally, existing development and trampling in the vicinity limits the area where oak seedlings can be recruited. Under Alternative 3, valley oaks in El Portal would be enhanced by creating an oak recruitment area of 2.25 acres in Old El Portal in the vicinity of the current bulk fuel storage area, including the adjacent parking lots. Parking and new building construction within the oak recruitment area would be prohibited. Nonnative fill would be removed and soils decompacted. Appropriate native understory plant species would be planted. The fuel storage area would be relocated outside of the river corridor. Overall, these actions would result in local, long-term, moderate, beneficial impacts on valley oaks in Segment 4. Valley oaks are a park-designated special status species.

These restorative actions could result in local, short-term, adverse impacts on special status wildlife within the adjacent riparian habitat, including from noise associated with construction-related activities, ground disturbance, human presence, increases in sedimentation, and the potential for incidental spills to reach aquatic habitats (including the Merced River). Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, implementation of these restorative actions would restore the 100-year floodplain and associated riparian community, improve hydrological connectivity to the river, and improve habitat for riparian-dependent species.

As summarized in the “Wildlife” section of this chapter, a total of 13 acres of riparian, floodplain, and valley oak woodland habitat would be restored in Segment 4 under Alternative 3 (this includes restoration actions common to Alternatives 2-6), resulting in direct benefits to fish and wildlife that use these habitat types. Thus, these actions would be expected to have a local, long-term, minor, beneficial impact on special status wildlife species that use riparian habitats in El Portal (WHR: montane riparian). Special status wildlife species that may benefit from these actions over the long

term include valley elderberry longhorn beetle, western pond turtle, long-eared owl, yellow warbler, and western red bat.

Biological resource surveys have identified suitable habitat (elderberry shrubs) in the El Portal area for valley elderberry longhorn beetle. Actions in the El Portal area (Segment 4) include the restoration of the Greenemeyer sand pit and the restoration of riverside habitat in Abbieville and the Trailer Village. The NPS would avoid all impacts within 100-feet of elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level when implementing these common to all restoration actions. If these actions were to result in unanticipated direct or indirect impacts on valley elderberry longhorn beetle habitat, the NPS would implement avoidance and mitigation measures outlined in the 1999 USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (mitigation measure MM-WL-4, as applicable; see Appendix C).

Vegetation removed under Alternative 3 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 4, as new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce short-term impacts to minor and adverse. Overall, restoration actions would result in local, long-term, minor, beneficial impacts on special status plants that occur in riparian habitats in Segment 4 these areas.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Under Alternative 3, user capacity would be mostly affected by the increase in employee housing at El Portal in Segment 4. NPS employee housing would be added to Abbieville, El Portal Village Center, and Rancheria Flat and employee parking would be added at Abbieville, El Portal, and Rancheria Flat. While all new units would be built outside of the 100-year floodplain, they would fall within the river corridor. This increase in capacity in El Portal is a function of the decrease in employee housing capacity in the Valley (Segment 2). The addition of employee housing and park facilities development would increase the total built environment within Segment 4. Construction, removal, and restoration activities associated with these management actions could disturb special status wildlife habitat where facilities are removed and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence.

The use of heavy equipment would create the potential for wildlife injuries or death, specifically for small wildlife. These activities could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. New construction may require some tree removal; removing potentially occupied habitats such as mature conifer and hardwood trees, hollowed-out trees, or snags could affect breeding bats or birds by removing nests or roosts and could result in the harassment of adults from active nests or roosting sites located in the vicinity. Tree removal would be minimized through site design, and, if possible, older trees and snags would be retained for habitat. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local

special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse.

Biological resource surveys have identified suitable habitat (elderberry shrubs) in the El Portal area for valley elderberry longhorn beetle. Approximately 124 elderberry plants of a size sufficient to support the Valley elderberry longhorn beetle occur in areas of potential development or management activities in El Portal. Valley elderberry longhorn beetle exit holes that verify beetle activity were found in 11 of these elderberry plants, though beetle larvae could still be present in elderberry plants without exit holes. Actions in Segment 4, including moving temporary housing units to El Portal and development at the Abbieville and Trailer Village, would result in potential indirect or direct impacts on elderberry shrubs, including removal of shrubs. Approximately 37 elderberry plants were documented within potential areas of ground disturbance, seven with exit holes. Complete impact avoidance would not be possible for these plants. The infill in El Portal would affect up to nine elderberry shrubs with stems greater than one inch in diameter. The development at Abbieville would affect up to 16 shrubs, while the development at Trailer Village would affect up to 12 shrubs. Direct or indirect impacts on valley elderberry longhorn beetle habitat would result in local, long-term, minor, adverse impacts on this beetle species. If these actions were to result in direct or indirect impacts on valley elderberry longhorn beetle habitat, the NPS would implement avoidance and mitigation measures outlined in the 1999 USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (mitigation measure MM-WL-4, as applicable; see Appendix C).

Vegetation removed under Alternative 3 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 4 because new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities

Segments 3 and 4 Impact Summary: Overall, actions in Segments 3 and 4 under Alternative 3 would result in local, long-term, minor, beneficial impacts on most special status species.

Actions in Segments 3 and 4 under Alternative 3 would have no effect on the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, Pacific fisher, Sierra Nevada bighorn sheep, and whitebark pine.

It is the determination of the NPS that the actions proposed in Segment 4 under Alternative 3 may affect, and are likely to adversely affect, the valley elderberry longhorn beetle.

Segments 5–8: South Fork Merced River

Impacts of Actions to Protect and Enhance River Values

Under Alternative 3 in Segment 7, the Wawona Golf Course would be decommissioned and the area returned to a more natural setting through recontouring and revegetation. The Wawona Golf Course is located in a former meadow; this resulted in altering vegetation patterns, compacting soils, and interrupting meadow hydrology. Under Alternative 3, the golf course would be removed and the area would be restored to meadow habitat. This action could result in local, short-term, minor, adverse impacts on special status wildlife, including impacts from noise and ground disturbance associated with removal and restoration activities, increased human presence, and habitat modifications.

In the long term, the park would reduce the built environment and increase meadow habitat in Wawona. As summarized in the “Wildlife” section of this chapter, a total of 48 acres of floodplain, riparian and meadow habitat would be restored in Segment 7 under Alternative 3 (this includes actions common to Alternatives 2-6), resulting in direct benefits to wildlife that use these habitat types. Thus, restoring the golf course to natural conditions would likely have a segmentwide, long-term, moderate, beneficial impact on special status wildlife species that use meadow and riparian habitats in Segment 7 (WHR: wet meadow). Special status wildlife species that may benefit from this action over the long term include western pond turtle, golden eagle, northern harrier, long-eared owl, great gray owl, olive-sided flycatcher, willow flycatcher, yellow warbler, pallid bat, spotted bat, and western red bat.

Special status plants may be adversely affected in the short term by removal, restoration, and monitoring activities associated with restoration of the golf course. Potential impacts include temporary disturbance and loss of habitat, potential loss of individual plants or populations, and the potential introduction and spread of invasive nonnative species. These impacts would be local. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Overall, actions under Alternative 3 would result in local, long-term, minor, beneficial impacts on special status plants that occur in meadow habitats in Segment 7.

Biological Resource Actions. Specific projects to protect and enhance the river’s biological values that would occur within Segment 7 under Alternative 3 include the relocation of stock use campsites from sensitive resource areas to Wawona Stables. Overall, this action would result in a local, long-term, minor, beneficial impact on special status species in Segment 7.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Under Alternative 3 in Segment 7, the Wawona stables operations would be eliminated and two stock campsites would be relocated to the former stable area from the current Wawona stock camp. The Wawona tennis courts would be removed, and 27 campsites in the Wawona Campground would be removed from within 150 feet of the South Fork Merced River or from cultural sites. These areas would be restored. Soils would be decompacted and planted with riparian vegetation. This would reduce visitor use in Segment 7 resulting in a decrease of vegetation trampling.

These actions would result in short-term adverse impacts on special status wildlife species that use riparian habitat in Segment 7. Adverse impacts would include noise associated with demolition, removal, and restoration activities; ground disturbance; human presence; habitat modification; and potential increase in suspended sediments to immediate areas of the Merced River. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of riparian vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, implementation of these actions would reduce the built environment within Segment 7, restore riparian habitat, and reduce riverbank erosion. Thus, the actions would be expected to have a local, long-term, minor, beneficial impact on special status wildlife species that use riparian habitats in Segment 7 (WHR: montane riparian). Special status wildlife species that may benefit from these actions over the long term include long-eared owl and yellow warbler.

Special status plants may be adversely affected in the short term by removal, restoration, and monitoring activities associated with these management action. Potential impacts include temporary disturbance and loss of habitat, potential loss of individual plants or populations, and the potential introduction and spread of invasive nonnative species. These impacts would be local. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Overall, these actions would result in local, long-term, negligible, beneficial impacts on special status plants that occur in Segment 7.

Wawona Campground. Facilities actions at the Wawona Campground would involve removal of 27 sites that are either within the 100-year floodplain or in culturally sensitive areas. This would reduce visitor use in this area, resulting in a decrease of vegetation trampling. Overall, these actions would result in a local, long-term, minor, beneficial impact on special status species in Wawona.

Segments 5, 6, 7 and 8 Impact Summary: Overall, actions in Segments 5-8 under Alternative 3 would result in segmentwide, long-term, minor to moderate, beneficial impacts on special status species.

Actions in Segments 5-8 under Alternative 3 would have no effect on the following federally listed and candidate species: valley elderberry longhorn beetle, Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, Sierra Nevada bighorn sheep, and whitebark pine.

Actions in Segments 5-8 under Alternative 3 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Pacific fisher.

Summary of Impacts from Alternative 3: Dispersed Visitor Experiences and Extensive Riverbank Restoration

Past development and human activity in the Merced River corridor have in some cases adversely affected special status species habitat and use of those habitats. As described in the preceding paragraphs, many of the actions under Alternative 3 would address existing adverse impacts on habitats for special status species, including actions targeted to improve habitat quality for aquatic, riparian-dependent, and meadow-dependent special status species where these habitats are near or adjacent to existing developments and high visitor use areas. Additionally, the park would implement measures to restore the ecological integrity of riparian, meadow, and aquatic habitat in targeted areas;

increase channel free flow; improve water quality; and reduce erosion and scouring. Notable actions the park would implement under Alternative 3 include the following:

- Restrict recreational use of rivers and riverbanks to reduce riverbank erosion.
- Remove, restore, relocate, or repurpose park facilities to efficiently use park facilities and reduce the built environment within the park; some facilities would be built to accommodate visitors or employees.
- Manage total visitors to the park and visitor demands for day parking space, lodging, and camping space;
- Remove facilities within 150 feet of the Merced River and restore riverbanks, meadows, and riparian habitat.
- Enhance meadow, riparian, and river hydrologic function, complexity, and connectivity.
- Improve the free flow, complexity, and water quality of the Merced River.

Generally, Alternative 3 is focused on intensive restoration of meadow, riparian, and riverbank habitats in Yosemite Valley (Segment 2); removing many facilities that are located within 150 feet of the Merced River and are jeopardized by flood; repurposing park facilities to improve efficiency of use; and providing adequate lodging, camping, and parking space for visitors and employees. With the implementation of mitigation measures MM-WL-1 through MM-WL-7 (see Appendix C), as applicable, adverse effects from these actions would be associated with the active construction or restoration phase and would be local, short term, and minor or negligible. When combined, the long-term effect of all of these measures would be a moderate, beneficial impact on special status species as habitats are restored and fragmentation and indirect detriments to habitat are reduced. These effects would be most pronounced in areas of high human use such as Yosemite Valley and Wawona (Segments 2 and 7, respectively).

Implementation of a comprehensive ecological restoration program to restore natural processes to the Merced River corridor, in combination with much lower visitor use levels and extensive site-specific restoration, would result in a corridorwide, long-term, major, beneficial impact on special status species habitat. In the long term, these measures would improve hydrologic connectivity of meadows and floodplains to the river; enhance habitat complexity in riparian, meadow, and aquatic areas; reduce human and pack stock-related disturbances; and reduce nonnative species and conifer intrusion into sensitive habitats. Adverse effects related to the construction phase of these actions would be local, short term, and minor or negligible.

Actions under Alternatives 3 would have no effect on the following federally listed and candidate species: Sierra Nevada bighorn sheep and whitebark pine.

Actions under Alternative 3 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, and Pacific fisher.

Actions in Segment 4 under Alternative 3 would result in potential indirect or direct impacts on elderberry shrubs, including possible removal of shrubs. Direct or indirect impacts on valley elderberry longhorn beetle habitat would result in local, long-term, minor, adverse impacts on this beetle species. Therefore, it is the determination of the NPS that the actions proposed may affect, and are likely to adversely affect, the valley elderberry longhorn beetle.

Cumulative Impacts from Alternative 3: Dispersed Visitor Experiences and Extensive Riverbank Restoration

The past, present, and reasonably foreseeable plans and projects that could have a cumulative impact on special status species in combination with Alternative 3 are the same as those listed under Alternative 1 (No Action).

Overall Cumulative Impact from Alternative 3: Dispersed Visitor Experiences and Extensive Riverbank Restoration

The actions associated with Alternative 3 would generally result in segmentwide, long-term, minor to moderate, beneficial impacts on special status species habitats within the Merced River corridor, with the exception of valley elderberry longhorn beetle. These actions would be focused on restoring and improving aquatic, meadow, and riparian habitat quality within the Merced River Corridor; therefore, special status species that are associated with these habitat types would be most likely to be affected cumulatively by the proposed actions. The past, present, and future actions in the region would have varying effects on special status species habitats, with some projects restoring or enhancing habitats, while many other projects would result in loss or decline.

In general, past actions have impaired and reduced the abundance and quantity of aquatic, meadow, and riparian habitats in the region. These past actions, especially at lower elevations from development and resource extraction, have resulted in a reduction in special status species populations and ranges. Present and reasonably foreseeable future actions also have the potential to further reduce or impair these habitat types; however, in general, potential effects on these habitat types are mitigated and/or compensated through habitat preservation and/or enhancement at an off-site location (including mitigation banks). These actions provide the most benefit when coordinated with larger, regional conservation strategies that protect intact corridors or provide linkages to other areas of suitable habitat. Because the actions proposed for Alternative 3 would further increase the habitat value of the Merced River corridor, these actions would not contribute towards a cumulative adverse effect on special status species.

The actions under Alternative 3 would have long-term, beneficial effects on special-status species in the Merced River corridor. However, in relation to past, present, and reasonably foreseeable future actions throughout the Sierra Nevada and larger region, (e.g., introduction and spread of nonnative species, direct displacement of habitat) the actions under Alternative 3 would have a minimal beneficial effect. Overall, in conjunction with actions proposed in Alternative 3, cumulative actions on special status species would result in long-term, adverse effects on special status species.

