

# **Non-Native Plant Species of the Fairbanks Region**

## **2005 - 2006 Surveys**



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## Introduction

The establishment, growth, and persistence of non-native plant species pose a serious threat to native ecosystems on global and regional scales (Pimm and Gilpin 1989, U.S. Congress 1993, Myers 1997, Stein *et al.* 2000). Alaska has remained relatively free from large-scale habitat changes resulting from non-native invasive plant species, mainly because it has a small human population and comparatively few areas of anthropogenic disturbance. However, a number of introduced plant species have begun to establish and develop populations in high use areas, particularly roadsides, thereby presenting a risk to adjacent intact ecosystems (Carlson and Lapina 2004, Carlson and Shephard in press). Since most non-native plant populations in Alaska are small and largely restricted to disturbed areas, it may still be possible to prevent the large-scale ecological disasters that have beleaguered most of the other 49 states. In order to proactively address the establishment of infestations, the Region 10 State and Private Forestry division collaborated with the Alaska Natural Heritage Program (AKNHP) to begin a broad-scale survey of roadside invasive plant populations. To date, roadsides in Anchorage, the Matanuska-Susitna valley, the lower Kenai, and Southeast Alaska have been evaluated for invasive plant populations. This project extends these efforts to the Fairbanks region.

### Objectives

- Identify locations, species, and extent of invasive plant populations in the Fairbanks region
- Continue to broaden the scope of invasive species tracking in developed, developing, and high-use areas in Alaska
- Provide newly collected data to local, regional, state, and federal agencies involved in invasive species issues via the Alaska Exotic Plant Invasive Clearinghouse (AKEPIC)
- Augment the UAA and UAF herbarium with reference specimens of invasive plants found in Alaska

## Methods

The Alaska Natural Heritage Program conducted roadside surveys for invasive plants along a total of 730 miles within an area bounded by Stevens Village to the north, Circle Hot Springs to the east, Paxson and Talkeetna to the south, and Manley Hot Springs and Rampart to the west (Fig 1.). The surveys were conducted in August 2005 and July - August 2006, following protocols outlined by the Alaska Exotic Plants Mapping Program (see <http://aknhp.uaa.alaska.edu/>). Plots were read at 5-mile intervals along primary roadways. When necessary for safety purposes, the survey sites were relocated to the nearest area with sufficient roadside shoulder and visibility. Additional plots were set up in areas with new non-native taxa that were either highly aggressively invasive or that were growing in ecologically sensitive locations (for example, the confluence of

