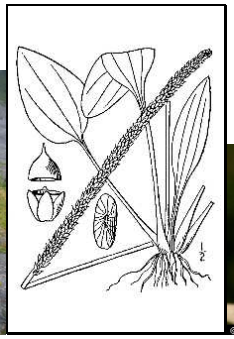
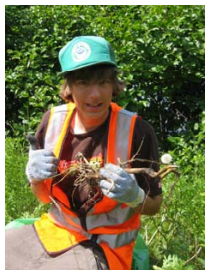
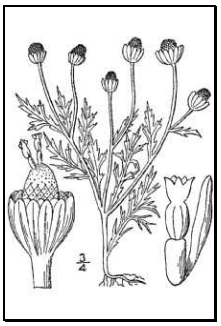
Invasive Plant Management in Kenai Fjords National Park
Seward, Alaska
Summer 2007 Field Season Report







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Introduction

Highlights and Observations from 2007

- Dandelion populations notably decreased at the Nike Stripe area
- Eradication of oxeye daisy (*Leucanthemum vulgare*) in the park
- Yellow toadflax population notably decreased along Exit Glacier Road
- Sheep sorrel population at Exit Glacier notably decreased
- First documented specimen of red clover (*Trifolium pratense*) found in park
- Increase in population of white clover (*Trifolium repens*) along Exit Glacier Road
- Extensive survey done among the old glacial moraines on the south side of Exit Creek: documentation and mapping of newly-discovered, large dandelion infestations
- Extensive coastal inventory completed for future monitoring of camping beaches
- Coastal exotic plants entered into AKEPMT geodatabase
- 559 lbs. of weeds controlled in KEFJ
- 26 volunteer participants in 2007 Cooperative Weed Pull Day
- Thorough inventory at Pederson Lagoon, site of a new commercial development
- Creation of a KEFJ Invasive Plants Information Sheet for park employees
- Common Timothy grass infestation near Nature Center did not appear this year

History at KEFJ

2007 marks the fourth consecutive year of systematic inventory, monitoring and control of exotic plants in Kenai Fjords National Park (KEFJ). Data collected during the 2007 summer field season documented the continued spread of exotic plants and control efforts by park staff and volunteers. Since 2003, resource managers at KEFJ have manually controlled non-native plant populations in the Exit Glacier area. The most current proposed Exotic Vegetation Management Plan for KEFJ (Martin 2003) focuses only on the Exit Glacier area. Infestations have since been documented and controlled in coastal areas of the park as well. In 2004, the NPS Alaska Exotic Plant Management (AKEPMT) team partnered with KEFJ to document weed infestations and incorporate the data into a regional database, joining KEFJ to a larger network of exotic plant managers. Monitoring and collection is now conducted according to a regional data collection protocol (Appendix 1). One Biological Science Technician at KEFJ, partially funded by the AKEPMT, spent the 2007 summer field season monitoring documented infestation sites, mapping new infestations, and coordinating manual control efforts in high-priority areas.

Significance of exotics in KEFJ

Non-native plants threaten natural ecosystems by competing with native flora for resources such as light, water, and soil. They also interfere with nutrient cycles and hydrologic regimes, and can alter natural plant succession (Martin 2003). Interference with natural plant succession is a major concern in the Exit Glacier area. Invasive plants establish easily in disturbed areas such as roadsides, mines, burned areas, and mechanically disturbed soil. The Exit Glacier continues to recede and leave naturally-disturbed soil in its place as an outwash plain. The outwash plain could provide an ideal environment for invasive plants to establish, creating competition for early-successional plant populations, such as the native fireweed (*Epilobium angustifolium*) and alder (*Alnus rubra*). They could also significantly alter the natural viewscape of the park.

Several new trail building and improvement projects have been completed in the past two years around the Exit Glacier Nature Center. These new trails have been identified as potential vectors for the spread of new and existing exotic plant species in the park. The coastal areas are still relatively free of exotic plants. Management-related changes such as increased visitor use of camping beaches and new commercial development at Pederson Lagoon may also contribute to the spread of invasive plants along the coastal area.

Status of exotic species in the Park

In 2007 the EPMT identified fifteen exotic plant species growing within the park (see Table 1): pineapple weed (*Matricaria disoidea*), common dandelion (*Taraxacum officinale* ssp. *officinale*), white clover (*Trifolium repens*), red clover (*Trifolium pratense*), yellow toadflax (*Linaria vulgaris*), common plantain (*Plantago major*), alsike clover (*Trifolium hybridum*), common sheep sorrel (*Rumex acetosella*), oxeye daisy (*Leucanthemum vulgare*), timothy grass (*Phleum pratense*), tall buttercup (*Ranunculus acris*), curly dock (*Rumex crispus*), foxtail barley (*Hordeum jubatum*), and narrowleaf hawskbeard (*Crepis tectorum*). Fourteen of these species had been documented in the park as of 2006. In 2007 red clover (*Trifolium pratense*), was documented in the park for the first time. The Alaska region EPMT maintains the official reference list of exotic plants documented in KEFJ (see Table 1).

Five species of concern grow just outside the park boundary along the Exit Glacier Road. Black medic (*Medicago lupulina*) is abundant along the road corridor. Narrowleaf hawksbeard (*Crepis tectorum*), yellow sweetclover (*Melilotus officinalis*), oxeye daisy (*Leucanthemum vulgare*) and red clover (*Trifolium pratense*) grow around the Resurrection River trailhead, which borders KEFJ's road entrance to Exit Glacier.