Environmental Consequences of Alternative 4: Resource-based Visitor Experiences and Targeted Riverbank Restoration

Segment 1: Merced River Above Nevada Fall

Impacts of Actions to Protect and Enhance River Values

Under Alternative 4, grazing would be eliminated and administrative pack stock would be required to carry pellet feed in Merced Lake East Meadow, as described for Alternatives 2. Beneficial effects to special status species would be the same as described for Alternative 2.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Several actions related to management of visitor use and facilities would have the potential to affect special status species in Segment 1 under Alternative 4. Visitation within Segment 1 would be reduced through a decrease in the Little Yosemite Valley trailhead quota (from 150 to 100), closure of the Merced Lake High Sierra Camp, and wilderness campground modifications. Under Alternative 4, there would be a 100% reduction in the Merced River corridor's wilderness lodging units. All 60 units and associated facilities at the Merced Lake High Sierra Camp would be removed. The park would reduce the total number of designated campsites within the corridor's wilderness. This change would result primarily from the decrease in designated camping at Little Yosemite Valley Backpackers Campground and removal of bear boxes (composting toilet remains). Designated camping at Moraine Dome would continue and dispersed camping at the Merced Lake Backpackers Campground would be expanded, but facilities would be reduced (i.e., flush toilets and wastewater system would be replaced with composting toilets and bear boxes removed).

The removal of existing improvements could result in local, short-term, adverse impacts on special status wildlife, including noise related to removal of infrastructures and human presence. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. These management actions would have a local, long-term, minor, beneficial impact on special status wildlife species that use coniferous forests in the upper Merced River watershed (WHR: white fir, red fir, Douglas-fir). Special status wildlife species that may benefit from these actions over the long term include northern goshawk, golden eagle, California spotted owl, olive-sided flycatcher, yellow warbler, western white-tailed jackrabbit, Pacific fisher, and Sierra Nevada red fox.

Special status plants may be adversely affected in the short term by restoration and monitoring activities associated with the programmatic management actions proposed for Segment 1. Potential impacts include temporary disturbance and loss of habitat, although these impacts would be local. Special status plant species would be avoided during management activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Overall, these actions would result in local, long-term, minor, beneficial impacts on special status plants that occur in upper montane coniferous forests in Segment 1.

Merced Lake High Sierra Camp. The actions in the Merced Lake High Sierra Camp area proposed under Alternative 4 involve the conversion of the area to designated Wilderness, the closure of the Merced Lake High Sierra Camp, and restoration of the former camp area to natural conditions. As described above, construction activities associated with the demolition and removal of the Merced Lake High Sierra Camp could result in short-term, local, adverse impacts on special status species related to noise, potential for sediment discharge from disturbed soils, and human presence. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Once completed, these actions would result in a local, long-term, minor, beneficial impact on special status species in Segment 1 by reducing stresses related to concentrated human use.

Segment 1 Impact Summary: Overall, actions in Segment 1 under Alternative 4 would result in local, long-term, minor, beneficial impacts on special status species.

Actions in Segment 1 under Alternative 4 would have no effect on the following federally listed and candidate species: valley elderberry longhorn beetle, Sierra Nevada bighorn sheep, and whitebark pine.

Actions in Segment 1 under Alternative 4 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, and Pacific fisher.

Segment 2: Yosemite Valley

Impacts of Actions to Protect and Enhance River Values

Ecological management actions that would occur within Segment 2 under Alternative 4 include measures to restore and protect meadows, riparian habitat, and areas within the 100-year floodplain of the Merced River. Projects proposed in Segment 2 to protect and enhance river values involve rerouting and revegetating the Valley Loop Trail through Slaughterhouse Meadow out of wetlands and meadows to an upland area; restoration of 10.9 acres of riparian habitat at the former Yosemite Lodge units and cabins; and moving 420 feet of the Valley Loop Trail out of Bridalveil Meadow.

Special status species that inhabit wetlands, riparian habitat, and riverine ecosystems would benefit from actions that remove infrastructure within a 150-foot buffer of the river. Restoration of these areas would prevent further riverbank erosion, provide hydrologic connectivity for meadows and riparian habitats, reduce vegetation trampling, enhance the hydrologic function within the floodplain, enhance water quality, increase the amount of wildlife habitat, increase productivity within riparian and aquatic ecosystems, and reduce human presence and human-related impacts.

Special status wildlife and their habitats may be adversely affected in the short term by construction/removal, restoration, and monitoring activities associated with these management actions. Potential impacts include disturbance associated with noise from construction/restoration activities, human presence, and modification to habitat. These activities could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. Although the

disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular.

The use of heavy equipment would create the potential for wildlife injuries or death, and could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, these measures would also improve hydrologic function and restore ecological integrity of the river corridor and associated habitats, in particular meadow, riparian, and wetland habitats; address ongoing and future impacts to park resources and infrastructure; and manage visitor use and development along the river corridor.

As summarized in the “Wildlife” section of this chapter, a total of 194 acres of floodplain, riparian, meadow, woodland, and forest habitat would be restored in Segment 2 under Alternative 4 (this includes restoration actions common to Alternatives 2-6), resulting in direct benefits to fish and wildlife that use these habitat types. Thus, over time these management actions would have segmentwide, long-term, moderate, beneficial impacts on species of special status wildlife that use the Merced River and adjacent meadows and riparian habitats in the Valley (WHR types: riverine, wet meadow, montane riparian). Special status wildlife species that may benefit from these actions over the long term include western pond turtle, harlequin duck, bald eagle, peregrine falcon, long-eared owl, great gray owl, California spotted owl, black swift, willow flycatcher, yellow warbler, pallid bat, spotted bat, western red bat, and Pacific fisher.

Vegetation removed under Alternative 4 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities along the Merced River corridor. These impacts would be local and occur within or adjacent to the river corridor. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Special status plant species would be avoided during management activities. However, these measures would improve the hydrologic function and restore the ecological integrity of Valley meadows. Associated beneficial impacts would include reduced fragmentation and disturbance of meadows, increased opportunities for revegetation and restoration, and enhanced hydrological connectivity between the meadows and the Merced River. Thus, restoration management actions would likely have a local, long-term, moderate, beneficial impact on special status species occurring within Segment 2 plant communities.

Biological Resource Actions.

Yosemite Valley Campgrounds: Like Alternative 3, specific restoration actions under Alternative 4 to enhance the river’s biological values in Segment 2 include removing all campsites within 150’ of the

bed and banks of the Merced River and restoring 12 acres of floodplain/riparian habitat, and designating river access at the North Pines Campground. Restoration of riparian habitat throughout Yosemite Valley would result in segmentwide, long-term, moderate, beneficial impacts to special status species including long-eared owl, yellow warbler, and Townsend's big-eared bat.

El Capitan Meadow: In addition to actions common to Alternatives 2-6, Alternative 4 would install restoration fencing along the northern perimeter of El Capitan Meadow to designate appropriate meadow access points along boardwalks and viewing platforms. Alternative 4 would remove all informal trails in sensitive and frequently inundated areas and in areas that trails incise meadow and promote habitat fragmentation. Restoration of El Capitan Meadow and rerouting or removal of informal trails would result in local, long-term, minor to moderate, beneficial impacts on special status species from reduction of trampling from foot traffic that causes habitat fragmentation. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, long-eared owl, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Ahwahnee Meadow: Specific actions under Alternative 4 in Segment 2 to enhance the river's biological values at the Ahwahnee Meadow include: removing fill in sections of trails that passes through meadow and wetland habitats and replace the trails with boardwalk. However, unlike Alternatives 2 and 3, Northside Drive and the adjacent bike path would remain under Alternative 4. Hydrological connectivity between both sides of Northside Drive would be enhanced by increasing the number of culverts. Trail improvement and meadow restoration would result in local, long-term, minor to moderate, and beneficial impacts on special status species at the Ahwahnee Meadow as wetland fragmentation and vegetation trampling is reduced, and wetland connectivity to the river is enhanced. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, long-eared owl, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Stoneman Meadow: Like Alternatives 2 and 3, specific actions in Alternative 4 to enhance the biological values of the Merced River include restoring Stoneman Meadow by removing 1,335 feet of Southside Drive and re-aligning the road through Boystown area. The Orchard Parking Lot would be redesigned and engineering solutions would be applied to promote water flow and improve meadow health to increase drainage from the cliff walls to Stoneman Meadow. The meadow boardwalk would be extended through wet areas to Curry Village (up to 275 feet). Restoration of Stoneman Meadow and protection of sensitive wetland habitat would result in local, long-term, minor to moderate, and beneficial impacts on special status species. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Former Upper and Lower Rivers Campgrounds: Specific actions to enhance biological values of the Merced River at the Former Upper and Lower Rivers Campgrounds in Alternative 4 include restoring the topography of 19.7 acres of the floodplain. Alternative 4 would remove remaining asphalt, decompact soils of former roads and campsites and re-establish channels that have been filled, place large box culverts under the road to allow water flow, and fence and close the riparian zone at former Upper River to protect the riverbank from trampling. Restoration of the Former Upper and Lower

Rivers Campgrounds would result in local, long-term, moderate, and beneficial impacts on special status species including long-eared owl, yellow warbler, and Townsend's big-eared bat.

These restoration management actions would improve hydrologic function and restore ecological integrity of the Merced River corridor in Segment 2 and associated plant communities and wetlands, address ongoing and future impacts on park resources and infrastructure, and manage visitor use and development along the river corridor. These actions would be part of a comprehensive strategy to reduce existing adverse impacts on meadow and riparian vegetation. Overall, these actions would result in a segmentwide, long-term, moderate, beneficial impact on special status species in Segment 2.

Hydrologic/Geologic Resource Action. Specific projects to protect and enhance the river's hydrologic and geologic values that would occur within Segment 2 under Alternative 4 include: relocating unimproved Camp 6 parking; placing large wood and engineered logjams along the base of Stoneman Bridge; removing the Ahwahnee and Sugarpine Bridges; and restoring these areas to natural conditions. These actions would result in enhanced channel free flow, increased channel complexity, increased streambank stability, and restored riparian habitat segmentwide. Overall, these actions would result in a segmentwide, long-term, moderate, beneficial impact on special status species in Segment 2.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Alternative 4 would reduce the maximum daily visitation allowed in Yosemite Valley from current levels to allow for increased resource restoration and reduce crowding and congestion. Actions to manage visitor use and facilities under Alternative 4, specifically those concerning vehicle access, would result in a 19% decrease in daily Yosemite Valley visitation, from approximately 20,900 to 17,000. Day use visitation would decrease by 29%. However, due in part to increases in campground facilities, overnight visitation would increase by about 7%. Under Alternative 4, there would be a net reduction in Valley lodging units. This would be achieved through removal of units from Housekeeping Camp and Curry Village. The park would increase the total number of campsites within the Valley. This increase would be largely due to the development of new campsites near Yosemite Lodge (west) and Camp 4 (east), as well as at Boys Town, Upper Pines Campground, Curry Village stables, and the former Upper River and Lower River campgrounds.

Restoring habitat following the removal of facilities and parking lots would increase the extent and contiguity of habitat for special status species, while limiting day use activities and roadside parking would reduce impacts to sensitive habitats such as riparian woodland and wet meadows. While a general reduction in focused visitor use near special status species or their habitats would result in a reduction of ongoing minor, adverse impacts, the construction, removal, and restoration activities associated with these management actions could disturb special status wildlife habitat where facilities are removed and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence.

The use of heavy equipment would create the potential for wildlife injuries or death, specifically for small wildlife. These activities could cause wildlife to relocate or avoid the construction area and could

cause breeding birds to abandon their nests or avoid using the immediate area. New parking areas and paths may require some tree removal; removing potentially occupied habitats such as mature conifer and hardwood trees, hollowed-out trees, or snags could affect breeding bats or birds by removing nests or roosts and result in the harassment of adults from active nests or roosting sites located in the vicinity. Tree removal would be minimized through site design, and, if possible, older trees and snags would be retained for habitat. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse.

Vegetation removed under Alternative 4 in Segment 2 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in the Valley because new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities. Adhering to proposed mitigation measure MM-WL-3 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce short-term impacts to minor and adverse.

Curry Village & Campgrounds. Actions under Alternative 4 in Segment 2 related to managing visitor use and facilities at Curry Village include the reorganization of Curry Village; the rerouting of South Side Drive at Boys Town; and the construction of a 40-site campground at Boys Town. Construction activities associated with proposed actions at Curry Village could disturb special status wildlife habitat where new facilities are constructed. These activities would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts to wildlife habitats would occur in ponderosa pine forest (6.35 acres impacted) and, to a much lesser extent, wet meadow (0.03 acres impacted) habitat. Special status species that could be affected by actions at Curry Village are presented in **table 9-111**. As described in the “Vegetation” section, the proposed actions at Curry Village would primarily affect ponderosa pine habitat surrounding areas that are currently developed and experience a high level of human disturbance.

Construction of new facilities will require some tree removal. As noted in **table 9-111**, up to 6.35 acres of ponderosa pine habitat would be affected by the actions proposed for Curry Village under Alternative 4. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for long-eared owls or spotted owls would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

TABLE 9-111: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CURRY VILLAGE & CAMPGROUNDS – ALTERNATIVE 4

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Asio otus</i> Long-eared owl	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 6.35 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 6.35 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
Mammals				
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine Wet Meadow Urban	6.35 0.03 N/A	0.4% <0.1% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	Ponderosa Pine Wet Meadow Urban	6.35 0.03 N/A	0.4% <0.1% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine Wet Meadow	6.35 0.03	0.4% <0.1%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.

TABLE 9-111: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CURRY VILLAGE & CAMPGROUNDS – ALTERNATIVE 4 (CONTINUED)

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Mammal (cont.)				
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in Curry Village.
^a This is a comparison of the acres of habitat impacted to the total acres of that habitat type in the segment. SOURCE: NPS 2012c				

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

It is unlikely that any special status plant species occur in the Curry Village area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Curry Village area. Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Curry Village under Alternative 4.

Camp 6 and Yosemite Village. Actions under Alternative 4 in Segment 2 related to managing visitor use and facilities at Camp 6 and Yosemite Village include measures to formalize and relocate parking facilities 150 feet away from the river in order to facilitate riparian restoration goals. The Camp 6/Village Center Parking Area will be formalized with 750 parking spaces by redeveloping part of the current administrative footprint. 100 parking spaces would be added at Yosemite Village. The intersection at Northside Drive and Village Drive (Camp 6 intersection) would be re-aligned to meet standards for a proper four-way intersection and improve performance. A three-way intersection at Sentinel Drive and

the entrance to the parking area would be added to improve traffic flow and alleviate congestion. An entry road to Camp 6 parking lot from Sentinel Drive would be added to improve traffic flow and alleviate congestion at nearby intersections. On-grade pedestrian crossings with proper sight lines would be provided to alleviate pedestrian/vehicle conflicts.

Construction activities at Camp 6 and Yosemite Village could disturb special status wildlife habitat where facilities are removed, relocated and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts to wildlife habitats would occur in montane riparian (0.81 acres impacted), ponderosa pine forest (12.22 acres impacted), and wet meadow (0.28 acres impacted) habitat types. Special status species that could be affected by actions at Camp 6 and Yosemite Village are presented in **table 9-112**. As described in the “Vegetation” section, the proposed actions at Camp 6 and Yosemite Village would primarily affect ponderosa pine forest and montane riparian habitats surrounding areas that are currently developed and experience a high level of human disturbance.

