NON-NATIVE PLANT SPECIES OF SUSITNA, MATANUSKA, AND COPPER RIVER BASINS: SUMMARY OF SURVEY FINDINGS AND RECOMMENDATIONS FOR CONTROL ACTIONS

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INTRODUCTION

The USDA Forest Service is dedicated to gaining a better understanding of the number, identity and biology of non-native plants in Alaska and how these species may be impacting intact plant communities and timber-producing areas. To address these concerns, the Forest Health Protection State and Private Forestry, USDA Forest Service provided grant funds, consultation, and expertise to the Alaska Natural Heritage Program (AKNHP), University of Alaska Anchorage. The grant supplies funds for 1 ½ years of research, focused primarily on information acquisition, invasiveness ranking, and plant surveys in the Matanuska-Susitna Valley of Alaska. The AKNHP has initiated research on a number of subtopics since the beginning of the grant. Here, we report on the status of our preliminary survey research.

Non-native plants often have positive economic and aesthetic value, as they are the primary species used in the agriculture and horticultural industries. However, these species, and the unwanted non-native weedy species often associated with them, can pose serious risks to natural ecological systems. Non-native species may aggressively compete with native plants for light, water, and nutrients. They often reduce the biodiversity of native plant communities and potentially cause endangerment of rare taxa. Further, non-native plants may alter ecosystem function, such as nutrient flow, hydrology, and disturbance regimes (Mack et al. 2001). Alaska is in a unique position to prevent a severe problem with invasive plants. Because most non-native plant populations in Alaska are small and largely restricted to anthropogenically disturbed areas, it may be possible to prevent the large ecological disasters that plague most American states.

This project has two primary topics: information synthesis to identify which non-native species are present in the state and which species pose the highest risk to native ecosystems; the second topic concerns field surveys in the Copper River, Matanuska, and Susitna Valleys, some of the more ecologically disturbed and fragmented regions of the state. Further, we are collaborating with US Forest Service to populate the Alaska Exotic Plant Information Clearinghouse (AKEPIC) database with survey data.

More specifically, the project involved several steps:

1.) Compilation of preliminary list of potential species that might occur in Alaska from literature sources and herbarium records.
2.) Identification of species which are accidentals and are unlikely invaders in Alaska. These species can be removed from the subsequent invasiveness ranking.
3.) Development of the system and ranking the invasiveness of those species that are currently believed to be the most problematic in the state.
4.) Production of non-native species list that provides invasiveness rank and bibliography.
5.) Conduct surveys for non-native plants in the Copper River, Matanuska, and Susitna Valleys.
6.) Collection of duplicate sets of voucher specimens for UAA and UAF herbaria.
7.) Population of the Alaska Exotic Plant Information Clearinghouse (AKEPIC) database.

This information will aid in education and increasing public awareness of the negative impacts of invasive, non-native plants.

In July and August 2003, the AKNHP primarily focused on compilation of known and potential invaders in Alaska, conducted surveys in the Susitna Valley and western Matanuska Valley, and began populating the database (i.e., steps 1, 5, 6, and 7). Surveys covered much of road-accessible regions of the Mat-Su Valley and revealed the presence of five non-native species previously unrecorded in the state. Additionally, a number of cases of severe weed infestations were recorded. After literature review, the list of known non-native species in the state increased by an additional 20 taxa. Currently, AKNHP is compiling survey data, literature, and continuing the ranking component of the grant.

In July and August 2004 surveys were conducted along the primarily and secondary roads in Matanuska River Basin and Copper River Basin.

Methods

Field Surveys –

Road right-of-ways in the Copper River, Matanuska, and Susitna Valleys were surveyed in the course of the project (see Fig. 1). These areas are the fastest growing in the state and the large amount of disturbance and increase in road corridors makes this region vulnerable to weed invasions. Field surveys were used to explore the spatial distribution of each non-native species, to identify problematic invasions, and identify new exotic species in the state.

Field surveys were conducted using protocols developed by the Alaska Exotic Plants Mapping Program (see http://aknhp.uaa.alaska.edu/).

The preliminary inventory of non-native species included compiling known exotic species occurrences within Alaska and information on non-native plants, their biology, ecology, invasiveness from the literature (Appendix A) to produce a species list of potentially aggressive invaders. The field surveys uncovered the presence of a number of new taxonomic records for the state. These records are being cross-referenced with the University of Alaska Fairbanks Herbarium database. Additionally, AKNHP is reviewing peer-reviewed, gray literature, and herbarium database records to compile other possible records and biologically relevant information.

Survey work was performed in July-August 2003 and in July-August 2004. Data were collected using a standard form (Appendix B) along roadsides and disturbed areas. Field survey in July - August 2003 concentrated on Susitna River Basin; this area includes Wasilla, Houston, Willow, Talkeetna, and Peters Creek. In 2004 we surveyed along the roads in Matanuska River and Copper River Basin. During the first three weeks of the 2003 survey, sites were spaced every 5 km to facilitate an initially broad geographic exploration during the same phenological stage. This was done in an attempt to reduce temporal and spatial bias. The following three weeks were occupied filling in sites between the initial ones. Most sites were spaced every 2-3 km. Occasionally, roadsides did not offer safe locations to park and we therefore parked at the nearest possible location. An effort was made to visit additional areas that seemed floristically interesting. Very few sites were revisited. Revisit date was processed separately. At each location we obtained GPS readings (NAD27 datum, decimal degrees). Private property was not systematically searched, but presence of exotic plants was noted from adjacent areas of dairy farms, pasture fields, and other agricultural land. In addition, public-right-of-ways abutting several greenhouse yards were visited that were rich in weedy species.

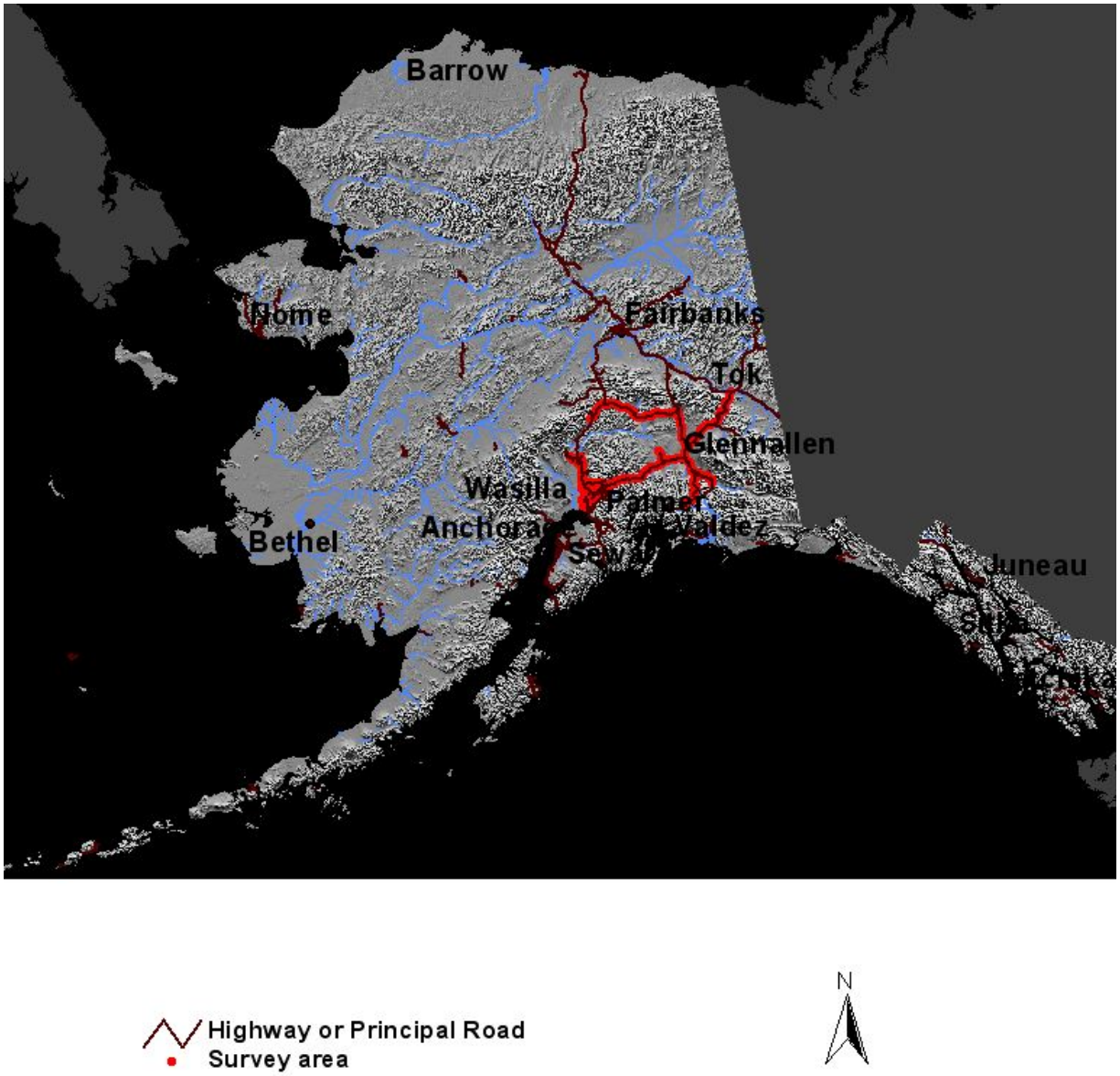


Figure 1. Area of AKNHP non-native plants survey in 2003-2004 shown in red. Principal roads are shown in brown.

Data recorded in the field surveys included presence or absence of non-native plants, specific location, type and age of disturbance, plant species lists, canopy cover, and plant aggressiveness. These data were databased using MS Excel. More than 5,000 data entries were made. At each site, area surveyed ranged from 0.01 acre as a minimum, to several acres. Most sites were 0.5 to 1 acres. Infested area was defined by drawing a line around the actual perimeter of each non-native plant. Thus for example, in a 1 acre survey area, a single *Leontodon autumnalis* would have a 0.1 acre infestation area, while a loose population of *Taraxacum officinale* that ranged from one end of the survey area to the other would have a 1 acre infestation area. Canopy cover was estimated as the percentage of the ground, covered by foliage of a particular weed species. Stem count was entered for small infestations. The presumed age of disturbance was estimated at each site. Approximate level of aggressiveness was entered for each species. We used ranks low, medium, and high. "Low" rank was used if the species was generally restricted to the most recent disturbance, but had a few individuals in marginally disturbed areas; "medium" was used if the species seemed to be persisting in marginally disturbed sites; and "high" was used if the species was invading out of the disturbed footprint and impacting native communities. If a species was restricted to the footprint of disturbance, no aggressiveness rank was given. Control measures, included hand-pulling or digging when a few weeds of a given species could easily be removed.

Photos were taken at most sites to record age of disturbance, plant community-type, and provide references for changes through time. The general plant communities were described following Viereck et al. (1992).

Last, more than 300 voucher specimens were collected. These collections include species known to be non-native, species which were unidentifiable in the field, and species used for erosion control or commonly encountered along highway right-of-ways. These specimens were determined by AKNHP, University of Alaska Fairbanks, and Oregon State University botanists, mounted and curated at the University of Alaska Fairbanks and Anchorage Herbaria (Appendix D). Nomenclature used in this report and in the accompanying list is that currently used in Integrated Taxonomic Information System (ITIS 2002).

Survey points, data, photos, and appropriate basemaps are being mapped into a GIS (Geographic Information System), using ArcView GIS 3.2. These data were entered into AKEPIC statewide database (available at http://akweeds.uaa.alaska.edu/).

These data were collected on all known non-native plants encountered and unknown, weedy species (this included some native species, such as *Hordeum jubatum*). For a few species, nativity was difficult to determine when floristic references were inconsistent or the taxonomy is cryptic and unresolved (e.g., *Bromus inermis*, *Achillea millefolium* var. *millefolium*). However in all cases, data were collected. Before the data are uploaded into the on-line database, Integrated Taxonomic Information System (www.itis.usda.gov/) will be used as the authority for determining nativity and those species considered native to Alaska will be removed. If expert opinion from a panel of Alaskan botanists and weed ecologists is sufficiently compelling, taxa considered native by ITIS may be retained.

Results

Field Surveys –

In all, 513 sites were surveyed in the Matanuska-Susitna Valley and Copper River Basin. The survey area includes more then 1200 miles of the highways and primary roads. The length of road miles surveyed is approximately doubled when accounting for secondary roads. Survey area included more than 200 acres of disturbed land, including right-of-ways, bicycle and ATV trails, parking lots, gas-stations, and campgrounds.

The survey found 93 non-native species along the roads and adjacent habitats (Appendix C). This represents approximately 57% of the 164 known exotic species for Alaska. Additional species may have been present, but escaped noticed.

1. Species diversity

Areas of greatest weed diversity were in Wasilla and Palmer proper, especially the Parks Highway, Palmer-Wasilla Highway, and agricultural areas in Palmer (Fig. 2). Quarter to half acre sites in this area often had more than 20 species. An additional location of high weed diversity was the agricultural area along Point MacKenzie Road. 0.1 to 0.5 acre sites in these locations often had more than 13 non-native species. Sites along the Glenn Highway and Parks Highway usually had 6 to 12 exotic species. Increases in weed diversity were observed in populated areas, gas-stations, and rest areas/pull-off areas. The locations with lowest number of weed species were roadsides the greatest distance from current development, habitations and buildings, agricultural production, or primary corridors. The least impacted areas were the Denali, Richardson, Tok Cut-Off, and Edgerton Highways.

Only 31 out of 513 survey sites were free of any non-native plants. Such weed free sites were recorded at Denali Highway and Hatcher Pass Road. These areas all had narrow zones of past disturbance along the right-of-ways. Hatcher Pass Road and the Denali Highway run through an alpine zone for much of its length and it may have a less suitable habitat for weed establishment.

AKNHP surveys revealed the presence of six non-native species in the area new to the state (Table 1). One additional species was found in Anchorage. These introduced species from Europe or Africa are listed as problematic weeds in other states in the United States.

There is a group of exotic species, which are widely spread in survey area and extremely abundant. Five species were encountered at more than 50 % of all sites; these were: *Achillea millefolium* s. l., *Taraxacum officinale* ssp. *officinale*, *Matricaria discoidea*, *Plantago major*, and *Phleum pratense* (Fig. 3). These species appeared to persist on sites with a wide range of soil type, age of disturbance, both near human habitations and in remote locations. *Melilotus alba* is problematic throughout central and southern Alaska. This species was widely distributed in our survey area, occurring at 29% of sites.

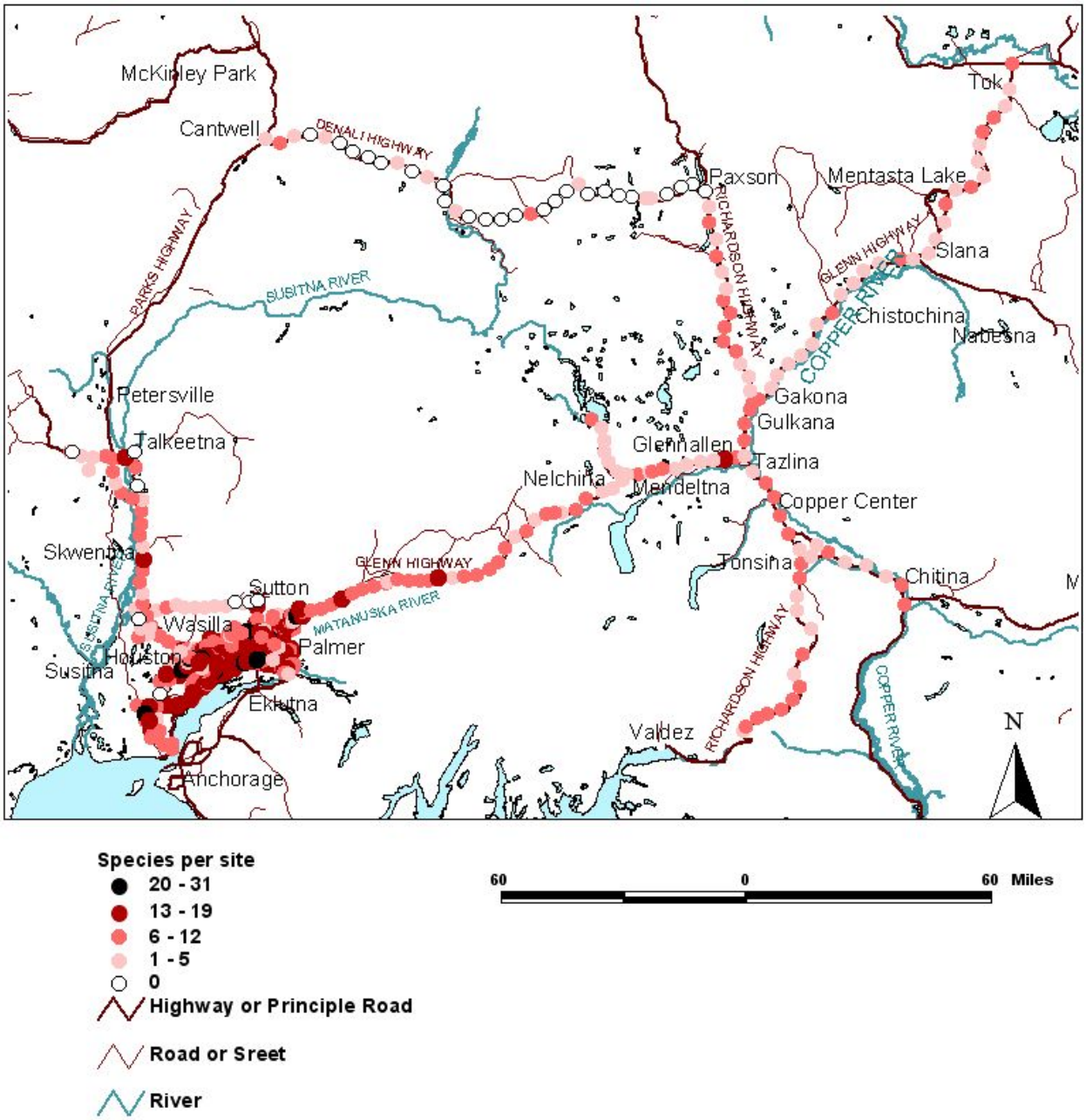


Figure 2. Non-native species diversity in the survey area

Table 1. Non-native plants encountered in survey area, which were previously unrecorded in the Alaska Weeds Database. Species names, common names, and taxon codes follow USDA PLANTS Database standards.

Species Code	Scientific name	Common name	Family	Location	Habitat	Invasive information
CHMI	*Chaenorhinum minus* (L.) Lange	dwarf snapdragon	Scrophulariaceae	Wasilla	Railroad track	Listed as a noxious weed seed in Washington (USDA 2002)
DRMO	*Dracocefalum moldavica* L.	Moldavian dragonhead	Lamiaceae	Palmer	Mixed Herbaceous-Shrub Roadside.	Introduced from temperate Asia (USDA, ARS 2004).
GYPA	*Gypsophila paniculata* L.	Baby's breaht	Caryophyllaceae	Anchorage, Westchester Lagoon, Government Hill Elementary School parking lot	Forb-Graminoid Trailside, Mixed Herbaceous-Shrub Roadside/Lot	Introduced from Europe. Listed as a noxious weed in California and Washington (USDA 2002, Whitson 2000, Royer 1999).
HOMUL	*Hordeum murinum* L. ssp. *leporinum* (Link) Arcang.	leporinum barley	Poaceae	Wasilla, Palmer, western Hatcher Pass Road	Forb-Graminoid Roadside, Closed Forest Roadside	Introduced to the United States from southern Europe. Listed as an invasive weed in most western states (Whitson 2000).
LEOF	*Levisticum officinale* W.D.J. Koch	garden lovage	Apiaceae	Glenn Highway	Forb-Graminoid Roadside. Was intentionally planted and new persisting.	Introduced from Western Asia (USDA, ARS 2004).
LIPI3	*Linaria pinifolia* (Poir.) Thellung	pineneedle toadflax	Scrophulariaceae	Palmer	Early Seral-Herbaceous Roadside. Recently disturbed site, mineral soil. It is likely was introduced with road construction equipment or imported gravel or top soil.	Ornamental, introduced from Africa (USDA, ARS 2004).

Table 1. Non-native plants encountered in survey area, which were previously unrecorded in the Alaska Weeds Database. Species names, common names, and taxon codes follow USDA PLANTS Database standards. (cont.).