Table 1. Exotic plant species observed in or around Kenai Fjords National Park (EPMT 2007)

Common Name	Taxon	Observed inside park?	Area	Observe in 2007?
field mustard	*Brassica rapa*	N	USFS- EG Road	Y
narrowleaf hawksbeard	*Crepis tectorum*	Y	EG Road	Y
quackgrass	*Elymus repens*	N	USFS- EG Road	N
foxtail barley	*Hordeum jubatum*	Y	Unknown	N
oxeye daisy	*Leucanthemum vulgare*	Y	EG Road	Y
yellow toadflax	*Linaria vulgaris*	Y	EG Road	Y
bigleaf lupine	*Lupinus polyphyllus*	N	Unknown	N
pineapple weed	*Matricaria discoidea*	Y	Exit Glacier	Y
black medic	*Medicago lupulina*	N	USFS- EG Road	N
yellow sweetclover	*Melilotus officinalis*	N	USFS- EG Road	N
timothy	*Phleum pratense*	Y	EG, Nuka Bay	Y
plantain	*Plantago major*	Y	Exit Glacier	Y
tall buttercup	*Ranunculus acris*	Y	Nature Trail	Y
common sheep sorrel	*Rumex acetosella*	Y	EG Parking lot	Y
curled dock	*Rumex crispus*	Y	Employee Cabins	Y
common dandelion	*Taraxacum officinale* ssp. *officinale*	Y	Parkwide	Y
alsike clover	*Trifolium hybridum*	Y	Exit Glacier	Y
red clover	*Trifolium pratense*	Y	EG Road	Y
white clover	*Trifolium repens*	Y	EG Road	Y

Methods and Materials

Monitoring and control in Kenai Fjords National Park is conducted according to the Alaska Exotic Plant Management Team Data Collection Protocol (Appendix 1). The 2007 field season lasted from May through August and was organized by a Biological Science Technician working out of Seward, Alaska. A Youth Conservation Corps (YCC) member assisted in field work and volunteers were recruited to help with several control events.

Logistically, KEFJ is separated into two parts: the Exit Glacier area and coastal fjords area. Past control and monitoring efforts focused mainly on the Exit Glacier area, which contains the most extensive infestations. The road-side, trail-side, and parking lot areas of Exit Glacier are the most easily-accessible areas in the park and serve as the main human use corridors. We were able to do monitoring and control work in those areas weekly.

We also explored the old glacial moraines along the south side of Exit Creek to determine the extent of dandelion populations there. Starting at previously-known infestations, we followed game trails and disturbance areas to identify current boundaries of the infestation.

This summer we were able to conduct a five-day inventory trip of 54 camping and landing beaches between Nuka Bay and Aialik Bay, along KEFJ's coast. Coastal campsites and landing beaches are disturbed by human activity and could become areas of new infestations, as has happened in Glacier Bay National Park and Preserve.

Results

Exit Glacier road

The gravel fill material that lines either side of Exit Glacier Road provides habitat for our most extensive and dense population of invasive plants in the park. The roadside is dominated by common dandelion (*Taraxacum officinale* ssp. *officinale*), interspersed with common plantain (*Plantago major*), a few common timothy (*Phleum pratense*) plants, and many white clover (*Trifolium repens*). We focused our efforts this year on pushing the dandelion population back from the Exit Glacier parking lot. We controlled 90-100% of dandelions between the Nature Center and the 35 mph signs located just east of the fee collection booth and 90-100% between the campground parking lot and the culverts where the campground driveway meets Exit Glacier Road. We controlled 100% of common timothy found along the road and focused the rest of our time on common plantain and white clover. The most dense white clover and common plantain populations are found near the welcome sign, along the south side of Exit Glacier Road, near the boundary with U.S. Forest Service land.

One red clover (*Trifolium pratense*) plant was found and controlled on the north side of Exit Glacier Road, near the welcome sign at the park entrance. The yellow toadflax population appeared again along the south side of the road, but its extent and density seemed to have decreased from last year. The plants were very small. Scattered individuals of yellow toadflax were found further south down the road towards Exit Glacier. These were also mapped and controlled.

Oxeye daisy (*Leucanthemum vulgare*) was found and controlled along Exit Glacier Road in past years. This year, the plants were found to be eradicated from the park.

Exit Glacier parking lot

Common dandelion (*Taraxacum officinale* ssp. *officinale*) is the most prevalent species growing around the Exit Glacier parking lot. With the help of a Tribal Civilian Community Corps (TCCC) crew and YCC member, we controlled 100% of dandelions found in this area and approximately 90% of common plantain (*Plantago major*). The number of white clover (*Trifolium repens*) plants was significantly less than the number found in 2006. Common sheep sorrel (*Rumex acetosella*) also returned along the north side of the parking lot near the bus pullout, but was reduced in number. We controlled 100% of sheep sorrel and approximately 90% of pineapple weed (*Matricaria discoidea*), which was found around the Nature Center, along the south side of Exit Glacier parking lot, and around the east side of Alder Cabin.

Campground

Exit Glacier campsites remain free of invasive plants. Scattered individuals of common plantain (*Plantago major*) and common dandelion (*Tarxacum officinale* ssp. *officinale*) were documented and completely controlled in the campground parking lot area.