Construction of new facilities will require some tree removal. As noted in table 9-112, up to 12.22 acres of ponderosa pine habitat and 0.81 acres of montane riparian habitat would be affected by the actions proposed for Camp 6 and Yosemite Village under Alternative 4. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for special status bird species would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

It is unlikely that any special status plant species occur in the Camp 6 and Yosemite Village area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Camp 6 and Yosemite Village area. Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Camp 6 and Yosemite Village under Alternative 4.

TABLE 9-112: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CAMP 6 & YOSEMITE VILLAGE – ALTERNATIVE 4

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Asio otus</i> Long-eared owl	Ponderosa Pine Montane Riparian	12.22 0.81	0.7% 0.3%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 13.03 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 12.22 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Chaetura vauxi</i> Vaux's swift	Montane Riparian	0.81	0.3%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 0.81 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Contopus cooperi</i> Olive-sided flycatcher	Montane Riparian	0.81	0.3%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 0.81 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Setophaga petechia</i> Yellow warbler	Montane Riparian	0.81	0.3%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 0.81 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
Mammals				
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine Montane Riparian Wet Meadow Urban	12.22 0.81 0.28 N/A	0.7% 0.3% <0.1% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.

TABLE 9-112: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CAMP 6 & YOSEMITE VILLAGE – ALTERNATIVE 4 (CONTINUED)

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Mammals (cont.)				
<i>Corynorhinus townsendii</i> Townsend’s big-eared bat	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Riparian	0.81	0.3%	
	Wet Meadow	0.28	<0.1%	
	Urban	N/A	N/A	
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
	Montane Riparian	0.81	0.3%	
	Wet Meadow	0.28	<0.1%	
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Riparian	0.81	0.3%	
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in Camp 6 and Yosemite Village.
^a This is a comparison of the acres of habitat impacted to the total acres of that habitat type in the segment. SOURCE: NPS 2012c				

Yosemite Lodge and Camp 4. Actions under Alternative 4 in Segment 2 related to managing visitor use and facilities at Yosemite Lodge and Camp 4 include: the removal of old and temporary housing at Highland Court and the Thousands Cabins; the construction of two new concessioner housing areas and the construction of 78 employee parking spaces; redevelopment west of Yosemite Lodge to provide an additional 150 day-use parking spaces and area for 15 tour buses; relocation of existing tour

bus drop off area to Highland Court to provide 3 bus loading/unloading spaces; and the construction of a pedestrian underpass to alleviate pedestrian/vehicle conflicts.

Construction activities at Yosemite Lodge and Camp 4 could disturb special status wildlife habitat where facilities are removed, relocated and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts to wildlife habitats would occur in ponderosa pine forest (14.80 acres impacted) and montane hardwood habitat (0.08 acres impacted). Special status species that could be affected by actions at Yosemite Lodge and Camp 4 are presented in **table 9-113**. As described in the “Vegetation” section, the proposed actions at Yosemite Lodge and Camp 4 would primarily affect ponderosa pine habitat surrounding areas that are currently developed and experience a high level of human disturbance.

Construction of new facilities will require some tree removal. As noted in table 9-113, up to 14.80 acres of ponderosa pine habitat and 0.08 acres of montane hardwood habitat would be affected by the actions proposed for Yosemite Lodge and Camp 4 under Alternative 4. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for long-eared owls or spotted owls would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

It is unlikely that any special status plant species occur in the Yosemite Lodge and Camp 4 area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Yosemite Lodge and Camp 4 area. Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Yosemite Lodge and Camp 4 under Alternative 4.

Segment 2 Impact Summary: Overall, actions in Segment 2 under Alternative 4 would result in segmentwide, long-term, minor to moderate, beneficial impacts on special status species.

TABLE 9-113: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT YOSEMITE LODGE AND CAMP 4 – ALTERNATIVE 4

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Asio otus</i> Long-eared owl	Ponderosa Pine	14.80	0.8%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 14.88acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
	Montane Hardwood	0.08	<0.1%	
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine	14.80	0.8%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 14.88acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
	Montane Hardwood	0.08	<0.1%	
Mammals				
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine	14.80	0.8%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Hardwood	0.08	<0.1%	
	Urban	N/A	N/A	
<i>Corynorhinus townsendii</i> Townsend's big- eared bat	Ponderosa Pine	14.80	0.8%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Hardwood	0.08	<0.1%	
	Urban	N/A	N/A	
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine	14.80	0.8%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine	14.80	0.08%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Hardwood	0.08	<0.1%	

TABLE 9-113: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT YOSEMITE LODGE AND CAMP 4 – ALTERNATIVE 4 (CONTINUED)

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Mammals (cont.)				
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine	14.80	0.8%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	14.80	0.8%	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in Yosemite Lodge and Camp 4.
^a This is a comparison of the acres of habitat impacted to the total acres of that habitat type in the segment. SOURCE: NPS 2012c				

Actions in Segment 2 under Alternative 4 would have no effect on the following federally listed and candidate species: valley elderberry longhorn beetle, Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, Sierra Nevada bighorn sheep, and whitebark pine.

Actions in Segment 2 under Alternative 4 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Pacific fisher.

Segments 3 and 4: Merced Gorge and El Portal

Impacts of Actions to Protect and Enhance River Values

Currently, vehicles park under the dripline of the 38 valley oak trees in Segment 4. This practice compacts soil under the trees, which impacts root health, water uptake, and soil aeration. Additionally, existing development and trampling in the vicinity limits the area where oak seedlings can be recruited. Under Alternative 4, valley oaks in El Portal would be enhanced by creating an oak recruitment area of one acre in Old El Portal in the vicinity of the current bulk fuel storage area, including the adjacent parking lots. Parking and new building construction within the oak recruitment area would be prohibited. Nonnative fill would be removed and soils decompacted. Appropriate native understory plant species would be planted. The fuel storage area would be relocated outside of the river corridor. Overall, these actions would result in local, long-term, moderate, beneficial impacts on valley oaks in Segment 4. Valley oaks are a park-designated special status species.

These restorative actions could result in local, short-term, adverse impacts on special status wildlife within the adjacent riparian habitat, including noise associated with construction-related activities, ground disturbance, human presence, increases in sedimentation, and potential for incidental spills to reach aquatic habitats (including the Merced River). Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, implementation of these restorative actions would restore the 100-year floodplain and associated riparian community, improve hydrological connectivity to the river, and improve habitat for riparian-dependent species.

As summarized in the “Wildlife” section of this chapter, a total of 12 acres of riparian, floodplain, and valley oak woodland habitat would be restored in Segment 4 under Alternative 4 (this includes restoration actions common to Alternatives 2-6), resulting in direct benefits to fish and wildlife that use these habitat types. Thus, these actions would be expected to have a local, long-term, minor, beneficial impact on special status wildlife species that use riparian habitats in El Portal (WHR: montane riparian). Special status wildlife species that may benefit from these actions over the long term include valley elderberry longhorn beetle, western pond turtle, long-eared owl, yellow warbler, and western red bat.

Biological resource surveys have identified suitable habitat (elderberry shrubs) in the El Portal area for valley elderberry longhorn beetle. Actions in the El Portal area (Segment 4) include the restoration of the Greenemeyer sand pit and the restoration of riverside habitat in Abbieville and the Trailer Village. The NPS would avoid all impacts within 100-feet of elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level when implementing these common to all restoration actions. If these actions were to result in unanticipated direct or indirect impacts on valley elderberry longhorn beetle habitat, the NPS would implement avoidance and mitigation measures outlined in the 1999 USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (mitigation measure MM-WL-4, as applicable; see Appendix C).

Vegetation removed under Alternative 4 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 4 because new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce short-term impacts to minor and adverse. Overall, restoration actions would result in local, long-term, minor, beneficial impacts on special status plants that occur in riparian habitats in Segment 4.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Under Alternative 4, visitor day parking would be expanded by 200 parking spaces at Abbieville; this area would primarily be used for visitor access to Yosemite Valley. NPS employee housing would be added to Abbieville, El Portal Village Center, and Rancheria Flat along with a total of 292 employee parking spaces. While all new units would be built outside of the 100-year floodplain, they would fall within the river corridor. This increase in capacity in El Portal would be a function of the decrease in

employee housing capacity in the Valley (Segment 2). The addition of employee housing and park facilities development would increase the total built environment within Segment 4.

Construction, removal, and restoration activities associated with these management actions could disturb special status wildlife habitat where facilities are removed and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure in Segment 4 would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence.

The use of heavy equipment would create the potential for wildlife injuries or death, and could cause wildlife to relocate or avoid the construction area and could cause breeding birds to abandon their nests or avoid using the immediate area. New construction may require some tree removal; removing potentially occupied habitats such as mature conifer and hardwood trees, hollowed-out trees, or snags could affect breeding bats or birds by removing nests or roosts and could result in the harassment of adults from active nests or roosting sites located in the vicinity. Tree removal would be minimized through site design, and, if possible, older trees and snags would be retained for habitat. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse.

Biological resource surveys have identified suitable habitat (elderberry shrubs) in the El Portal area for valley elderberry longhorn beetle. Approximately 124 elderberry plants of a size sufficient to support the Valley elderberry longhorn beetle occur in areas of potential development or management activities in El Portal. Valley elderberry longhorn beetle exit holes that verify beetle activity were found in 11 of these elderberry plants, though beetle larvae could still be present in elderberry plants without exit holes. Actions in Segment 4, including moving temporary housing units to El Portal and development at the Abbeville and Trailer Village, would result in potential indirect or direct impacts on elderberry shrubs, including removal of shrubs. Approximately 37 elderberry plants were documented within potential areas of ground disturbance, seven with exit holes. Complete impact avoidance would not be possible for these plants. The infill in El Portal would affect up to nine elderberry shrubs with stems greater than one inch in diameter. The development at Abbeville would affect up to 16 shrubs, while the development at Trailer Village would affect up to 12 shrubs. Direct or indirect impacts on valley elderberry longhorn beetle habitat would result in local, long-term, minor, adverse impacts on this beetle species. If these actions were to result in direct or indirect impacts on valley elderberry longhorn beetle habitat, the NPS would implement avoidance and mitigation measures outlined in the 1999 USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (mitigation measure MM-WL-4, as applicable; see Appendix C).

Vegetation removed under Alternative 4 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 4 because new construction would primarily occur in or adjacent to

previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities.

Segments 3 and 4 Impact Summary: Overall, actions in Segments 3 and 4 under Alternative 4 would result in local, long-term, minor, beneficial impacts on most special status species.

Actions in Segments 3 and 4 under Alternative 4 would have no effect on the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, Pacific fisher, Sierra Nevada bighorn sheep, and whitebark pine.

It is the determination of the NPS that the actions proposed in Segment 4 under Alternative 4 may affect, and are likely to adversely affect, the valley elderberry longhorn beetle.

Segments 5– 8: South Fork Merced River

Impacts of Actions to Protect and Enhance River Values

Actions specifically targeted to protect culturally sensitive areas in Segment 7, including the relocation or removal of select campsites and stock campground sites within the 100-year floodplain or culturally sensitive areas, would also benefit special status species. Campsite removal within the floodplain would result in local, long-term, minor, beneficial impacts on special status species as riparian habitat is restored and wildlife are subject to less human presence and human-related pressures.

Biological Resource Actions. Specific projects to protect and enhance the river’s biological values that would occur within Segment 7 under Alternative 4 include the relocation of stock use campsites from sensitive resource areas to Wawona Stables. Overall, this action would result in a local, long-term, minor, beneficial impact on special status species in Segment 7.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Under Alternative 4, Wawona stables operations would be eliminated and two stock campsites would be relocated to the stables area from the current Wawona stock camp. At the Wawona Campground, 27 campsites would be removed from within 150 feet of the South Fork Merced River or from cultural sites and the area would be restored. Soils would be decompacted and the restoration area would be replanted with riparian vegetation. This would reduce visitor use in this area and result in a decrease of vegetation trampling.

These actions would result in short-term, adverse impacts on special status wildlife that use riparian habitat. Adverse impacts include noise associated with demolition, removal, and restoration activities; ground disturbance; human presence; habitat modification; and potential increase in suspended sediments to the South Fork Merced River. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of riparian vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, implementation of these actions would reduce the built environment within Segment 7, restore riparian habitat, and reduce riverbank erosion.

As summarized in the “Wildlife” section of this chapter, a total of seven acres of riparian habitat would be restored in Segment 7 under Alternative 4 (this includes restoration actions common to Alternatives 2-6), thus directly benefiting wildlife that use this habitat type. Thus, this restoration action would be expected to have a segmentwide, long-term, minor, beneficial impact on special status wildlife species that use riparian habitats in Wawona (WHR: montane riparian). Special status wildlife species that may benefit from these actions over the long term include long-eared owl and yellow warbler.

Special status plants may be adversely affected in the short term by removal, restoration, and monitoring activities associated with these management actions. Potential impacts include temporary disturbance and loss of habitat, potential loss of individual plants or populations, and the potential introduction and spread of invasive nonnative species. These impacts would be local. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Overall, actions under Alternative 4 would result in local, long-term, negligible, beneficial impacts on special status plants that occur in the Wawona area.

Wawona Campground. Facilities actions at the Wawona Campground would involve removal of 27 sites that are either within the 100-year floodplain or in culturally sensitive areas. Overall, these actions would result in a local, long-term, minor, beneficial impact on special status species in Wawona.

Segments 5, 6, 7 and 8 Impact Summary: Overall, actions in Segments 5-8 under Alternative 4 would result in segmentwide, long-term, minor to moderate, beneficial impacts on special status species.

Actions in Segments 5-8 under Alternative 4 would have no effect on the following federally listed and candidate species: valley elderberry longhorn beetle, Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, Sierra Nevada bighorn sheep, and whitebark pine.

Actions in Segments 5-8 under Alternative 4 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Pacific fisher.

Summary of Impacts from Alternative 4: Resource-based Visitor Experiences and Targeted Riverbank Restoration

Past development and human activity in the Merced River corridor have in some cases adversely affected special status species habitat and use of those habitats. As described in the preceding paragraphs, many of the Alternative 4 actions would address existing adverse impacts on habitats for special status species, including actions targeted to improve habitat quality for aquatic, riparian-dependent, and meadow-dependent special status species where these habitats are near or adjacent to existing developments and high visitor use areas. Additionally, the park would implement measures to restore the ecological integrity of riparian, meadow, and aquatic habitat in targeted areas, increase channel free flow, improve water quality, and reduce erosion and scouring. Notable actions the park would implement under Alternative 4 include the following:

- Restrict recreational use of rivers and riverbanks to reduce riverbank erosion.

- Remove, restore, relocate, or repurpose park facilities to efficiently use park facilities and reduce the built environment within the park; some facilities would be built to accommodate visitors or employees.
- Manage total visitors to the park and visitor demands for day parking space, lodging, and camping space.
- Remove facilities within 150 feet of the Merced River and restore riverbanks, meadows, and riparian habitat.
- Enhance meadow, riparian, and river hydrologic function, complexity, and connectivity.
- Improve the free flow, complexity, and water quality of the Merced River.

