EXOTIC PLANT MANAGEMENT IN WRANGELL-ST. ELIAS NATIONAL PARK & PRESERVE

2006 FIELD SEASON REPORT

Vegetation Management Report 2006-01 (DRAFT)
September 15, 2006

YCC employee Peter Ewan (second from right) and some of the TCCC Americorp group ready to eliminate oxeye daisies in Kennecott

Lil Gilmore, Biological Technician
Wrangell St-Elias National Park and Preserve
Mile 106.8 Richardson Highway
P. O. Box 439, Copper Center, Alaska 99573

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INTRODUCTION

This report describes the 2006 exotic plant management program at Wrangell-St. Elias National Park and Preserve. Previous inventories of non-native plants were conducted in 2004 and 2005 on Park lands and the access roads into and surrounding the Park/Preserve. In 2005, funding for a seasonal technician was provided by the Alaska Regional Office of the National Park Service to implement a monitoring and eradication program in the Park.

Wrangell-St. Elias National Park and Preserve is the largest park in the National Park system. It covers more than 13 million acres and is part of the largest protected ecosystem on the planet. Two roads and numerous off-road vehicle trails provide access into the Park/Preserve. The roads and trails contribute to disturbances of the native groundcover and create areas suitable for colonization by invasive plants. Landing strips and abandoned homesites also offer disturbed soil where invasive plants can easily become established. In-holders grow non-native plants for food and ornamental value. Some of these plants have escaped cultivation.

OBJECTIVES

The inventory objectives for the 2006 season were

- mapping and eradication of *Leucanthemum vulgare* (oxeye daisy), *Taraxacum officinale* ssp. *officinale* (dandelion), and any other invasive plants identified in Kennecott and McCarthy;
- identifying and mapping the *Vicia* population at Long Lake on the McCarthy Road;
- the section of Park land at the Crystalline Hills on the McCarthy Road;
- creek crossings and gravel pits on the McCarthy Road;
- mapping and eradication of *Taraxacum officinale* ssp. *officinale* and any new invasive plants on the Nabesna Road;
- creek crossings, gravel pits, and campgrounds on the Nabesna Road.

The eradication objectives for the 2006 season were

- mapping and eradication of *Melilotus alba* (white sweetclover) at Slana and on the Richardson Highway near Park Headquarters;
- mapping and eradication of *Leucanthemum vulgare, Taraxacum officinale* ssp. *officinale,* and any other invasive plants identified in Kennecott;
- eradication of all invasive species at the Park Headquarters;
- mapping and eradication of *Taraxacum officinale* ssp. *officinale* on the Nabesna Road.

METHODS

Plants were mapped using a Trimble GeoXT unit programmed with TerraSync and a Data Dictionary developed by the Alaska Exotic Plant Management Team. The data collected was differentially corrected and edited before being sent to the management team to be synthesized. Exotic plant species inventoried in previous years were monitored and controlled as time allowed. “Plant scans” (walking or driving very slowly) were conducted along roadsides where feasible. Particular attention was paid to

areas of obvious disturbance, including gravel pits and pullouts. Manual methods, using pruning shears and diggers, were used to control invasive plants. Weeds were bagged and burned by the Park maintenance department.

The Park botanist, Mary Beth Cook, a Youth Conservation Corp employee, Peter Ewan, and I mapped and controlled invasive plants during the field season. In July, a crew from the Southeast Alaska Guidance Association and another from the Division of Natural Resources, Forestry Natural Resource Intern Program spent a combined total of 80 hours pulling *Melilotus alba* at the junction of the Tok Cut-Off and Nabesna Road. A seven-member Americorp group, contracted through the Tribal Civilian Community Corps, worked for three days in Kennecott. Two other volunteers worked a total of six days in Kennecott, McCarthy, and on the McCarthy Road.

In mid-May, members of the maintenance crew and other seasonal employees began landscaping pre-determined areas. They were assisted by the Park Botanist, the Youth Conservation Corp employee working with the Exotic Plant Program, and me. Weeds were pulled, trees, shrubs, and forbs were transplanted, and wildflower and grass seed was spread. The maintenance crew watered newly seeded areas and new plantings.