Species Code	Scientific name	Common name	Family	Location	Habitat	Invasive information
SEVI4	*Setaria viridis* (L.) Beauv.	green bristlegrass	Poaceae	Wasilla, Tok Cut-Off	Closed Forest Roadside	Listed as a noxious weed in Colorado state (USDA 2002).
SEVI4	*Setaria viridis* (L.) Beauv.	green bristlegrass	Poaceae	Wasilla, Tok Cut-Off	Closed Forest Roadside	Listed as a noxious weed in Colorado state (USDA 2002).
SIDI4	*Silene dioica* (L.) Clairville	red catchfly	Caryophyllaceae	Palmer	Forb-Graminoid Roadside It is likely has been escaped cultivation and appears to be persisting on roadside	Introduced to the United States from Europe (USDA 2002)
VITR	*Viola tricolor* L.	johnny jumpup	Violaceae	Wasilla	Closed Forest Roadside, Urban area, flower bed	Introduced to the United States from Europe (USDA 2002, Whitson 2000).

Some of the species which are believed to be the most invasive in Alaska tended to have only spotty distributions. *Vicia cracca*, ranked 75 out of 100 in invasiveness (see http://akweeds.uaa.alaska.edu/akweeds_ranking_page.htm), was found at only 19% of sites, and rather randomly distributed in the survey area. *Hieracium aurantiacum* has proven to be a serious weed on Kodiak Island and in southeastern Alaska, ranked as 71 out of 100 close behind *V. cracca*; this species was found only at a single site. Prohibited noxious weeds in Alaska, such as perennial sowthistle (*Sonchus arvensis*) and Canada thistle (*Cirsium arvense*) were recorded at single sites.

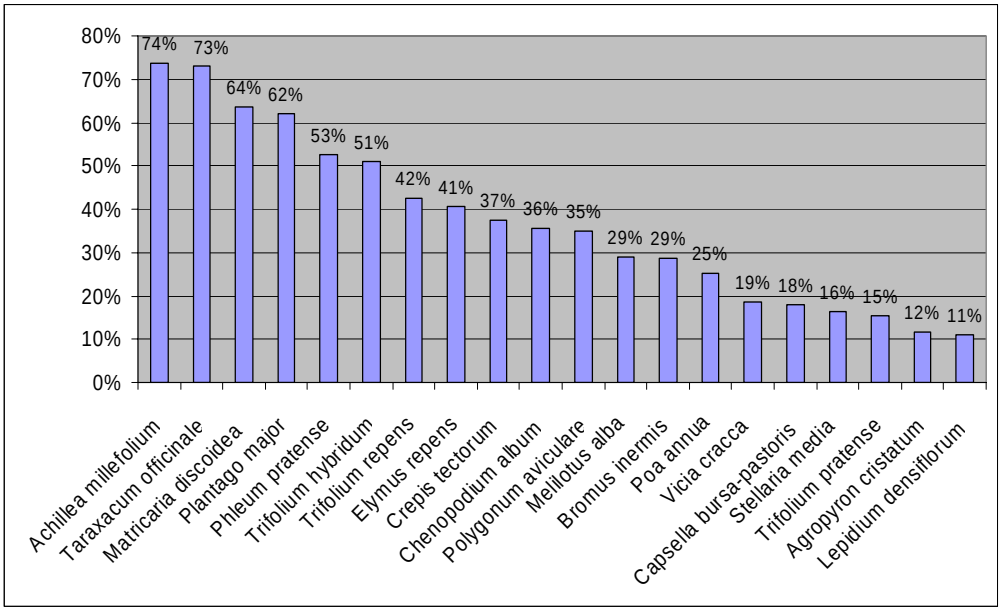


Figure 3. Frequency of occurrence of the 20 most commonly encountered non-native species.

Last, no locations were found that had garlic mustard (*Alliaria petiolata),* or Japanese knotweed (*Polygonum cuspidatum),* two of the most invasive species that have caused serious community alterations in southeastern Alaska (Densmore 2001, AKNHP 2004).

2. Size of infestation

The largest infestations appeared to be positively correlated with sites of highest species diversity (compare Figs. 2 and 4). The smallest area of infestation was set at a circular area, 12 foot radius (1/100 acre, see AKEPIC manual). At most sites the infested area was 0.5 to 1 acre. The largest infestations were found in Palmer, especially along roads running through agricultural fields, and at the Matanuska Glacier recreational site.

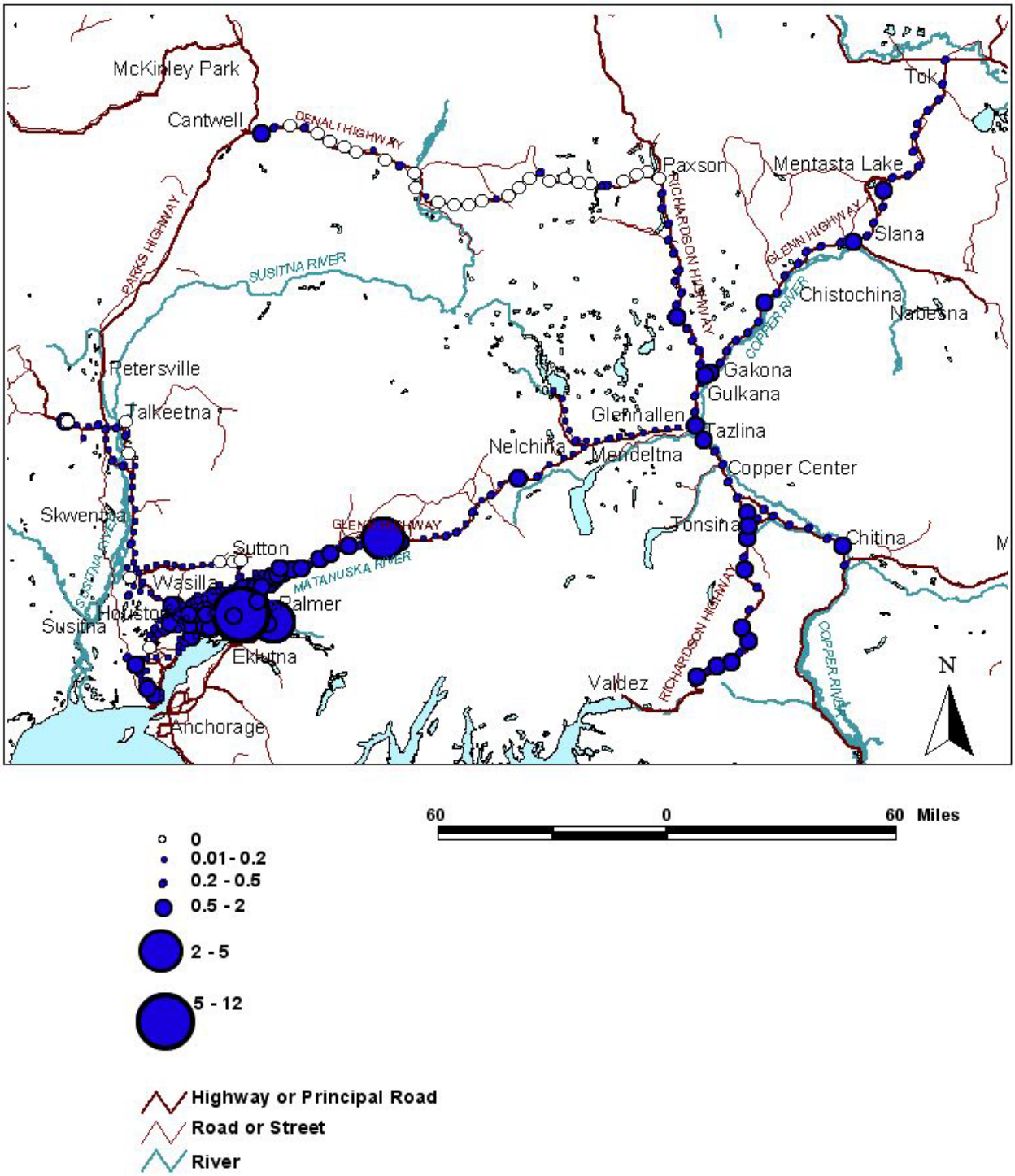


Figure 4. Size of infestation in the survey area

3. Canopy cover

Most sites had percent canopy cover of individual non-native species under 10 % (Fig. 5). Only a few species occurred in large densities, such as 80%, 90%, or 100%, and these cases were restricted to just a few sites. *Vicia cracca, Bromus inermis,* and *Trifolium hybridum* were the species occasionally found at high densities (Fig. 6). However, these species also often grow at

very low densities, sometimes just a single individual per site. The mean canopy cover was relatively high for *Melilotus alba*, *M. officinale*, *Trifolium repens*, and *Phleum pratense*, which were chronically encountered at moderate densities and found in monocultural stands at number of sites. Mean canopy cover was about 4-5% for these species.

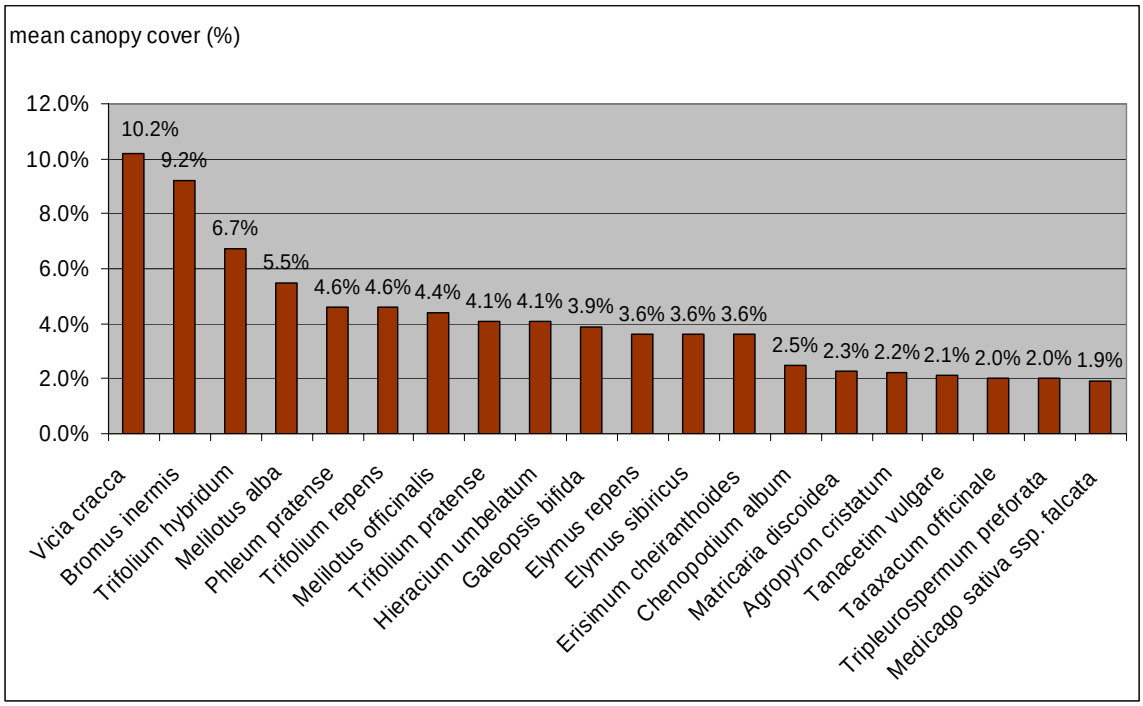


Figure 5. Mean canopy cover (%) of sites where species occurs for the 20 most densely growing species

Figure 6. *Vicia cracca* on a previously hydro-axed roadside, climbing over willow, birch, and blue-joint grass.

4. Aggressiveness

The most aggressive species encountered were *Trifolium hybridum*, *Trifolium repens*, *Vicia cracca*, *Phleum pratense*, and *Melilotus alba*. These species were often observed extending out of the roadside corridor and entering marginal areas or clearcuts of forests and meadows.

Discussion

1. Overview of non-native species patterns

Surveys of 513 sites along roadsides and adjacent lands in the Matanuska-Susitna Valleys and Copper River Basin revealed 93 non-native taxa (see Appendix C), of which nine were unrecorded in Alaska Weeds Database (see Table 1). This represents 57% of the 164 recorded non-native species in Alaska. It is perhaps, not surprising to find such a high proportion of exotic species in this region, since the Matanuska Susitna Borough is the fasting growing region in the state and one of the few agricultural areas.

Non-native species did not appear to be evenly distributed in the survey area. Primary and secondary roads of Wasilla and Palmer had very high diversities of non-native species and generally more extensive invasions. These areas have the greatest level of disturbance and potential influx of seed sources. Weed densities and diversities were very high along the Parks Highway in Wasilla, along Springer Loop and Old Glenn Highway in Palmer. These areas offer a very large corridor of disturbed substrates and near constant input of weed seeds from vehicles. Additionally, there are numerous nurseries, gardens, and farms, which no doubt, contribute to the high exotic load of the area. Palmer has a long farming history; area includes large dairy farming, hay-producing, and an agricultural research station. Livestock feed sources and hay cultivation (not to mention development of experimental crops) is notorious sources for weeds, and it is not surprising to find the level of infestation at this location, despite being relatively remote.

Areas with very few non-native species were along the Denali and Richardson Highways, and Hatcher Pass Road. These areas all had low concentrations of habitations/buildings, and were distant from agricultural production. Disturbance along these roads was quite old and narrow. Thus, it seems feasible to reduce the level of non-native infestations by limiting the size of the road-building or maintenance footprint. Last, few non-native species were encountered along the Parks Highway between Willow and Talkeetna, since road construction has cleared all plants from the roadside. This area should be monitored in the following years to investigate the succession of non-native and native species.

In general, there was a chronic, low degree of infestation and diversity. This typically took the form of minimal percent cover (ca.1%) of *Matricaria discoidea* and *Plantago major* closest to the drivable surface and an increasing cover (ca. 5-10%) of legumes (*Trifolium repens*, *T. hybridum*, *T. pratense*, *Melilotus alba*, and *M. officinalis*) and dandelions (*Taraxacum officianale*) along the distal edge of the roadbed. Along the ditch and back-slope, the non-native grasses, *Bromus inermis* and *Phleum pratense*, tended to predominate at percent covers up to 10 or 15%. At the intermediate disturbance zone, between the roadbed and ditch, there was an inconsistent assemblage of exotics generally at low densities. These tended to be composites (e.g., *Crepis tectorum*, *Hieracium umbellatum*, and *Leontodon autumnalis*).

Few non-native species appeared to be out-competing native species and entering intact boreal forest communities. *Trifolium hybridum* and *Phalaris arundinacea* (the nativity of *P. arundinacea* has in Alaska has been proposed, see AKNHP Invasiveness Ranking Report 2004) often extended into undisturbed areas. *Vicia cracca* was observed at 95 out of 513 sites, and in nearly all of these, the population had entered into the forest over 10 m (Fig. 7). This species has a great probability of altering community compositions in south-central Alaska (Lichvar et al.

1997, Densmore et al. 2001, AKNHP 2004). It is encouraging that it is currently not ubiquitous and existing populations should be targeted for eradication. *Melilotus alba* and *M. officinalis* were generally restricted to roadsides, but were observed invading native communities in one instance. Last, *Phleum pratense*, *Trifolium repens*, and *Bromus inermis* can form dense stands and tend to run out of the road footprint. These stands appear to be resistant to revegetation by native plants.

Figure 7. *Vicia cracca* outcompeting native grasses and forbs in closed forest

2. Species of concern

Summarizing data on size of infestation, canopy cover, and level of aggressiveness allows us to identify those species producing the worst infestations. The worst infestations in our survey were those by *Trifolium hybridum*, *Trifolium repens*, *Vicia cracca*, *Phleum pratense*, and *Melilotus alba*. These species are responsible for the most extensive populations, are capable of creating extremely dense stands, and invade natural communities in south-central Alaska. These plants are prolific seed producers or have aggressive vegetative reproduction. They have numerous opportunities for long distance dispersal.

Many species were found in the survey area that are restricted to disturbed sites and have not been recorded invading native communities. These species were generally found in small patches, some of them were found extremely infrequently. However, a number of these plants have been ranked with high invasiveness scores. Some of them are declared noxious in other states, have abundant seed production, numerous vectors of spread, and they are known as plants invading and altering native communities in similar climate and similar habitats as Alaska (see Table. 2). Because these species tend to be restricted to a few sites with relatively low population numbers and they pose a great risk to ecological function and community composition, their removal is encouraged. Below we outline seven highly invasive species that we recommend for immediate control.

Table 2. Invasive species recommended for immediate control.

Common and scientific name	Number of sites invaded	Ranking score (out of 100)	Listing
White sweetclover (*Melilotus alba* Medicus)	148	80	"Exotic Pest" in Tennessee, "Ecologically Invasive" in Wisconsin, "Weed" in Kentucky and Quebec, Canada (Royer and Dickinson 1999, USDA 2002).
Yellow sweetclover (*Melilotus officinalis* (L.) Lam)	33	65	"Exotic Pest" in Tennessee and Wisconsin (USDA 2002).
Cheatgrass (*Bromus tectorum* L.)	2	78	Listed as Noxious in Colorado (USDA 2002).
Canada thistle (*Cirsium arvense* (L.) Scop.)	1	76	Has been declared noxious by 35 states and 6 Canadian provinces (Invaders Database System 2003). Considered a serious pest in 37 countries (Zouhar 2001). It is a prohibited noxious weed in Alaska (Alaska Administrative Code 1987).
Orange hawkweed (*Hieracium aurantiacum* L.)	1	71	Listed as Noxious in Colorado, Idaho, Minnesota, Montana, and Washington (Pokorny and Sheley 2003, USDA 2003).
Siberian peashrub (*Caragana arborescens* Lam.)	6	65	The species is not considered noxious in North America (Invaders Database System 2003, USDA 2002).
Perennial sowthistle (*Sonchus arvensis* L.)	2	59	Noxious weed in 20 states of the United States and 5 Canadian provinces. It is declared federal noxious weed in US and Canada (Invader Database System 2003, Royer and Dickinson 1999). It is a prohibited noxious weed in Alaska (Alaska Administrative Code 1987).

Orange hawkweed (*Hieracium aurantiacum* L.)

Other common names: devil's paintbrush, king-devil.
Family: Asteraceae (Compositae)

In 2003 surveys in Matanuska-Susitna Valley, this species was found only at a single site on Parks Highway at mile 79 on an area adjacent to the Birch Grove Farm. AKNHP employees met with Ted Berry (tel: 495-7867 in Willow), owner of the farm, who said he planted this species as an ornamental. At the time of the survey, *H. aurantiacum* was established on approximately 0.5 acres between the roadside and a closed spruce-paper birch forest. The population size was estimated at 200. Revisiting the site in 2004 revealed an increase in the population sizes up to 2.5 acres and canopy cover of up to 95%, a nearly monocultural mat (Fig. 8). All individuals had well developed rooting shoots and have the probability of further spread. Furthermore, large numbers of seedlings were found, indicating that reproduction through seeds is occurring - as *H. aurantiacum* has wind dispersed seeds, additional outbreaks are likely unless immediate action is taken.

Figure 8. Monocultural stand of Orange hawkweed, including vegetative plants (left) and biew of site 94 on Parks Highway south from Birch Grove Farm driveway, 23 August 2004. Grasses, willow, birch, and fireweed are crowded out of area colonized by orange hawkweed (right).

The population of *Hieracium aurantiacum* was found on the eastern side of the Parks Highway, about at the entrance gate to Birch Grove Farm (61.86687° N, 150.08591° W, see Figs. 9 and 10).

Management strategies:
Control of this infestation by careful digging of rosettes in the spring or early summer can be successful, especially when coupled with re-seeding with grasses or forbs. If the site is not re-vegetated, hawkweed seedlings from the existing seed bank will quickly re-infest the area. If the plants are in flower, cut off and bag all flower heads. Mowing will not control hawkweeds because they are perennials and most reproduce by underground rooting stems. The plants should be carried away and either burned or placed in a refuse pile. Combination of applications of a selective herbicide with fertilizer can be successful. Herbicide treatment of the hawkweed

infestation on Kodiak Island had excellent results (Brown 2004). After two spring and two fall herbicide applications, no hawkweed plants were observed in plots that had previously been densely covered. Species richness increased from an average of four taxa before treatment to six after the third treatment. Experience in British Columbia has shown that fertilizing small infestations with ammonium sulphate results in reduced density and vigor due to increased grass-forb competition. The infested area will require monitoring in June and July for any vegetative or flowering plants that were missed by the herbicide. Several years following treatment, the area should be monitored for new plants emerging from the seed bank.

Plants need to be prevented from spreading from the existing population by cleaning vehicles, boots, and animals that have been in infested areas. Seed are small and are easily carried in mud.

Last, public awareness of this species and the danger it posses to Alaskan ecosystems is required. Public presentations, explanations in gardening journals, and publication of weed guides will provide information and help those unfamiliar with invasive species. The publications and booklets are available online at: http://www.fs.fed.us/r10/spf/fhp/. Sale and planting of this species needs to be stopped at the local and regional levels.