Generally, Alternative 4 is focused on intensive restoration of meadow, riparian, and riverbank habitats in Yosemite Valley (Segment 2); removing many facilities located within 150 feet of the river and jeopardized by flooding; repurposing park facilities to improve efficiency of use; adding additional campground facilities; and providing adequate lodging, camping, and parking space for visitors and employees. Adverse effects from these actions would be associated with the active construction or restoration phase and would be local, short term, and minor or negligible. However, there would be local, long-term, negligible, adverse impacts on habitats for special status species from construction of some facilities. When combined, the long-term effect of all of these measures would be a moderate, beneficial impact on special status species as habitats are restored and fragmentation and indirect detriments to habitat are reduced. These effects would be most pronounced in areas of high human use such as Yosemite Valley and Wawona (Segments 2 and 7, respectively).

Overall, there would be a slightly lessened potential for beneficial effects under Alternative 4 compared to Alternative 2 and about the same level of beneficial actions as under Alternative 3. However, there would be a somewhat increased potential for adverse impacts over either Alternatives 2 or 3 because more new construction would occur in and adjacent to habitat suitable for special status species.

Implementation of a comprehensive ecological restoration program to restore natural processes to the Merced River corridor, in combination with much lower visitor use levels and extensive site-specific restoration including implementation of mitigation measures MM-WL-1 through MM-WL-7 (see Appendix C) as applicable, would result in a corridorwide, long-term, moderate, beneficial impact on special status species habitat. In the long term, these measures would improve hydrologic connectivity of meadows and floodplains to the river; enhance habitat complexity in riparian, meadow, and aquatic areas; reduce human and pack stock-related disturbances; and reduce nonnative species and conifer intrusion into sensitive habitats. Adverse effects related to the construction phase of these actions would be local, short term, and minor or negligible.

Actions under Alternatives 4 would have no effect on the following federally listed and candidate species: Sierra Nevada bighorn sheep and whitebark pine.

Actions under Alternative 4 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, and Pacific fisher.

Actions in Segment 4 under Alternative 4 would result in potential indirect or direct impacts on elderberry shrubs, including possible removal of shrubs. Direct or indirect impacts on valley elderberry longhorn beetle habitat would result in local, long-term, minor, adverse impacts on this beetle species. Therefore, it is the determination of the NPS that the actions proposed may affect, and are likely to adversely affect, the valley elderberry longhorn beetle.

Cumulative Impacts from Alternative 4: Resource-based Visitor Experiences and Targeted Riverbank Restoration

The past, present, and reasonably foreseeable plans and projects that could have a cumulative impact on special status species in combination with Alternative 4 are the same as those listed under Alternative 1 (No Action).

Overall Cumulative Impact from Alternative 4: Resource-based Visitor Experiences and Targeted Riverbank Restoration

The actions associated with Alternative 4 would generally result in segmentwide, long-term, minor to moderate, beneficial impacts on special status species habitats within the Merced River corridor, with the exception of valley elderberry longhorn beetle. These actions are focused on restoring and improving aquatic, meadow, and riparian habitat quality within the Merced River corridor; therefore, special status species that are associated with these habitat types are most likely to be affected cumulatively by the proposed actions. The past, present, and future actions in the region would have varying effects on special status species habitats, with some projects restoring or enhancing habitats and many other projects resulting in habitat loss or decline.

In general, past actions have impaired and reduced the abundance and quantity of aquatic, meadow, and riparian habitats in the region. These past actions, especially at lower elevations from development and resource extraction, have resulted in a reduction in special status species populations and ranges. Present and reasonably foreseeable future actions also have the potential to further reduce or impair these habitat types; however, in general, potential effects on these habitat types are mitigated and/or compensated through habitat preservation and/or enhancement at an off-site location (including mitigation banks). These actions provide the most benefit when coordinated with larger, regional conservation strategies that protect intact corridors or provide linkages to other areas of suitable habitat. Because the actions proposed with Alternative 4 would further increase the habitat value of the Merced River corridor, this alternative would not contribute toward a cumulative adverse effect on special status species.

The actions under Alternative 4 would have long-term, beneficial effects on special-status species in the Merced River corridor. However, in relation to past, present, and reasonably foreseeable future actions throughout the Sierra Nevada and larger region, (e.g., introduction and spread of nonnative species, direct displacement of habitat) the actions under Alternative 4 would have a minimal beneficial effect. Overall, in conjunction with actions proposed in Alternative 4, cumulative actions on special status species would result in long-term, adverse effects on special status species.

Environmental Consequences of Alternative 5: Enhanced Visitor Experiences and Essential Riverbank Restoration

Segment 1: Merced River Above Nevada Fall

Impacts of Actions to Protect and Enhance River Values

Under Alternative 5, grazing in Merced Lake East Meadow would be managed as described for Alternatives 3. Beneficial effects to special status species would be the same as described for Alternative 3.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Several actions related to management of visitor use and facilities would have the potential to affect special status species in Segment 1 under Alternative 5. Visitation within Segment 1 would not be expected to change appreciably under Alternative 5; wilderness access quotas would remain as under Alternative 1 (No Action) (150) and modifications to overnight accommodations would be nominal. Under Alternative 5, the Merced Lake High Sierra Camp would remain in operation and continue to host overnight guests and through-hikers during the summer months. However, the camp's 60 beds would be reduced to 42 (11 units). The park would not reduce the total number of designated campsites within the Merced River corridor's wilderness. Designated camping at Moraine Dome and Little Yosemite Valley Backpackers Campground would continue. The Merced Lake Backpackers Campground would remain.

The removal of existing improvements could result in local, short-term, negligible, adverse impacts on special status wildlife, including noise related to removal of infrastructures and human presence. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. In the long-term, the programmatic management actions described above would have a local, long-term, minor, beneficial impact on special status wildlife species that use coniferous forests in the upper Merced watershed (WHR: white fir, red fir, Douglas-fir). Special status wildlife species that may benefit from these actions over the long term include northern goshawk, golden eagle, California spotted owl, olive-sided flycatcher, yellow warbler, western white-tailed jackrabbit, Pacific fisher, and Sierra Nevada red fox.

Special status plants may be adversely affected in the short-term by restoration and monitoring activities associated with the programmatic management actions proposed for Segment 1. Potential impacts include temporary disturbance and loss of habitat. These impacts would be local. Special status plant species would be avoided during management activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Overall, these actions would result in local, long-term, minor, beneficial impacts on special status plants that occur in upper montane coniferous forests in the Segment 1.

Merced Lake High Sierra Camp. The project-level actions in the Merced Lake High Sierra Camp area proposed under Alternative 5 involve retention of the Merced Lake High Sierra Camp, reducing the capacity to 42 beds, and replacing the flush toilets with composting toilets. These actions would result in a local, long-term, negligible, beneficial impact on special status species in Segment 1 by reducing stresses from visitor use.

Segment 1 Impact Summary: Overall, actions in Segment 1 under Alternative 5 would result in local, long-term, minor, beneficial impacts on special status species.

Actions in Segment 1 under Alternative 5 would have no effect on the following federally listed and candidate species: valley elderberry longhorn beetle, Sierra Nevada bighorn sheep, and whitebark pine.

Actions in Segment 1 under Alternative 5 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, and Pacific fisher.

Segment 2: Yosemite Valley

Impacts of Actions to Protect and Enhance River Values

Ecological management actions that would occur within Segment 2 under Alternative 5 include measures to restore and protect meadows, riparian habitat, and areas within the 100-year floodplain of the Merced River. Projects proposed in Segment 2 under Alternative 5 to protect and enhance river values involve constructing a boardwalk for the Valley Loop Trail through sensitive wet meadow habitat in Slaughterhouse Meadow; restoration of 10.9 acres of riparian habitat at the former Yosemite Lodge units and cabins; and moving 780 feet of the Valley Loop Trail out of Bridalveil Meadow. Special status species inhabiting wetlands, riparian habitat, and riverine ecosystems would benefit from actions that remove infrastructure within 100 feet of the ordinary high-water mark. Restoration of these areas would prevent further riverbank erosion, provide hydrologic connectivity for meadows and riparian habitats, reduce vegetation trampling, enhance the hydrologic function within the floodplain, enhance water quality, increase the amount of wildlife habitat, increase productivity within riparian and aquatic ecosystems, and reduce human presence and human-related impacts in Segment 2.

Special status wildlife and their habitats may be adversely affected in the short term by construction/removal, restoration, and monitoring activities associated with these management actions. Potential impacts include disturbance associated with noise from construction/restoration activities, human presence, and modification to habitat. These activities could cause wildlife to relocate or avoid the area and cause breeding birds to abandon their nests or avoid using the immediate area. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular.

The use of heavy equipment would create the potential for wildlife injuries or death, and could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, these measures would also improve hydrologic function and restore ecological integrity of the river corridor and associated habitats, in particular meadow, riparian, and wetland habitats; address ongoing and future impacts to park resources and infrastructure; and manage visitor use and development along the river corridor in Segment 2.

As summarized in the “Wildlife” section of this chapter, a total of 182 acres of floodplain, riparian, meadow, woodland, and forest habitat would be restored in Segment 2 under Alternative 5 (this includes restoration actions common to Alternatives 2-6), resulting in direct benefits to fish and wildlife that use these habitat types. Thus, over time these habitat restoration management actions would have long-term, moderate, beneficial impacts on species of special status wildlife that use the Merced River and adjacent meadows and riparian habitats in Yosemite Valley (WHR types: lacustrine, wet meadow, montane riparian). Special status wildlife species that may benefit from these actions over the long term include western pond turtle, harlequin duck, bald eagle, peregrine falcon, long-eared owl, great gray owl, California spotted owl, black swift, willow flycatcher, yellow warbler, pallid bat, spotted bat, western red bat, and Pacific fisher.

Vegetation removed under Alternative 5 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities along the Merced River corridor in Segment 2. These impacts would be local and occur within or adjacent to the river corridor. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Special status plant species would be avoided during management activities. However, these measures would improve the hydrologic function and restore the ecological integrity of Valley meadows. Associated beneficial impacts would include reduced fragmentation and disturbance of meadows, increased opportunities for revegetation and restoration, and enhanced hydrological connectivity between the meadows and the Merced River. Thus, habitat restoration actions would likely have a local, long-term, moderate, beneficial impact on special status species occurring within Segment 2 plant communities.

Biological Resource Actions.

Yosemite Valley Campgrounds: Specific restoration actions under Alternative 5 to enhance the river’s biological values in Segment 2 include removing all campsites within 100’ of the bed and banks of the Merced River and restoring 6.5 acres of floodplain/riparian habitat, and designating river access at the North Pines Campground. Restoration of riparian habitat throughout Yosemite Valley would result in segmentwide, long-term, minor to moderate, beneficial impacts to special status species including long-eared owl, yellow warbler, and Townsend’s big-eared bat.

El Capitan Meadow: In addition to actions common to Alternatives 2-6 and similar to Alternative 4, Alternative 5 would install restoration fencing along the northern perimeter of El Capitan Meadow to designate appropriate meadow access points along boardwalks and viewing platforms. Alternative 5 would remove all informal trails in sensitive and frequently inundated areas and in areas that trails incise meadow and promote habitat fragmentation. Conifers that block views of El Capitan from the roadside would be selectively removed. Restoration of El Capitan Meadow and rerouting or removal of informal trails would result in local, long-term, minor to moderate, beneficial impacts on special status species from reduction of trampling from foot traffic that causes habitat fragmentation. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, long-eared owl, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Ahwahnee Meadow: Similar to Alternative 4, specific actions under Alternative 5 in Segment 2 to enhance the river's biological values at the Ahwahnee Meadow include: removing fill in sections of trails that passes through meadow and wetland habitats and replace the trails with boardwalk. Unlike Alternatives 2 and 3, Northside Drive and the adjacent bike path would remain under Alternative 5. Hydrological connectivity between both sides of Northside Drive would be enhanced by increasing the number of culverts. Trail improvement and meadow restoration would result in local, long-term, minor to moderate, beneficial impacts on special status species at the Ahwahnee Meadow as wetland fragmentation and vegetation trampling is reduced, and wetland connectivity to the river is enhanced. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, long-eared owl, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Stoneman Meadow: Specific actions in Alternative 5 to enhance the biological values of the Merced River include restoring Stoneman Meadow by redesigning the Orchard Parking Lot. Through engineering solutions, Alternative 5 would promote water flow by increasing drainage from the cliff walls of the parking lot to Stoneman Meadows, thus improving meadow health. Improving hydrological connectivity between the Orchard Parking Lot cliff walls and Stoneman Meadow would result in local, long-term, minor, beneficial impacts on special status species. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Former Upper and Lower Rivers Campgrounds: Specific actions to enhance biological values of the Merced River at the Former Upper and Lower Rivers Campgrounds under Alternative 5 include restoring 35.6 acres of riparian and floodplain habitat at Lower Rivers Campground. Alternative 5 would remove remaining asphalt, decompact soils of former roads and campsites and re-establish channels that have been filled, place large box culverts under the road to allow water flow, and fence and close the riparian zone at former Upper River to protect the riverbank from trampling. Restoration of the Former Upper and Lower Rivers Campgrounds would result in local, long-term, moderate, beneficial impacts on special status species including long-eared owl, yellow warbler, and Townsend's big-eared bat.

These restoration management actions would improve hydrologic function and restore ecological integrity of the Merced River corridor in Segment 2 and associated plant communities and wetlands, address ongoing and future impacts on park resources and infrastructure, and manage visitor use and

development along the river corridor. These actions would be part of a comprehensive strategy to reduce existing adverse impacts on meadow and riparian vegetation. Overall, these actions would result in a segmentwide, long-term, moderate, beneficial impact on special status species in Segment 2.

Hydrologic/Geologic Resource Actions. Specific projects to protect and enhance the river's hydrologic and geologic values that would occur within Segment 2 under Alternative 5 include: relocating unimproved Camp 6 parking; removing the Sugarpine Bridge; placing large wood and engineered logjams along the base of Stoneman Bridge; and improving trail connectivity and routing in the vicinity of the Ahwahnee Bridge. These actions would result in enhanced channel free flow, increased channel complexity, increased streambank stability, and restored riparian habitat segmentwide. Overall these measures would improve the free-flowing condition of the river and restore the ecological integrity of Yosemite Valley riparian habitats.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Actions to manage visitor use and facilities under Alternative 5, specifically those concerning vehicle access and overnight accommodations, would result in a 5% decrease in daily Yosemite Valley visitation, from approximately 20,900 under Alternative 1 to 19,900. Day use visitation would decrease by 14%. However, due largely to increases in lodging and campground facilities, overnight visitation would increase by about 16%. Under Alternative 5, there would be a net increase in Yosemite Valley lodging units. This would largely result from the increase in units at Curry Village and removal of units from Housekeeping Camp. The park would increase the total number of campsites within the Valley.

Maintaining and constructing new overnight camping and lodging facilities would maintain dense levels of the built environment within the Valley, resulting in long-term, minor, adverse impacts on wildlife in Segment 2 from human presence and human-related pressures (noise, human food, vegetation trampling, etc.). The use of heavy equipment would create the potential for wildlife injuries or death, specifically for small wildlife. These activities could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. New parking areas and paths may require some tree removal; removing potentially occupied habitats such as mature conifer and hardwood trees, hollowed-out trees, or snags could affect breeding bats or birds by removing nests or roosts and could result in the harassment of adults from active nests or roosting sites located in the vicinity. Tree removal would be minimized through site design, and, if possible, older trees and snags would be retained for habitat. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse.

Vegetation that is removed under Alternative 5 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 2 because new construction would primarily occur in or adjacent

to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce short-term impacts to minor and adverse.