RESULTS

Six locations are discussed in this report: Kennecott, McCarthy and the McCarthy Road, Slana and the Nabesna Road, backcountry landing strips, Park Headquarters, and the Copper Basin.

Vouchers of eight unknown plants were collected. These were identified by the Park botanist. Three were non-native plants. *Silene latifolia* (bladder campion) was growing on the Richardson Highway near the Gulkana River Bridge. *Medicago lupulina* (black medic) and *Vicia cracca* (bird vetch) were found on the Tok Cut-Off near Gakona Lodge. The *S. latifolia* will be added to the Park's herbarium. The data will be entered into the National Park curatorial database, the National Park species database, and the Park/Preserve collection database.

Kennecott

In mid-June, a population of *Leucanthemum vulgare* growing on the slope facing Kennecott Glacier was weeded. All visible plants were pulled and bagged for disposal. The number of plants had decreased since the 2005 field season. No specimens were seen during an inspection in mid-August. Twelve bags of *Taraxacum officinale* ssp. *officinale* were removed from around town.

Volunteer Terry Gilmore weeding Dandelions on the Bonanza Mine Trail in Kennecott

Three small populations of *Taraxacum officinale* ssp. *officinale* growing along

the Root Glacier Trail were mapped. *T. officinale* growing along the Bonanza Mine Trail were mapped approximately half way up the trail. Due to a malfunction of the GPS unit, continuous mapping ended at the point where tram cables first cross the trail. On the final trip to Kennecott, the furthest *T. officinale* population was mapped. Two volunteers helped with weeding on both trails. Populations on the Root Glacier Trail were eradicated; the more extensive populations on the Bonanza Mine Trail were partially controlled.

Two plantings of *Caragana arborescens* (Siberian Peashrub) were observed on private property. One was by a bench overlooking the glacier; the other was in a tub nearby. No plantlets were seen near either shrub.

McCarthy and the McCarthy Road

Two fields and an access drive located next to the Herben Cabin in McCarthy were monitored in mid-August. The cabin is Park Service property but the fields and drive are privately owned. The area was previously used as pasture for horses and goats and had very lush growth that contained many weed species. In 2005, three bags of *Silene noctiflora* (nocturnal catchfly) were pulled by one of the owners. However, the plant reappeared in 2006. The plants were mapped, but as it is private property, no control was attempted this season.

Other invasive species growing in these fields were *Capsella bursa-pastoris* (shepherd's purse), *Chenopodium album* (lambsquarter), *Crepis tectorum* (narrowleaf hawksbeard), *Hordeum jubatum* (foxtail barley), *Lepidium densiflorum* (common pepperweed), *Matricaria discoidea* (pineapple weed), *Phleum pratense* (common timothy), *Plantago major* (plantain), *Polygonum aviculare* (prostrate knotweed), *Polygonum convolvulus* (black bindweed), *Taraxacum officinale* ssp. *officinale*, and *Trifolium hybridum* (alsike clover).

Crepis tectorum was discovered in the parking area used by Park/Preserve employees. This area is located across the McCarthy Road from the Park Service informational kiosk. The population was mapped. It was weeded three times, twice in June and once in August.

In early June, a survey was conducted of the exotic plants growing along the first five miles of the McCarthy Road. The survey began in the campground on the McCarthy Road and included the fishwheel use area along the Copper River. Both *Taraxacum officinale* ssp. *officinale* and a native species *Taraxacum* were found in the campground, near the river, and further along the road. *Descurainia sophia* (flixweed), and *Lappula squarrosa* (European stickseed) were present to Mile 5 as were small populations of *Matricaria discoidea* and *Plantago major*. The length of the road and the construction during the field season made mapping the entire McCarthy Road impossible. No mapping was attempted between Mile 5 and the Crystalline Hills. The *Vicia* population growing at Long Lake was identified as *Vicia americana* (American Vetch). It was mapped. No *Linaria vulgaris*, (Butter and Eggs) was observed at Fireweed Mountain. *Leucanthemum vulgare* was mapped and controlled at Fireweed Mountain. *Trifolium hybridum* was also evident along the road.