Figure 9. View of site 94 at the Birch-Grove Farm on Parks Highway

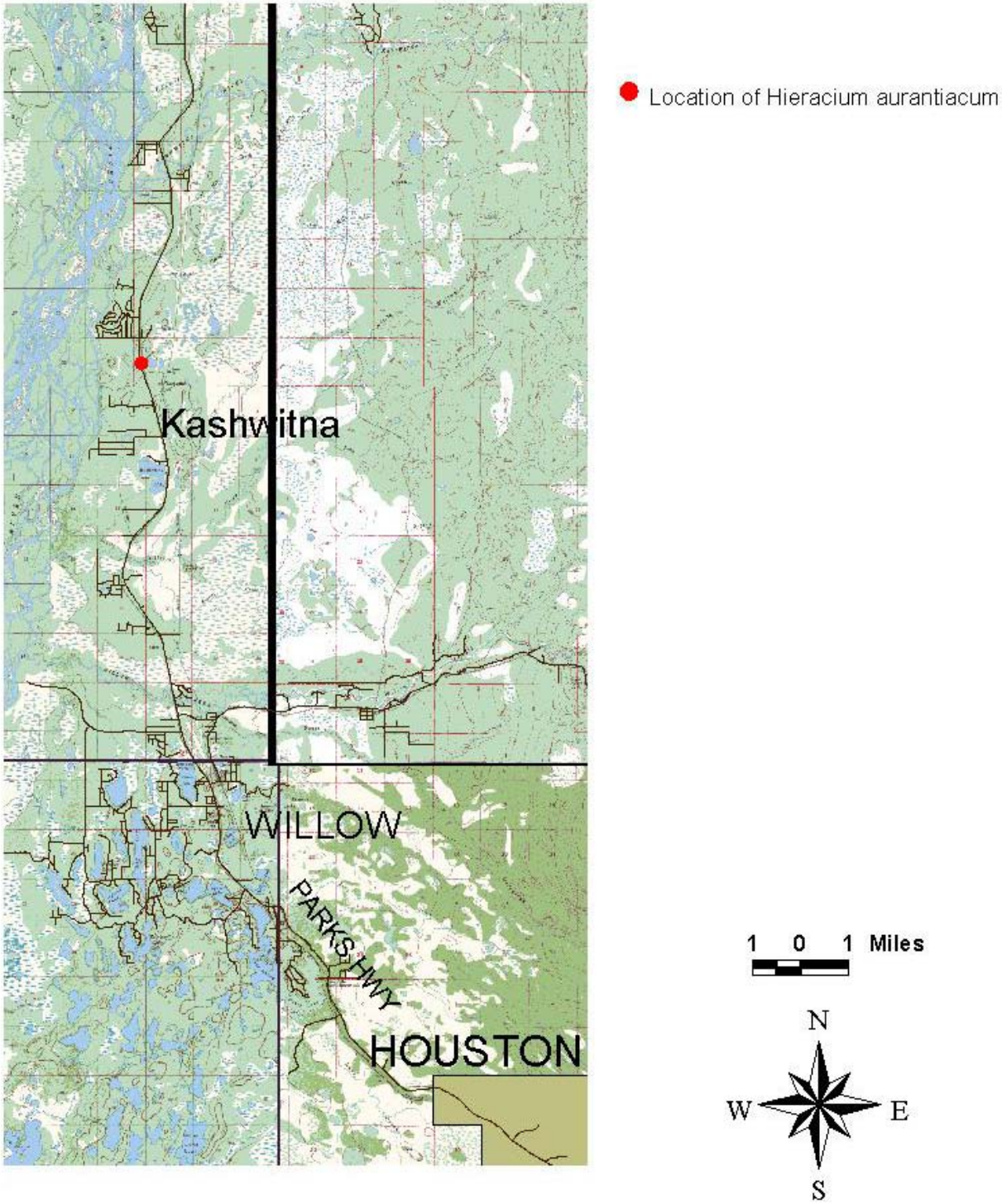


Figure 10. Location of the isolated population of orange hawkweed (*Hieracium aurantiacum*) in the Susitna Valley.

White sweetclover (*Melilotus alba* Medikus)

Synonyms: *Melilotus albus* Desr.
Other common names: honey clover, honey-lotus, tree lover, white millet.
Family: Fabaceae

This species was found extensively within the Wasilla and Palmer city limits. Populations are widespread and dense, particularly in east Wasilla, and along main and secondary roads between Wasilla and Palmer. Sweetclover can be a problem at the intersections of roads and glacial outwash rivers, where plants can jump from the anthropogenically disturbed roadsides to the naturally disturbed river corridors. Since this alien species performs best on open gravely and sandy areas, herbaceous riverine communities in Alaska can be altered by invasion of *Melilotus*.

While the establishment of *Melilotus* is probably too extensive for eradication in the foreseeable future, it is important to protect intact river systems from future invasion. We suggest that all *Melilotus* individuals be eradicated from the following locations, where roads cross rivers or streams:

Site code 46. Parks Highway crossing Wasilla Creek on the bridge (at Longitude: -149.30939; Latitude: 61.57002, Fig. 11 and 13).

Site code 62. Johnson Road crossing Lucile Creek. Southeast of Houston. Approximately 1 mile south of the Parks Highway. (at Longitude: -149.70561; Latitude: 61.55667, Fig. 13).

Site code 186. Point McKenzie Road crossing unnamed creek at Longitude: -150.02567; Latitude: 61.31606. This location has an unnamed lake on east side of the road and a big wetland area on the west side (Fig. 14 and 16).

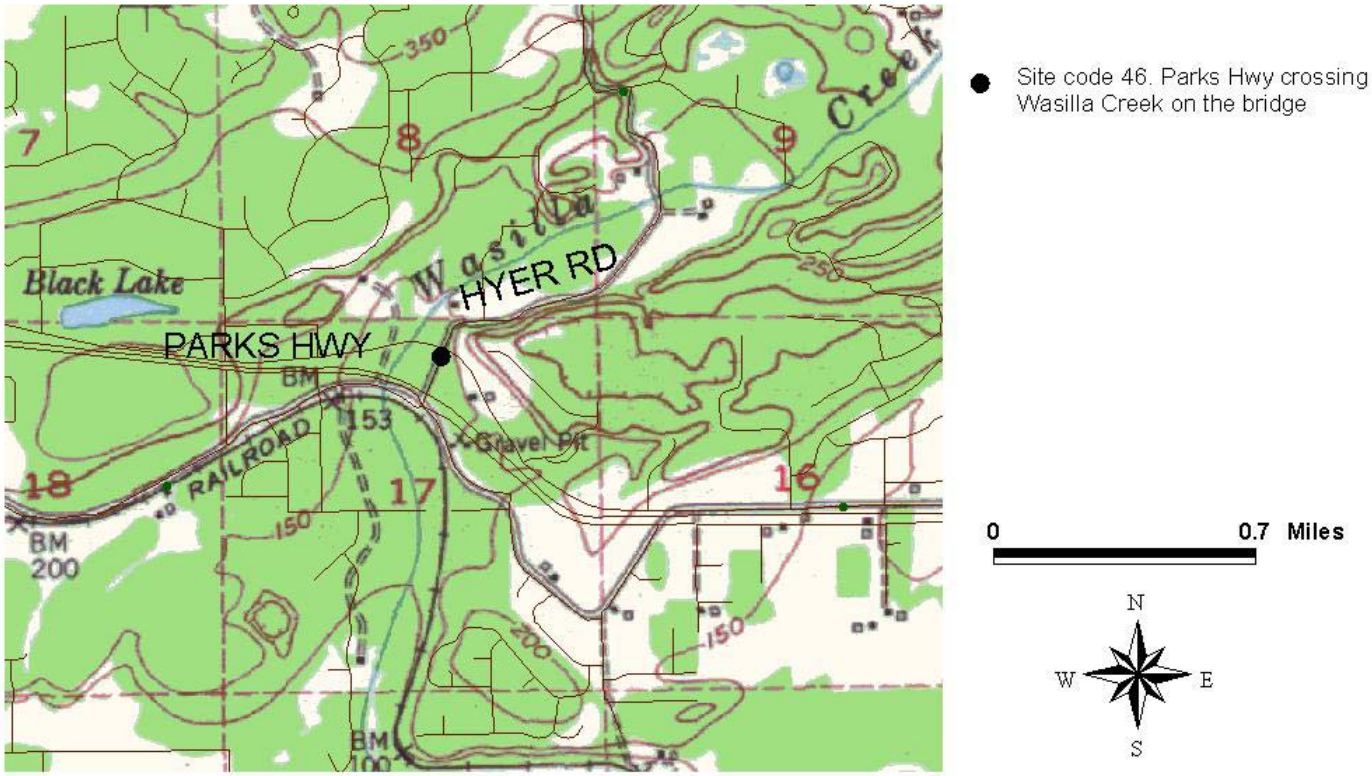
Figure 11. View of exit from Parks Highway to Hyer Road adjacent to Wasilla Creek. Road fill is largely vegetated with *Melilotus alba*.

Site code 431. Tok Cut-Off crossing Gakona River. 1 acre of riverbank is infested by *Melilotus alba* (62.301790° N, 145.303330° W, Fig. 12). This site is just 200 m upstream from the confluence with the Copper River and recommended for eradication. Control methods are developing for the summer of 2005 (J. Conn – pers. com.).

Figure 12. Gakona – Tok Cut-Off *Melilotus alba* site. Plants extend from the road edge, down the unimproved boat launch to the water's edge.

A thick infestation occurs on Trunk Road, adjacent to Wasilla Creek in an extended area, approximately 4 miles along the road and creek (Fig 15). Another large population of white sweetclover extends along the Glenn Highway and Matanuska River from Palmer to the Matanuska Glacier. We recommend that these areas receive closer investigation for the presence of *Melilotu*s infestations outside of the road system and recommend all populations be eradicated.

Management strategies:
The best method for controlling sweetclover is to prevent seed production. Hand pulling is effective for small to moderate infestations if it is done when the ground is moist. In general, late fall after the first-year plants develop root crown buds or early spring before second year plants develop flower buds is best. In large and dense colonies cutting first and second year stems close to the ground is effective if done after the leaves on the lower stems have died.



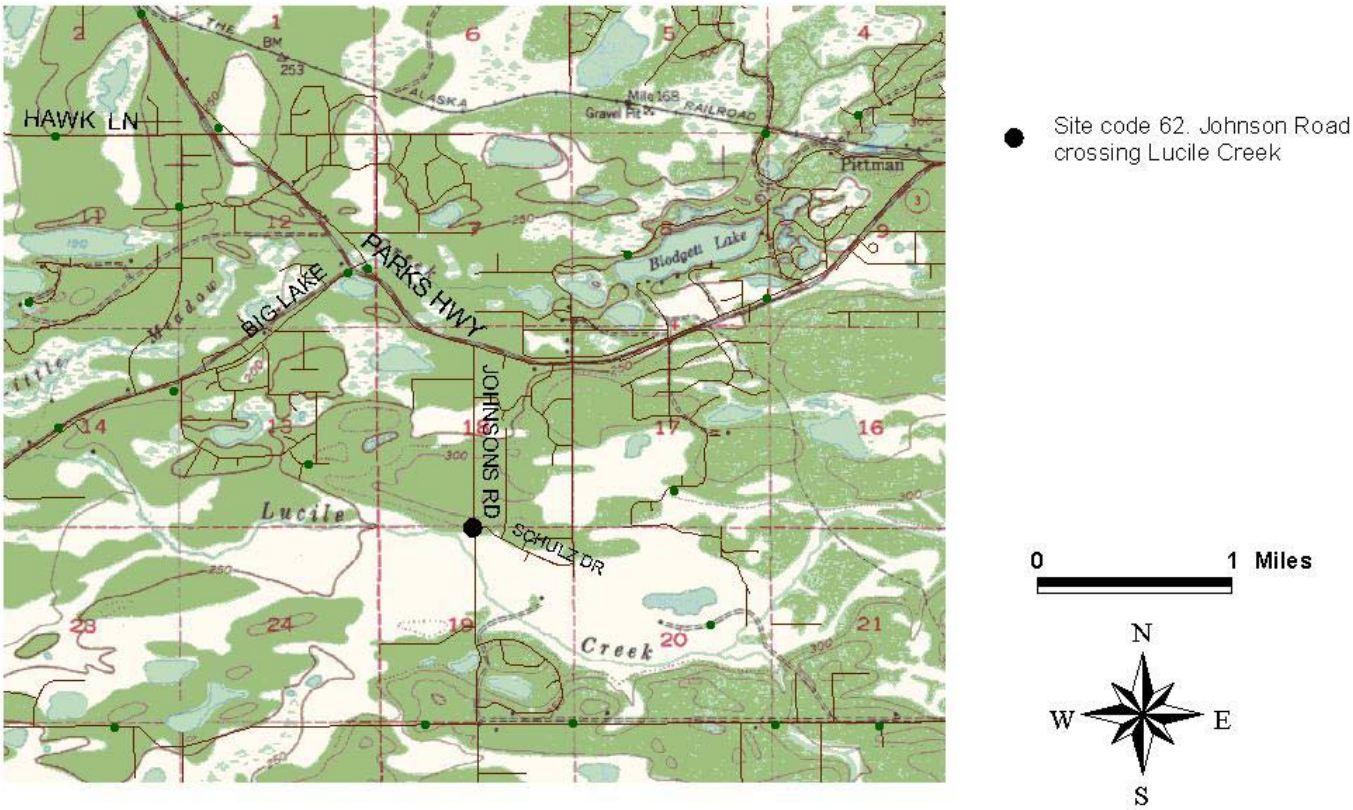


Figure 13. Locations of *Melilotus alba* infestations in the Mat-Su Valley

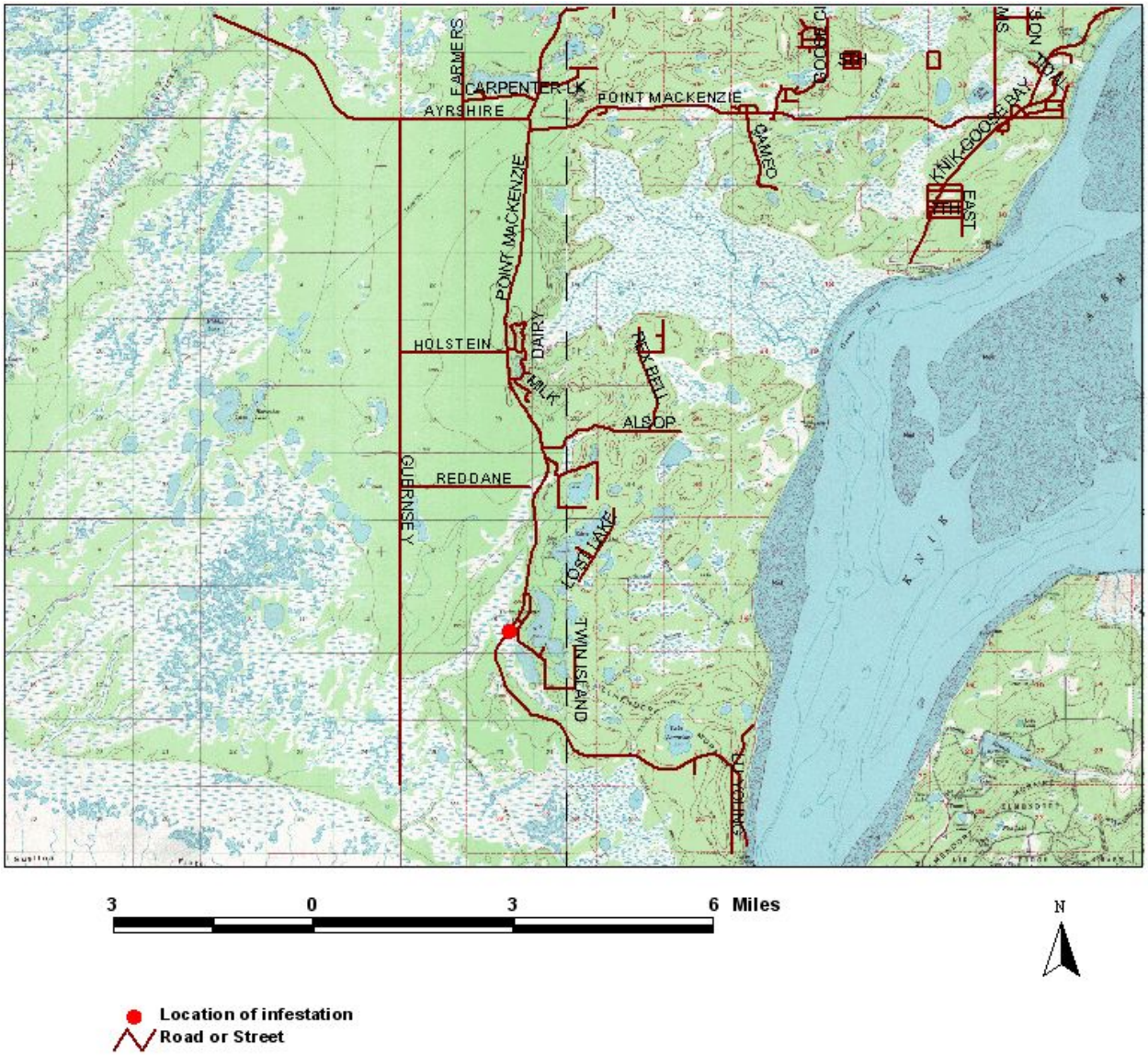


Figure 14. Location of the largest *Melilotus alba* and *M. officinalis* infestation on Point Mackenzie Road.

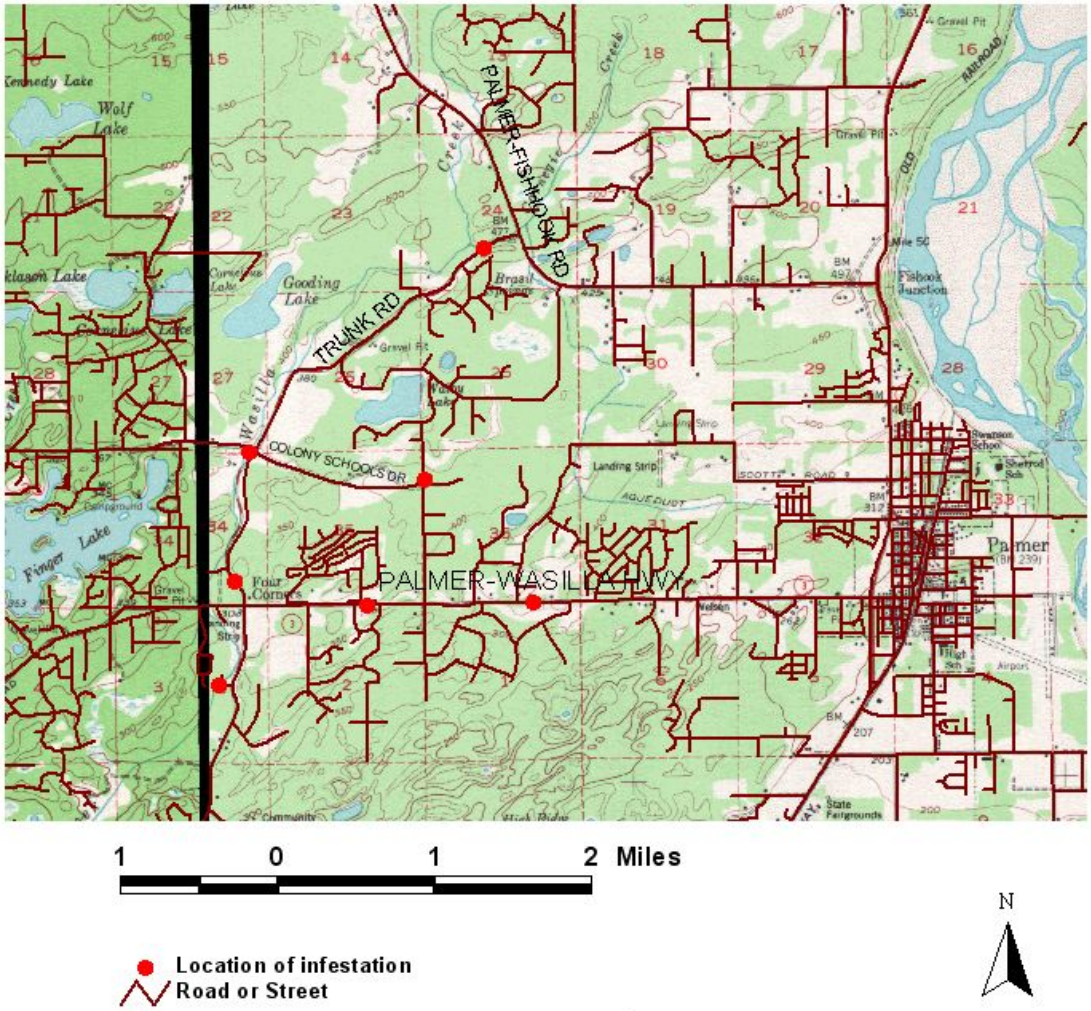


Figure 15. Trunk Road adjacent to Wasilla Creek recommend for closer investigation of *Melilotus* infestation and eradication of small populations

Yellow sweetclover (*Melilotus officinalis* (L.) Lam)

Synonyms: *"Trifolium M. officinalis"* L.; *Melilotus arvensis* Wallr.; *Melilotus albus* Medik.
Other common names: king's-crown, plaster clover, Hart's clover, king's clover, and yellow millet.
Family: Fabaceae

Melilotus officinalis was commonly encountered in Wasilla, normally restricted to disturbed roadsides. However, it was found in a well established native community in a saturated fen along Point MacKenzie Road (Fig. 16). This is quite unusual and potentially very hazardous, as the species is generally restricted to well-drained, gravel substrates. This genus appears to require high light intensities and is unlikely to cause serious alterations under the canopy, but can be a serious invader along Alaskan rivers (M. Shephard – pers. com.). It often occurs with *Melilotus alba*. Another site of concern is near the Matanuska Glacier parking area along the Glenn Highway. This area is heavily infested by both *M. alba* and *M. officinalis* (Fig. 17). The population is large and dense, producing large amounts of seed, which are very likely washed downstream. We suggest that the populations along Point MacKenzie Road and at Matanuska Glacier parking area be targeted for eradication.