Curry Village & Campgrounds. Actions under Alternative 5 in Segment 2 related to managing visitor use and facilities at Curry Village include the reorganization of Curry Village and the rerouting of South Side Drive at Boys Town. Construction and reorganization activities at Curry Village could disturb special status wildlife habitat where facilities are removed and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts to wildlife habitats would occur in ponderosa pine forest (6.35 acres impacted) and wet meadow (0.03 acres impacted) habitat types. Special status species that could be affected by actions at Curry Village are presented in **table 9-114**. As described in the “Vegetation” section, the proposed actions at Curry Village would primarily affect ponderosa pine habitat surrounding areas that are currently developed and experience a high level of human disturbance.

Construction of new facilities will require some tree removal. As noted in table 9-114, up to 6.35 acres of ponderosa pine habitat would be affected by the actions proposed for Curry Village under Alternative 5. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for long-eared owls or spotted owls would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

It is unlikely that any special status plant species occur in the Curry Village area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Curry Village area. Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Curry Village under Alternative 5.

TABLE 9-114: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CURRY VILLAGE & CAMPGROUNDS – ALTERNATIVE 5

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Asio otus</i> Long-eared owl	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 6.35 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 6.35 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
Mammals				
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine Wet Meadow Urban	6.35 0.03 N/A	0.4% <0.1% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	Ponderosa Pine Wet Meadow Urban	6.35 0.03 N/A	0.4% <0.1% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine Wet Meadow	6.35 0.03	0.4% <0.1%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.

TABLE 9-114: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CURRY VILLAGE & CAMPGROUNDS – ALTERNATIVE 5 (CONTINUED)

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in the Curry Village area.
^a This is a comparison of the acres of habitat impacted to the total acres of that habitat type in the segment. SOURCE: NPS 2012c				

Camp 6 and Yosemite Village. Actions under Alternative 5 in Segment 2 related to managing visitor use and facilities at Camp 6 and Yosemite Village include measures to formalize and relocate parking facilities 150 feet away from the river in order to facilitate riparian restoration goals. The Camp 6/Village Center Parking Area will be formalized to include 850 designated parking spaces by redeveloping part of the current administrative footprint. In addition, 100 parking spaces would be added at Yosemite Village. A pedestrian underpass and a roundabout at the Village Drive/Northside Drive (Camp 6) intersection would be constructed to address traffic congestion and pedestrian/vehicle conflicts. A three-way intersection at Sentinel Drive and the entrance to the parking area would be added to improve traffic flow and alleviate congestion at nearby intersections.

Construction activities at Camp 6 and Yosemite Village could disturb special status wildlife habitat where facilities are removed, relocated and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts to wildlife habitats would occur in montane riparian (0.81 acres impacted), ponderosa pine forest (12.22 acres impacted), and wet meadow (0.28 acres impacted) habitat types. Special status species that could be affected by actions at Camp 6 and Yosemite Village are presented in **table 9-115**. As described in the “Vegetation” section, the proposed actions at Camp 6 and Yosemite Village would primarily affect ponderosa pine forest and montane riparian habitats surrounding areas that are currently developed and experience a high level of human disturbance.

TABLE 9-115: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CAMP 6 & YOSEMITE VILLAGE – ALTERNATIVE 5

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Asio otus</i> Long-eared owl	Ponderosa Pine Montane Riparian	12.22 0.81	0.7% 0.3%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 13.03 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 12.22 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Chaetura vauxi</i> Vaux's swift	Montane Riparian	0.81	0.3%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 0.81 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Contopus cooperi</i> Olive-sided flycatcher	Montane Riparian	0.81	0.3%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 0.81 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Setophaga petechia</i> Yellow warbler	Montane Riparian	0.81	0.3%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 0.81 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
Mammals				
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine Montane Riparian Wet Meadow Urban	12.22 0.81 0.28 N/A	0.7% 0.3% <0.1% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.

TABLE 9-115: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CAMP 6 & YOSEMITE VILLAGE – ALTERNATIVE 5 (CONTINUED)

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Mammals (cont.)				
<i>Corynorhinus townsendii</i> Townsend’s big-eared bat	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Riparian	0.81	0.3%	
	Wet Meadow	0.28	<0.1%	
	Urban	N/A	N/A	
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
	Montane Riparian	0.81	0.3%	
	Wet Meadow	0.28	<0.1%	
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Riparian	0.81	0.3%	
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in Camp 6 and Yosemite Village.
^a This is a comparison of the acres of habitat impacted to the total acres of that habitat type in the segment. SOURCE: NPS 2012c				

Construction of new facilities will require some tree removal. As noted in table 9-115, up to 12.22 acres of ponderosa pine habitat and 0.81 acres of montane riparian habitat would be affected by the actions proposed for Camp 6 and Yosemite Village under Alternative 5. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for

special status bird species would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

It is unlikely that any special status plant species occur in the Camp 6 and Yosemite Village area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Camp 6 and Yosemite Village area. Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Camp 6 and Yosemite Village under Alternative 5.

Yosemite Lodge and Camp 4. Actions under Alternative 5 in Segment 2 related to managing visitor use and facilities at Yosemite Lodge and Camp 4 include: the removal of old and temporary housing at Highland Court and the Thousands Cabins; the construction of two new concessioner housing areas and the construction of 78 employee parking spaces; redevelopment west of Yosemite Lodge to provide an additional 300 day-use parking spaces and area for 15 tour buses; relocation of existing tour bus drop off area to Highland Court to provide 3 bus loading/unloading spaces; and the construction of a pedestrian underpass to alleviate pedestrian/vehicle conflicts.

Construction activities at Yosemite Lodge and Camp 4 could disturb special status wildlife habitat where facilities are removed, relocated and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts to wildlife habitats would occur in ponderosa pine forest (15.47 acres impacted) and montane hardwood (1.73 acres impacted) habitats. Special status species that could be affected by actions at Yosemite Lodge and Camp 4 are presented in **table 9-116**. As described in the “Vegetation” section, the proposed actions at Yosemite Lodge and Camp 4 would primarily affect ponderosa pine habitat surrounding areas that are currently developed and experience a high level of human disturbance.

Construction of new facilities will require some tree removal. As noted in table 9-116, up to 15.47 acres of ponderosa pine habitat and 1.73 acres of montane hardwood habitat would be affected by the actions proposed for Yosemite Lodge and Camp 4 under Alternative 5. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or

TABLE 9-116: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT YOSEMITE LODGE AND CAMP 4 – ALTERNATIVE 5

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Asio otus</i> Long-eared owl	Ponderosa Pine Montane Hardwood	15.47 1.73	0.9% <0.1%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 17.20 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine Montane Hardwood	15.47 1.73	0.9% <0.1%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 17.20 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
Mammals				
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine Montane Hardwood Urban	15.47 1.73 N/A	0.9% <0.1% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	Ponderosa Pine Montane Hardwood Urban	15.47 1.73 N/A	0.9% <0.1% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine	15.47	0.9%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine	15.47	0.9%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.

TABLE 9-116: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT YOSEMITE LODGE AND CAMP 4 – ALTERNATIVE 5 (CONTINUED)

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Mammals (cont.)				
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine Montane Hardwood	15.47 1.73	0.9% <0.1%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	15.47	0.9%	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in the Yosemite Lodge and Camp 4 area.
^a This is a comparison of the acres of habitat impacted to the total acres of that habitat type in the segment. SOURCE: NPS 2012c				

perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for long-eared owls or spotted owls would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

It is unlikely that any special status plant species occur in the Yosemite Lodge and Camp 4 area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Yosemite Lodge and Camp 4 area. Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Yosemite Lodge and Camp 4 under Alternative 5.

Segment 2 Impact Summary: Overall, actions in Segment 2 under Alternative 5 would result in segmentwide, long-term, minor to moderate, beneficial impacts on special status species.

Actions in Segment 2 under Alternative 5 would have no effect on the following federally listed and candidate species: valley elderberry longhorn beetle, Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, Sierra Nevada bighorn sheep, and whitebark pine.

Actions in Segment 2 under Alternative 5 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Pacific fisher.

Segments 3 and 4: Merced Gorge and El Portal

Impacts of Actions to Protect and Enhance River Values

Currently, vehicles park under the dripline of the 38 valley oak trees. This practice compacts soil under the trees and impacts root health, water uptake, and soil aeration. Additionally, existing development and trampling in the vicinity of these trees limits the area where oak seedlings can be recruited. Under Alternative 5, valley oaks in El Portal would be enhanced by creating an oak recruitment area of one acre in Old El Portal in the vicinity of the current bulk fuel storage area, including the adjacent parking lots. Parking and new building construction within the oak recruitment area would be prohibited. Nonnative fill would be removed and soils decompacted. Appropriate native understory plant species would be planted. The fuel storage area would be relocated outside of the river corridor. Overall, these actions would result in local, long-term, moderate, beneficial impacts on valley oaks in Segment 4. Valley oaks are a park-designated special status species.

These restorative actions could result in local, short-term, adverse impacts on special status wildlife within the adjacent riparian habitat, including noise associated with construction-related activities, ground disturbance, human presence, increases in sedimentation, and potential for incidental spills to reach aquatic habitats (including the Merced River). Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, implementation of these restorative actions would restore the 100-year floodplain and associated riparian community, improve hydrological connectivity to the river, and improve habitat for riparian-dependent species.

As summarized in the “Wildlife” section of this chapter, a total of 12 acres of riparian, floodplain, and valley oak woodland habitat would be restored in Segment 4 under Alternative 5 (this includes restoration actions common to Alternatives 2-6), resulting in direct benefits to fish and wildlife that use these habitat types. Thus, these restoration management actions would likely have a local, long-term, minor, beneficial impact on special status wildlife species that use riparian habitats in El Portal (WHR: montane riparian). Special status wildlife species that may benefit from these actions over the long term include valley elderberry longhorn beetle, western pond turtle, long-eared owl, yellow warbler, and western red bat.

Biological resource surveys have identified suitable habitat (elderberry shrubs) in the El Portal area for valley elderberry longhorn beetle. Actions in the El Portal area (Segment 4) include the restoration of the Greenemeyer sand pit and the restoration of riverside habitat in Abbeville and the Trailer Village. The NPS would avoid all impacts within 100-feet of elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level when implementing these common to all restoration actions. If these actions were to result in unanticipated direct or indirect impacts on valley elderberry longhorn beetle habitat, the NPS would implement avoidance and mitigation measures outlined in the 1999 USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (mitigation measure MM-WL-4, as applicable; see Appendix C).

Vegetation removed under Alternative 5 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 4 because new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce short-term impacts to minor and adverse. Overall, these restoration actions would result in local, long-term, minor, beneficial impacts on special status plants that occur in riparian habitats in Segment 4.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Under Alternative 5, visitor day parking would be expanded by 200 parking spaces at Abbeville; this area would primarily be used for visitor access to Yosemite Valley. NPS employee housing would be added to Abbeville, El Portal Village Center, and Rancheria Flat along with a total of 292 employee parking spaces at these locations. While all new units would be built outside of the 100-year floodplain, they would fall within the river corridor in Segment 4. This increase in capacity in El Portal is a function of the decrease in employee housing capacity in the Valley (Segment 2). The addition of employee housing and park facilities development would increase the total built environment within Segment 4.

Construction, removal, and restoration activities associated with these management actions under Alternative 5 could disturb special status wildlife habitat where facilities are removed and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence in Segment 4.

The use of heavy equipment would create the potential for wildlife injuries or death, and could cause wildlife to relocate or avoid the construction area and could cause breeding birds to abandon their nests or avoid using the immediate area. New construction may require some tree removal; removing potentially occupied habitats such as mature conifer and hardwood trees, hollowed-out trees, or snags could affect breeding bats or birds by removing nests or roosts and could result in the harassment of adults from active nests or roosting sites located nearby. Tree removal would be minimized through site design, and, if possible, older trees and snags would be retained for habitat. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to

construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided under Alternative 5. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse in Segment 4.

Biological resource surveys have identified suitable habitat (elderberry shrubs) in the El Portal area for valley elderberry longhorn beetle. Approximately 124 elderberry plants of a size sufficient to support the Valley elderberry longhorn beetle occur in areas of potential development or management activities in El Portal. Valley elderberry longhorn beetle exit holes that verify beetle activity were found in 11 of these elderberry plants, though beetle larvae could still be present in elderberry plants without exit holes. Actions in Segment 4, including moving temporary housing units to El Portal and development at the Abbierville and Trailer Village, would result in potential indirect or direct impacts on elderberry shrubs, including removal of shrubs. Approximately 37 elderberry plants were documented within potential areas of ground disturbance, seven with exit holes. Complete impact avoidance would not be possible for these plants. The infill in El Portal would affect up to nine elderberry shrubs with stems greater than one inch in diameter. The development at Abbierville would affect up to 16 shrubs, while the development at Trailer Village would affect up to 12 shrubs. Direct or indirect impacts on valley elderberry longhorn beetle habitat would result in local, long-term, minor, adverse impacts on this beetle species. If these actions were to result in direct or indirect impacts on valley elderberry longhorn beetle habitat, the NPS would implement avoidance and mitigation measures outlined in the 1999 USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (mitigation measure MM-WL-4, as applicable; see Appendix C).

Vegetation removed under Alternative 5 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 4 because new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities under Alternative 5.

Segments 3 and 4 Impact Summary: Overall, actions in Segments 3 and 4 under Alternative 5 would result in local, long-term, minor, beneficial impacts on most special status species.

Actions in Segments 3 and 4 under Alternative 5 would have no effect on the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, Pacific fisher, Sierra Nevada bighorn sheep, and whitebark pine.

It is the determination of the NPS that the actions proposed in Segment 4 under Alternative 5 may affect, and are likely to adversely affect, the valley elderberry longhorn beetle.

Segments 5–8: South Fork Merced River

Impacts of Actions to Protect and Enhance River Values

Actions specifically targeted to protect culturally sensitive areas under Alternative 5 would also benefit special status species, including the relocation or removal of selected campsites and stock campground sites that are within 100 feet of the South Fork Merced River or in culturally sensitive areas. Removing

some campsites within the floodplain would result in local, long-term, minor beneficial impact on special status species as riparian habitat is restored and wildlife are subject to less human presence and human-related pressures.

Biological Resource Actions. Specific projects to protect and enhance the river's biological values that would occur within Segment 7 under Alternative 5 include the relocation of stock use campsites from sensitive resource areas to the Wawona Maintenance Yard. Overall, this action would result in a local, long-term, minor, beneficial impact on special status species in Segment 7.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Under Alternative 5, Wawona stables operations would be eliminated and two stock campsites would be relocated to the Wawona Maintenance Yard from the current Wawona stock camp. In the Wawona Campground, 13 campsites would be removed from within 100 feet of the South Fork Merced River or from cultural sites and the area would be restored. Soils would be decompacted, and the area would be replanted with riparian vegetation; these actions would reduce visitor use in this area and result in decreased vegetation trampling.

These actions would result in short-term, adverse impacts on special status wildlife that uses riparian habitat. Adverse impacts would include noise associated with demolition, removal, and restoration activities; ground disturbance; human presence; habitat modification; and potential increase in suspended sediments to the South Fork Merced River. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding removal of riparian vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, implementation of these actions would reduce the built environment within Segment 7, restore riparian habitat, and reduce riverbank erosion.