Slana and the Nabesna Road

The Nabesna Road was surveyed at the junction of the Tok Cut-Off and Nabesna Road, at Park property located at Mile 3, and continuously from Mile 4 to the pullout at Mile 40.2. The road was scanned between the junction and Mile 4. The final two miles were not surveyed.

Invasive plants found on the Nabesna Road include *Crepis tectorum, Descurainia sophia, Hordeum jubatum, Lappula squarrosa, Matricaria discoidea, Melilotus alba, Plantago major,* and *Taraxacum officinale* ssp. *officinale.* Except for the *M. alba,* which is confined to the area around the junction of the Tok Cut-Off and Nabesna Road, the populations of these plants are small and scattered.

The large *Melilotus alba* population at the junction of the Tok Cut-Off and Nabesna Road made this a high priority area. The site was first monitored in mid-June this season. At that time few of the plants were more than two inches tall. Future visits showed a diminished population.

In 2004, a population of *Melilotus alba* on a trail connecting to the Slana Interpretive Trail was mapped and controlled. No plants were reported at this site in either 2005 or 2006.

The Betty Freed property at Mile 3 on the Nabesna Road was surveyed. This was originally a private homesite with a vegetable garden and domestic plants remain on the site. The property was donated to the Park/Preserve in 2001 and is used as housing for seasonal employees and volunteers. Small, scattered populations of *Matricaria discoidea, Plantago major,* and *Tripleurospermum perforata* (scentless false chamomile) were the only invasive plants found.

During the 2004 inventory, *Crepis tectorum* was found at the junction of the Tok Cut-Off and Nabesna Road, and at Mile 31 on the Nabesna Road. No plants were observed at either location in 2005 or 2006. In 2006, a small population was mapped and controlled in an abandoned gravel pit at Mile 10.9 on the Nabesna Road.

Matricaria discoidea was the most common invasive plant found on the Nabesna Road. Although the plant is common between Mile 4 and Mile 29, its growth is sparse. It is less common after Mile 29. No control was attempted. This plant is small and difficult to grasp and eradication would be very time consuming.

Hordeum jubatum was mapped between Mile 4 and Mile 40.2. There are thick stands separated by a mile or more in which no plants are visible. Partial control of the plant was undertaken.

From Mile 4 to Mile 40.2, three to ten plants from each population of *Taraxacum spp.* were identified. None were identified as *T. officinale* ssp. *officinale* except for a population found in a pullout between Mile 23 and 24.

The *Descurainia sophia* growing across the road from Sportsmen's Paradise Lodge during the 2005 season was not apparent in 2006. The road appeared to have recently been scraped and smoothed which may account for this. A single plant growing at Little Jack Creek Bridge was measured at 5'4". It was mapped and pulled as were a few other *D. sophia* plants growing along the road.

Caribou Creek Trail at Mile 19.2 was surveyed to the point where the trail crew had imported sand and gravel to make repairs. No invasive plants were found. This portion of the trail should be surveyed next season.

Two *Lappula squarrosa* plants were mapped and controlled at the rest stop at Dead Dog Hill. No others were found on the Nabesna Road.

Back Country Landing Strips

The landing strips at Chelle Lake, Ampitheatre Creek, Doubtful Creek, Glacier Creek, Peavine, and the confluence of the Chitina and Nizina Rivers were surveyed during the 2006 field season. *Hordeum jubatum* was found at Ampitheatre Creek and Peavine. It was mapped and controlled at Ampitheatre Creek. Rapidly deteriorating weather conditions at Peavine did not allow time for control efforts but the plants were mapped. *Taraxacum spp*. was found at Glacier Creek and Peavine. The plants were mapped but not controlled. All plants had seeded making it difficult to determine if they were *Taraxacum officinale* ssp. *officinale* or a native *Taraxacum* species.