Figure 16. *Melilotus officinalis* at site 186.

Site code 186. (61.31606° N, 150.02567° W). The roadside was infested by many non-native species, including *Melilotus alba*, *M. officinalis* and *Vicia cracca*. Approximately 700-800 plants of *Melilotus officinalis* were found in the vicinity.

Site code 513. (61.803180° N, 147.853320° W). The large infestation of *Melilotus officinalis* was found on south side of Glenn Highway across from the Matanuska Glacier overlook parking lot (Fig. 17).

Management strategies:

Because white sweetclover and yellow sweetclover have very similar biology and ecology distribution, they have similar control methods (see above).

Figure 17. View of site 513 at the overlook parking lot at the Matanuska Glacier.

Cheatgrass (*Bromus tectorum* L.)

Synonyms: *Anisantha tectorum* (L) Nevski
Other common names: downy brome, downy cheat, downy chess, early chess, drooping brome, cheatgrass brome, wild oats, military grass.
Family: Poaceae

In 2003 surveys *Bromus tectorum* was found in two disjunct locations: southern Wasilla, and Houston (Fig. 18), in small populations of very few fruiting plants. Our surveys, conducted at the end of the growing season, typically revealed small cheatgrass plants that produced few seeds; however, larger plants with significant numbers of seeds were also found. Thus, there may be limits to high reproductive output for only specific sites in south-central Alaska. At the time of revisiting of these sites in August 2004 *B. tectorum* was not found. Because this species is an annual with tremendous seed production capacity and seeds can remain dormant for two or three years, a large seedbank likely exists in the soil.

Bromus tectorum was found in southern Houston at the intersection of the Parks Highway and Hawk Lane (61.58616° N, 149.74426° W) on the western roadside between the highway and bike path. Plants occur in areas seeded with grass in 2003. Another infested site is southeast of Wasilla on Linlu Lane, crossing Fairview Loop (61.55842° N, 149.34671° W). Plants were found on a small area where the road turns to the east, but further examinations along Linlu Lane will likely reveal more populations of *B. tectorum*.

Management:
The best strategy of controlling this species is to prevent the initial infestation. This can be achieved by ensuring that any seed for re-vegetative programs is certified weed free and by thoroughly cleaning equipment before restoration begins. Successful control can be achieved by preventing seed production and exhausting the soil seed bank. One option is mowing and removal of plants from the site. However, plants continue to develop during growing season, and late developing plants may be capable of producing seed after mowing. Seeding perennial species as competitors can also be effective. Thick stands of grasses or grass-legume combinations are highly competitive with cheatgrass (Klein et al. 2002). Herbicide application may be the most effective option. No biological control methods have been approved by the USDA for use on cheatgrass.

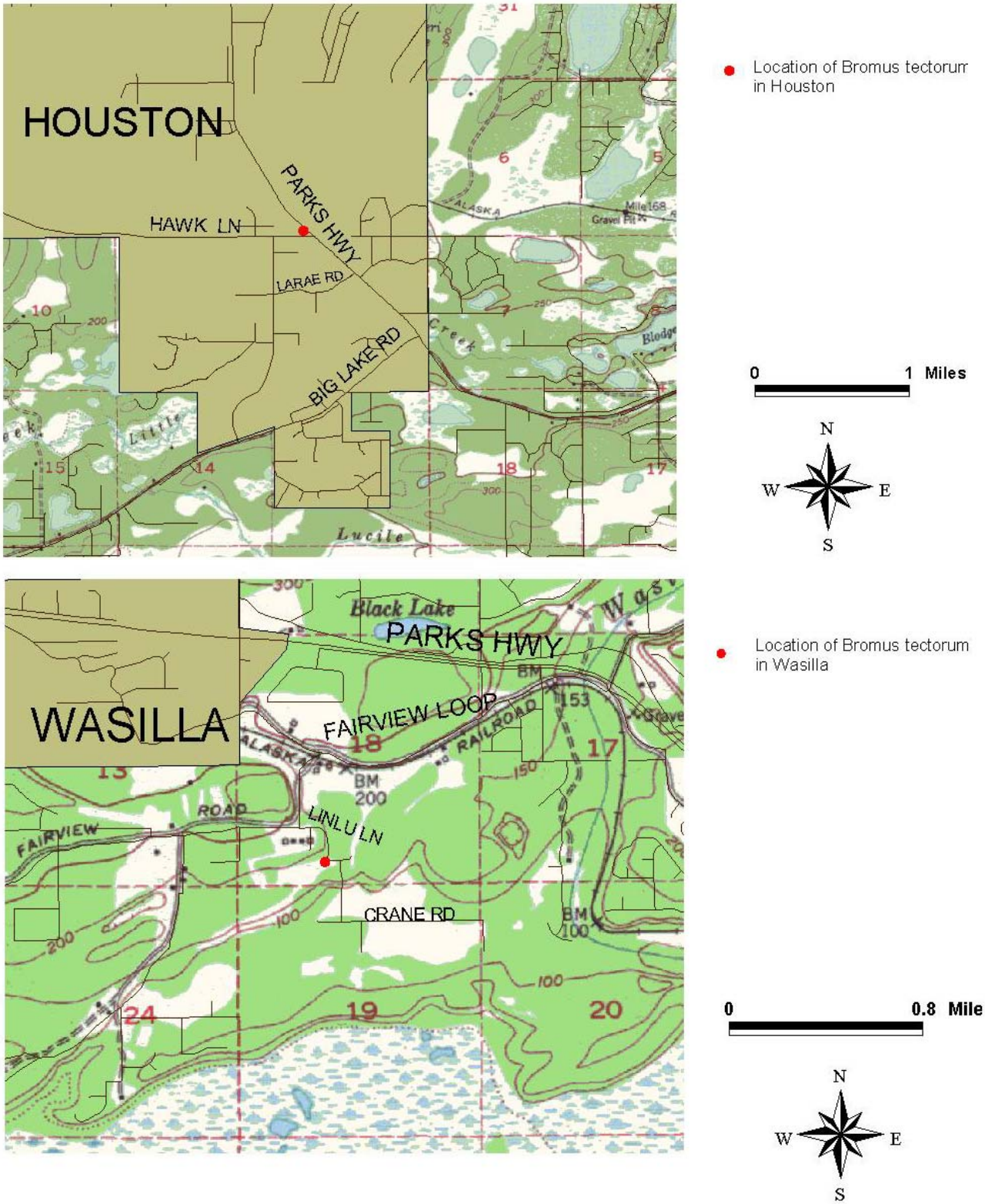


Figure 18. Locations of *Bromus tectorum* sites from 2003 field surveys in the Susitna Valley

Siberian peashrub (*Caragana arborescens* Lam.)

Synonyms: none
Other common names: none
Family: Fabaceae

Caragana arborescens is recognized as the most problematic invader of mixed forest communities in the boreal forest in Europe (I. Lapina - pers. obs.). Siberian peashrub is widely cultivated in Palmer as an ornamental plant. In more recent years it is appears to be escaping and establishing in undisturbed forested areas (Fig.19). This species was observed forming a new shrub layer in mixed birch-spruce forest. A large number of young plants of different ages were found under the forest canopy (Fig. 20). These are very initial infestations and eradication is still possible.

Caragana arborescens has become established in Palmer along the Glenn Highway and especially along Outer Springer Loop in south Palmer. Populations at the following sites should be targeted for control:

Site code 237. Palmer, North-East corner of Outer Springer Loop. (61.585350° N, 149.086940° W). This is an abandoned field at a former homesite colonized by tall grass, fireweed, and Siberian peashrub. Seed regeneration is successful in dense stand of *Bromus inermis* and *Phleum pratense*.

Site code 240. Palmer, Outer Springer Loop. (61.562470° N, 149.130040° W). Plants were planted along the road probably a few decades ago. Currently, new regeneration is moving from the road into the forest.

Figure 19. View of site 240 in south Palmer. *Caragana arborescens* in the foreground, is invading completely undisturbed mixed paper birch-spruce forest

Figure 20. Seedlings of Siberian peashrub in a densely vegetated area

Site code 396. Palmer, at the intersection of Glenn Highway and Marsh Road (61.617050° N, 149.115840° W). The east side of the road is infested by *Caragana arborescens.* Multiple age classes of young plants are present, maternal plants were not observed.

Site code 397. Palmer, Outer Springer Loop (61.563150° N, 149.139010° W). Young plants have colonized both sides of the road. A number of individuals was observed penetrating into undisturbed forest community.

Management:
Seedlings can be easily pulled. Larger individuals can be dug out, as this species does not spread from rhizomes. Plants have the ability to resprout after cutting (USDA 2003); therefore all aboveground parts should be removed, or stumps should be painted with herbicide.

Perennial sowthistle (*Sonchus arvensis* L.)

Synonyms: *Sonchus arvensis* var. *glabrescens* Guenth., Grab.& Wimmer, *Sonchus uliginosus* Bieb.
Other common name: field sowthistle, marsh sowthistle, moist sowthistle, sowthistle
Family: Asteraceae (Compositae)
Listing: Prohibited Noxious Weed in Alaska (Alaska Administrative Code 1987). It is a noxious weed in 20 states of the United States and 5 Canadian provinces. It is declared federal noxious weed in US and Canada (Invader Database System 2003, Royer and Dickinson 1999).

Figure 21. Perennial sowthistle (*Sonchus arvensis* ssp. *uliginosus* (Bieb.) Nyman) on the roadside at site 292

Perennial sowthistle was recorded once on the Glenn Highway. It was a small, yet thriving population on very dry, mineral soil. Plants are apparently reproducing vegetatively at this site. In Alaska, this species is restricted to disturbed soil and has not been observed entering undisturbed natural areas. It was observed also growing as a weed in private gardens in Palmer.

Site code 292 (61.802210° N, 148.242390 ° W). On the Glenn Highway, at the 85 mile mark, a quite small but thriving infestation was found. At the time of the survey plants were flowering and going into seed. Seeds of this species can be easily moved by the intensive traffic on the Glenn Highway, increasing the probability of its spread into new locations.

Management:
A combination of chemical and mechanical control methods can be used on this species. Dig out plants, removing as much root as possible. The rhizomes can be easily broken and new plants can arise from rhizomes, as deep as 2 feet. Monitoring for several years

following treatment is necessary. This weed is relatively resistant to many common broadleaf herbicides (Butterfield et al. 1996, Rutledge and McLendon 1996).

Canada thistle (*Cirsium arvense* (L.) Scop.)

Synonyms: *Cirsium incanum* (Gmel.) Fisch., *Cirsium setosum* (Willd.) Bess. ex. Bieb., *Serratula arvensis* L.
Other common names: creeping thistle, California thistle, field thistle
Family: Asteraceae (Compositae)
Listing: Prohibited Noxious Weed in Alaska (Alaska Administrative Code 1987). It has been declared noxious by 35 states and 6 Canadian provinces (Invaders Database System 2003). Additionally, it is considered a serious pest in 37 countries (Zouhar 2001).

Canada thistle was found in the survey area at a single site. Site code 305. Kepler-Bradley Lakes Recreational Park. Long Lake trailhead (61.560230° N, 149.196530° W). This species occurs along the trailside in the mixed birch-spruce forest. Although a number of blooming individuals were found, this plant is apparently spreading primarily by vegetative means.

Management:
Canada thistle is generally very difficult to control once established. At this time, there are no control methods suitable for widespread use in natural areas. More intensive efforts are called for in areas that have new or small invasions. A combination of mechanical and chemical methods are more effective than any single method used alone.

NON-NATIVE PLANT HOTSPOTS TO TARGET

Site 260 requires close attention and treatment. The infested area is as big as 0.5 acres . Here *Tanacetum vulgare*, *Leucantemum vulgare*, *Vicia cracca*, *Melilotus alba*, *Linaria vulgaris*, and the new non-native species for Alaska, *Silene dioica*, were recorded. All of these species occur at high densities and each cover about 40-50% of survey area. Site 260 (61.650580 ° N, 149.111010 ° W) is located at Mile 52 of the Glenn Highway north of Stephan Fire Station #32 parking lot.

Figure 22. View of site 260 on Glenn Highway

SPECIES FOR FURTHER OBSERVATION

Ornamental trees are planted widely in Wasilla and Palmer. The invasive European bird-cherry (*Prunus padus* L.) was recorded on roadsides. We did not observe this species reproducing by seed, and it does not appear to be invading adjacent plant communities at our survey sites. However, this species is ranked relatively high in its invasiveness, and it has created dense stands, eliminating willows and alder along Campbell Creek in Anchorage.

Tatarian honeysuckle (*Lonicera tatarica* L.) is a shrub that is potentially allelopathic, depressing the growth of other species. It is a problematic invader of forests in Wisconsin. This species was not recorded in our survey, but it is widely planted on private property and there is a high probability for this species to escape.

These two species are currently sold at local nurseries.

RECOMMENDATIONS

A number of agriculturally important species and species used in revegetation projects are establishing in native communities. We recommend that less problematic varieties or those which are seed-sterile are used. Species of *Medicago*, *Trifolium*, and *Melilotus* are widely grown for hay and soil-improvement (Klingman 1975). Fields of these legumes were occasionally observed in the Mat-Su Valley and, as such large seed-sources, they likely fuel additional outbreaks. Additionally, *Trifolium hybridum* was recommended as a seed-source for a major revegetation program in Alaska (Kubanis 1982). Field surveys in the south-central region and literature review revealed that *Trifolium hybridum* is one of the most aggressive invaders of native habitats in south-central Alaska (AKNHP 2004). Traditionally, annual ryegrass (*Lolium multiflorum*) has been used as a temporary measure for erosion control. Densmore (2000) and Kubanis (1982) stated that this annual

plant will not persist in areas where it is seeded even though abundant seed may be produced. To reduce the potential for exotic plants invasions, native species should be considered for revegetation programs. Disturbed areas should be allowed to revegetate naturally except those for which vegetative cover is necessary for erosion and pollution control. Because most weeds are poor competitors for light, we recommend that hardy, native shrubs (e.g., *Alnus tenuifolia*, *Alnus viridis*, and *Salix* spp.) be used in revegetation projects.

Use of mulches for erosion control along the roads has both advantages and disadvantages. Mulches protect surface soils against erosion and improve soil quality; however, straw usually has some weed seeds, which often germinate and produce reproductive adults. *Trifolium* seeds are often included in hay mulches (McKendric 2001). Non-organic mulches may be useful in erosion control in some areas. Otherwise, straw and wood waste mulch should be limited to very specific applications.

Seeds of undesirable non-native species may be included in seed mixes unintentionally. Use of certified weed-free seed for reclamation and revegetation projects and later monitoring is essential.

Another approach to limiting weed invasions is to minimize the amount of available habitat. This can be done by reducing the area of disturbance along the right-of-way during road construction and maintenance. Non-native plant infestations and diversities were clearly lowest in areas with a narrow road corridor. Efforts should be made to minimize the exposure of mineral soil. The use of top soil over exposed mineral soils would facilitate natural revegetation.

Non-native species are often brought in on vehicles and construction equipment. If vehicles are operating in an area with large numbers of weeds, an effort should be made to pressure-wash the tires or tracks and accumulated mud and debris, before the vehicles are moved to a new location.

Mowing of roadside plants should be done in late spring to early summer to prevent seeds production and germination. Currently, much of the mowing appears to be occurring after mature seeds have been produced; in these cases, mowing would have the undesirable consequence of further distributing seeds. To control perennial non-native species, repeated and frequent cutting may be required.

Areas where roads cross streams or rivers, either by bridge or culvert, should be targeted for intensive non-native plant eradication. Most rivers in Alaska do not have notable invasive plant problems, but a few have had serious outbreaks of *Melilotus alba*, forming 1,000 acre monocultures (M. Shephard pers comm.). The glacial rivers in Alaska have substantial levels of disturbance, exposed mineral soil, and little competition, making them extremely susceptible to invasion. Further, the connectivity of rivers is quite high, facilitating the rapid dispersal of propagules over a very wide area. We feel it is essential to reduce the possibility of non-native plant sources near rivers by eradicating *Melilotus* (and preferably all non-native species) in a 200 m buffer along the road on either side of

the river or stream. It would be most effective to target up-stream river crossings first (e.g., Tanana River crossing at Tok, rather than Nenana).

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Appendix A. Literature sources for composition of known non-native species in Alaska.

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Appendix B. Sample blank data sheet used in field surveys.

AKEPIC Mapping Project Inventory Field Data Sheet: Year 2004 (*required item)

*****Survey Date ____/____/____ *Observers:
mm / dd /yyyy

Observers Affiliation: BLM NPS UAF USFS USGS CES AKNHP ARS PSWCD other

A. Site information

Site Code: _____ Visit Type: Recon Monitoring Research Is this a Revisit: Yes No
Area Surveyed _____acres
Note: 1/10 acre=37ft radius, ½ acre=83 ft radius, 1acre=118ft radius
Site Vegetation Community Description: (Vierek Code) _____
Disturbance Type: _____
Estimated Age of Disturbance: _____years

B. Location information

*****Latitude: _____ *Longitude:_____ Elevation: _____m
****Note: Datum is NAD 27 and Coordinate Format is decimal degrees (60.123456°)****
*****Collection Method (circle and complete details)
GPS precision _____ft (0-5, 0-30, 0-100, 0-1000, 1000+)
15 min Topographic Map source _____scale _____date_____
quad name _____quad number_____
Notes (location):

C. Survey information

	Exotic Plant Species Code	*Infested Area (acres)	*Canopy Cover (%)	Stem Count	Collection Location	Control Action	Aggressiveness
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

16							
17							

Exotic Plant Species Code: use USDA name code from the EXCEL list non-native plants of AK http://agdc.usgs.gov/akepic/weed.html

Infested Area: 1/100th acre is minimum area for data collected. 1/100 acre = 12ft radius, 1/10 acre=37ft radius, ½ acre=83 ft radius, 1acre=118ft radius

Canopy Cover: recommended codes - 1%, 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 95%, and 100%.

Stem Count: 1-5, 6-25, 26-50, 51-150, 151-500, 500+. The default value is N/A.

Estimated Age of Disturbance: Estimated age in years, if not ongoing.

Disturbance Type: F = Agriculture Field, R= Roadside, L=Landscaped, I= Mine tailings (Use these codes 1st if appropriate); G = Grazing, H = Hand Tool, M = Mechanical, N = Natural, S = Avalanche Slope, T = Trampling, O = Other, Z = None.

Collection Location: A=ALA – University of Alaska Herbarium, T=TNES – Tongass Herbarium in Sitka, W=WTU – University of Washington Herbarium, O=Other, Z=None.

Control Action: Manual (Pull/Dig), Mechanical (Mowing/Weedwacking), Broadcast Herbicide, Spot Herbicide, Aerial Herbicide, Other, None.

Aggressiveness: Rank low, medium, or high used if species is invading out of the disturbed footprint.

Appendix C. List of known non-native species in Alaska.

An X is given if the species was encountered in 2003-2004 field surveys.