Employee Cabin Area

Each of the three staff housing cabins in the Exit Glacier area have exotic plants growing around them. Willow cabin had a curly dock (*Rumex crispus*) plant growing along the front deck, which was documented and

controlled in 2005, 2006 and again this year. The curly dock plants were much smaller this year and easy to control in a matter of minutes. Cottonwood cabin has a small dandelion (*Taraxacum officinale* ssp. *officinale*) patch outside the back door and around the campfire area, which continues to reduce in size. Alder cabin had a small dandelion infestation in July, followed by pineapple weed (*Matricaria discoidea*) in August around the front porch. All infestations were mapped and completely removed.

Nature Trail

This year the dandelions growing on the 1917 Moraine, along the un-paved nature trail section, showed up later in the season. We controlled them, counting 120 individual plants. This has decreased since last year, when we removed 436 plants. New trail construction on this section of the trail prevented us from returning for more work. A lot of soil was removed from this site during construction of the trail.

The cultivar plants found last year along the Main Trail, a yellow columbine and an Icelandic poppy, did not re-appear this year. Common Timothy grass has grown in large clumps around the trail information sign behind the Nature Center in past years, but did not appear this year.

Harding Icefield Trail

Each year, we control a large patch of common dandelion (*Taraxacum officinale* ssp. *officinale*) along the Harding Icefield Trail, a quarter mile up the trail, in the corner across from the rock staircase. Last year we found and removed 276 plants. This year we found and controlled 178 plants. There are also a handful of common plantain (*Plantago major*) and common dandelion plants growing along the first half-mile of the trail. One dandelion was found growing at Marmot Meadows (1.25 miles), which is the farthest we've seen them along the trail.

Nike Stripe

The Nike Stripe area was visited twice this year, each time with four park employees. The plants were later in phenology than past years at the same time. We controlled 95-100% of the infestation. Due to high creek water levels and altered flood paths, we were not able to re-visit the site later in the season to monitor.

South side of Exit Creek

A small dandelion population was reported here by an NPS Inventory and Monitoring crew in 2003. In 2006, the infestation was documented in the EPMT geodatabase and was controlled, although the plants had already gone to seed. This year we visited the area three separate days. A crew of six Resource Management employees manually re-treated the known infestation area from last year and began treatment of a newly-discovered infestation site (See Figure 3).

While determining the extent of the new treatment site, we discovered large, widespread infestations of dandelions in the area between Exit Creek and an old, narrow creek bed (see Figure 4). The plants varied in size and phenology; some were very large plants, growing in dense alder and willow patches, with no apparent sign of disturbance (Figure 1). Others are growing in rocky openings where there is evidence of animal disturbance. There are numerous game trails crossing the area, and it is prime moose habitat. We determined that although this area is a priority for control efforts, given its potential to spread into more remote backcountry areas and its isolated nature, we don't have the resources to effectively manually control the population.

The area is often difficult to access in the summer because of high water levels in Exit Creek. It was possible to cross in June and July, using hip waders, crossing at heavily- braided sections, and on cloudy, cool days when meltwater was minimal (see Figure 5).

Figure 1. Dandelions found along a game trail, in dense alder stands, on the south side of Exit Creek.

Figure 2. Dandelions found in a natural clearing on the south side of Exit Creek.

Figure 3. Crossing Exit Creek to access dandelion infestations on the south side.