As summarized in the "Wildlife" section of this chapter, a total of three acres of riparian would be restored in Segment 7 under Alternative 5 (this includes restoration actions common to Alternatives 2-6), resulting in direct benefits to wildlife that use this habitat type. Thus, this restoration action would be expected to have a local, long-term, moderate, beneficial impact on special status wildlife species that use riparian habitats in Wawona (WHR: montane riparian). Special status wildlife species that may benefit from these actions over the long term include long-eared owl and yellow warbler.

Special status plants may be adversely affected in the short term by removal, restoration, and monitoring activities associated with these restoration management actions. Potential impacts include temporary disturbance and loss of habitat, potential loss of individual plants or populations, and the potential introduction and spread of invasive nonnative species. These impacts would be local. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Overall, these actions under Alternative 5 would result in local, long-term, negligible, beneficial impacts on special status plants that occur in the Wawona area (Segment 7).

Wawona Campground. Facilities actions at the Wawona Campground would involve removal of 13 sites that are either within the 100-year floodplain or in culturally sensitive areas. Overall, these actions would result in a local, long-term, minor, beneficial impact on special status species in Wawona.

Segments 5, 6, 7 and 8 Impact Summary: Overall, actions in Segments 5-8 under Alternative 5 would result in segmentwide, long-term, minor to moderate, beneficial impacts on special status species.

Actions in Segments 5-8 under Alternative 5 would have no effect on the following federally listed and candidate species: valley elderberry longhorn beetle, Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, Sierra Nevada bighorn sheep, and whitebark pine.

Actions in Segments 5-8 under Alternative 5 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Pacific fisher.

Summary of Impacts from Alternative 5: Enhanced Visitor Experiences and Essential Riverbank Restoration

Past development and human activity in the Merced River corridor have in some cases adversely affected special status species habitat and use of those habitats. As described in the preceding paragraphs, many of the actions proposed for Alternative 5 would address existing adverse impacts on habitats for special status species, including actions targeted to improve habitat quality for aquatic, riparian-dependent, and meadow-dependent special status species where these habitats are near or adjacent to existing developments and high visitor use areas. Additionally, the park would implement measures to restore the ecological integrity of riparian, meadow, and aquatic habitat in targeted areas, increase channel free flow, improve water quality, and reduce erosion and scouring. Notable actions the park would implement under Alternative 5 include the following:

- Restrict recreational use of rivers and riverbanks to reduce riverbank erosion.
- Remove, restore, relocate, or repurpose park facilities to efficiently use park facilities and reduce the built environment within the park; some facilities would be built to accommodate visitors or employees.
- Manage total visitors to the park and visitor demands for day parking space, lodging, and camping space.
- Remove facilities within 100 feet of the Merced River and restore riverbanks, meadows, and riparian habitat.
- Enhance meadow, riparian, and river hydrologic function, complexity, and connectivity.
- Improve the free flow, complexity, and water quality of the Merced River.

Generally, Alternative 5 is focused on intensive restoration of meadow, riparian, and riverbank habitats in Yosemite Valley (Segment 2); removing many facilities that are located within 100 feet of the river and are jeopardized by flooding; repurposing park facilities to improve efficiency of use; maintaining existing usage levels; and providing adequate lodging, camping, and parking space for visitors and employees. Adverse effects from these actions would be associated with the active construction or restoration phase and would be local, short term, and minor or negligible. However, there would be local, long-term, negligible, adverse impacts on habitats for special status species from construction of some facilities. When combined, the long-term effect of all of these measures would be a moderate, beneficial impact on special status species as habitats are restored and fragmentation and

indirect detriments to habitat are reduced. These effects would be most pronounced in areas of high human use such as Yosemite Valley and Wawona (Segments 2 and 7, respectively).

Overall, there would be a lessened potential for beneficial effects under Alternative 5 compared with Alternative 2, and a slightly lessened beneficial effect compared with Alternatives 3 and 4. However, there would be a somewhat increased potential for adverse impacts over Alternatives 2 and 3, and about the same adverse impact potential compared to Alternative 4 because more new construction would occur in and adjacent to suitable habitat for special status species.

Implementation of a comprehensive ecological restoration program to restore natural processes to the Merced River corridor, in combination with much lower visitor use levels and extensive site-specific restoration, would result in a corridorwide, long-term, moderate, beneficial impact on special status species habitat. In the long term, these measures would improve hydrologic connectivity of meadows and floodplains to the river; enhance habitat complexity in riparian, meadow and aquatic areas; reduce human and pack stock-related disturbances; and reduce nonnative species and conifer intrusion into sensitive habitats. Adverse effects related to the construction phase of these actions would be local, short term, and minor or negligible.

Actions under Alternatives 5 would have no effect on the following federally listed and candidate species: Sierra Nevada bighorn sheep and whitebark pine.

Actions under Alternative 5 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, and Pacific fisher.

Actions in Segment 4 under Alternative 5 would result in potential indirect or direct impacts on elderberry shrubs, including possible removal of shrubs. Direct or indirect impacts on valley elderberry longhorn beetle habitat would result in local, long-term, minor, adverse impacts on this beetle species. Therefore, it is the determination of the NPS that the actions proposed may affect, and are likely to adversely affect, the valley elderberry longhorn beetle.

Cumulative Impacts from Alternative 5: Enhanced Visitor Experiences and Essential Riverbank Restoration

The past, present, and reasonably foreseeable plans and projects that could have a cumulative impact on special status species in combination with Alternative 5 are the same as those listed for Alternative 1 (No Action).

Overall Cumulative Impact from Alternative 5: Enhanced Visitor Experiences and Essential Riverbank Restoration

The actions associated with Alternative 5 would generally result in segmentwide, long-term, minor to moderate, beneficial impacts on special status species habitats within the Merced River corridor, with the exception of valley elderberry longhorn beetle. These actions are focused on restoring and improving aquatic, meadow, and riparian habitat quality within the Merced River corridor; therefore, special status species associated with these habitat types are most likely to be affected cumulatively by

the proposed actions. The past, present, and future actions in the region would have varying effects on special status species habitats, with some projects restoring or enhancing habitats and many other projects resulting in habitat loss or decline.

In general, past actions have impaired and reduced the abundance and quantity of aquatic, meadow, and riparian habitats in the region. These past actions, especially at lower elevations from development and resource extraction, have resulted in a reduction in special status species populations and ranges. Present and reasonably foreseeable future actions also have the potential to further reduce or impair these habitat types; however, in general, potential effects on these habitat types are mitigated and/or compensated through habitat preservation and/or enhancement at an off-site location (including mitigation banks). These actions provide the most benefit when coordinated with larger, regional conservation strategies that protect intact corridors or provide linkages to other areas of suitable habitat. Because Alternative 5 proposed actions would further increase the habitat value of the Merced River Corridor, this alternative would not contribute toward a cumulative adverse effect on special status species.

The actions under Alternative 5 would have long-term, beneficial effects on special-status species in the Merced River corridor. However, in relation to past, present, and reasonably foreseeable future actions throughout the Sierra Nevada and larger region, (e.g., introduction and spread of nonnative species, direct displacement of habitat) the actions under Alternative 5 would have a minimal beneficial effect. Overall, in conjunction with actions proposed in Alternative 5, cumulative actions on special status species would result in long-term, adverse effects on special status species.

Environmental Consequences of Alternative 6: Diversified Visitor Experiences and Selective Riverbank Restoration

Segment 1: Merced River Above Nevada Fall

Impacts of Actions to Protect and Enhance River Values

Under Alternative 6, grazing in Merced Lake East Meadow would be managed as described for Alternatives 3. Beneficial effects to special status species would be the same as described for Alternative 3.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Several actions related to management of visitor use and facilities would have the potential to affect special status species in Segment 1 under Alternative 6. Visitation within Segment 1 would not be expected to change appreciably under Alternative 6; wilderness access quotas would remain as under Alternative 1 (No Action) (150) and modifications to overnight accommodations would be nominal. Under Alternative 6, the Merced Lake High Sierra Camp would remain in operation and continue to host overnight guests and through-hikers during the summer months. The camp's 60 beds (22 units) would remain. The park would not reduce the total number of designated campsites within the Merced River corridor's wilderness.

Total daily use levels in Segment 1 under Alternative 6 are estimated at 380 overnight visitors and approximately 450 day visitors. Compared with Alternative 1 (No Action), with which daily use levels are estimated at 380 overnight visitors and approximately 450 day visitors, Alternative 6 would maintain the level of use within Segment 1. Collectively, actions to maintain similar kinds and levels of use as current levels would result in continued local, long-term, minor, adverse impacts on special status species within Segment 1.

Merced Lake High Sierra Camp. The project-level actions in the Merced Lake High Sierra Camp area proposed under Alternative 6 involve retention of the Merced Lake High Sierra Camp and replacing the flush toilets with composting toilets. Actions to maintain similar kinds and levels of use as current levels would result in continued local, long-term, minor, adverse impacts on special status species within Segment 1.

Segment 1 Impact Summary: Overall, actions in Segment 1 under Alternative 6 would result in local, long-term, minor, adverse impacts on special status species.

Actions in Segment 1 under Alternative 6 would have no effect on the following federally listed and candidate species: valley elderberry longhorn beetle, Sierra Nevada bighorn sheep, and whitebark pine.

Actions in Segment 1 under Alternative 6 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, and Pacific fisher.

Segment 2: Yosemite Valley

Impacts of Actions to Protect and Enhance River Values

Ecological management actions that would occur within Segment 2 under Alternative 6 include measures to restore and protect meadows, riparian habitat, and areas within the 100-year floodplain of the Merced River. Projects proposed in Segment 2 under Alternative 6 to protect and enhance river values involve constructing a boardwalk for the Valley Loop Trail through sensitive wet meadow habitat in Slaughterhouse Meadow; and moving 780 feet of the Valley Loop Trail out of Bridalveil Meadow.

Special status species inhabiting wetlands, riparian habitat, and riverine ecosystems in Segment 2 would benefit from removal of some overnight camping and lodging facilities within 100 feet of the ordinary high-water mark of the Merced River under Alternative 6. Restoration of these select areas would prevent further riverbank erosion, provide hydrologic connectivity for meadows and riparian habitats, reduce vegetation trampling, enhance the hydrologic function within the floodplain, enhance water quality, increase the amount of wildlife habitat, increase productivity within riparian and aquatic ecosystems, and reduce human presence and human-related impacts.

Special status wildlife and their habitats may be adversely affected in the short-term by construction/removal, restoration, and monitoring activities associated with these management actions. Potential impacts include disturbance associated with noise from construction/restoration activities, human

presence, and modification to habitat. These activities could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular.

The use of heavy equipment would create the potential for wildlife injuries or death, and could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided. Adherence to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoidance of the removal of vegetation where possible would reduce these short-term impacts to minor and adverse. However, these measures would also improve hydrologic function and restore ecological integrity of the river corridor and associated habitats, in particular meadow, riparian, and wetland habitats; address ongoing and future impacts to park resources and infrastructure; and manage visitor use and development along the river corridor.

As summarized in the “Wildlife” section of this chapter, a total of 156 acres of floodplain, riparian, meadow, woodland, and forest habitat would be restored in Segment 2 under Alternative 6 (this includes restoration actions common to Alternatives 2-6), resulting in direct benefits to fish and wildlife that use these habitat types. Over time, these management actions would have segmentwide, long-term, moderate, beneficial impacts on special status wildlife species that use the Merced River and adjacent meadows and riparian habitats in the Valley (WHR types: riverine, wet meadow, montane riparian). Special status wildlife species that may benefit from these actions over the long term include western pond turtle, harlequin duck, bald eagle, peregrine falcon, long-eared owl, great gray owl, California spotted owl, black swift, willow flycatcher, yellow warbler, pallid bat, spotted bat, western red bat, and Pacific fisher.

Vegetation removed under Alternative 6 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities along the Merced River corridor in Segment 2. These impacts would be local and occur within or adjacent to the river corridor. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. Special status plant species would be avoided during management activities. However, these measures would improve the hydrologic function and restore the ecological integrity of Valley meadows. Associated beneficial impacts would include reduced fragmentation and disturbance of meadows, increased opportunities for revegetation and restoration, and enhanced hydrological connectivity between the meadows and the Merced River. Thus, this management action would be expected to have a local, long-term, moderate, beneficial impact on special status species occurring within Segment 2 plant communities.

Biological Resource Actions.

Yosemite Valley Campgrounds: Like Alternative 5, specific restoration actions under Alternative 6 to enhance the river's biological values in Segment 2 include removing all campsites within 100' of the bed and banks of the Merced River and restoring 6.5 acres of floodplain/riparian habitat, and designating river access at the North Pines Campground. Restoration of riparian habitat throughout Yosemite Valley would result in segmentwide, long-term, minor to moderate, beneficial impacts to special status species including long-eared owl, yellow warbler, and Townsend's big-eared bat.

El Capitan Meadow: Alternative 6 would install restoration fencing along the northern perimeter of El Capitan Meadow to designate appropriate meadow access points along boardwalks and viewing platforms. The NPS would remove all informal trails in sensitive and frequently inundated areas and in areas that trails incise meadow and promote habitat fragmentation. Additionally, Alternative 6 would selectively remove conifers that block the views of El Capitan from the roadside. Restoration of El Capitan Meadow and rerouting or removal of informal trails would result in local, long-term, minor to moderate, beneficial impacts on special status species from reduction of trampling from foot traffic that causes habitat fragmentation. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, long-eared owl, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Ahwahnee Meadow: Similar to Alternatives 4 and 5, specific actions under Alternative 6 in Segment 2 to enhance the river's biological values at the Ahwahnee Meadow include: removing fill in sections of trails that passes through meadow and wetland habitats and replace the trails with boardwalk. Unlike Alternatives 2 and 3, Northside Drive and the adjacent bike path would remain under Alternative 6. Hydrological connectivity between both sides of Northside Drive would be enhanced by increasing the number of culverts. Trail improvement and meadow restoration would result in local, long-term, minor to moderate, beneficial impacts on special status species at the Ahwahnee Meadow as wetland fragmentation and vegetation trampling is reduced, and wetland connectivity to the river is enhanced. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, long-eared owl, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Stoneman Meadow: Like Alternative 5, specific actions in Alternative 6 to enhance the biological values of the Merced River include restoring Stoneman Meadow by redesigning the Orchard Parking Lot. Through engineering solutions, Alternative 6 would promote water flow by increasing drainage from the cliff walls of the parking lot to Stoneman Meadows, thus improving meadow health. Improving hydrological connectivity between the Orchard Parking Lot cliff walls and Stoneman Meadow would result in local, long-term, minor, beneficial impacts on special status species. Special status wildlife species that may benefit from these actions over the long term include northern harrier, peregrine falcon, Vaux's swift, pallid bat, Townsend's big-eared bat, and spotted bat.

Former Upper and Lower Rivers Campgrounds: Like Alternative 5, specific actions to enhance biological values of the Merced River at the Former Upper and Lower Rivers Campgrounds under Alternative 6 include restoring the topography of 19.7 acres of the floodplain. Alternative 6 would remove remaining asphalt, decompact soils of former roads and campsites and re-establish channels that have been filled, place large box culverts under the road to allow water flow, and fence and close

the riparian zone at former Upper River to protect the riverbank from trampling. Restoration of the Former Upper and Lower Rivers Campgrounds would result in local, long-term, moderate, beneficial impacts on special status species including long-eared owl, yellow warbler, and Townsend's big-eared bat.