Species Code	Scientific name/Family	Survey 2003-2004	Exotic Status
	Cyperaceae		
CADE9	*Carex deweyana* Schwein.		exotic
SCMA8	*Scirpus paludosus* A. Nels.		exotic
	Urticaceae		
URDI	*Urtica dioica* L.	X	exotic & introduced
	Poaceae (Graminae)		
AGCA5	*Agrostis capillaris* L.		exotic
AGCR	*Agropyron cristatum* (L.) Gaertn.	X	exotic
AGGI2	*Agrostis gigantea* Roth		exotic
AGST2	*Agrostis stolonifera* L.		exotic
PASM	*Agropyron smithii* Rybd.		exotic
ALGE2	*Alopecurus geniculatus* L.	X	exotic
ALPR3	*Alopecurus pratensis* L.	X	exotic
AVFA	*Avena fatua* L.	X	exotic
AVSA	*Avena sativa* L.	X	exotic
BESY	*Beckmannia erucaeformis* (L.)Host	X	exotic
BRHO2	*Bromus hordeaceus* L.		exotic
BRINI	*Bromus inermis* Leyss.	X	exotic
BRSE	*Bromus secalinus* L.		exotic
BRTE	*Bromus tectorum* L.	X	exotic
DAGL	*Dactylis glomerata* L.	X	exotic
DEEL	*Deschampsia elongata* (Hool.) Munro		exotic
ELRE4	*Elymus repens* (L.) Beauv.	X	exotic
ELSI	*Elymus sibiricus* L.	X	exotic
LOAR10	*Festuca arundinacea* Schreb.		exotic
HOJU	*Hordeum jubatum*	X	exotic & introduced
HOMUL	*Hordeum murinum* L. ssp. *leporinum* (Link) Arcang.	X	exotic
HOVU	*Hordeum vulgare* L.	X	exotic
LOPEM2	*Lolium perenne ssp. multiflorum* (Lam.) Husnot	X	exotic
LOPE	*Lolium perenne* L.		exotic
PHAR3	*Phalaris arundinaceae* L.	X	exotic
PHCA5	*Phalaris canariensis* L.		exotic
PHPR3	*Phleum pratense* L.	X	exotic
POAN	*Poa annua* L.	X	exotic
POCO	*Poa compressa* L.		exotic
POPA2	*Poa palustris* L.	X	exotic
POPR	*Poa pratensis* L.	X	exotic
POPR12	*Poa pratensis* ssp. *irrigata* (Lindm.)	X	exotic

	Lindb.f.		
POPRP2	*Poa angustifolia* L.		exotic
POTR2	*Poa trivialis* L.	X	exotic
SEVI4	*Setaria viridis* (L.) Beauv.	X	exotic
TRAE	*Triticum aestivum* L.	X	exotic
ZEMA	*Zea mays* L.	X	exotic
	Amarantaceae		
AMRE	*Amaranthus retroflexus* L.	X	exotic
	Polemoniaceae		
COLI2	*Collomia linearis Nutt.*	X	exotic
	Boraginaceae		
ASPR	*Asperugo procumbens* L.		exotic
LASC	*Lappula squarrosa* (Retz.) Dumort	X	exotic
	Brassicaceae (Cruciferae)		
BRJU	*Brassica juncea* (L.) Czern.	X	exotic
BRRA	*Brassica rapa* L.	X	exotic
BRRAR2	*Brassica rapa* L. ssp. *rapa*		exotic
CABU2	*Capsella bursa-pastoris* (L.) Medik.	X	exotic
CABU2	*Capsella rubella* Reut.		exotic
DESO2	*Descurainia sophia* (L.) Webb ex Prantl	X	exotic
ERCH9	*Erysimum cheiranthoides* L. subsp. Cheiranthoides	X	exotic
ERGA	*Erucastrum gallicum* (Willd.) O.E. Schulz		exotic
LEDE	*Lepidium densiflorum* Schrad	X	exotic
NEPA	*Neslia paniculata* (L.) Desv.		exotic
RARA2	*Raphanus raphanistrum* L.		exotic
RASA2	*Raphanus sativus* L.		exotic
ROSY	*Rorippa sylvestris* (L.) Bess.		exotic
SIAL2	*Sisymbrium altissimum* L.	X	exotic
SIAR4	*Sinapis arvensis* L.		Exotic
THAR5	*Thlaspi arvense* L.	X	exotic
ALPE4	*Alliaria petiolata* (Bieb.) Cavara & Grande		exotic
	Chenopodiaceae		
CHALA	*Chenopodium album* L.	X	exotic
	Caryophyllaceae		
CEGL2	*Cerastium glomeratum* Thuill.	X	exotic
CEFO2	*Cerastium fontanum* Baumg. Ssp. *triviale* (Link) Jalas	X	exotic
GYPA	*Gypsophila paniculata* L.		exotic
SILAA3	*Silene latifolia ssp. alba* (P. Mill.) Greuter & Burdet	X	exotic
SIAR	*Silene armeria* L.	X	exotic

SIDI4	*Silene dioica* (L.) Clairville	X	exotic
SINO	*Silene noctiflora* L.		exotic
SPAR	*Spergula arvensis* L.	X	exotic
SPRU	*Spergularia rubra* (L.) J & K. Presl	X	exotic
STME2	*Stellaria media* (L.) Vill.	X	exotic
	Leguminosae (Fabaceae)		
ASCI4	*Astragalus cicer* L.		exotic
CAAR	*Caragana arborescens* Lam.	X	exotic
CYSC4	*Cytisus scoparius* (L.) Link		exotic
LUPOP4	*Lupinus polyphyllus* Lindl.	X	exotic
MEAL12	*Melilotus alba* Medicus	X	exotic
MEOF	*Melilotus officinalis* (L.) Lam.	X	exotic
MESAF	*Medicago sativa* ssp *falcata* (L.) Arcang	X	exotic
MELU	*Medicago lupulina* L.		exotic
MESAS	*Medicago sativa* L.		exotic
ONVI	*Onobrychis viciifolia* Scop.		exotic
TRAU2	*Trifolium aureum* Pollich		exotic
TRHY	*Trifolium hybridum* L.	X	exotic
TRPR2	*Trifolium pratense* L.	X	exotic
TRRE3	*Trifolium repens* L.	X	exotic
VICRC	*Vicia cracca* L.	X	exotic
VIVI	*Vicia villosa Roth*		exotic
	Euphorbiaceae		
EUES	*Euphorbia esula* L.		exotic
	Malvaceae		
MANE	*Malva neglecta* Wallr.		exotic
	Geraniaceae		
ERCI6	*Erodium cicutarium* (L.) L'Her. Ex Ait		exotic
GEPU2	*Geranium pusillum* L.		exotic
	Lamiaceae		
DRMO	*Dracocephalum moldavica* L.	X	exotic
GABI3	*Galeopsis bifida* Boenn.	X	exotic
GATE2	*Galeopsis tetrahit* L.	X	exotic
LAMA	*Lamium maculatum* L.	X	exotic
	Papaveraceae		
PANU3	*Papaver nudicaule* L.	X	exotic
	Plantaginaceae		
PLLA	*Plantago lanceolata* L.		exotic
PLMA2	*Plantago major* L. var. *major*	X	exotic
PLME	*Plantago media* L.		exotic
	Caprifoliaceae		
LOTA	*Lonicera tatarica* L.		exotic
	Polygonaceae		
POAV	*Polygonum aviculare* L.	X	exotic

POCO10	*Polygonum convolvulus* L.	X	exotic
POCU6	*Polygonum cuspidatum*		exotic
POLA4	*Polygonum lapathifolium* L.	X	exotic
POPE3	*Polygonum persicaria* L.		exotic
RUAC3	*Rumex acetosella* L. ssp. *acetosella*	X	exotic
RUACA5	*Rumex acetosella* L. ssp. *angiocarpus* (Murb.) Murb.		exotic
RUCR	*Rumex crispus* L.	X	exotic
RULO2	*Rumex longifolius* DC.	X	exotic
RUOB	*Rumex obtusifolius* L.		Exotic
	Ranunculaceae		
RAAC3	*Ranunculus acris* L.		uncertain
RARE3	*Ranunculus repens* L.		exotic
	Rosaceae		
ARAN7	*Potentilla anserine* L.		exotic
POGR9	*Potentilla gracilis* Dougl. Ex Hook.		exotic
POMU3	*Potentilla multifida* L.	X	exotic
PRPA5	*Prunus padus* L.	X	exotic
SOAU	*Sorbus aucuparia* L.	X	exotic
	Scrophulariaceae		
CHMI	*Chaenorhinum minus (L.) Lange*	X	exotic
DIPU	*Digitalis purpurea* L.	X	exotic
EUNE	*Euphrasia nemorosa* (Pers.) Wallr.		exotic
LIPI3	*Linaria pinifolia* (Poir.) Thellung	X	exotic
LIVU2	*Linaria vulgaris* P. Mill.	X	exotic
MIOR	*Antirrhinum orontium* L.		exotic
VELO2	*Veronica longifolia* L.	X	exotic
VESES	*Veronica serpyllifolia* L. ssp. *serpyllifolia*		exotic
	Violaceae		
VITR	*Viola tricolor* L.	X	exotic
	Lythraceae		
LYHY2	*Lythrum hyssopifolia* L.		exotic
LYSA2	*Lythrum salicaria* L.		exotic
	Haloragaceae		
MYSP2	*Myriophyllum spicatum* L.		exotic
	Apiaceae		
LEOF	*Legusticum officinale* L.	X	exotic
	Clusiaceae		
HYPE	*Hypericum perforatum* L.		exotic
	Asteraceae		
ACMIM2	*Achillea millefolium* L. sens. str.	X	exotic
ACPT	*Achillea ptarmica* L.	X	exotic
ANCO2	*Anthemis cotula* L.		exotic
ANTI	*Anthemis tinctoria* L.		exotic

ARDR4	*Artemisia dracunculus* L.	X	exotic
BICE	*Bidens cernua* L.		exotic
CEBI2	*Centaurea biebersteinii* DC		exotic
CIAR4	*Cirsium arvense* (L.) Scop.	X	exotic
CIVU	*Cirsium vulgare* (Savi) Ten.		exotic
COCO7	*Cotula coronopifolia* L.		exotic
CRCA3	*Crepis capillaris* (L.) Wallr.		exotic
CRTE3	*Crepis tectorum* L.	X	exotic
HEAN3	*Helianthus annuus* L.	X	exotic
HIAU	*Hieracium aurantiacum* L.	X	exotic
HIUM	*Hieracium umbellatum* L.	X	exotic
HYRA3	*Hypochoeris radicata* L.		exotic
LASE	*Lactuca serriola* L.	X	exotic
LEAU2	*Leontodon autumnalis* L.	X	exotic
LEVU	*Leucanthemum vulgare* Lam.	X	exotic
MAGL2	*Madia glomerata* Hook.		uncertain
MADI6	*Matricaria discoidea* DC	X	uncertain
ONAC	*Onopordum acanthium* L.		exotic
SEJA	*Senecio jacobea* L.		exotic
SEVI2	*Senecio viscosus* L.		exotic
SEVU	*Senecio vulgaris* L.	X	exotic
SOAR2	*Sonchus arvensis* L.	X	exotic
SOOL	*Sonchus oleraceus* L.		exotic
TALA2	*Taraxacum scanicum* Dahlst.		exotic
TAOF	*Taraxacum officinale* Weber	X	exotic
TAVU	*Tanacetum vulgare* L.	X	exotic
TRDU	*Tragopogon dubius* Scop.		exotic
TRPE21	*Tripleurospermum perforata* (Merat) M. Lainz	X	exotic

Appendix D. List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Achillea millefolium L.	Native&Introduced	Mat-Su Valley	North Wasilla, Coles Rd, just west of Close St.	320	61.664990	-149.386400	177	roadside	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Achillea millefolium L.	Native&Introduced	Mat-Su Valley	North Wasilla, Coles Rd, just west of Close St.	320	61.664990	-149.386400	177	roadside	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Achillea millefolium L.	Native&Introduced	Palmer	Glenn HWY, near intersection with Arctic Ave.	341	61.990300	-146.781740	755	roadside	8/7/04	University of Alaska Museum, University of Alaska Fairbanks
Achillea millefolium L.	Native&Introduced	Glennallen & Paxson	Richardson Hwy, approximately 5 - 5.5 miles S of Sourdough	462	62.430610	-145.408710	583	roadside	8/28/04	University of Alaska Museum, University of Alaska Fairbanks
Achillea millefolium var. *millefolium* L.	Introduced	Mat-Su Valley	North Wasilla, south end of Champion Rd, Reindeer farm	321	61.663260	-149.357450	185	roadside/lot	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Achillea ptarmica L.	Introduced	Mat-Su Valley	Glenn HWY, mile 52, Stephan Fire Station #32 parking	260	61.650580	-149.111010		roadside	7/21/04	University of Alaska Museum, University of Alaska Fairbanks
Agrostis scabra Willd.	Native	Palmer/Wasilla area	Parks HWY and Trunk Rd. Ride parking lot.	1	61.565670	-149.261140		parking lot	7/28/03	University of Alaska Museum, University of Alaska Fairbanks
Agrostis scabra Willd.	Native	Mat-Su Valley	North Wasilla, North end of Sushana Dr., gravel road	317	61.661350	-149.465820	190	roadside	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Agrostis scabra Willd.	Native	Mat-Su Valley	North Wasilla, Schwald Rd, approximately 1/2 mile east of corner with Twana Ave	318	61.659660	-149.437670	162	roadside	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Agrostis scabra Willd.	Native	Matanuska Valley	Glenn HWY, Hicks Creek Roadhouse	296	61.793750	-147.932130	436	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Alopecurus aequalis Sobol.	Native	Palmer/Wasilla area	Palmer-Wasilla HWY & Knik-Goose Bay Rd	18	61.572550	-149.441620		roadside	7/22/03	University of Alaska Museum, University of Alaska Fairbanks
Alopecurus aequalis Sobol.	Native	Mat-Su Valley	mile north of intersection with Schwal RD wetland	322	61.662920	-149.424770	193	roadside	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Alopecurus geniculatus L.	Introduced	Palmer/Wasilla area	Parks HWY & Trunk Rd and Ride parking area	1	61.565670	-149.261140			7/28/03	University of Alaska Museum, University of Alaska Fairbanks
Alopecurus pratensis L.	Introduced	Mat-Su Valley	Hatcher Pass RD and Upper Willow Creek.	75	61.770050	-149.329790			7/29/03	University of Alaska Museum, University of Alaska Fairbanks
Alopecurus pratensis L.	Introduced	Matanuska Valley	Glenn HWY, at 84 mile mark	291	61.798980	-148.252350	483	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Alopecurus pratensis L.	Introduced	Matanuska Valley	Glenn HWY, approximately 1mile east of Cascade Creek	294	61.803780	-148.075230	675	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Alopecurus pratensis L.	Introduced	Little Nelchina River	Glenn HWY, Little Nelchina State Recreation Site Campground	363	61.990150	-146.944340	734	roadside	8/8/04	University of Alaska Museum, University of Alaska Fairbanks

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Alopecurus pratensis L.	Introduced	Mat-Su Valley	Palmer, Farm Loop Rd, approximately 0.5 mile north of Palmer-Fishhook Rd	369	61.633070	-149.161480	145	roadside	8/9/04	University of Alaska Museum, University of Alaska Fairbanks
Alopecurus pratensis L.	Introduced	Mat-Su Valley	Palmer, Bodenburg Loop, NW corner at Matanuska River	377	61.556620	-149.070070	53	roadside	8/13/04	University of Alaska Museum, University of Alaska Fairbanks
Alopecurus sp.		Matanuska Valley	Oceanview intersection in subdivision west of Buffalo Mine Moose Creek RD	273	61.719570	-149.116960		roadside	7/22/04	University of Alaska Museum, University of Alaska Fairbanks
Amaranhus retroflexus L.	Introduced	Palmer	Palmer Experimental Station UAF. Dairy an	392	61.607250	-149.090300	94	cultivated field	8/20/04	University of Alaska Museum, University of Alaska Fairbanks
Amaranhus retroflexus L.	Introduced	Palmer	Palmer Experimental Station UAF. Dairy an	392	61.607250	-149.090300	94	cultivated field	8/20/04	University of Alaska Anchorage, Herbarium
Arabis divaricarpa A. Nels.	Native	Glennallen & Paxson	Richardson Hwy, approximately 5 - 5.5 miles S of Sourdough	462	62.430610	-145.408710	583	roadside	8/28/04	University of Alaska Museum, University of Alaska Fairbanks
Arabis hirsuta ssp. *pycnocarpa*	Native	Mat-Su Valley	Seward Meridian Parkway and Palmer-Wasilla Hwy.	48	61.584700	-149.357040		roadside	7/25/03	University of Alaska Museum, University of Alaska Fairbanks
Arabis lyrata L.	Native	Amphitheater Mtns	Denali Hwy, Sevenmile Lake	475	63.082130	-145.603620	1024		8/28/04	University of Alaska Museum, University of Alaska Fairbanks
Arabis sp.		Matanuska Valley	Glenn HWY	341	61.990300	-146.781740	755	roadside	8/7/04	University of Alaska Museum, University of Alaska Fairbanks
Artemisia dracunculus L.	Native	Matanuska-Susitna Valley	Glenn HWY approximately 4 mile west of big bridge across Dan Creek	297	61.79762	-147.75394	540	Roadside	8/2/04	University of Alaska Museum, University of Alaska Fairbanks
Asparagus officinalis L.	Introduced	Palmer	Bodenburg Loop "U-Pick Vegetables" farm	381	61.531510	-149.078020	16	Field edge	9/13/03	University of Alaska Museum, University of Alaska Fairbanks
Astragalus sp.		Mat-Su Valley	Palmer, Smith Rd and Windless Dr. intersection	328	61.590810	-149.026460	65	roadside	8/5/04	University of Alaska Museum, University of Alaska Fairbanks
Astragalus sp.		Susitna Borough	Glenn HWY, Tesoro gas station on north side, Eureka Roadhouse	337	61.937710	-147.170590	1025	roadside/lot	8/7/04	University of Alaska Museum, University of Alaska Fairbanks
Avena sativa L.	Introduced	Wasilla	Parks HWY and Trunk Rd. Ride parking lot.	1	61.56567	-149.26114		roadside	7/21/03	University of Alaska Museum, University of Alaska Fairbanks
Avena sativa L.	Introduced	Palmer	Palmer District Wolverine Rd and Helmaur PL	253	61.64335	-149.05513		roadside	7/16/04	University of Alaska Museum, University of Alaska Fairbanks
Barbarea verna (P. Mill.) Ascher.	Introduced	Mat-Su Valley	Parks HWY, Burchell High School parking lot.	41	61.579670	-149.494930		parking lot	7/24/03	University of Alaska Museum, University of Alaska Fairbanks
Beckmannia syzigachne (Steud.) Fern.	Native	Palmer/Wasilla area	Parks HWY and Trunk Rd. Ride parking lot.	1	61.565670	-149.261140			7/28/03	University of Alaska Museum, University of Alaska Fairbanks