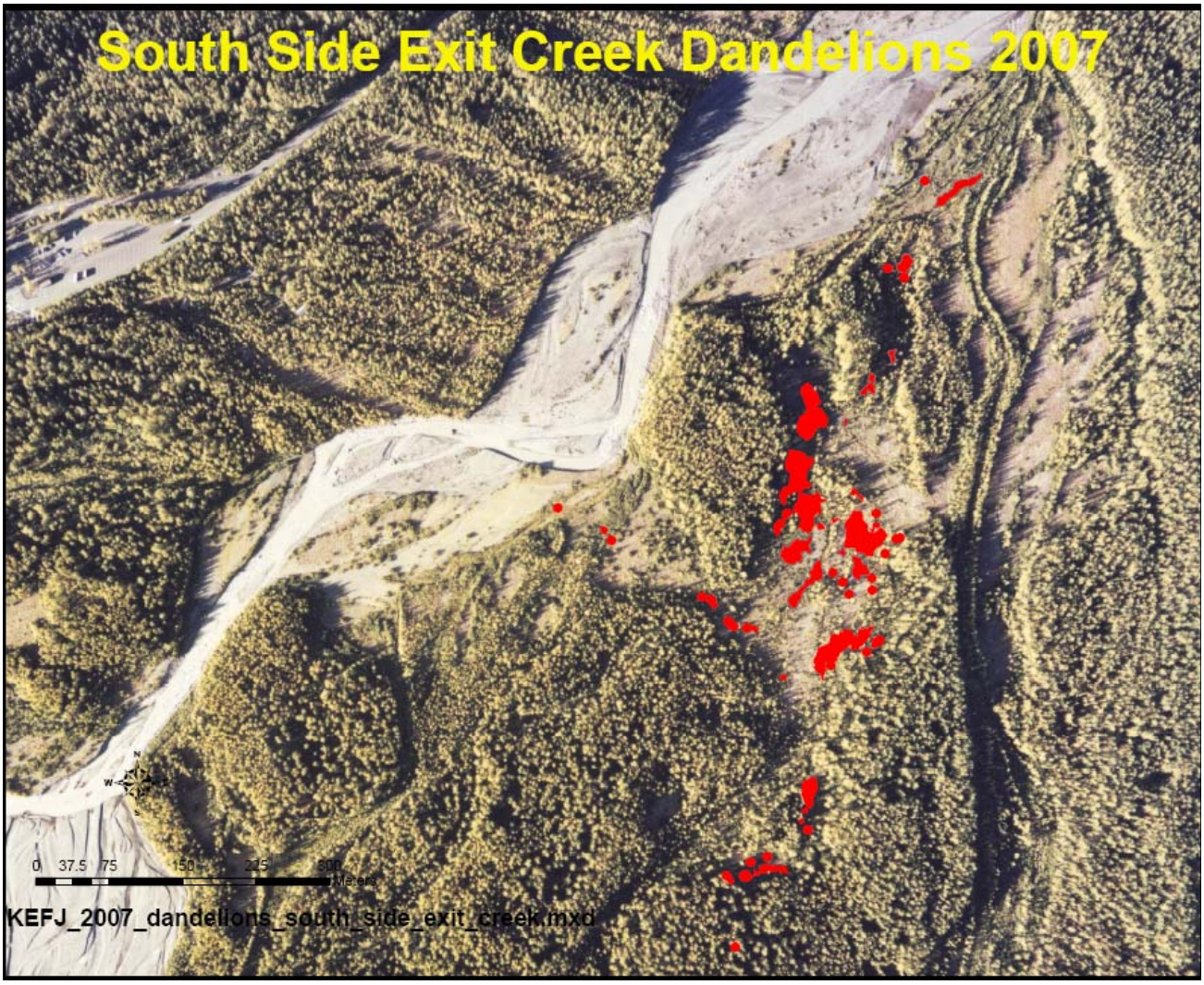

Figure 4. Map showing the extent of common dandelion infestation on the south side of Exit Creek.

Maintenance Yard

Invasive plant populations at the Maintenance Facility on Old Exit Glacier Road were reduced this year because of new gravel fill and road construction being done in the yard. Because of its proximity to town, it has the potential to host invasive species that currently do not grow in the park. Facilities Management staff was informed of this threat and given a list of recommended practices to prevent the spread of these plants into the park. Currently common plantain (*Plantago major*) and common dandelion (*Taraxacum officinale* ssp. *officinale*) have been documented growing in the yard and were controlled opportunistically on a few occasions this summer.

Outer Coast

During the week of July 30- August 3, we surveyed coastal camping areas between Nuka Bay and Aialik Bay, along the KEFJ outer coast. The inventory for exotic plants was done in conjunction with a coastal campsite impact survey. Landing at each of 54 camping beaches in the park, we walked the entire beach looking for invasive plants. Most beaches were mapped with a point feature, indicating the absence of invasive plants (Figure 5).