Headquarters

A work plan for the grounds was developed during the spring of 2006. The areas to be upgraded this year were the flagpole circle, the east entrance of the Visitor Center, the entrance sign, and the area around the theater.

These areas, and the interpretive trail along the bluff, were weeded several times during the summer. A commercial grass mix sold under the name "Alaska Lawn Mix" was seeded around the flag pole and in front of the theater. Seed was spread in late May and early June but there was little or no germination until an extended period of rain in late July and early August. No fertilizer was spread with the grass seed.

The circle around the entrance sign was planted with three *Picea glauca* (white spruce) trees set in a triangle behind the sign, *Rosa acicularis* (rose), and *Shepherdia canadensis* (soapberry). *Corydalis aurea* (golden corydalis), *Lupinus nootkatensis* (nootka lupine), *Oxytropis deflexa* (oxytrope), *Polemonium pulcherrimum* (beautiful Jacob's ladder), and *Pulsatilla patens* (pasqueflower) were transplanted from a gravel pit adjacent to Park Headquarters. Transplants were fertilized with ArcticGro 8-32-16. The *P. glauca* appear healthy but severe die back occurred among the shrubs and the forbs. By

New landscaping at the Park entrance sign includes spruce trees and rose bushes.

the end of next summer it should be apparent which plants not only survived but are thriving.

Arnica amplexicaulis, Arnica frigida, Arnica latifolia, Artemisia arctica, Artemisia frigida (prairie sagewort), *Astragalus aboriginum, Astragalus alpinus, Aster sibiricus, Aster subspicatus, Epilobium latifolium* (dwarf fireweed), *Hedysarum alpinum* (eskimo potato), *Oxytropis deflexa, Polemonium pulcherrimum,* and *Poa alpina* were direct seeded at the entrance sign and between the Visitor Center and the theater. The seed was donated by the Plant Materials Center in Palmer.

During late summer and fall seeds from *Arnica latifolia, Anemone multifida, Oxytropis campestris,* and *Arnica* were collected around Park Headquarters and the adjacent gravel pit. These were spread around the flagpole, by the Visitor Center and Theater, and around the entrance sign on September 27.

Copper Basin

A survey of the major populations of *Melilotus alba* in the Copper Basin was undertaken in late July through August. Plants were mapped at Mile 5, Mile 17, and Mile 28 on the New Edgerton Highway; at Mile 5 on the Old Edgerton Highway; on the Old Richardson Highway in Copper Center; on the Richardson Highway from Mile 83 to the junction of the Tok Cut-Off; from the Hub to the Copper Valley Community Library on the Glenn Highway; and on the Tok Cut-Off to the Nabesna Road. No *M. alba* was seen on the Craig-Brenwick Road between the Old and New Richardson Highways, or on the Copper Center Loop Road. A local resident of Chitina reported no sightings of *M. alba* past the Chitina Airport at Mile 28 on the New Edgerton Highway. With the exception of a gravel pit between Mile 126 and Mile 127 on the Richardson Highway, no survey was attempted on off-road locations. The pit was heavily infested with *M. alba* and was mapped.

A population of *Vicia cracca* found in Gakona was mapped, as was a single *Silene latifolia* plant growing on the edge of the Richardson Highway near the Gulkana Bridge. The *S. latifolia* was pulled. Other exotics noted visually during this survey included *Crepis tectorum, Matricaria discoidea, Medicago lupulina, Melilotus officinalis* (yellow sweetclover), *Plantago major, Trifolium hybridum, Taraxacum officinale* ssp. *officinale,* and *Tripleurospermum perforata.*

DISCUSSION AND RECOMMENDATIONS

Invasive Species

The *Melilotus alba* flourishing in the Slana/Nabesna area should remain a high priority for control efforts. Although the population appeared diminished this year, it was difficult to determine whether this was due to past control efforts or to a cool, dry spring. The area around the junction will need to be closely monitored and growth may need to be vigorously controlled in future years. Vicki Penwell, Interpretive Ranger at the Slana Station, has been successful in recruiting crews to help with weeding at this site. Although no *M. alba* plants were found on a trail connecting to the Slana Interpretive Trail during 2005 or 2006, this area should also continue to be closely monitored.