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Beckmannia syzigachne (Steud.) Fern.	Native	Mat-Su Valley	Seward Meridian Parkway and Palmer-Wasilla Hwy.	48	61.584700	-149.357040		roadside	7/25/03	University of Alaska Museum, University of Alaska Fairbanks
Beckmannia syzigachne (Steud.) Fern.	Native	Near Nelchina	Glenn HWY, Alaska Adventures Air Taxi Charter, approximately mile 148th	342	62.027910	-146.691060	709	roadside	8/7/04	University of Alaska Museum, University of Alaska Fairbanks
Brassica rapa L.	Introduced	Palmer/Wasilla area	Parks HWY & Trunk Rd and Ride parking area	1	61.565670	-149.261140			7/28/03	University of Alaska Museum, University of Alaska Fairbanks
Brassica rapa L.	Introduced		Edlund Rd and Silver Wings Cir	112	61.552390	-149.472640		roadside	8/7/03	University of Alaska Museum, University of Alaska Fairbanks
Brassica rapa L.	Introduced	Mat-Su Valley	Trunk Rd and College Dr	121	61.580870	-149.248780		roadside	8/7/03	University of Alaska Museum, University of Alaska Fairbanks
Brassica rapa L.	Introduced	Mat-Su Valley	Sylvan Rd past Joes Dr and before Bruns Dr	218	61.569070	-149.629490			8/25/03	University of Alaska Museum, University of Alaska Fairbanks
Brassica rapa L.	Introduced	Mat-Su Valley	Palmer, Bodenburg Loop & Kent St, farms	382	61.530430	-149.062620	24	roadside	8/13/04	University of Alaska Museum, University of Alaska Fairbanks
Bromus inermis Leyss.	Native&Introduced	Matanuska Valley	Glenn HWY Parking at Matanuska River & Kings River	285	61.729080	-148.747670	179	roadside	7/28/04	University of Alaska Museum, University of Alaska Fairbanks
Bromus inermis Leyss.	Native&Introduced	Matanuska Glacier	Glenn HWY, Just east of Sheep Mountain Lodge	300	61.816330	-147.469640	903	roadside	8/2/04	University of Alaska Museum, University of Alaska Fairbanks
Bromus inermis Leyss.	Native&Introduced	Wasilla	West of Fairview Loop Rd access	16	61.570920	-149.347130		roadside	7/22/03	University of Alaska Anchorage, Herbarium
Bromus inermis Leyss.	Native&Introduced	Mat-Su Valley	Palmer, Old Glenn HWY and Maud Rd intersection	333	61.585980	-149.040080	56	ot/trailside	8/5/04	University of Alaska Museum, University of Alaska Fairbanks
Bromus inermis Leyss. ssp. *inermis*	Introduced	Palmer/Wasilla area	Trunk Rd at Pioneer Park School	2	61.602310	-149.242750		roadside	7/21/03	University of Alaska Museum, University of Alaska Fairbanks
Bromus inermis ssp. *pumpellianus* (Scribn.) Wagnon.	Native	Matanuska Valley	Glenn HWY, 3 miles east of King River crossing	286	61.740860	-148.670500	208	roadside	7/28/04	University of Alaska Museum, University of Alaska Fairbanks
Bromus inermis ssp. *pumpellianus* (Scribn.) Wagnon.	Native	Matanuska Valley	Glenn HWY, at 84th mile mark	291	61.798980	-148.252350	483	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Bromus tectorum L.	Introduced	Mat-Su Valley	Parks HWY and Hawk Ln. Bike path.	232	61.586160	-149.744260		roadside/ bike path	8/25/03	University of Alaska Museum, University of Alaska Fairbanks
Calamagrostis canadensis (Michx.) Beauv.	Native	Palmer/Wasilla area	LN at old driveway just east of Powerline cut and E&O Water Well Drilling. ATV trail	34	61.632420	-149.538640		adjacent to road	7/24/03	University of Alaska Museum, University of Alaska Fairbanks
Capsella bursa-pastoris (L.) Medik.	Introduced	Palmer/Wasilla area	Trunk Rd just past Amver Estates	3	61.632700	-149.193770		roadside	7/21/03	University of Alaska Museum, University of Alaska Fairbanks

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Capsella bursa-pastoris (L.) Medik.	Introduced	Glennallen	Glenn HWY, 3 miles west of Glennallen, big gravel parking lot	349	62.107500	-145.621370	440	roadside/lot	8/8/04	University of Alaska Museum, University of Alaska Fairbanks
Caragana arborescens Lam.	Introduced	Palmer	NE corner of Inner Outer Springer Loop	237	61.585350	-149.086940	84	roadside	7/15/04	University of Alaska Museum, University of Alaska Fairbanks
Caragana arborescens Lam.	Introduced	Mat-Su Valley	Palmer Outer Springer Loop	240	61.562470	-149.130040		roadside	7/15/04	University of Alaska Museum, University of Alaska Fairbanks
Caragana arborescens Lam.	Introduced	Mat-Su Valley	Palmer, Glenn HWY and Marsh RD, SE corner of intersection	396	61.617050	-149.115840	128	roadside	8/24/04	University of Alaska Museum, University of Alaska Fairbanks
Carex foenea Willd.	Native	Big Lake	3 miles from Parks HWY. Bike trail and ATV trails	53	61.556000	-149.799600			7/28/03	University of Alaska Museum, University of Alaska Fairbanks
Carex foenea Willd.	Native	Matanuska Valley	Palmer District Jonesville Rd 1 mile North from intersection with Glenn	282	61.722530	-148.893220	180	roadside	7/27/04	University of Alaska Museum, University of Alaska Fairbanks
Carex foenea Willd.	Native	Matanuska Valley	Palmer District Jonesville Rd 1 mile North from intersection with Glenn	282	61.722530	-148.893220	180	roadside	7/27/04	University of Alaska Anchorage, Herbarium
Carex foenea Willd.	Native	Big Lake	Big Lake Rd and Creek Frontage Rd gravel pit. ATV trail and bike trail	211	61.564170	-149.769240		and bike trail	8/21/03	University of Alaska Museum, University of Alaska Fairbanks
Carex foenea Willd.	Native	Mat-Su Valley	Valois Dr in Woody Lake subdivision.	227	61.561370	-149.730550		roadside	8/25/03	University of Alaska Museum, University of Alaska Fairbanks
Carthamus tinctorius L.	Introduced	Mat-Su Valley	Palmer, Bodenburg Loop & Doc McKinley Ave.	379	61.542350	-149.078450	46	roadside	8/13/04	University of Alaska Museum, University of Alaska Fairbanks
Cerastium fontanum Baumg.	Introduced	Mat-Su Valley	Palmer District, Clark-Wolverine Rd and Mars Ave. ATV trail.	246	61.614350	-149.058620	71	roadside/ ATV trail	7/16/04	University of Alaska Museum, University of Alaska Fairbanks
Cerastium fontanum Baumg.	Introduced	Mat-Su Valley	West End of Soapstone Rd.	264	61.666790	-149.158130		roadside	7/21/04	University of Alaska Museum, University of Alaska Fairbanks
Cerastium glomeratum Thuill.	Introduced	Palmer/Wasilla area	Trunk Rd just past Amver Estates	3	61.632700	-149.193770		roadside	7/21/03	University of Alaska Museum, University of Alaska Fairbanks
Cerastium glomeratum Thuill.	Introduced	Point MacKenzie	Point MacKenzie Rd. Winter trail head parking.	187	61.289050	-149.978870		parking area	8/15/03	University of Alaska Museum, University of Alaska Fairbanks
Chaenorhinum minus (L.) Lange	Introduced	Wasilla	Fairview Loop and railroad crossing	117	61.56504	-149.33197		roadside	8/7/03	University of Alaska Anchorage, Herbarium
Chaenorhinum minus (L.) Lange	Introduced	Wasilla	Fairview Loop and railroad crossing	117	61.56504	-149.33197		roadside	8/7/03	University of Alaska Museum, University of Alaska Fairbanks
Chemopodium capitatum (L.) Ambrosi	Native	Palmer	Palmer East end of the Plumley RD	385	61.542060	-148.984890	29	Forest clearing	8/19/04	University of Alaska Museum, University of Alaska Fairbanks
Chenopodium album L.	Introduced	Wasilla/Palmer	Palmer Experimental Station UAF. Fields on the west of Trank RD	395	61.56689	-149.25259	64	roadside	8/20/04	University of Alaska Museum, University of Alaska Fairbanks

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Chenopodium album L.	Introduced	Mat-Su Valley	Palmer. End of Wolverine Rd.	252	61.666580	-148.968110		roadside	7/16/04	University of Alaska Museum, University of Alaska Fairbanks
Chenopodium album L.	Introduced	Matanuska Valley	Glenn HWY 58 mile Rd intersection. ATV trail	275	61.693184	-148.966560	175	roadside	7/27/04	University of Alaska Museum, University of Alaska Fairbanks
Chenopodium album L.	Introduced	Mat-Su Valley	Palmer, Arctic Ave., parked at the Matanuska Assembly of God Church	311	61.607400	-149.127210	99	roadside/lot	8/3/04	University of Alaska Museum, University of Alaska Fairbanks
Cirsium arvense (L.) Scop.	Introduced	Palmer	of the Canoe Lake access drive, at the Long Lake trailhead	305	61.560230	-149.196530	46	trailside	8/3/04	University of Alaska Museum, University of Alaska Fairbanks
Collomia linearis Nutt.	Introduced	Wasilla	Knik-Goose Bay Rd and Foothills BLVD. ATV trail along Foothills	163	61.53903	-149.56876		roadside	8/14/03	University of Alaska Museum, University of Alaska Fairbanks
Crepis tectorum L.	Introduced	Palmer/Wasilla area	Parks HWY and Trunk Rd. Ride parking lot.	1	61.565670	-149.261140		parking lot	7/21/03	University of Alaska Museum, University of Alaska Fairbanks
Crepis tectorum L.	Introduced	Mat-Su Valley	West End of Soapstone Rd.	264	61.666790	-149.158130		roadside	7/21/04	University of Alaska Museum, University of Alaska Fairbanks
Crepis tectorum L.	Introduced	Palmer	of the Canoe Lake access drive At the Long Lake trailhead	305	61.560230	-149.196530	46	trailside	8/3/04	University of Alaska Museum, University of Alaska Fairbanks
Crepis tectorum L.	Introduced	Mat-Su Valley	North Wasilla, Schrock Rd and Sushana Dr	316	61.648640	-149.457320	143	roadside	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Crepis tectorum L.	Introduced	Mat-Su Valley	Palmer, Bodenburg Loop & Doc McKinley Ave.	379	61.542350	-149.078450	46	roadside	8/13/04	University of Alaska Museum, University of Alaska Fairbanks
Crepis tectorum L.	Introduced	Matanuska Valley	Glenn HWY 58.5 mile, Tesoro gas station	280	61.709230	-148.933180	201	roadside	7/27/04	University of Alaska Museum, University of Alaska Fairbanks
Deschampsia beringensis Hulten	Native	Palmer/Wasilla area	Parks HWY on-ramp to Trunk Rd	15	61.561770	-149.259050		roadside	7/22/03	University of Alaska Museum, University of Alaska Fairbanks
Descurainia sophia (L.) Webb ex Prantl	Introduced	Matanuska Valley	from intersection with Glenn HWY. Between Mikes LN and Wilderness LN	268	61.688270	-149.082980		roadside	7/22/04	University of Alaska Museum, University of Alaska Fairbanks
Descurainia sophia (L.) Webb ex Prantl	Introduced	Mat-Su Valley	Palmer, North end of Helen DR	310	61.591080	-149.158950	91	roadside	8/3/04	University of Alaska Museum, University of Alaska Fairbanks
Descurainia sophia (L.) Webb ex Prantl	Introduced	Mat-Su Valley	Fairview Loop and Danielle St	109	61.529550	-149.500600		roadside	8/7/03	University of Alaska Museum, University of Alaska Fairbanks
Descurainia sophia (L.) Webb ex Prantl	Introduced	Palmer	Bodenburg Loop Reindeer Farm	377	61.556620	-149.070070	53	roadside	9/7/03	University of Alaska Museum, University of Alaska Fairbanks
Descurainia sophia (L.) Webb ex Prantl	Introduced	Palmer	Bodenburg Loop Reindeer Farm	377	61.556620	-149.070070	53	roadside	9/7/03	University of Alaska Anchorage, Herbarium

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Descurainia sophia (L.) Webb ex Prantl	Introduced	Mat-Su Valley	Fairview Loop and Linlu corner	116	61.558420	-149.346710		roadside	8/7/03	University of Alaska Museum, University of Alaska Fairbanks
Dracocephalum moldavica L.	Introduced	Palmer	Glenn HWY 38 mile Fanny Farm	255	61.55163	-149.18616		roadside	7/20/04	University of Alaska Museum, University of Alaska Fairbanks
Elymus alaskanus Scribn. & Merr.) A. Löve	Native	Paxson Lake	Richardson Hwy Paxson Lake Gampground BLM	471	62.877095	-145.476466		roadside	8/28/04	University of Alaska Museum, University of Alaska Fairbanks
Elymus alaskanus ssp. *latiglumis* Scribn. & J.G. Sm. A. Löve	Native	Matanuska-Susitna Valley	Glenn HWY Just east of Sheep Mountain Lodge	300	61.81633	-147.46964	903	roadside	8/2/04	University of Alaska Museum, University of Alaska Fairbanks
Elymus alaskanus ssp. *latiglumis* Scribn. & J.G. Sm. A. Löve	Native	Wasilla	North Beaver Lake Rd	58	61.59111	-149.81667		roadside	7/28/03	University of Alaska Anchorage, Herbarium
Elymus alaskanus ssp. *latiglumis* Scribn. & J.G. Sm. A. Löve	Native	Palmer	Inner Outer Springer Loop, approx. 1/4 mile E of intersection with Glenn HWY	236	61.58541	-149.12130	67	roadside	7/15/04	University of Alaska Museum, University of Alaska Fairbanks
Elymus alaskanus ssp. *latiglumis* Scribn. & J.G. Sm. A. Löve	Native	Palmer	Glenn HWY west of 53 mile mark Lupine RD	265	61.67405	-149.15849		roadside	7/21/04	University of Alaska Museum, University of Alaska Fairbanks
Elymus alaskanus ssp. *latiglumis* Scribn. & J.G. Sm. A. Löve	Native	Eureka Roadhouse	Glenn HWY Tesoro gas station on north side Eureca Loge on south	337	61.93771	-147.17059	1025	roadside	8/7/04	University of Alaska Anchorage, Herbarium
Elymus alaskanus ssp. *latiglumis* Scribn. & J.G. Sm. A. Löve	Native	Palmer	Palmer Farm Loop approximately 0.5 mile north of Palmer-Fishhook RD intersection	369	61.63307	-149.16148	145	roadside	8/9/04	University of Alaska Museum, University of Alaska Fairbanks
Elymus alaskanus ssp. *latiglumis* Scribn. & J.G. Sm. A. Löve	Native	Gakona Junktion	Richardson Hwy Just north of junction with Tok Cut-Off	459	62.29198	-145.35016	506	roadside	8/28/04	University of Alaska Museum, University of Alaska Fairbanks
Elymus alaskanus ssp. *latiglumis* Scribn. & J.G. Sm. A. Löve	Native	Palmer	Glenn HWY west of 53 mile mark Lupine RD	265	61.67405	-149.15849		roadside	7/21/04	University of Alaska Anchorage, Herbarium
Elymus alaskanus ssp. *latiglumis* Scribn. & J.G. Sm. A. Löve	Native	Matanuska Valley	Glenn HWY Just east of Sheep Mountain Lodge	300	61.81633	-147.46964	903	roadside	8/2/04	University of Alaska Anchorage, Herbarium
Elymus repens (L.) Gould	Introduced	Mat-Su Valley	Palmer, Farm Loop Rd, approximately 1 mile west of intersection with Glenn HWY	365	61.646900	-149.139080	166	roadside	8/9/04	University of Alaska Museum, University of Alaska Fairbanks
Elymus repens (L.) Gould	Introduced	Mat-Su Valley	North Wasilla, Moose Meadows Rd, 3 1/4 mile north of intersection with Schwal Rd	323	61.675080	-149.411940	233	roadside	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Elymus sibiricus L.	Introduced	Mat-Su Valley	Soapstone RD, residential subdivision	262	61.666800	-149.092320		roadside	7/21/04	University of Alaska Museum, University of Alaska Fairbanks
Elymus sibiricus L.	Introduced	Matanuska Valley	Buffalo Mine Moose Creek Rd, 1mile from intersection with Glenn HWY	267	61.680250	-149.064530		roadside	7/22/04	University of Alaska Museum, University of Alaska Fairbanks
Elymus thachycaulus ssp. *trachycaulus* (Link) Gould ex Shinners	Native	Wasilla	Hollywood Rd nearly mile 4th mark	203	61.54227	-149.68999		roadside	8/21/03	University of Alaska Museum, University of Alaska Fairbanks

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Erysimum cheiranthoides L.	Introduced	Mat-Su Valley	Nelson Rd and Lucas Ave	51	61.583340	-149.478990		roadside	7/25/03	University of Alaska Museum, University of Alaska Fairbanks
Festuca altaica Trin.	Native	Matanuska Valley	Glenn HWY 3 miles east of Jonesville Rd intersection	284	61.727450	-148.821110	145	roadside	7/28/04	University of Alaska Museum, University of Alaska Fairbanks
Festuca rubra L.	Native	Palmer/Wasilla area	Parks HWY on-ramp to Trunk Rd	15	61.561770	-149.259050		roadside	7/22/03	University of Alaska Museum, University of Alaska Fairbanks
Festuca sp.		Matanuska Valley	Buffalo Mine Moose Creek Rd, 1mile from intersection with Glenn HWY	267	61.680250	-149.064530		roadside	7/22/04	University of Alaska Museum, University of Alaska Fairbanks
Festuca sp.		Matanuska Valley	Oceanview interseciton, in subdividion west of Buffalo Mine Moose Creek RD	273	61.719570	-149.116960		roadside	7/22/04	University of Alaska Museum, University of Alaska Fairbanks
Galeopsis bifida Boenn.	Introduced	Mat-Su Valley	Palmer Old Glenn HWY Matanuska River Park entrance	242	61.607260	-149.086520	70	roadside	7/16/04	University of Alaska Museum, University of Alaska Fairbanks
Galeopsis bifida Boenn.	Introduced	Mat-Su Valley	Palmer District, Clark-Wolverine Rd and Mars Ave. ATV trail.	246	61.614350	-149.058620	71	roadside/ ATV trail	7/16/04	University of Alaska Museum, University of Alaska Fairbanks
Galeopsis bifida Boenn.	Introduced	Mat-Su Valley	Palmer, North end of Helen DR	310	61.591080	-149.158950	91	roadside	8/3/04	University of Alaska Museum, University of Alaska Fairbanks
Galeopsis bifida Boenn.	Introduced	Mat-Su Valley	North Wasilla, south end of Champion Rd, Reindeer farm	321	61.663260	-149.357450	185	roadside/lot	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Galeopsis bifida Boenn.	Introduced	Mat-Su Valley	Palmer, Bodenburg Loop & Doc McKinley Ave.	379	61.542350	-149.078450	46	roadside	8/13/04	University of Alaska Museum, University of Alaska Fairbanks
Galeopsis bifida Boenn.	Introduced	Mat-Su Valley	Palmer, Doc McKinley Ave., west end	380	61.542210	-149.104370	55	roadside	8/13/04	University of Alaska Museum, University of Alaska Fairbanks
Galeopsis bifida Boenn.	Introduced	Palmer	Wolverine Rd and Helmaur PL	253	61.64335	-149.05513		roadside	7/16/04	University of Alaska Museum, University of Alaska Fairbanks
Galium triflorum Michx.	Native	Mat-Su Valley	Palmer, east end of Smith Road Ext, parking lot/trailhead	327	61.599860	-148.997920	165	parking lot	8/5/04	University of Alaska Museum, University of Alaska Fairbanks
Glyceria borealis (Nash) Batchelder	Native	Matanuska Valley	Palmer Seventeenmile Lake Public access	278	61.715250	-148.978930	205	roadside	2/27/04	University of Alaska Museum, University of Alaska Fairbanks
Helianthus annuus L.	Introduced	Mat-Su Valley	Frontage Rd and Hyer Rd Animal Food Warehouse	46	61.570020	-149.309390			7/25/03	University of Alaska Museum, University of Alaska Fairbanks
Hieracium aurantiacum L.	Introduced	North of Willow	Parks HWY mile 79 mark. Entrance to Birch Grove Farm.	94	61.866870	-150.085910		roadside	8/6/03	University of Alaska Anchorage, Herbarium
Hieracium aurantiacum L.	Introduced	North of Willow	Parks HWY mile 79 mark. Entrance to Birch Grove Farm.	94	61.866870	-150.085910		roadside	8/23/04	University of Alaska Anchorage, Herbarium