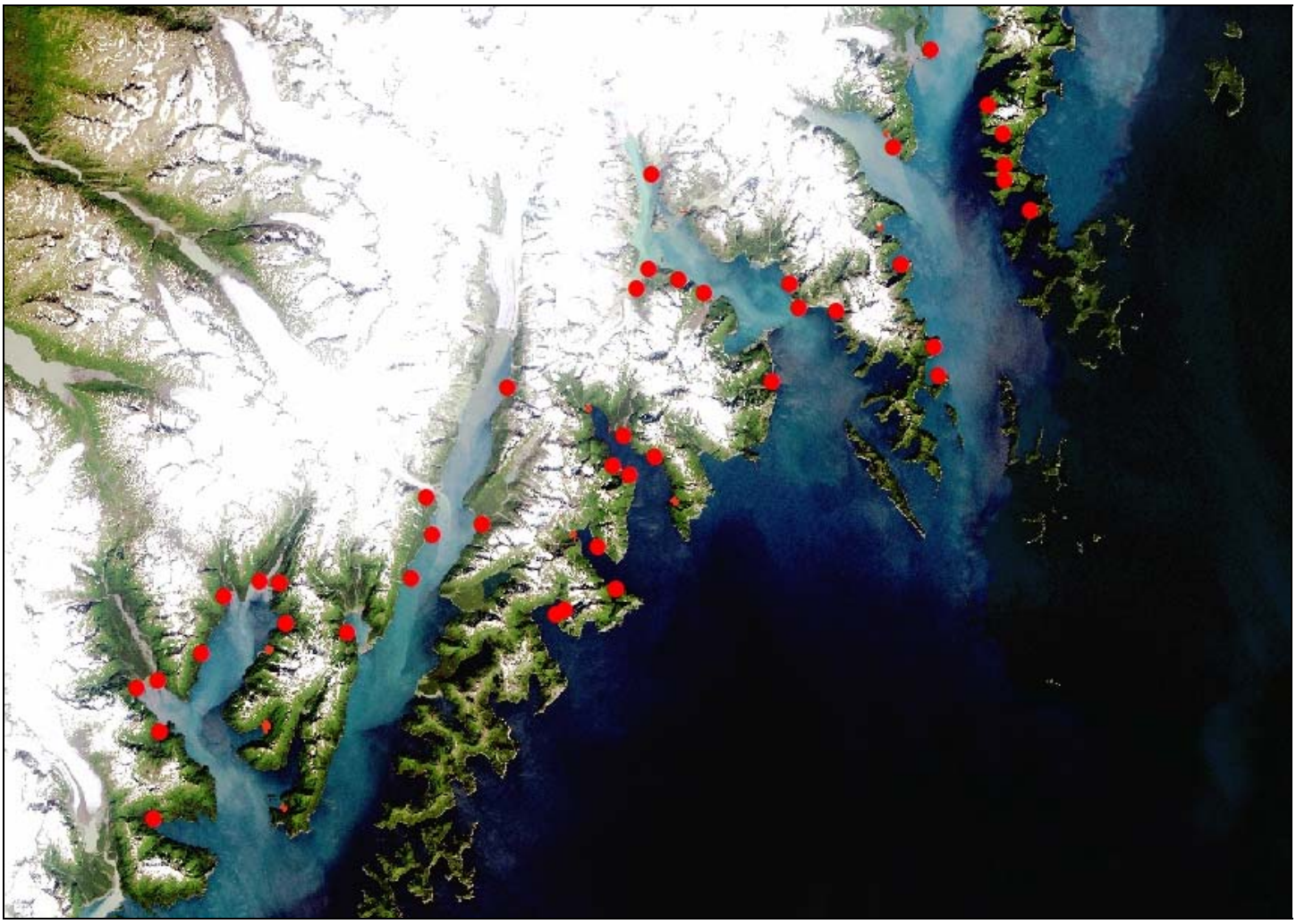

Figure 5. Coastal beaches surveyed and found free of invasive plants in 2007.

No new infestations were found. Three previously known infestations were re-visited, mapped, and controlled: Common timothy (*Phleum pratense*) at Beauty Bay airstrip, common dandelion (*Taraxacum officinale* ssp. *officinale*) at Dinglestadt glacier, and one common dandelion (*Taraxacum officinale* ssp. *officinale*) at Pederson Lagoon (Figures 6 and 7). There are two other infestations that were not visited: Yalik Glacier Beach, which is not on KEFJ land, and Alaska Hills Mine, which is difficult to access.

Figure 6. Locations of common Timothy (*Phleum pratense*) and common dandelion (*Taraxacum officinale* ssp. *officinale*) on the outer coast.

Beauty Bay airstrip, Nuka Bay

The common timothy (*Phleum pratense*) infestation at the Beauty Bay airstrip was treated last year and 150 plants were removed. This year the infestation was much smaller. We removed 30 plants. We did not have time to extensively explore the airstrip, but it appeared that the infestation is limited to the area mapped. The invasive timothy plants grow among the native alpine timothy and can be difficult to distinguish.

Dinglestadt glacier, McCarty Fjord

This marks the second year of manual control for this small, remote dandelion infestation. On August 1 we located and removed 108 flowering and rosette dandelion (*Taraxacum officinale* ssp. *officinale*) plants from this

site. It is unknown how many plants were found and removed in 2006. The site is situated on an old moraine, along the south side of Dinglestadt glacier (Figure 5).

Aialik Bay: Pederson lagoon

Aialik Bay, the most heavily visited area in coastal KEFJ, still remains surprisingly free of invasive plants. This year Resource Management staff conducting Black Oystercatcher surveys found a large common dandelion plant near Pederson Lagoon (Figure 7). The plant was located on a Port Graham Corporation in-holding and is not within KEFJ jurisdiction. The in-holding is the site of a new tourism lodge that will be built in the next couple of years. Meetings held with developers this year indicate they are willing to work with KEFJ to ensure the lands remain free of exotic plants. We controlled the dandelion, which is located at a popular pick-up and drop-off beach for landing craft, and monitored the site throughout the summer.