Visual observation indicated that the plant "pulls" which targeted *M. alba* in the Copper Basin during 2005 had no effect. New populations took root and stands appeared denser in 2006. To provide a basis for future observation, the major populations in the Basin were mapped. This survey was confined to the roadsides and no attempt was made to map populations along the rivers.

Tricia Wurtz, a research ecologist with the United States Department of Agriculture Forest Service in Fairbanks, also mapped *Melilotus alba* populations in the Copper Basin in 2006. Her research concentrated on river banks. Wurtz's findings indicated that eradication of *M. alba* is most crucial at river crossings lacking a vegetative cover.

The *Vicia cracca* growing at Mile 2.25 on the Edgerton Highway was visually monitored. It appeared to have increased slightly. A population of *Vicia* was discovered on the Tok Cut-Off in front of Gakona Lodge. It was positively identified as *V. cracca* and was subsequently mapped. Both locations are outside the boundary of the Park/Preserve.
Several specimens of the *Vicia* growing at Mile 45 on both sides of the McCarthy Road were collected. All were identified as *Vicia americana.* Danny Rosenkrans, Lands and Special Uses, found *V. americana* growing along the access route to Lakina Lake. This route takes off from the McCarthy Road at approximately Mile 42. He reported a wide swath of plants growing along what appeared to be a bulldozed trail and also along both the north and south sides of the Lakina River. Although this plant is not designated as an invasive species, it is growing outside its usual location.

The reduced population of *Leucanthemum vulgare* on the slope below the Recreation Hall in Kennecott indicated that control efforts from previous seasons have been effective. However, the plant will remain a threat in the Kennecott area as long as it grows in the flower beds at Kennicott Glacier Lodge. The lodge is private property and the owner may be unwilling to remove the plants.

The Oxeye Daisies seem to be under control this year

Taraxacum officinale ssp. *officinale* was growing on both the Root Glacier Trail and the Bonanza Mine Trail but it was particularly widespread on the Bonanza Trail. Several days and a large party of volunteers will be needed to eliminate the infestation. These trails should be considered priorities for monitoring and control in future seasons.

The entire McCarthy Road underwent continuous construction and repair this summer. Dirt, gravel, and rock have been moved from one location to another; culverts were dug out and replaced; drainage ditches were deepened; roadside brush was cut and left lying; and extensive blasting was done to widen the one-lane, blind curve at Hug-A-Boulder. Finished areas were seeded. Although the Park/Preserve stipulated weed-free seed, it is unlikely that the mixture was composed of plants native to Alaska.

<u>Landscaping and Revegetation at Headquarters</u>

A well thought out and fully implemented landscape plan is essential if any control is to be regained over the exotics that have colonized the grounds at Park Headquarters. The grounds are infested with weed species including *Chenopodium album*, *Crepis tectorum*, *Hordeum jubatum*, *Lappula squarrosa*, and *Taraxacum officinale* ssp. *officinale*. Successful landscaping is also important if the Visitor Center is to present an attractive appearance. Although landscaping and revegetation are not a responsibility of the Exotics Program, mutual assistance proved beneficial this summer. Maintenance department employees contributed time to weeding invasive species and the exotics program employees helped with transplanting, seeding, and weeding.

Monitoring and control of the *Melilotus alba* at Mile 106 on the Richardson Highway, near the entrance to Park Headquarters, should be continued. *M. alba* was discovered on the grounds at Headquarters this season. This area should be monitored closely.

Education and Public Involvement

A key element for success in controlling invasive plants is public education and involvement. Radio and newspaper interviews can help bring the problem to public attention. An educational display at the summer craft and agricultural fairs would also help spread information.