These restoration management actions would improve hydrologic function and restore ecological integrity of the Merced River corridor in Segment 2 and associated plant communities and wetlands, address ongoing and future impacts on park resources and infrastructure, and manage visitor use and development along the river corridor. These actions would be part of a comprehensive strategy to reduce existing adverse impacts on meadow and riparian vegetation. Overall, these actions would result in a segmentwide, long-term, moderate, beneficial impact on special status species in Segment 2.

Hydrologic/Geologic Resource Actions. Specific projects to protect and enhance the river's hydrologic and geologic values that would occur within Segment 2 under Alternative 6 include: relocating unimproved Camp 6 parking and placing large wood and engineered logjams along the bases of Stoneman, Sugar Pine, and Ahwahnee Bridges. These actions would result in enhanced channel free flow, increased channel complexity, increased streambank stability, and restored riparian habitat segmentwide. Overall, these actions would result in a segmentwide, long-term, moderate, beneficial impact on special status species in Segment 2.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Actions to manage visitor use and facilities under Alternative 6, specifically those concerning vehicle access and overnight accommodations, would result in a 4% increase in daily Yosemite Valley visitation, from approximately 20,900 under Alternative 1 to 21,800. Daytime visitation would decrease by 7%. However, due largely to increases in lodging and campground facilities, overnight visitation would increase by about 33%. Under Alternative 6, there would be a net increase in Yosemite Valley lodging units. This would largely result from the substantial increase in units at Yosemite Lodge and Curry Village, along with a slight reduction in Housekeeping Camp units. The park would increase the total number of campsites within the Valley.

Maintaining and constructing new overnight camping and lodging facilities would maintain dense levels of the built environment within the Valley, resulting in segmentwide, long-term, minor, adverse impacts on wildlife from human presence and human-related pressures (such as noise, human food, and vegetation trampling). The use of heavy equipment would create the potential for wildlife injuries or death, specifically for small wildlife. These activities could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. New parking areas and paths may require removal of some trees; removal of potentially occupied habitats such as mature conifer and hardwood trees, hollowed-out trees, or snags could affect breeding bats or birds by removing nests or roosts and could result in the harassment of adults from active nests or roosting sites located in the vicinity. Tree removal would be minimized through site design, and, if possible, older trees and snags would be retained for habitat. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise

and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse.

Vegetation removed under Alternative 6 in Segment 2 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 2 because new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce short-term impacts to minor and adverse.

Curry Village & Campgrounds. Actions under Alternative 6 in Segment 2 related to managing visitor use and facilities at Curry Village include the reorganization of Curry Village including the construction of 98 hard-sided units. Construction and reorganization activities at Curry Village could disturb special status wildlife habitat where facilities are removed and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts to wildlife habitats would occur in ponderosa pine forest (6.35 acres impacted) and wet meadow (0.03 acres impacted) habitat types. Special status species that could be affected by actions at Curry Village are presented in **table 9-117**. As described in the “Vegetation” section, the proposed actions at Curry Village would primarily affect ponderosa pine habitat surrounding areas that are currently developed and experience a high level of human disturbance.

Construction of new facilities will require some tree removal. As noted in table 9-117, up to 6.35 acres of ponderosa pine habitat would be affected by the actions proposed for Curry Village under Alternative 6. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for long-eared owls or spotted owls would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

TABLE 9-117: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CURRY VILLAGE & CAMPGROUNDS – ALTERNATIVE 6

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Asio otus</i> Long-eared owl	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 6.35 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 6.35 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
Mammals				
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine Wet Meadow Urban	N/A 6.35 0.03	N/A 0.4% <0.1%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	Ponderosa Pine Wet Meadow Urban	N/A 6.35 0.03	N/A 0.4% <0.1%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine Wet Meadow	6.35 0.03	0.4% <0.1%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.

TABLE 9-117: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CURRY VILLAGE & CAMPGROUNDS – ALTERNATIVE 6 (CONTINUED)

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Mammals (cont.)				
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	6.35	0.4%	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in the Curry Village area.
^a This is a comparison of the acres of habitat impacted to the total acres of that habitat type in the segment. SOURCE: NPS 2012c				

It is unlikely that any special status plant species occur in the Curry Village area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Curry Village area. Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Curry Village under Alternative 6.

Camp 6 and Yosemite Village. Actions under Alternative 6 in Segment 2 related to managing visitor use and facilities at Camp 6 and Yosemite Village include measures to formalize and relocate parking facilities 150 feet away from the river in order to facilitate riparian restoration goals. The Camp 6/Village Center Parking Area will be formalized with 850 parking spaces by redeveloping part of the current administrative footprint. 100 parking spaces would be added at Yosemite Village. A pedestrian underpass and two roundabouts (one at the Village Drive/Northside Drive intersection and one at the Sentinel Drive/Northside Drive intersection) would be constructed to address traffic congestion and pedestrian/vehicle conflicts. A three-way intersection would be added at Sentinel Drive and the entrance to the parking area to improve traffic flow and alleviate congestion.

Construction activities at Camp 6 and Yosemite Village could disturb special status wildlife habitat where facilities are removed, relocated and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts to wildlife habitats would occur in montane riparian (0.81 acres impacted), ponderosa pine forest (12.22 acres impacted), and wet meadow (0.28 acres impacted) habitat types. Special status species that could be affected by actions at Camp 6 and

Yosemite Village are presented in table 9-118. As described in the “Vegetation” section, the proposed actions at Camp 6 and Yosemite Village would primarily affect ponderosa pine forest and montane riparian habitats surrounding areas that are currently developed and experience a high level of human disturbance.

TABLE 9-118: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CAMP 6 & YOSEMITE VILLAGE – ALTERNATIVE 6

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Asio otus</i> Long-eared owl	Ponderosa Pine Montane Riparian	12.22 0.81	0.7% 0.3%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 13.03 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 12.22 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Chaetura vauxi</i> Vaux’s swift	Montane Riparian	0.81	0.3%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 0.81 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Contopus cooperi</i> Olive-sided flycatcher	Montane Riparian	0.81	0.3%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 0.81 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Setophaga petechia</i> Yellow warbler	Montane Riparian	0.81	0.3%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 0.81 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.

TABLE 9-118: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT CAMP 6 & YOSEMITE VILLAGE – ALTERNATIVE 6 (CONTINUED)

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Mammals				
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Riparian	0.81	0.3%	
	Wet Meadow	0.28	<0.1%	
	Urban	N/A	N/A	
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Riparian	0.81	0.3%	
	Wet Meadow	0.28	<0.1%	
	Urban	N/A	N/A	
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
	Montane Riparian	0.81	0.3%	
	Wet Meadow	0.28	<0.1%	
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
	Montane Riparian	0.81	0.3%	
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	12.22	0.7%	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in Camp 6 and Yosemite Village.
^a This is a comparison of the acres of habitat impacted to the total acres of that habitat type in the segment. SOURCE: NPS 2012c				

Construction of new facilities will require some tree removal. As noted in table 9-118, up to 12.22 acres of ponderosa pine habitat and 0.81 acres of montane riparian habitat would be affected by the actions proposed for Camp 6 and Yosemite Village under Alternative 6. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for special status bird species would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

It is unlikely that any special status plant species occur in the Camp 6 and Yosemite Village area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Camp 6 and Yosemite Village area. Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Camp 6 and Yosemite Village under Alternative 6.

Yosemite Lodge and Camp 4. Actions under Alternative 5 in Segment 2 related to managing visitor use and facilities at Yosemite Lodge and Camp 4 include: the removal of old and temporary housing at Highland Court and the Thousands Cabins; the construction of two new concessioner housing areas and the construction of 78 employee parking spaces; redevelopment west of Yosemite Lodge to provide an additional 300 day-use parking spaces and area for 15 tour buses; relocation of existing tour bus drop off area to Highland Court to provide 3 bus loading/unloading spaces; and the construction of a pedestrian underpass to alleviate pedestrian/vehicle conflicts.

Construction activities at Yosemite Lodge and Camp 4 could disturb special status wildlife habitat where facilities are removed, relocated and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence. Outside of previously developed areas, impacts to wildlife habitats would occur in ponderosa pine forest (15.47 acres impacted) and montane hardwood (1.73 acres impacted) habitats. Special status species that could be affected by actions at Yosemite Lodge and Camp 4 are presented in table 9-119. As described in the “Vegetation” section, the proposed actions at Yosemite Lodge and Camp 4 would primarily affect ponderosa pine habitat surrounding areas that are currently developed and experience a high level of human disturbance.

TABLE 9-119: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT YOSEMITE LODGE AND CAMP 4 – ALTERNATIVE 6

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Birds				
<i>Asio otus</i> Long-eared owl	Ponderosa Pine Montane Hardwood	15.47 1.73	0.9% <0.1%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 17.20 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
<i>Strix occidentalis occidentalis</i> California spotted owl	Ponderosa Pine Montane Hardwood	15.47 1.73	0.9% <0.1%	May Affect, Not Likely to Adversely Affect. Impacts include direct loss of 17.20 acres of potential foraging habitat and indirect impacts from disturbance associated with construction activities. Preconstruction surveys will ensure no active nest sites are affected.
Mammals				
<i>Antrozous pallidus</i> Pallid bat	Ponderosa Pine Montane Hardwood Urban	15.47 1.73 N/A	0.9% <0.1% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	Ponderosa Pine Montane Hardwood Urban	15.47 1.73 N/A	0.9% <0.1% N/A	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of structures could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.
<i>Euderma maculatum</i> Spotted bat	Ponderosa Pine	15.47	0.9%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat). Roosting habitat (cliffs and caves) not impacted.
<i>Lasiurus blossevillii</i> Western red bat	Ponderosa Pine	15.47	0.9%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat and roosting sites) and indirect impacts from disturbance associated with construction. Removal of trees could impact roosting sites. Preconstruction surveys will ensure no active roost sites are affected.

TABLE 9-119: SPECIAL STATUS SPECIES POTENTIALLY AFFECTED BY ACTIONS TO MANAGE VISITOR USE AND FACILITIES AT YOSEMITE LODGE AND CAMP 4 – ALTERNATIVE 6 (CONTINUED)

Scientific Name Common Name	WHR Habitat Type Impacted	Acres Impacted	Percent of Habitat Type Affected in Segment ^a	Impact Summary
Mammals (cont.)				
<i>Eumops perotis</i> Western mastiff bat	Ponderosa Pine Montane Hardwood	15.47 1.73	0.9% <0.1%	May Affect, Not Likely to Adversely Affect. Impacts include habitat loss (foraging habitat) and indirect impacts from disturbance associated with construction. Roosting habitat (rock features) not impacted.
<i>Martes pennanti pacifica</i> Pacific fisher	Ponderosa Pine	15.47	0.9%	May Affect, Not Likely to Adversely Affect. Although suitable foraging habitat for this species would be impacted by proposed actions, this species is sensitive to human presence and is not likely to utilize habitats in the Yosemite Lodge are.
^a This is a comparison of the acres of habitat impacted to the total acres of that habitat type in the segment. SOURCE: NPS 2012c				

Construction of new facilities will require some tree removal. As noted in table 9-119, up to 15.47 acres of ponderosa pine habitat and 1.73 acres of montane hardwood habitat would be affected by the actions proposed for Yosemite Lodge and Camp 4 under Alternative 6. Removing mature conifer and hardwood trees, trees with cavities, or snags could affect bats or birds by removing suitable roosts or perches. Due to the proximity of this habitat to already developed sites as well as the structure and canopy closure of the stands that would be affected, it is not anticipated that any active nest sites for long-eared owls or spotted owls would be affected by the proposed actions. Tree removal would be minimized through site design however, and, if possible, older trees and snags would be retained for habitat. In addition, pre-construction surveys for these species would be conducted to ensure that no active nest sites would be affected.

The use of heavy equipment during construction could cause wildlife to relocate or avoid the area and could cause birds and mammals to avoid using the immediate area for foraging. Although the disturbance from construction activities would be temporary, displacement of individuals would have an adverse impact on local special status bird and bat populations. With the implementation of mitigation measures such as surveying suitable habitat prior to construction during the breeding season, noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these local, short-term impacts to minor and adverse.

It is unlikely that any special status plant species occur in the Yosemite Lodge and Camp 4 area due to the high levels of visitation and human-related impacts such as vegetation trampling and soil

compaction. In addition, no special status plants found during rare plant surveys conducted in 2010 at the Yosemite Lodge and Camp 4 area. Therefore, it is unlikely that special status plant species will be affected by actions to manage visitor use and facilities at Yosemite Lodge and Camp 4 under Alternative 6.

Segment 2 Impact Summary: Overall, actions in Segment 2 under Alternative 6 would result in segmentwide, long-term, minor to moderate, beneficial impacts on special status species.

Actions in Segment 2 under Alternative 6 would have no effect on the following federally listed and candidate species: valley elderberry longhorn beetle, Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, Sierra Nevada bighorn sheep, and whitebark pine.

Actions in Segment 2 under Alternative 6 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Pacific fisher.

Segments 3 and 4: Merced Gorge and El Portal

Impacts of Actions to Protect and Enhance River Values

Currently, vehicles park under the dripline of the 38 valley oak trees. This practice compacts soil under the trees, thus impacting root health, water uptake, and soil aeration. Additionally, existing development and trampling in the vicinity limits the area where oak seedlings can be recruited. Under Alternative 6, valley oaks in El Portal would be enhanced by creating an oak recruitment area of one acre in Old El Portal in the vicinity of the current bulk fuel storage area, including the adjacent parking lots. Parking and new building construction within the oak recruitment area would be prohibited. Nonnative fill would be removed and soils decompacted. Appropriate native understory plant species would be planted. The fuel storage area would be relocated outside of the river corridor. Overall, these actions would result in local, long-term, moderate, beneficial impacts on valley oaks in Segment 4. Valley oaks are a park-designated special status species.

These restorative actions could result in local, short-term, adverse impacts on special status wildlife within the adjacent riparian habitat, including noise associated with construction-related activities, ground disturbance, human presence, increases in sedimentation, and potential for incidental spills to reach aquatic habitats (including the Merced River). Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, implementation of these restorative actions would restore the 100-year floodplain and associated riparian community, improve hydrological connectivity to the river, and improve habitat for riparian-dependent species.

As summarized in the “Wildlife” section earlier in this chapter, a total of 12 acres of montane riparian and valley oak woodland habitat would be restored in Segment 4 under Alternative 6 (this includes restoration actions common to Alternatives 2-6), resulting in direct benefits to fish and wildlife that use these habitat types. These actions would be expected to have a local, long-term, minor, beneficial impact on special status wildlife species that use riparian habitats in El Portal (WHR: montane

riparian). Special status wildlife species that may benefit from these actions over the long term include valley elderberry longhorn beetle, western pond turtle, long-eared owl, yellow warbler, and western red bat.