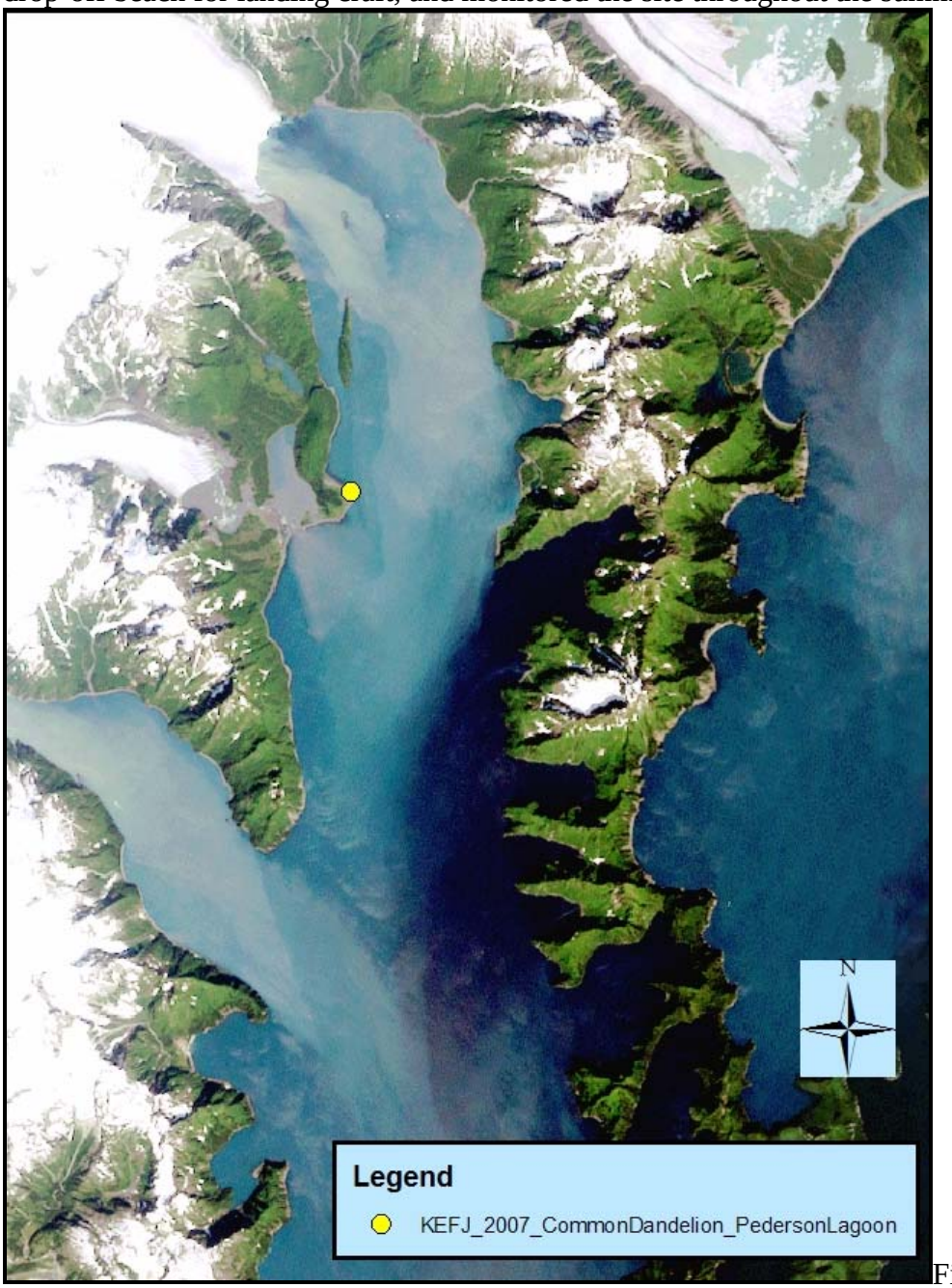

Figure 7. Location of common dandelion (*Taraxacum officinale* ssp. *officinale*) at Pederson Lagoon.

Table 2. Summary of locations of Exotic plants along KEFJ Outer Coast

Location	Latitude	Longitude	Scientific Name	Common Name	#	Date	In Park?	Years Controlled
Beauty Bay, airstrip	59.547427	-150.661353	*Phleum pratense*	common timothy	30	7/31/2007	Y	2006, 2007
Dinglestadt Glacier	59.64641	-150.33353	*Taraxacum officinale* ssp. *officinale*	common dandelion	108	8/01/2007	Y	2006, 2007
Dinglestadt Glacier	59.64747	-150.32436	*Taraxacum officinale* ssp. *officinale*	common dandelion	1	8/2006	Y	2006
Pederson Lagoon	59.88502	-149.71837	*Taraxacum officinale* ssp. *officinale*	common dandelion	1	6/2007	N	2007
Yalik Glacier Beach	59.43315	-150.70264	*Taraxacum officinale* ssp. *officinale*	common dandelion	1	8/2006	N	2006
Alaska Hills Mine, along creek before minesite	?	?	*Taraxacum officinale* ssp. *officinale*	common dandelion	1	8/2006	Y	2006

Figure 8. Conducting exotic plant and campsite inventories in Northwestern Fjord.

Accomplishments and Highlights

Weed Pull Day

In recognition of the annual State of Alaska Invasive Weed Awareness Week, we collaborated with the Chugach National Forest, Seward Ranger District, to organize a community Weed Pull Event (see Appendix 1). The event was held on June 29. We focused on two areas along Exit Glacier Road in Chugach National Forest: the Resurrection River Trailhead and the Exit Glacier Overlook pullout. 26 volunteers from the community, the Outward Bound School, KEFJ, and Chugach National Forest participated. We controlled over 400 pounds of black medic (*Medicago lupulina*), oxeye daisy (*Leucanthemum vulgare*), common dandelion (*Taraxacum officinale* ssp. *officinale*), and white clover (*Trifolium repens*).

Figure 9. A truck full of invasive plants pulled on the annual weed pull day.

Figure 10. Volunteers help control invasive plants along Exit Glacier Road at the annual weed pull event on June 29, 2007

TCCC Crew

During the week of June 11-15 an Americorps TCCC crew of 10 volunteers worked with KEFJ to control common dandelion populations in the Exit Glacier area. The crew controlled 83 pounds of invasive plants in the Exit Glacier Parking Lot and along Exit Glacier Road (Figure 10).

Figure 11. Members of the Americorps TCCC crew pull dandelions from the Exit Glacier Parking Lot.

Collections

An EPMT priority this year was to make voucher collections of all invasive plant species in each park. We were able to collect six of the 15 species known to grow in the park (Table 3). The collections were verified, mounted, and stored in the KEFJ herbarium collection. Four other species (Table 3) were also collected because of their usefulness in distinguishing between some native and non-native plants that grow in the park.