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Hieracium aurantiacum L.	Introduced	North of Willow	Parks HWY mile 79 mark. Entrance to Birch Grove Farm.	94	61.866870	-150.085910		roadside	8/23/04	University of Alaska Museum, University of Alaska Fairbanks
Hieracium umbellatum L.	Introduced	Mat-Su Valley	North Wasilla, Schrock Rd and Mcadoo Way	315	61.624110	-149.438320	135	roadside	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Hieracium umbellatum L.	Introduced	Palmer/Wasilla area	Bogard Rd & Bear Rd	13	61.614510	-149.296680		roadside	7/21/03	University of Alaska Museum, University of Alaska Fairbanks
Hieracium umbellatum L.	Introduced	Palmer/Wasilla area	Bogard Rd & Bear Rd	13	61.614510	-149.296680		roadside	7/21/03	University of Alaska Museum, University of Alaska Fairbanks
Hieracium umbellatum L.	Introduced	Palmer/Wasilla area	Parks HWY jast past mile marker 48. Bike path parallels highway	30	61.582350	-149.613630		roadside	7/24/03	University of Alaska Museum, University of Alaska Fairbanks
Hieracium umbellatum L.	Introduced	North of Willow	Parks HWY mile 79 mark. Entrance to Birch Grove Farm.	94	61.866870	-150.085910		roadside	8/6/03	University of Alaska Museum, University of Alaska Fairbanks
Hieracium umbellatum L.	Introduced	North of Willow	Parks HWY mile 79 mark. Entrance to Birch Grove Farm.	94	61.866870	-150.085910		roadside	8/23/04	University of Alaska Museum, University of Alaska Fairbanks
Hieracium umbellatum L.	Introduced	Wasilla	North Beaver Lake Rd	58	61.59111	-149.81667		roadside	7/28/03	University of Alaska Anchorage, Herbarium
Hierochloe odorata (L.) Beauv.	Native	Wasilla	Parks HWY at mile 45 marker ATV trail on north side.	29	61.58045	-149.52577		roadside	7/24/03	University of Alaska Museum, University of Alaska Fairbanks
Hierochloe odorata (L.) Beauv.	Native	Matanuska Valley	Glenn HWY Hicks Creek Roadhouse	296	61.79375	-147.93213	436	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Hordeum jubatum L.	Introduced	Mat-Su Valley	Palmer, Sullivan Ave., at the north side of Knik River, ATV lot/trails	386	61.527902	-148.999428	27	roadside	8/19/04	University of Alaska Museum, University of Alaska Fairbanks
Hordeum murinum L. ssp. *leporinum* (Link) Arcang.	Introduced	Mat-Su Valley	Palmer, Maud Rd and Eckert St, ATV trail	329	61.585290	-149.015400	73	roadside	8/5/04	University of Alaska Museum, University of Alaska Fairbanks
Hordeum vulgare L.	Introduced	Mat-Su Valley	Palmer, Bodenburg Loop & Kent St, farms	382	61.530430	-149.062620	24	roadside	8/13/04	University of Alaska Museum, University of Alaska Fairbanks
Hordeum vulgare L.	Introduced	Gulkana/Gakona area	Richardson Hwy, just N of junction with Tok Cutoff	459	62.291980	-145.350160	506	roadside	8/28/04	University of Alaska Museum, University of Alaska Fairbanks
Hordeum vulgare L.	Introduced	Mat-Su Valley	Frontage Rd and Hyer Rd Animal Food Warehouse	46	61.570020	-149.309390		roadside	7/25/03	University of Alaska Museum, University of Alaska Fairbanks
Hordeum vulgare L.	Introduced	Mat-Su Valley	Palmer-Fishhook RD and Fishhook Creek.	78	61.758170	-149.226010		roadside	7/29/03	University of Alaska Museum, University of Alaska Fairbanks
Hordeum vulgare L.	Introduced	Mat-Su Valley	Parks HWY and Nancy Lake PKWY.	84	61.712350	-150.020840		roadside	8/5/03	University of Alaska Museum, University of Alaska Fairbanks

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

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Hordeum vulgare L.	Introduced	Mat-Su Valley	Palmer-Wasilla HWY and Local 302 Rd.	124	61.599980	-149.152390		roadside	8/8/03	University of Alaska Museum, University of Alaska Fairbanks
Juncus bufonius L.	Native	Mat-Su Valley	North Wasilla, Moose Meadows Rd, 3 1/4 mile north of intersection with Schwal Rd	323	61.675080	-149.411940	233	roadside	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Lactuca serriola L.	Introduced	Wasilla	Church Rd and Spruce Ave	159	61.60080	-149.50934		roadside	8/13/03	University of Alaska Museum, University of Alaska Fairbanks
Lappula occidentalis var. *occidentalis* (S. Wats.) Greene	Native	Glennallen	Glenn HWY 3 miles west of Glennallen	349	62.10750	-145.62137	440	roadside	8/8/04	University of Alaska Museum, University of Alaska Fairbanks
Lappula occidentalis var. *occidentalis* (S. Wats.) Greene	Native	Matanuska Valley	Glenn HWY 166 mile	355	62.09743	-146.17473	743	roadside	8/8/04	University of Alaska Anchorage, Herbarium
Lappula squarrosa (Retz.) Dumort.	Introduced	Glennallen	Glenn HWY, 3 miles west of Glennallen, big gravel parking lot	349	62.107500	-145.621370	440	roadside	8/8/04	University of Alaska Museum, University of Alaska Fairbanks
Leontodon autumnalis L.	Introduced	Matanuska Valley	Glenn HWY 58.5 mile, Tesoro gas station	280	61.709230	-148.933180	201	roadside	7/27/04	University of Alaska Museum, University of Alaska Fairbanks
Leontodon autumnalis L.	Introduced	Palmer/Wasilla area	cleared for a new building. ATV trail on west side.	35	61.629010	-149.509140		adjacent to road	7/24/03	University of Alaska Museum, University of Alaska Fairbanks
Leontodon autumnalis L.	Introduced	Wasilla	Pittman Rd and Church Rd. NW side cleared for a new building	35	61.62901	-149.50914		roadside	7/24/03	University of Alaska Anchorage, Herbarium
Lepidium densiflorum Schrad.	Introduced	Matanuska Valley	Glenn HWY Parking at Matanuska River & Kings River	285	61.729080	-148.747670	179	roadside	7/28/04	University of Alaska Museum, University of Alaska Fairbanks
Lepidium densiflorum Schrad.	Introduced	Glennallen	Glenn HWY, 3 miles west of Glennallen, big gravel parking lot	349	62.107500	-145.621370	440	roadside	8/8/04	University of Alaska Museum, University of Alaska Fairbanks
Lepidium densiflorum Schrad.	Introduced	Matanuska Valley	Glenn HWY, mile 166thBetween Glennallen & Lake Louise Rd cutoff	355	62.097430	-146.174730	743	roadside/lot	8/8/04	University of Alaska Museum, University of Alaska Fairbanks
Lepidium densiflorum Schrad. var. *densiflorum*	Introduced	Mat-Su Valley	Palmer, Arctic Ave., parked at the Matanuska Assembly of God Church	311	61.607400	-149.127210	99	roadside/lot	8/3/04	University of Alaska Museum, University of Alaska Fairbanks
Lepidium densiflorum Schrad. var. *densiflorum*	Introduced	Wasilla/Palmer	Palmer Experimental Station UAF	393	61.565260	-149.234330	56	roadside	8/20/04	University of Alaska Museum, University of Alaska Fairbanks
Lepidium densiflorum Schrad. var. *densiflorum*	Introduced	Wasilla/Palmer	Palmer Experimental Station UAF	393	61.565260	-149.234330	56	roadside	8/20/04	University of Alaska Anchorage, Herbarium
Lepidium densiflorum var. *densiflorum* Schrad	Introduced	Wasilla/Palmer	Palmer Experimental Station	393	61.56526	-149.23433	56	roadside	8/20/04	University of Alaska Museum, University of Alaska Fairbanks
Lepidium ramosissimum A. Nels.	Native	Palmer	Arctic Ave Parked at the Matanuska Assembly of God church	311	61.60740	-149.12721	99	roadside	8/3/04	University of Alaska Anchorage, Herbarium

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Lepidium ramosissimum A. Nels.	Native	Wasilla/Palmer	Palmer Experimental Station	393	61.56526	-149.23433	56	roadside	8/20/04	University of Alaska Anchorage, Herbarium
Lepidium ramosissimum A. Nels.	Native	Palmer	Arctic Ave Parked at the Matanuska Assembly of God church	311	61.60740	-149.12721	99	roadside	8/3/04	University of Alaska Museum, University of Alaska Fairbanks
Leucanthemum vulgare Lam.	Introduced	Palmer/Wasilla area	cleared for a new building. ATV trail on west side.	35	61.629010	-149.509140		adjacent to road	7/24/03	University of Alaska Museum, University of Alaska Fairbanks
Levisticum officinale V.D.J. Koch	Introduced	Matanuska Valley	Glenn HWY Hicks Creek Roadhouse	296	61.79375	-147.93213	436	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Levisticum officinale W.D.J. Koch	Introduced	Matanuska Valley	Glenn HWY, Hicks Creek Roadhouse	296	61.793750	-147.932130	436	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Linaria pinifolia (Poir.) Thellung	Introduced	Palmer	Knipple ST Dead end	307	61.57638	-149.15755	29	roadside	8/3/04	University of Alaska Museum, University of Alaska Fairbanks
Linaria vulgaris P. Mill.	Introduced	Palmer/Wasilla area	Junction of Wards Rd. and Seldon Rd. – new subdivision at west end of Seldon Rd	11	61.614540	-149.478540		roadside	7/21/03	University of Alaska Museum, University of Alaska Fairbanks
Lolium perenne L.	Introduced	Palmer	Next to highway at Carrs Mall in Wasilla, parking lot and grassy area	261	61.660090	-149.093290		cultivated field	7/22/03	University of Alaska Anchorage, Herbarium
Lolium perenne ssp. *multiflorum* (Lam.) Husnot	Introduced	Palmer/Wasilla area	Next to highway at Carrs Mall in Wasilla, parking lot and grassy area	17	61.582170	-149.433150		lot and grassy	7/22/03	University of Alaska Museum, University of Alaska Fairbanks
Lolium perenne ssp. *multiflorum* (Lam.) Husnot	Introduced	Palmer/Wasilla area	Next to highway at Carrs Mall in Wasilla, parking lot and grassy area	17	61.582170	-149.433150		lot and grassy	7/22/03	University of Alaska Anchorage, Herbarium
Matricaria discoidea DC.	Introduced	Palmer	Glenn HWY and Hamman Rd intersection	232	61.586160	-149.744260		roadside/ bike path	8/25/03	University of Alaska Museum, University of Alaska Fairbanks
Matricaria discoidea DC.	Introduced	Palmer	Grover Ln, near SE corner of Outer Inner Springer Loop	238	61.570370	-149.085680	76	roadside	7/15/04	University of Alaska Museum, University of Alaska Fairbanks
Matricaria discoidea DC.	Introduced	Near Lake Louise	Lake Louise Rd, little lake, parking area	360	62.145810	-146.494550	948	parking area	8/8/04	University of Alaska Museum, University of Alaska Fairbanks
Medicago sativa L. ssp. *falcata* (L.) Arcang.	Introduced	Mat-Su Valley	Palmer, Smith Rd and Windless Dr. intersection	328	61.590810	-149.026460	65	roadside	8/5/04	University of Alaska Museum, University of Alaska Fairbanks
Medicago sativa L. ssp. *falcata* (L.) Arcang.	Introduced	Wasilla/Palmer	Palmer-Wasilla HWY and Glenn HWY	123	61.600500	-149.120760		roadside	8/8/03	University of Alaska Museum, University of Alaska Fairbanks
Medicago sativa L. ssp. *falcata* (L.) Arcang.	Introduced	Wasilla	Rd. Parked west of junction near Fishhook Golf Course	4	61.62874	-149.12422		roadside	7/21/03	University of Alaska Anchorage, Herbarium
Melilotus alba Medikus	Introduced	Mat-Su Valley	Palmer, Scott Rd	313	61.610680	-149.146240	97	roadside	8/3/04	University of Alaska Museum, University of Alaska Fairbanks

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Melilotus officinalis (L.) Lam.	Introduced	Palmer/Wasilla area	Pittman Rd	32	61.603550	-149.629610		roadside	7/24/03	University of Alaska Museum, University of Alaska Fairbanks
Melilotus officinalis (L.) Lam.	Introduced	Matanuska Valley	Glenn HWY, 3 miles east of Chickaloon parked at Matanuska River overlook	289	61.789080	-148.436710	346	roadside	7/28/04	University of Alaska Museum, University of Alaska Fairbanks
Melilotus officinalis (L.) Lam.	Introduced	Mat-Su Valley	Palmer, Scott Rd	313	61.610680	-149.146240	97	roadside	8/3/04	University of Alaska Museum, University of Alaska Fairbanks
Melilotus officinalis (L.) Lam.	Introduced	Mat-Su Valley	Palmer, Old Glenn HWY, between Maud Rd and Bodenburg Loop	375	61.566280	-149.041280	51	roadside	8/13/04	University of Alaska Museum, University of Alaska Fairbanks
Melilotus officinalis (L.) Lam.	Introduced	Matanuska Valley	Glenn HWY 58 mile Rd intersection. ATV trail	275	61.693184	-148.966560	175	roadside	7/27/04	University of Alaska Museum, University of Alaska Fairbanks
Myosotis asiatica Vesterg.) Schischkin & Sergievskaja	Introduced	Mat-Su Valley	Parks HWY, Burchell High School parking lot.	41	61.579670	-149.494930		parking lot	7/24/03	University of Alaska Museum, University of Alaska Fairbanks
Packera pauciflora Pursh) A.& D. Löve	Native	Mat-Su Valley	from Chevron station (south side of highway).	43	61.582430	-149.461310		roadside	7/24/03	University of Alaska Museum, University of Alaska Fairbanks
Packera pauciflora Pursh) A.& D. Löve	Native	Lake Louise	of the road approximately 5 mile from intersection with Glenn HWY	361	62.109090	-146.443360		Grevel pit	8/8/04	University of Alaska Anchorage, Herbarium
Packera pauciflora Pursh) A.& D. Löve	Native	Lake Louise	of the road approximately 5 mile from intersection with Glenn HWY	361	62.109090	-146.443360		Grevel pit	8/8/04	University of Alaska Museum, University of Alaska Fairbanks
Papaver nudicaule L.	Native&Introduced	Matanuska Valley	Glenn HWY 56th mile mark	274	61.677800	-149.009890	157	roadside	7/27/04	University of Alaska Museum, University of Alaska Fairbanks
Phalaris arundinacea L.	Native&Introduced	Mat-Su Valley	Palmer, Old Glenn HWY and Bodenburg Loop	334	61.556510	-149.038560	42	roadside	8/5/04	University of Alaska Museum, University of Alaska Fairbanks
Phalaris arundinacea L.	Native&Introduced	Mat-Su Valley	Palmer, Farm Loop Rd, approximately 0.5 mile north of Palmer-Fishhook Rd	369	61.633070	-149.161480	145	roadside	8/9/04	University of Alaska Museum, University of Alaska Fairbanks
Phalaris arundinacea L.	Native&Introduced	Mat-Su Valley	Palmer, Old Glenn HWY, 15th mile	391	61.607250	-149.090300	94	roadside	8/19/04	University of Alaska Museum, University of Alaska Fairbanks
Phleum pratense L.	Introduced	Susitna Borough	Glenn HWY, Tesoro gas station on north side, Eureka Roadhouse on south	337	61.937710	-147.170590	1025	roadside/lot	8/7/04	University of Alaska Museum, University of Alaska Fairbanks
Poa annua L.	Introduced	Mat-Su Valley	North Wasilla, Moose Meadows Rd, 3 1/4 mile north of intersection with Schwal Rd	323	61.675080	-149.411940	233	roadside	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Poa annua L.	Introduced	Matanuska Valley	Glenn HWY, Hicks Creek Roadhouse	296	61.793750	-147.932130	436	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Poa annua L.	Introduced	Cantwell	Denali Hwy unnamed lake	505	63.39527	-148.66838	730	roadside	8/29/04	University of Alaska Museum, University of Alaska Fairbanks

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Poa eminens J. Presl	Native	Mat-Su Valley	Fairview Loop and Lord Baranof Dr	107	61.535800	-149.543230		roadside	8/7/03	University of Alaska Museum, University of Alaska Fairbanks
Poa glauca Vahl	Native	Matanuska Valley	Glenn HWY 3 miles east of Jonesville Rd intersection	284	61.72745	-148.82111	145	roadside	7/28/04	University of Alaska Museum, University of Alaska Fairbanks
Poa palustris L.	Native	Palmer	Agricultural field	237	61.58535	-149.08694	84	roadside	7/15/04	University of Alaska Museum, University of Alaska Fairbanks
Poa palustris L.	Native	Palmer	Glenn HWY west of 53 mile mark Lupine RD	265	61.67405	-149.15849		roadside	7/21/04	University of Alaska Museum, University of Alaska Fairbanks
Poa palustris L.	Native	Palmer	Low RD between Irene Lake and Canoe Lake in KeplerBradley Lakes Rec Park	304	61.56196	-149.18440	39	roadside	8/3/04	University of Alaska Museum, University of Alaska Fairbanks
Poa palustris L.	Native	Palmer	Fence LN and Brywood Cir	367	61.64072	-149.00000	158	roadside	8/9/04	University of Alaska Museum, University of Alaska Fairbanks
Poa palustris L.	Native	Palmer	Shower Rd North end	372	61.66766	-149.17964	186	roadside	8/9/04	University of Alaska Museum, University of Alaska Fairbanks
Poa palustris L.	Native	Paxcon	Richardson Hwy approximately 5 - 5.5 miles south of Sourdough	462	62.43061	-145.40871	583	roadside	8/28/04	University of Alaska Anchorage, Herbarium
Poa pratensis L.	Native&Introduced	Palmer	Agricultural field	237	61.58535	-149.08694	84	roadside	7/15/04	University of Alaska Museum, University of Alaska Fairbanks
Poa pratensis L.	Native&Introduced	Palmer	Palmer Old Glennn HWY Matanuska River Park entrance	242	61.60726	-149.08652	70	roadside	7/16/04	University of Alaska Anchorage, Herbarium
Poa pratensis L.	Native&Introduced	Matanuska Valley	Glenn HWY at 85 mile mark	292	61.80221	-148.24239	486	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Poa pratensis L.	Native&Introduced	Palmer	Farm Loop and Larose Dr intersection	368	61.64281	-149.16200	158	roadside	8/9/04	University of Alaska Museum, University of Alaska Fairbanks
Poa pratensis L.	Native&Introduced	Palmer	Weltin Way & Peters DR	373	61.65688	-149.20026	191	roadside	8/9/04	University of Alaska Museum, University of Alaska Fairbanks
Poa pratensis L.	Native&Introduced	Palmer	Old Glennn HWY Matanuska River Park entrance	242	61.60726	-149.08652	70	roadside	7/16/04	University of Alaska Museum, University of Alaska Fairbanks
Poa pratensis L.	Native&Introduced	Palmer	East end of Maud RD creek bridge	331	61.58550	-148.98622	108	roadside	8/5/04	University of Alaska Anchorage, Herbarium
Poa pratensis L.	Native&Introduced	Palmer	Old Glenn HWY and Bodenburg Loop north-intersection	334	61.55651	-149.03856	42	roadside	8/5/04	University of Alaska Anchorage, Herbarium
Poa pratensis L.	Native&Introduced	Palmer	Old Glenn HWY and Bodenburg Loop north-intersection	334	61.55651	-149.03856	42	roadside	8/5/04	University of Alaska Museum, University of Alaska Fairbanks

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Poa pratensis L.	Native&Introduced	Eureka Roadhouse	Glenn HWY Tesoro gas station on north side Eureca Loge on south	373	61.65688	-149.20026	191	roadside	8/9/04	University of Alaska Museum, University of Alaska Fairbanks
Poa pratensis L.	Native&Introduced	Eureka Roadhouse	Glenn HWY Tesoro gas station on north side Eureca Loge on south	373	61.65688	-149.20026	191	roadside	8/9/04	University of Alaska Museum, University of Alaska Fairbanks
Poa pratensis ssp. *irrigata* (Lindm.) Lindb. f.	Introduced	Palmer	East end of Maud RD Privat property Creek Bridge	331	61.58550	-148.98622	108	roadside	8/5/04	University of Alaska Museum, University of Alaska Fairbanks
Poa pratensis ssp. *irrigata* (Lindm.) Lindb. f.	Introduced	Palmer	Back Acres AVE East end of the road	376	61.55674	-149.02551	45	roadside	8/13/04	University of Alaska Museum, University of Alaska Fairbanks
Poa pratensis ssp. *irrigata* (Lindm.) Lindb. f.	Introduced	Palmer	Old Glenn HWY and Bodenburg Loop north-intersection	334	61.55651	-149.03856	42	roadside	8/5/04	University of Alaska Museum, University of Alaska Fairbanks
Poa sp.			Hollywood Rd and Edelweiss Dr. ATV trail next to Hollywood	201	61.542370	-149.614350		roadside	8/21/03	University of Alaska Museum, University of Alaska Fairbanks
Poa trivialis L.	Introduced	Wasilla	Seward Meridian Parkway and Palmer-Wasilla Hwy parked at Tesoro station.	48	61.58470	-149.35704		roadside	7/25/03	University of Alaska Museum, University of Alaska Fairbanks
Polemonium acutiflorum Willd. ex Roemer & J.A. Schultes	Native	Mat-Su Valley	North Wasilla, Coles Rd, just west of Close St.	320	61.664990	-149.386400	177	roadside	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Polygonum aviculare L.	Introduced	Palmer/Wasilla area	Parks HWY and Trunk Rd. Ride parking lot.	1	61.565670	-149.261140		parking lot	7/21/03	University of Alaska Museum, University of Alaska Fairbanks
Polygonum aviculare L.	Introduced	Mat-Su Valley	Fairview Loop and Canter Pl	108	61.527650	-149.536320		roadside	8/7/03	University of Alaska Museum, University of Alaska Fairbanks
Polygonum aviculare L.	Introduced	Mat-Su Valley	Pittman Rd at Cloudy Lake	153	61.614530	-149.617680		roadside	8/13/03	University of Alaska Museum, University of Alaska Fairbanks
Polygonum aviculare L.	Introduced	Matanuska Valley	Glenn HWY, approximately 1mile east of Cascade Creek	294	61.803780	-148.075230	675	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Polygonum aviculare L.	Introduced	Mat-Su Valley	Palmer, Smith Road Ext and Aurora Ln intersection	326	61.600030	-149.021240		roadside	8/5/04	University of Alaska Museum, University of Alaska Fairbanks
Polygonum aviculare L.	Introduced	Glennallen	Glenn HWY, 3 miles west of Glennallen, big gravel parking lot	349	62.107500	-145.621370	440	roadside/lot	8/8/04	University of Alaska Museum, University of Alaska Fairbanks
Polygonum aviculare L.	Introduced	Mat-Su Valley	Palmer, Farm Loop Rd and Larose Dr intersection	368	61.642810	-149.162000	158	roadside	8/9/04	University of Alaska Museum, University of Alaska Fairbanks
Polygonum aviculare L.	Introduced	Mat-Su Valley	Palmer, Bodenburg Loop, NW corner at Matanuska River	377	61.556620	-149.070070	53	roadside	8/13/04	University of Alaska Museum, University of Alaska Fairbanks
Polygonum convolvulus L.	Introduced	Palmer/Wasilla area	Parks HWY at mile marker 45. ATV trail on north side.	29	61.580450	-149.525770		adjacent to road	7/24/03	University of Alaska Museum, University of Alaska Fairbanks