Biological resource surveys have identified suitable habitat (elderberry shrubs) in the El Portal area for valley elderberry longhorn beetle. Actions in the El Portal area (Segment 4) include the restoration of the Greenemeyer sand pit and the restoration of riverside habitat in Abbeville and the Trailer Village. The NPS would avoid all impacts within 100-feet of elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level when implementing these common to all restoration actions. If these actions were to result in unanticipated direct or indirect impacts on valley elderberry longhorn beetle habitat, the NPS would implement avoidance and mitigation measures outlined in the 1999 USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (mitigation measure MM-WL-4, as applicable; see Appendix C).

Vegetation removed under Alternative 6 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 4 because new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. Special status plant species would be avoided during construction activities. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce short-term impacts to minor and adverse. Overall, restoration actions would result in local, long-term, minor, beneficial impacts on special status plants that occur in riparian habitats in these areas.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Under Alternative 6, visitor day parking would be expanded by 200 parking spaces at Abbeville; this area would primarily be used for visitor access to Yosemite Valley. NPS employee housing would be added to Abbeville, El Portal Village Center, and Rancheria Flat along with a total of 467 employee parking spaces at these locations. While all new units would be built outside of the 100-year floodplain, they would fall within the river corridor in Segment 4. This increase in capacity in El Portal would be a function of the decrease in employee housing capacity in the Valley (Segment 2). The addition of employee housing and park facilities development would increase the total built environment within Segment 4.

Construction, removal, and restoration activities associated with these management actions could disturb special status wildlife habitat where facilities are removed and restored as well as where new facilities are constructed. Demolition or removal of existing buildings and associated infrastructure would generate noise and ground vibrations, disturb habitat, and create other disturbances associated with human presence.

The use of heavy equipment under Alternative 6 would create the potential for wildlife injuries or death, and could cause wildlife to relocate or avoid the area and could cause breeding birds to abandon their nests or avoid using the immediate area. New construction may require some tree removal; removing potentially occupied habitats such as mature conifer and hardwood trees, hollowed-out trees, or snags could affect breeding bats or birds by removing nests or roosts and could

result in the harassment of adults from active nests or roosting sites located in the vicinity. Tree removal would be minimized through site design, and, if possible, older trees and snags would be retained for habitat. Although the disturbance would be temporary, species mortality, loss of reproductive potential, or abandonment of breeding sites would have an adverse impact on local special status bird and bat populations in particular. With the implementation of mitigation measures such as surveying potential habitat prior to construction (especially during important breeding seasons), noise and visual disturbances to special status wildlife would be minimized or avoided. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of vegetation, where possible, would reduce these short-term impacts to minor and adverse.

Biological resource surveys have identified suitable habitat (elderberry shrubs) in the El Portal area for valley elderberry longhorn beetle. Approximately 124 elderberry plants of a size sufficient to support the Valley elderberry longhorn beetle occur in areas of potential development or management activities in El Portal. Valley elderberry longhorn beetle exit holes that verify beetle activity were found in 11 of these elderberry plants, though beetle larvae could still be present in elderberry plants without exit holes. Actions in Segment 4, including moving temporary housing units to El Portal and development at the Abbieville and Trailer Village, would result in potential indirect or direct impacts on elderberry shrubs, including removal of shrubs. Approximately 37 elderberry plants were documented within potential areas of ground disturbance, seven with exit holes. Complete impact avoidance would not be possible for these plants. The infill in El Portal would affect up to nine elderberry shrubs with stems greater than one inch in diameter. The development at Abbieville would affect up to 16 shrubs, while the development at Trailer Village would affect up to 12 shrubs. Direct or indirect impacts on valley elderberry longhorn beetle habitat would result in local, long-term, minor, adverse impacts on this beetle species. If these actions were to result in direct or indirect impacts on valley elderberry longhorn beetle habitat, the NPS would implement avoidance and mitigation measures outlined in the 1999 USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (mitigation measure MM-WL-4, as applicable; see Appendix C).

Vegetation removed under Alternative 6 would not substantially fragment existing native vegetation communities, reduce species diversity, or substantially reduce the overall size or quality of native plant communities in Segment 4 because new construction would primarily occur in or adjacent to previously disturbed locations or in more resilient, upland habitat. The NPS would avoid special status plant species during construction activities

Segments 3 and 4 Impact Summary: Overall, actions in Segments 3 and 4 under Alternative 6 would result in local, long-term, minor, beneficial impacts on most special status species.

Actions in Segments 3 and 4 under Alternative 6 would have no effect on the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, Pacific fisher, Sierra Nevada bighorn sheep, and whitebark pine.

It is the determination of the NPS that the actions proposed in Segment 4 under Alternative 6 may affect, and are likely to adversely affect, the valley elderberry longhorn beetle.

Segments 5– 8: South Fork Merced River

Impacts of Actions to Protect and Enhance River Values

Actions specifically targeted to protect culturally sensitive areas in Segment 7 would also benefit special status species, including the relocation or removal of some campsites and stock campground sites within 100 feet of the river or in culturally sensitive areas. The removal of selected campsites within the floodplain would result in local, long-term, minor, beneficial impacts on special status species as riparian habitat is restored and wildlife are subject to less human presence and human-related pressures.

Biological Resource Actions. Specific projects to protect and enhance the river’s biological values that would occur within Segment 7 under Alternative 6 include the relocation of stock use campsites from sensitive resource areas to Wawona Stables. Overall, this action would result in a local, long-term, minor, beneficial impact on special status species in Segment 7.

Impacts of Actions to Manage User Capacities, Land Use, and Facilities

Under Alternative 6, Wawona stables operations would be eliminated and two stock campsites would be relocated to the stables area from the current Wawona stock camp. In the Wawona Campground, 13 campsites would be removed from within 100 feet of the South Fork Merced River or from cultural sites, and the area would be restored. Soils would be decompacted, and the area would be replanted with riparian vegetation. This would reduce visitor use in Segment 7, with a resulting decrease of vegetation trampling.

These actions would result in short-term, adverse impacts on special status wildlife that uses riparian habitat. Adverse impacts include noise associated with demolition, removal, and restoration activities; ground disturbance; human presence; habitat modification; and potential increase in suspended sediments to the South Fork Merced River. Adhering to proposed mitigation measure MM-WL-1 through MM-WL-7, as applicable (see Appendix C), and avoiding the removal of riparian vegetation, where possible, would reduce these short-term impacts to minor and adverse. However, implementation of these actions would reduce the built environment within Segment 7, restore riparian habitat, and reduce riverbank erosion.

As summarized in the “Wildlife” section of this chapter, a total of three acres of riparian habitat would be restored in Segment 7 under Alternative 6 (this includes restoration actions common to Alternatives 2-6), resulting in direct benefits to wildlife that use this habitat type. Thus, this restoration action would be expected to have a local, long-term, moderate, beneficial impact on special status wildlife species that use riparian habitats in Segment 7 (WHR: montane riparian). Special status wildlife species that may benefit from these actions over the long-term include long-eared owl and yellow warbler.

Special status plants may be adversely affected in the short term by removal, restoration, and monitoring activities associated with these management actions. Potential impacts include temporary disturbance and loss of habitat, potential loss of individual plants or populations, and the potential introduction and spread of invasive nonnative species. These impacts would be local. Adhering to proposed mitigation measure MM-WL-3, as applicable (see Appendix C), and avoiding the removal of

vegetation, where possible, would reduce these short-term impacts to minor and adverse. Overall, actions in Segment 7 under Alternative 6 would result in local, long-term, negligible, beneficial impacts on special status plants that occur in the Wawona area.

Wawona Campground. Facilities actions at the Wawona Campground would involve removal of 13 sites that are either within the 100-year floodplain or in culturally sensitive areas. Overall, these actions would result in a local, long-term, minor, beneficial impact on special status species in Wawona.

Segments 5, 6, 7 and 8 Impact Summary: Overall, actions in Segments 5-8 under Alternative 6 would result in local, long-term, minor to moderate, beneficial impacts on special status species.

Actions in Segments 5-8 under Alternative 6 would have no effect on the following federally listed and candidate species: valley elderberry longhorn beetle, Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, Sierra Nevada bighorn sheep, and whitebark pine.

Actions in Segments 5-8 under Alternative 6 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Pacific fisher.

Summary of Impacts from Alternative 6: Diversified Visitor Experiences and Selective Riverbank Restoration

Past development and human activity in the Merced River corridor have in some cases adversely affected special status species habitat and use of those habitats. As described in the preceding paragraphs, many of the actions under Alternative 6 would address existing adverse impacts on habitats for special status species, including actions targeted to improve habitat quality for aquatic, riparian-dependent, and meadow-dependent special status species where these habitats are near or adjacent to existing developments and high visitor use areas. Additionally, the park would implement measures to restore the ecological integrity of riparian, meadow, and aquatic habitat in targeted areas; increase channel free flow; improve water quality; and reduce erosion and scouring. Notable actions the park would implement under Alternative 6 include the following:

- Restrict recreational use of rivers and riverbanks to reduce riverbank erosion.
- Remove, restore, relocate, or repurpose park facilities to efficiently use park facilities and reduce the built environment within the park; some facilities would be built to accommodate visitors or employees.
- Manage for an increase (4%) in total daily visitors to the park and visitor demands for day parking space, lodging, and camping space.
- Remove selected facilities within 100 feet of the Merced River and restore riverbanks, meadows, and riparian habitat.
- Enhance meadow, riparian, and river hydrologic function, complexity, and connectivity.
- Improve the free flow, complexity, and water quality of the Merced River.

Generally, Alternative 6 would be focused on restoration of meadow, riparian, and riverbank habitats in Yosemite Valley (Segment 2); retaining most park facilities but removing selected facilities that are located within 100 feet of the river and are jeopardized by flooding; repurposing park facilities to improve efficiency of use; and providing adequate lodging, camping, and parking space for visitors and employees. Additionally, the park would continue to provide river access to visitors in designated areas, and continue to protect the river and riverbanks by requiring permits or limiting use of put-in areas. Alternative 6 would allow for an increase in total daily visitations to the park, and park infrastructures (lodging, camping space, and parking lots) would be retained or expanded in selected locations to accommodate increased demand. Adverse effects from these actions would be associated with the active construction or restoration phase and would be local, short term, and negligible to moderate, depending on the type of project and location. Although some habitat would be restored and fragmentation and indirect detriments to habitat would be reduced in selected areas, an increase in park visitors accompanied by continued operation of most park facilities and construction of new facilities would result in adverse impacts on special status species. When combined, the long-term effect of these measures would be a moderate, beneficial impact on special status species. These effects would be most prominent in areas of high human use such as Yosemite Valley and Wawona (Segments 2 and 7, respectively).

Overall, there would be a lessened potential for beneficial effects under Alternative 6 compared with Alternative 2 and a slightly lessened beneficial effect compared with Alternatives 3 and 4. However, there would be a somewhat increased potential for adverse impacts over Alternatives 2 and 3, and about the same adverse impact potential compared with Alternatives 4 and 5 because more new construction would occur in and adjacent to suitable special status species habitat.

Implementation of a comprehensive ecological restoration program to restore natural processes to the Merced River corridor, and extensive site-specific restoration, would result in a corridorwide, long-term, moderate, beneficial impact on special status species habitat. In the long term, these measures would improve hydrologic connectivity of meadows and floodplains to the river; enhance habitat complexity in riparian, meadow and aquatic areas; reduce human and pack-related disturbances; and reduce nonnative species and conifer intrusion into sensitive habitats. Adverse effects related to the construction phase of these actions would be local, short term, and minor or negligible.

Actions under Alternatives 6 would have no effect on the following federally listed and candidate species: Sierra Nevada bighorn sheep and whitebark pine.

Actions under Alternative 6 may affect, but would not be likely to adversely affect, the following federally listed and candidate species: Yosemite toad, Sierra Nevada yellow-legged frog, California wolverine, and Pacific fisher.

Actions in Segment 4 under Alternative 6 would result in potential indirect or direct impacts on elderberry shrubs, including possible removal of shrubs. Direct or indirect impacts on valley elderberry longhorn beetle habitat would result in local, long-term, minor, adverse impacts on this beetle species. Therefore, it is the determination of the NPS that the actions proposed may affect, and are likely to adversely affect, the valley elderberry longhorn beetle.

Cumulative Impacts from Alternative 6: Diversified Visitor Experiences and Selective Riverbank Restoration

The past, present, and reasonably foreseeable plans and projects that could have a cumulative impact on special status species in combination with Alternative 6 are the same as those listed under Alternative 1 (No Action).

Overall Cumulative Impact from Alternative 6: Diversified Visitor Experiences and Selective Riverbank Restoration

The restoration actions associated with Alternative 6 would generally result in segmentwide, minor to long-term, moderate, beneficial impacts on special status species habitats within the Merced River corridor, with the exception of valley elderberry longhorn beetle. These actions are focused on restoring and improving aquatic, meadow, and riparian habitat quality within the Merced River corridor; therefore, special status species that are associated with these habitat types are most likely to be affected cumulatively by the proposed actions. Actions that would retain current facilities or services and construct new facilities would generally contribute to adverse impacts on special status species in the river corridor over the long term. Because actions with Alternative 6 would allow for higher levels of total daily visitors to the park, more park facilities and services would be retained within the floodplain of the river. Additionally, new or extended parking spaces and campsites would be constructed to accommodate increase in visitor demand for day parking and camping opportunities. The past, present, and future actions in the region would have varying effects on special status species habitats, with some projects restoring or enhancing habitats, while many other projects would result in loss or decline.

In general, past actions have impaired and reduced the abundance and quantity of aquatic, meadow, and riparian habitats in the region. These past actions, especially at lower elevations from development and resource extraction, have resulted in a reduction in special status species populations and ranges. Present and reasonably foreseeable future actions also have the potential to further reduce or impair these habitat types; however, in general, potential effects on these habitat types are mitigated and/or compensated through habitat preservation and/or enhancement at an off-site location (including mitigation banks). These actions provide the most benefit when coordinated with larger, regional conservation strategies that protect intact corridors or provide linkages to other areas of suitable habitat. Because the actions proposed under Alternative 6 would increase the habitat value of the Merced River corridor in certain areas and reduce habitat values in others, these actions would contribute towards a cumulative minor, adverse effect on special status species.

Special status species and their habitats have been manipulated by human development and population growth throughout the region for decades, and these actions have negatively influenced the populations and ranges of special status species. The cumulative effects of past, present, and future reasonably foreseeable cumulative effects would be mixed, combining both adverse and beneficial effects. Cumulative beneficial effects on special status species include habitat restoration, enhancement projects, and ecosystem management, generally carried out by federal, state, and local public agencies as well as privately owned and managed conservation lands, open space, and mitigation banks. Adverse cumulative adverse effects would be related to increased facilities, regional growth, and visitor demand. Each of the aforementioned projects has the potential to have substantial

site-specific adverse effects on special status species during construction (short term) and by direct displacement of populations or habitat (long term).

The actions under Alternative 6 would have long-term, beneficial effects on special-status species in the Merced River corridor. However, in relation to past, present, and reasonably foreseeable future actions throughout the Sierra Nevada and larger region, (e.g., introduction and spread of nonnative species, direct displacement of habitat) the actions under Alternative 6 would have a minimal beneficial effect. Overall, in conjunction with actions proposed in Alternative 6, cumulative actions on special status species would result in long-term, adverse effects on special status species.

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