Table 3. Voucher collections made in 2007.

NPS Accession #	NPS Catalog #	Scientific Name	General Locality
KEFJ-00215	KEFJ 13290	*Rorripa sp.*	Exit Glacier Parking Lot
KEFJ-00215	KEFJ 13291	*Rorripa sp.*	Exit Glacier Parking Lot
KEFJ-00215	KEFJ 13292	*Crepis tectorum*	Exit Glacier Road
KEFJ-00215	KEFJ 13293	*Crepis tectorum*	Exit Glacier Road
KEFJ-00215	KEFJ 13294	*Plantago major*	Exit Glacier Nature Center
KEFJ-00215	KEFJ 13295	*Rumex sp.*	Paguna Arm of Two Arm Bay, outer coast
KEFJ-00215	KEFJ 13296	*Rorripa sp.*	Paguna Arm of Two Arm Bay, outer coast
KEFJ-00215	KEFJ 13297	*Phleum pratense*	Beauty Bay, coastal KEFJ
KEFJ-00215	KEFJ 13298	*Phleum commutatum*	Beauty Bay, coastal KEFJ
KEFJ-00215	KEFJ 13299	*Trifolium repens*	Exit Glacier Main Trail
KEFJ-00215	KEFJ 13300	*Trifolium repens*	Exit Glacier Main Trail
KEFJ-00215	KEFJ 13301	*Trifolium pratense*	Exit Glacier area, roadside
KEFJ-00215	KEFJ 13302	*Linaria vulgaris*	Exit Glacier Road

Education

Three SCA and SAGA trail crews worked to control invasive plants along trails in KEFJ this summer. We presented information about invasive plants in KEFJ to each crew to help them understand the EPMT program and their role in helping to prevent the spread of exotics.

Recommended Plans for 2008

Suggested priorities

1. Remote sites: Nike Stripe, Outwash Plain

2. Coastal beaches
    a. Aialik Bay, especially Pederson Lagoon
    b. Dinglestadt Glacier
    c. Beauty Bay
    d. Northwestern Fjord

3. Extensive mapping and inventory of Pederson Lagoon before AWA development begins

4. Trail system: Harding Icefield Trail, Nature Trail, Main trail

5. Exit Glacier area: Parking lot to Fee Station, Campground parking lot, Employee cabins

6. Exit Glacier road: oxeye daisy (*Leucanthemum vulgare*), yellow toadflax (*Linaria vulgaris*), common timothy (*Phleum pratense*), red clover (*Trifolium pratense*), white clover (*Trifolium repens*), common plantain (*Plantago major*)

7. Maintenance yard: workers drive from the yard to Exit Glacier daily

8. Continue collecting specimens for voucher collections and check on status of specimens collected in 2006 and 2007.

Suggested schedule

May- plan for the season and early control of common dandelion along Exit Glacier Rd. Contact volunteer groups. Coordinate with USFS for Statewide Weed Pull Day.

June- monitor and control dandelions at Nike Stripe, along Exit Glacier Road, Harding Icefield Trail, South side of Exit Creek and Exit Glacier parking lot

July- control pineapple weed, plantago, sheep sorrel and dandelions in Exit Glacier parking lot and along nature trail. Check on yellow toadflax along roadside. Control clover along roadside and curly dock and pineapple weed around employee cabins. Continue monitoring dandelion population on the south side of Exit Creek. Control infestations in Nuka Bay, McCarty Fjord, and Aialik Bay

August- control Timothy grass in Exit Glacier parking lot, clover along Exit Glacier road, and all exotics along the outer coast. Monitor high-use areas in Northwestern Fjord and Pederson Lagoon in Aialik Bay for new infestations.

September- data management, report writing, continue monitoring for late-growing exotics

Volunteers

Volunteer groups are useful in the control of exotics in the Exit Glacier area when put in the right location and given some basic instruction. Manual control of dandelions can be time-consuming and tedious for one person. May is a good month to contact groups interested in being involved in a weed control project. June and July, when plants are most visible and abundant, and before they have gone to seed, are the most appropriate times to have groups involved.

Outward Bound Wilderness conducts 7 to 50-day backcountry trips with adults and teens and often uses the Exit Glacier campground and Harding Icefield Trail. They have a long history of service projects with the park and often are looking for a half to full day of work for their groups. One group was scheduled to spent four hours helping with a weed control project in August, but cancelled last minute.

Contact:
Cathy Fornaris, Assistant Program Director
Outward Bound Wilderness
(907)224-7073
cfornaris@outwardboundwest.org

KEFJ's own volunteer coordinator, CJ Rea, connected us with several local individuals interested in volunteering for the park. She can also organize groups and provide contacts for large-scale volunteer efforts such as Statewide weed-pull day and National Public Lands Day. These two established service days are a great opportunity to gather volunteers for weed pulling and to provide outreach to the community.

Contact:
CJ Rea
Education Specialist and Volunteer Coordinator
Kenai Fjords National Park
(907)224-2121

Data Files

The local project folder **H:\Projects_Completed\Flora\KEFJ_2007_Exotic_Plants** contains spreadsheets, reports, spatial data, and GPS files. These files were also sent to the Regional EPMT team according to protocol. Spatial data is processed and stored on the ARO drive:
W:\ARO\NaturalResources\EPMT\Park_Specific

Useful Resources and Contacts

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Appendix 1.