Handouts about exotic plants, especially the easily carried booklet, *Selected Invasive Plants of Alaska*, should be widely distributed. Good distribution points include the Park Visitor Centers at Headquarters, Slana and Kennecott. Libraries, laundromats, post offices, local visitor centers, gift shops, and hotels throughout the Copper Basin are also good locations to display information.

Vicki Penwell at the Slana Ranger Station and Megan Richotte at the Kennecott Ranger Station should be asked if they would be willing to receive a "care package" containing paper copies of the data dictionary, a compass, pruning shears, a dandelion digger, weed bags, insect repellant, and hand wipes. Supplies for eradication would then be available whenever an employee or volunteer had time to weed. Brief fact sheets for plants specific to their areas should be included.

An Exotic Plant Work Group, composed of agency heads and interested members of the public, was formed in 2005. It meets in May and September. The group has the potential to be a positive, energizing force in the fight against exotic plants in the Copper Basin. A paid coordinator in charge of education and publicity, and volunteer work groups would increase the effectiveness of the group.

Recommendations for 2007

The work plan for the 2007 field season should clearly identify which plants and locations will be the focus of attention. Many photographs, including plants, work groups, and events, should be taken.

- McCarthy Road, McCarthy, Kennecott
    - Schedule Kennecott trips for a week as travel takes most of two days.
    - Allow time for mapping along off-road vehicle and foot trails, and at gravel pits, campgrounds, and rest stops along the McCarthy and Kennecott Roads.
    - Suggestions for inclusion in the work plan include:

- monitor and control *Leucanthemum vulgare* on the slope facing the Kennecott Glacier;
- monitor and control *Taraxacum officinale* ssp. *officinale* on the Root Glacier Trail;
- monitor and control *Taraxacum officinale* ssp. *officinale* on the Bonanza Mine Trail;
- if time allows, also monitor and control *Matricaria discoidea* and *Trifolium repens* (White Clover) on the Bonanza Mine Trail;
- monitor and control *Taraxacum officinale* ssp. *officinale* in Kennecott;
- monitor and control *Crepis tectorum* in the employee parking area;
- monitor and control *Taraxacum officinale* ssp. *officinale* and *Bromis inermis* (Smooth Brome Grass) around the McCarthy Creek footbridge;
- monitor *Leucanthemum vulgare, Linaria vulgaris,* and *Thlaspi arvense* (Garlic Mustard) at Wrangell Mountain Center with permission.

❖ Slana, Nabesna Road
  - Closely monitor the first four and final two miles of the Nabesna Road.
  - Allow time for mapping along off-road vehicle and foot trails, and at gravel pits, campgrounds, and rest stops.
  - Suggestions for inclusion in the work plan:
    - monitor and control *Melilotus alba* at the junction of the Tok Cut-Off and Nabesna Road;
    - monitor and control *Melilotus alba* on trail connecting to Slana Interpretive Trail;
    - monitor *Taraxacum* species on the Nabesna Road;
    - monitor and control *Crepis tectorum* in old gravel pit at Mile 11.9, Nabesna Road.

❖ Remote Locations
  - Fly to recommended airstrips & cabins; map and control plants as needed.

❖ Headquarters
  - Although landscaping is not part of the exotics program, assistance with weeding and seed collecting and dissemination should be undertaken if there is time. Weed control at Headquarters may help prevent spread to other locations in the Park/Preserve.

❖ Copper Basin
  - As time permits, monitor the *Melilotus alba* on the Edgerton, Glenn, and Richardson Highways, and the Tok Cut-Off.
  - As time permits, monitor the *Vicia cracca* found at Mile 2.25 on the Edgerton Highway and in front of the Gakona Lodge on the Tok Cut-Off.

<u>Recommended Schedule for 2007</u>

❖ **Early Season (May)**
  - Attend Trimble training. This is vital.
  - Attend spring Exotic Plants Work Group meeting.
  - Distribute educational literature.