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Polygonum convolvulus L.	Introduced	Mat-Su Valley	Palmer, north-west corner of Glenn HWY and Inner Springer Loop intersection	306	61.571300	-149.148390	50	roadside	8/3/04	University of Alaska Museum, University of Alaska Fairbanks
Polygonum convolvulus L.	Introduced	Mat-Su Valley	Palmer, North end of Helen DR	310	61.591080	-149.158950	91	roadside	8/3/04	University of Alaska Museum, University of Alaska Fairbanks
Polygonum lapathifolium L.	Native	Palmer/Wasilla area	Corner Palmer-Fishhook & Wasilla Fishhook RD	7	61.690470	-149.239730		roadside	7/21/03	University of Alaska Museum, University of Alaska Fairbanks
Polygonum lapathifolium L.	Native	Palmer/Wasilla area	Parks HWY at mile marker 45. ATV trail on north side.	29	61.580450	-149.525770		adjacent to road	7/24/03	University of Alaska Museum, University of Alaska Fairbanks
Polygonum lapathifolium L.	Native	Palmer/Wasilla area	Parks HWY jast past mile marker 48. Bike path parallels highway	30	61.582350	-149.613630		roadside	7/24/03	University of Alaska Museum, University of Alaska Fairbanks
Polygonum lapathifolium L.	Native	Mat-Su Valley	Junction of Sunset Dr and Sunrise Rd	36	61.652440	-149.594060			7/24/03	University of Alaska Museum, University of Alaska Fairbanks
Polygonum lapathifolium L.	Native	Mat-Su Valley	0.6 miles from Trunk Rd. Valley Church of Christ parking lot.	44	61.563940	-149.277470		parking lot	7/25/03	University of Alaska Museum, University of Alaska Fairbanks
Polygonum lapathifolium L.	Native	Mat-Su Valley	Fairview Loop and Katie Did Cr	106	61.545760	-149.535290		roadside	8/7/03	University of Alaska Museum, University of Alaska Fairbanks
Polygonum lapathifolium L.	Native	Mat-Su Valley	Beverly Lake Rd and Robin Hood Ln	154	61.607880	-149.606570		roadside	8/13/03	University of Alaska Museum, University of Alaska Fairbanks
Polygonum lapathifolium L.	Native	Mat-Su Valley	End of Paddy Pl	217	61.567840	-149.560200			8/25/03	University of Alaska Museum, University of Alaska Fairbanks
Polygonum sp.		Mat-Su Valley	Palmer, north-west corner of Glenn HWY and Inner Springer Loop intersection	306	61.571300	-149.148390	50	roadside	8/3/04	University of Alaska Museum, University of Alaska Fairbanks
Potentilla bimundorum Soják	Native	Mat-Su Valley	Hollywood Rd at mile 7th mark.	208	61.545710	-149.785450		roadside	8/21/03	University of Alaska Museum, University of Alaska Fairbanks
Potentilla bimundorum Soják	Native	Mat-Su Valley	Palmer-Fishhook Rd mile 4rt, next to open meadow on both sides.	130	61.653420	-149.212740		roadside	8/8/03	University of Alaska Museum, University of Alaska Fairbanks
Puccinellia nuttalliana (J.A. Schultes) A.S. Hitchc.	Native	Paxson	Richardson Hwy Paxson Lake area	472	62.93886	-145.50883	811	roadside	8/28/04	University of Alaska Museum, University of Alaska Fairbanks
Puccinellia nuttalliana J.A. Schultes) A.S. Hitchc.	Native	Palmer	Inner Outer Springer Loop, approx. 1/4 mile E of intersection with Glenn HWY	236	61.585410	-149.121300	67	roadside/lot	7/15/04	University of Alaska Museum, University of Alaska Fairbanks
Puccinellia nuttalliana J.A. Schultes) A.S. Hitchc.	Native	Palmer	Glenn Hwy, near intersection with Palmer-Fishhook Rd	257	61.607810	-149.112760		roadside	7/20/04	University of Alaska Museum, University of Alaska Fairbanks
Puccinellia nuttalliana J.A. Schultes) A.S. Hitchc.	Native	Matanuska Valley	Glenn HWY, 3 miles east of King River crossing	286	61.740860	-148.670500	208	roadside	7/28/04	University of Alaska Museum, University of Alaska Fairbanks

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Puccinellia nuttalliana J.A. Schultes) A.S. Hitchc.	Native	Matanuska Valley	Glenn HWY, about 6 miles east of Chickaloon	290	61.794870	-148.346620	443	roadside	7/28/04	University of Alaska Museum, University of Alaska Fairbanks
Puccinellia nuttalliana J.A. Schultes) A.S. Hitchc.	Native	Matanuska Valley	Glenn HWY, at 84 mile mark	291	61.798980	-148.252350	483	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Puccinellia nuttalliana J.A. Schultes) A.S. Hitchc.	Native	Paxson	Richardson Hwy, Paxson Lake area	472	62.938860	-145.508830	811	roadside	8/28/04	University of Alaska Museum, University of Alaska Fairbanks
Ranunculus pensylvanicus L. f.	Native	Mat-Su Valley	Frontage Rd and Hyer Rd Animal Food Warehouse	46	61.570020	-149.309390			7/25/03	University of Alaska Museum, University of Alaska Fairbanks
Rorippa palustris (L.) Bess	Native	Mat-Su Valley	Parks HWY, Burchell High School parking lot.	41	61.579670	-149.494930		parking lot	7/24/03	University of Alaska Museum, University of Alaska Fairbanks
Rorippa palustris ssp. *hispida* (Desv.) Jonsell	Native	Mat-Su Valley	adjacent to roadway buildings, very close to road with residential disturbance.	60	61.540780	-149.932830		urban	7/28/03	University of Alaska Museum, University of Alaska Fairbanks
Rorippa palustris ssp. *hispid*a (Desv.) Jonsell	Native	Mat-Su Valley	Palmer, north-west corner of Glenn HWY and Inner Springer Loop intersection	306	61.571300	-149.148390	50	roadside	8/3/04	University of Alaska Museum, University of Alaska Fairbanks
Rorippa palustris ssp. *hispida* (Desv.) Jonsell	Native	Mat-Su Valley	Palmer, Jensen Rd	371	61.659853	-149.180059	165	roadside	8/9/04	University of Alaska Museum, University of Alaska Fairbanks
Rorippa sp.		Mat-Su Valley	Palmer District, Clark-Wolverine Rd and Mars Ave. ATV trail.	246	61.614350	-149.058620	71	roadside/ ATV trail	7/16/04	University of Alaska Museum, University of Alaska Fairbanks
Rorippa sp.		Mat-Su Valley	Palmer District, Wolverine Rd and Helmaur PL	253	61.643350	-149.055130		roadside	7/16/04	University of Alaska Museum, University of Alaska Fairbanks
Rorippa sp.		Mat-Su Valley	West End of Soapstone Rd.	264	61.666790	-149.158130		roadside	7/21/04	University of Alaska Museum, University of Alaska Fairbanks
Rorippa sp.		Matanuska Valley	Palmer District, Buffalo Mine Moose Creek Rd, where crosses small stream	270	61.710730	-149.089250		roadside	7/22/04	University of Alaska Museum, University of Alaska Fairbanks
Rorippa sp.		Matanuska Valley	Palmer District, Seventeenmile Lake Public access parking lot	278	61.715250	-148.978930	205	parking lot	7/27/04	University of Alaska Museum, University of Alaska Fairbanks
Rumex acetosella L.	Introduced	Matanuska Valley	Palmer District, 58 mile Rd	277	61.706420	-148.979370	235	roadside	7/27/04	University of Alaska Museum, University of Alaska Fairbanks
Rumex longypholium DC	Introduced	Matanuska Valley	58 mile Rd 0.25mile from intersection with Glenn HWY	279	61.69366	-148.97334		roadside	7/27/04	University of Alaska Museum, University of Alaska Fairbanks
Rumex sp.		Mat-Su Valley	Palmer District, Wolverine Rd and Helmaur PL	253	61.643350	-149.055130		roadside	7/16/04	University of Alaska Museum, University of Alaska Fairbanks
Rumex sp.		Mat-Su Valley	Palmer, Farm Loop Rd, approximately 1 mile west of intersection with Glenn HWY	365	61.646900	-149.139080	166	roadside	8/9/04	University of Alaska Museum, University of Alaska Fairbanks

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Rumex sp.		Palmer	Palmer Old Glenn HWY & Sullivan Ave intersection ATV trail	387	61.527720	-149.139080	166	roadside	8/9/04	University of Alaska Museum, University of Alaska Fairbanks
Rumex sp.		Palmer	Palmer Old Glenn HWY & Sullivan Ave intersection ATV trail	387	61.527720	-149.139080	166	roadside	8/9/04	University of Alaska Anchorage, Herbarium
Senecio sp.		Mat-Su Valley	Palmer District, Clark-Wolverine Rd and Mars Ave. ATV trail.	246	61.614350	-149.058620	71	roadside/ ATV trail	7/16/04	University of Alaska Museum, University of Alaska Fairbanks
Senecio vulgaris L.	Introduced	Palmer/Wasilla area	Parks HWY and Trunk Rd. Ride parking lot.	1	61.565670	-149.261140			7/28/03	University of Alaska Anchorage, Herbarium
Senecio vulgaris L.	Introduced	Mat-Su Valley	Parks HWY and Hawk Ln. Bike path.	232	61.586160	-149.744260		roadside/ bike path	8/25/03	University of Alaska Museum, University of Alaska Fairbanks
Senecio vulgaris L.	Introduced	Matanuska Valley	Glenn HWY 3 miles east of Jonesville Rd intersection	284	61.727450	-148.821110	145	roadside	7/28/04	University of Alaska Museum, University of Alaska Fairbanks
Senecio vulgaris L.	Introduced	Mat-Su Valley	Palmer, Jensen Rd	371	61.659853	-149.180059	165	roadside	8/9/04	University of Alaska Museum, University of Alaska Fairbanks
Setaria viridis (L.) Beauv.	Introduced	Wasilla	Fairview Loop and Danielle St	109	61.52955	-149.50060		roadside	8/7/03	University of Alaska Museum, University of Alaska Fairbanks
Setaria viridis (L.) Beauv.	Introduced	Matanuska-Susitna Valley	Tok Cut-Off Carlson Creek	446	62.77175	-143.78880	2250	roadside	8/19/04	University of Alaska Museum, University of Alaska Fairbanks
Silene armeria L.	Introduced	Palmer/Wasilla area	Palmer-Wasilla HWY & Knik-Goose Bay Rd	18	61.572550	-149.441620		roadside	7/23/03	University of Alaska Museum, University of Alaska Fairbanks
Silene armeria L.	Introduced	Mat-Su Valley	Seward Meridian Parkway and Palmer-Wasilla Hwy.	48	61.584700	-149.357040		roadside	7/25/03	University of Alaska Museum, University of Alaska Fairbanks
Silene armeria L.	Introduced	Wasilla/Palmer	Palmer-Wasilla HWY & Knik-Goose Bay Rd	18	61.57255	-149.44162		roadside	7/22/03	University of Alaska Anchorage, Herbarium
Silene armeria L.	Introduced	Wasilla	Seward Meridian Parkway and Palmer-Wasilla Hwy parked at Tesoro station.	48	61.58470	-149.35704		roadside	7/25/03	University of Alaska Museum, University of Alaska Fairbanks
Silene dioica (L.) Clairville	Introduced	Palmer	Glenn HWY 52th mile Stephan Fire Station #32 parking	260	61.65058	-149.11101		roadside	7/21/04	University of Alaska Museum, University of Alaska Fairbanks
Silene latifolia Poir. ssp. *alba* (P. Mill.) Greuter & Burdet	Introduced	Mat-Su Valley	Palmer, north-west corner of Glenn HWY and Inner Springer Loop intersection	306	61.571300	-149.148390	50	roadside	8/3/04	University of Alaska Museum, University of Alaska Fairbanks
Silene latifolia Poir. ssp. *alba* (P. Mill.) Greuter & Burdet	Introduced	Mat-Su Valley	Fairview Loop and Danielle St	109	61.529550	-149.500600		roadside	8/7/03	University of Alaska Museum, University of Alaska Fairbanks
Sisymbrium altissimum L.	Introduced	Mat-Su Valley	Frontage Rd and Hyer Rd Animal Food Warehouse	46	61.570020	-149.309390			7/25/03	University of Alaska Museum, University of Alaska Fairbanks

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Sisymbrium altissimum L.	Introduced	Wasilla	Trunk Rd and Forest Wood DR. ATV trails on both sides	128	61.62890	-149.20689		roadside	8/8/03	University of Alaska Anchorage, Herbarium
Sonchus arvensis ssp. *uliginosus* Bieb.) Nyman	Introduced	Mat-Su Valley	Soapstone RD, residential subdividion.	262	61.666800	-149.092320		roadside	7/21/04	University of Alaska Museum, University of Alaska Fairbanks
Sonchus arvensis ssp. *uliginosus* Bieb.) Nyman	Introduced	Matanuska Valley	Glenn HWY, at 85th mile mark	292	61.802210	-148.242390	486	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Spergula arvensis L.	Introduced	Palmer/Wasilla area	West of Fairview Loop Rd access	16	61.570920	-149.347130		roadside	7/22/03	University of Alaska Museum, University of Alaska Fairbanks
Spergula arvensis L.	Introduced	Mat-Su Valley	North Wasilla, Coles Rd, just west of Close St.	320	61.664990	-149.386400	177	roadside	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Tanacetum vulgare L.	Introduced	Mat-Su Valley	0.6 miles from Trunk Rd. Valley Church of Christ parking lot.	44	61.563940	-149.277470		parking lot	7/25/03	University of Alaska Museum, University of Alaska Fairbanks
Tanacetum vulgare L.	Introduced	Mat-Su Valley	Glenn HWY, mile 52, Stephan Fire Station #32 parking.	260	61.650580	-149.111010		roadside	7/21/04	University of Alaska Museum, University of Alaska Fairbanks
Tanacetum vulgare L.	Introduced	Matanuska Valley	Palmer District, Seventeenmile Lake Public access parking lot	278	61.715250	-148.978930	205	parking lot	7/27/04	University of Alaska Museum, University of Alaska Fairbanks
Taraxacum officinale G.H. Weber ex Wiggers	Introduced	Matanuska Valley	Glenn HWY, approximately 1mile east of Cascade Creek	294	61.803780	-148.075230	675	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Taraxacum sp.		Matanuska Valley	Glenn HWY just before Castle	287	61.757950	-148.588150	263	roadside	7/28/04	University of Alaska Museum, University of Alaska Fairbanks
Taraxacum sp.		Matanuska Valley	Glenn HWY, at 84 mile mark	291	61.798980	-148.252350	483	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Taraxacum sp.		Matanuska Valley	Glenn HWY, at 84 mile mark	291	61.798980	-148.252350	483	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Trifolium hybridum L.	Introduced	Palmer/Wasilla area	Parks HWY and Trunk Rd. Ride parking lot.	1	61.565670	-149.261140		parking lot	7/21/03	University of Alaska Museum, University of Alaska Fairbanks
Trifolium hybridum L.	Introduced	Mat-Su Valley	North Wasilla, Schrock Rd and Sushana Dr	316	61.648640	-149.457320	143	roadside	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Tripleurospermum maritima ssp. *phaeocephala* (Rupr.) Hamet-Ahti	Native	Paxson	Richardson Hwy Paxson Lake area	472	62.93886	-145.50883	811	roadside	8/28/04	University of Alaska Museum, University of Alaska Fairbanks
Tripleurospermum perforata (Merat) M. Lainz	Introduced	Matanuska Valley	Glenn HWY and 58 mile Rd intersection ATV trail parallels Highway	275	61.693184	-148.966560	175	roadside	7/27/04	University of Alaska Museum, University of Alaska Fairbanks
Tripleurospermum perforata (Merat) M. Lainz	Introduced	Mat-Su Valley	North Wasilla, Coles Rd, just west of Close St.	320	61.664990	-149.386400	177	roadside	8/4/04	University of Alaska Museum, University of Alaska Fairbanks

List of plant specimens collected during 2003-2004 field surveys in Matanuska, Susitna, and Copper River Basins (cont.).

Plant name	Status	General locality	Specific locality	Site Code	Latitude (dd)	Longitude (dd)	Elevation (m)	Habitat	Collection date	Collection location
Tripleurospermum perforata (Merat) M. Lainz	Introduced	Wasilla	South Lakes BLVD.	60	61.54078	-149.93283		roadside	7/28/03	University of Alaska Anchorage, Herbarium
Tripleurospermum perforata (Merat) M. Lainz	Introduced	Wasilla	South Lakes BLVD.	60	61.54078	-149.93283		roadside	7/28/03	University of Alaska Museum, University of Alaska Fairbanks
Trisetum spicatum (L.) Richter	Native	Big Lake	from South Port Marina Boat Storage facility.	54	61.529350	-149.840740		lakeshore	7/28/03	University of Alaska Museum, University of Alaska Fairbanks
Trisetum spicatum (L.) Richter	Native	Matanuska Valley	Glenn HWY Parking at Matanuska River & Kings River	285	61.729080	-148.747670	179	roadside	7/28/04	University of Alaska Museum, University of Alaska Fairbanks
Urtica dioica L.	Native	Palmer/Wasilla area	Parks HWY and Trunk Rd. Ride parking lot.	1	61.565670	-149.261140		parking lot	7/28/03	University of Alaska Museum, University of Alaska Fairbanks
Veronica americana L.	Native	Mat-Su Valley	North Wasilla, Moose Meadows Rd, 1/4 mile north of intersection with Schwal RD	322	61.662920	-149.424770	193	roadside	8/4/04	University of Alaska Museum, University of Alaska Fairbanks
Veronica longifolia L.	Introduced	Palmer	Glenn HWY and Marsh RD south east corner of intersection	396	61.61705	-149.11584	128	roadside	8/24/04	University of Alaska Museum, University of Alaska Fairbanks
Vicia cracca L. ssp. *cracca*	Introduced	Matanuska-Susitna Valley	Foothills BLVD and Lone Duck	164	61.549390	-149.569000		roadside	8/14/03	University of Alaska Museum, University of Alaska Fairbanks
Vicia cracca L. ssp. *cracca*	Introduced	Matanuska-Susitna Valley	Parks Hwy at mile marker 51. Bike path on west side of highway and ATV trail on east	235	61.568840	-149.688880		bike trailside	8/25/03	University of Alaska Museum, University of Alaska Fairbanks
Vicia cracca L. ssp. *cracca*	Introduced	Matanuska Valley	Glenn HWY, approximately 1mile east of Cascade Creek	294	61.803780	-148.075230	675	roadside	7/29/04	University of Alaska Museum, University of Alaska Fairbanks
Viola ticolor L.	Introduced	Wasilla	Parks HWY Burchell High School parking lot.	41	61.57967	-149.49493		roadside	7/24/03	University of Alaska Anchorage, Herbarium
Viola ticolor L.	Introduced	Wasilla	Nelson Rd and Lucas Ave. (Bogard becomes Nelson at Wasilla-Fishhok Rd).	51	61.58334	-149.47899		roadside	7/25/03	University of Alaska Museum, University of Alaska Fairbanks
Zea mays L.	Introduced	Matanuska-Susitna Valley	Frontage Rd and Hyer Rd Animal Food Warehouse	46	61.570020	-149.309390		roadside	7/25/03	University of Alaska Museum, University of Alaska Fairbanks