Exit Glacier Road Weed Pull

Friday, June 29, 2007
10:00 a.m
Exit Glacier Road at the Glacier Overlook Pullout

Please join us on June 29 for the annual weed pull event for the Chugach National Forest and Kenai Fjords National Park. We hope to have a large turnout of employees and community members again this year, so spread the word! With your help, we can keep our lands free of weed infestation problems and maintain the unspoiled character of Kenai Fjords National Park.

Please wear durable clothing and gloves. Bring drinking water.

For more information contact Heather Wetherbee, Kenai Fjords National Park, at 224-7545 or Chris McKee, Chugach National Forest, at 224-4129.

Appendix 2.

Volunteer Job Description

Title: Invasive Plant Control Assistant

Goal:
Assist the KEFJ Resource Management team in the eradication of invasive plant species in the Park.

Duties:
Assist with locating and surveying areas of exotic plant infestations in the Exit Glacier area.
Manually remove plants and dispose of organic material in approved waste bags.
Communicate with visitors who may inquire about the work being done.

Qualifications:
Ability to walk along uneven terrain, often off-trail through dense brush. May require kneeling and repetitive bending down to ground level to properly extract plants.
Ability to recognize and distinguish invasive plants from native plants after training.
Ability to use manual gardening tools.

Time Commitment:
From_____to_____

Hours per day/week/pay-period:
_____8/day_____

Training Provided:
Alaska Invasive plant identification

Benefits: Volunteers are covered under the Federal Employees Compensation Act and the Federal Tort Claims Act.

Appendix 3

Kenai Fjords National Park

National Park Service
U.S. Department of the Interior

Invasive Plant Management Update

Significance of invasive plants in Kenai Fjords

Invasive plants are non-native plants that threaten natural ecosystems by competing with native flora for resources such as light, water, and soil. They interfere with nutrient cycles and hydrologic regimes, and can alter natural plant succession and animal habitat. Invasive plants establish easily in disturbed areas such as roadsides, mines, burned areas, and trails, and could significantly alter the natural viewscape of the park. Seeds are easily spread by people travelling in the park. Roadways, trails, kayak landing sites, and campsites provide access points for these plants to spread.

Invasive plant control efforts in Kenai Fjords

2007 marks the fourth consecutive year of systematic inventory, monitoring, and control of exotic plants in Kenai Fjords National Park. Since 2003, resource managers at KEFJ have manually controlled non-native plant populations in the park. Monitoring and collection is conducted according to the Alaska Exotic Plant Management Team Data Collection Protocol. It is combined with data from other parks in Alaska to help form a larger picture of invasive plant infestations and spread in our national parks. Each year, Resource Management manually removes over 600 pounds of invasive plants around the Exit Glacier area. A few small infestations have been found on coastal sites as well. We coordinate with volunteer groups, trail crews, Chugach National Forest, and commercial users to help control infestations and prevent their spread.

We have been successful in significantly decreasing the size and extent of many of our infestations. Through rapid detection and early response, we hope to prevent new species from establishing in the park and to eradicate many that are already established. We have a unique opportunity in KEFJ to prevent problems that have plagued other parks and thereby maintain the pristine quality of its native ecosystems.

Invasive plant species of concern in and around Kenai Fjords

- narrowleaf hawksbeard (*Crepis tectorum*)
- oxeye daisy (*Leucanthemum vulgare*)
- yellow toadflax (*Linaria vulgaris*)
- pineapple weed (*Matricaria discoidea*)
- yellow sweetclover (*Melilotus officinalis*)
- common sheep sorrel (*Rumex acetosella*)
- common timothy (*Phleum pratense*)
- red clover (*Trifolium pratense*)
- white clover (*Trifolium repens*)
- common dandelion (*Taraxacum officinale*)
- common plantain (*Plantago major*)
- field mustard (*Brassica rapa*)

What you can do to help

- Some native plants look similar to exotics, so don't pull them. Note the location and contact Resource Management, especially if found in areas outside of Exit Glacier.
- Clean debris off your clothing and camping gear before entering the park to prevent seeds from hitchhiking
- Plant environmentally safe species in your gardens and avoid plants with invasive characteristics.
- Educate park visitors about the threat of invasive plants in Alaska
- Participate in the annual Weed Control Event each July

For more information contact Christina Kriedeman, KEFJ Biological Science Technician, 907-224-7503

Selected Invasive Plants of the Kenai Peninsula

narrowleaf hawksbeard
(*Crepis tectorum*)

field mustard
(*Brassica rapa*)

oxeye daisy
(*Leucanthemum vulgare*)

common sheep sorrel
(*Rumex acetosella*)

common dandelion
(*Taraxacum officinale*)

red clover
(*Trifolium pratense*)

yellow toadflax
(*Linaria vulgaris*)

white clover
(*Trifolium repens*)

pineapple weed
(*Matricaria discoidea*)

quackgrass
(*Elymus repens*)

common timothy
(*Phleum pratense*)

tall buttercup
(*Ranunculus acris*)

yellow sweetclover
(*Melilotus officinalis*)

curled dock
(*Rumex crispus*)

common plantain
(*Plantago major*)

foxtail barley
(*Hordeum jubatum*)

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