- Talk with Tom VandenBerg, Vicki Penwell, and Megan Richotte to see if they would be willing to incorporate information about invasive plants in the interpretive talks given by their staffs.
- Recruit volunteers and have the required forms on file.
- Schedule trips to the Nabesna/Slana area, the McCarthy/Kennecott area and, if the budget and time allow, include remote airstrips, and the Copper Basin.
- Complete travel forms.
- Plan for weed disposal.
- If time allows, continue landscaping and revegetation at Park Headquarters.

❖ **Mid-Season (June, July, August) Field Work**

- Travel, inventory, monitor, and control in the Park/Preserve and Copper Basin
- Download, correct, and send GPS files at end of each trip.

❖ **Late Season (September)**

- Do final edits and corrections for all data collected, the rover file log, and the time log.
- Write end-of-season report.
- If time allows, continue landscaping and revegetation at Park Headquarters.
- Collect and spread seeds.
- Attend autumn Exotic Plant Work Group meeting.
- Organize files and materials for next season.

Table 1: Plant List

Park_ Unit	Taxon	Common Name	Inside Park?	In 2005 annual report?	In geodata base?	In 2005 EPMT table?	collected?	Notes
WRST	Achillea millefolium	common yarrow		Y	Y			2003
WRST	Allium schoenoprasum	wild chive		Y	Y		Y	
WRST	Bromus inermis	smooth brome grass		Y	Y	Y	Y	2004
WRST	Capsella bursa-pastoris	shepherd's purse		Y	Y	Y	Y	2004
WRST	Caragana arborescens	Siberian peashrub		Y	Y			2005
WRST	Chenopodium album	lambsquarters		Y	Y	Y	Y	2004
WRST	Crepis tectorum	narrowleaf hawksbeard		Y	Y	Y	Y	2004
WRST	Descurainia sophia	flixweed		Y	Y	Y	Y	
WRST	Elymus repens	quackgrass		Y	Y	Y	Y	2004
WRST	Eschscholzia californica	California poppy		Y	Y		Y	
WRST	Galeopsis tetrahit	hempnettle		Y	Y			2005
WRST	Hordeum jubatum	foxtail barley		Y	Y			2003
WRST	Lappula squarrosa	European stickseed		Y	Y	Y	Y	2003
WRST	Lepidium densiflorum	common pepperweed		Y	Y	Y	Y	2004
WRST	Leucanthemum vulgare	oxeye daisy		Y	Y	Y	Y	2004
WRST	Linaria vulgaris	yellow toadflax		Y	Y		Y	
WRST	Lolium perenne ssp. perenne	perennial ryegrass		Y	Y		Y	
WRST	Matricaria discoidea	pineapple weed		Y	Y	Y	Y	2004
WRST	Medicago lupulina	black medick						2006
WRST	Melilotus alba	white sweetclover		Y	Y	Y	Y	2004
WRST	Melilotus officinalis	yellow sweetclover					Y	2006
WRST	Phleum pratense	timothy		Y	Y		Y	
WRST	Plantago major	plantain		Y	Y	Y	Y	2004
WRST	Polygonum aviculare	prostrate knotweed		Y	Y	Y	Y	2004
WRST	Polygonum convolvulus	black bindweed		Y	Y			2005
WRST	Silene latifolia	bladder campion			Y			2006
WRST	Silene noctiflora	night-blooming cockle		Y	Y			2005
WRST	Taraxacum officinale ssp. officinale	common dandelion		Y	Y	Y	Y	2004
WRST	Thlaspi arvense	field pennycress		Y	Y		Y	
WRST	Trifolium hybridum	alsike clover		Y	Y	Y	Y	2004
WRST	Trifolium pratense	red clover		Y	Y	Y	Y	2004
WRST	Trifolium repens	white clover		Y	Y	Y	Y	2004
WRST	Tripleurospermum perforata	scentless false mayweed		Y	Y		Y	2005
WRST	Vicia americana	American vetch					Y	2006
WRST	Vicia cracca	bird vetch		Y	Y		Y	2005
WRST	Vicia sativa	common vetch		Y	Y			

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