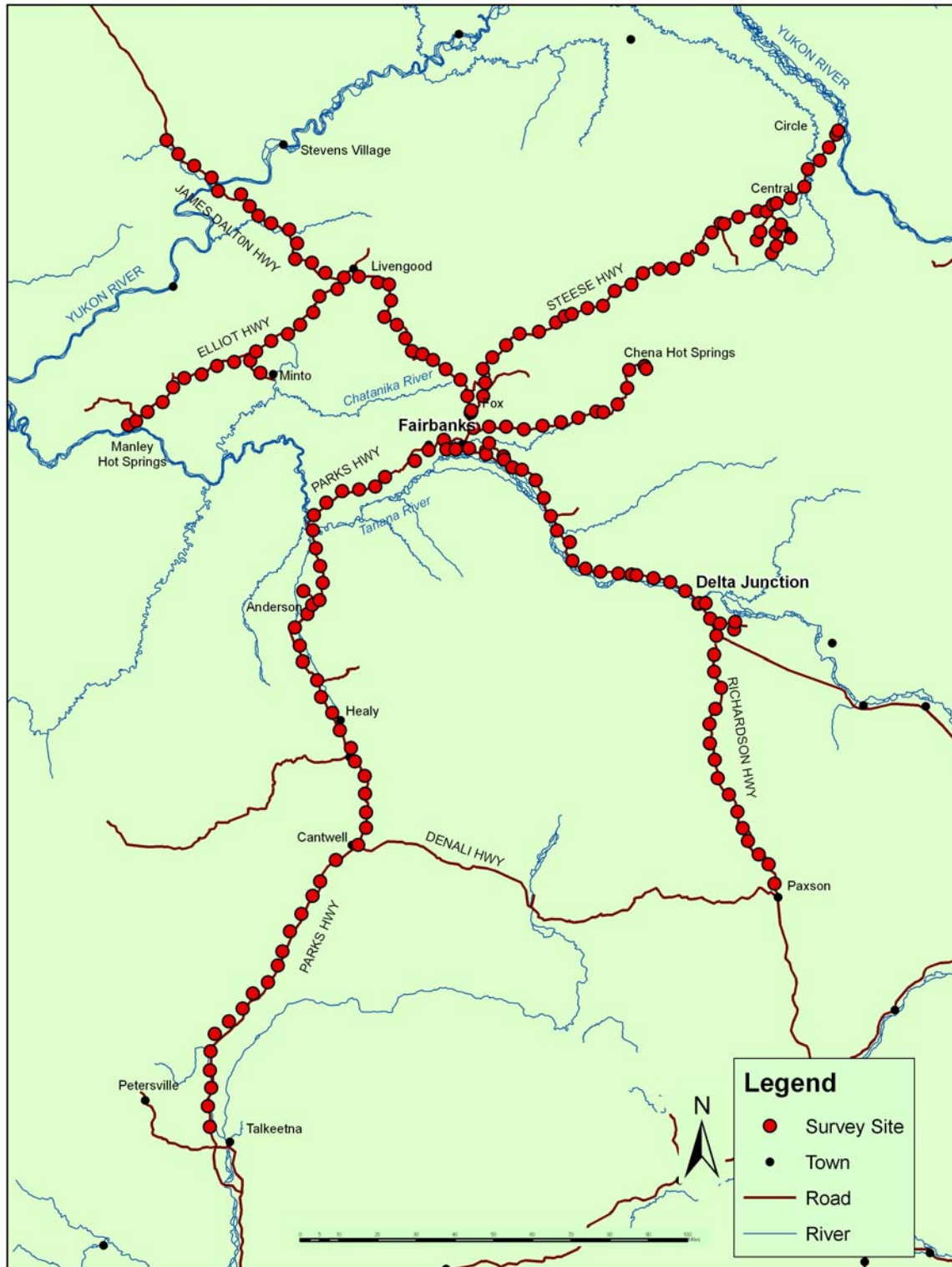


Figure 1. Areas surveyed in interior Alaska during the 2005 and 2006 field seasons.

highways and rivers). At each site we recorded non-native plant species diversity and percent cover, as well as information on the dominant vegetation/landcover. For non-native taxa, we estimated the size of the infestation, the age and type of disturbance, and

control methods employed, if any. If no non-native plants were observed at a site we recorded the absence of non-natives. These data were entered into AKEPIC for use by other agencies and collaborators on invasive plant management. Voucher specimens were collected at roughly every tenth site or for taxa not previously encountered. Vouchers will be curated at the University of Alaska Fairbanks (UAF) and Anchorage (UAA) herbaria.

## Results

Field work was conducted in August 2005 and July – August 2006. In August 2005 the Elliot Highway, Chena Hot Springs Road, and the section of the Dalton Highway from Livengood Junction to about 10 miles north of the Yukon River were surveyed. In July – August 2006 the Richardson Highway, from Paxson to Fairbanks, and the Parks Highway, from Fairbanks to Talkeetna, were inventoried.

A total of 191 plots were read along the Steese Highway, Elliot Highway, Chena Hot Springs Road, and sections of the Parks, Richardson and Dalton Highways. The area surveyed included approximately 900 miles of highway and more than 140 acres of disturbed land, including right-of-ways, adjoining parking lots, campgrounds, and gravel pits. A total of 1187 non-native species infestations were recorded and subsequently entered into the AKEPIC database, and over 100 voucher specimens were collected for the herbaria at UAA and UAF.

### Species diversity and distribution

Non-native species are widespread and well established along transportation corridors in interior Alaska. Fifty-nine (59) non-native plant species, representing 12 families, were recorded in this study (Appendix I). Only five of the 191 sites visited (2.6%) were free of any non-native plant species.

The two areas of highest weed diversity were the section of the Richardson Highway that extends from Delta Junction to Fairbanks, and areas of road construction from Fairbanks to Anderson along the Parks Highway (Fig. 2). In most of these non-native species ‘hotspots’ we recorded more than seven non-native species per plot. The Elliot Highway from Fairbanks to Livengood, and the Dalton Highway from Livengood to its intersection with the Yukon River, had large infestations as well as high levels of non-native species diversity. The sites with the lowest numbers of weed species were observed along the high elevation sections of the Parks and Richardson Highways. These areas typically had one to three non-native species per plot. Finally, there were three sites along the Steese Highway, one on the Chena Hot Springs Road and one (at high elevation) on the Richardson Highway that were weed free.

The most frequently encountered species were *Taraxacum officinale* ssp. *officinale*, *Hordeum jubatum*, *Plantago major* var. *major*, and *Matricaria discoidea*. These species were widely distributed throughout the area surveyed and were recorded in over 50% of all the plots read (Fig. 3).



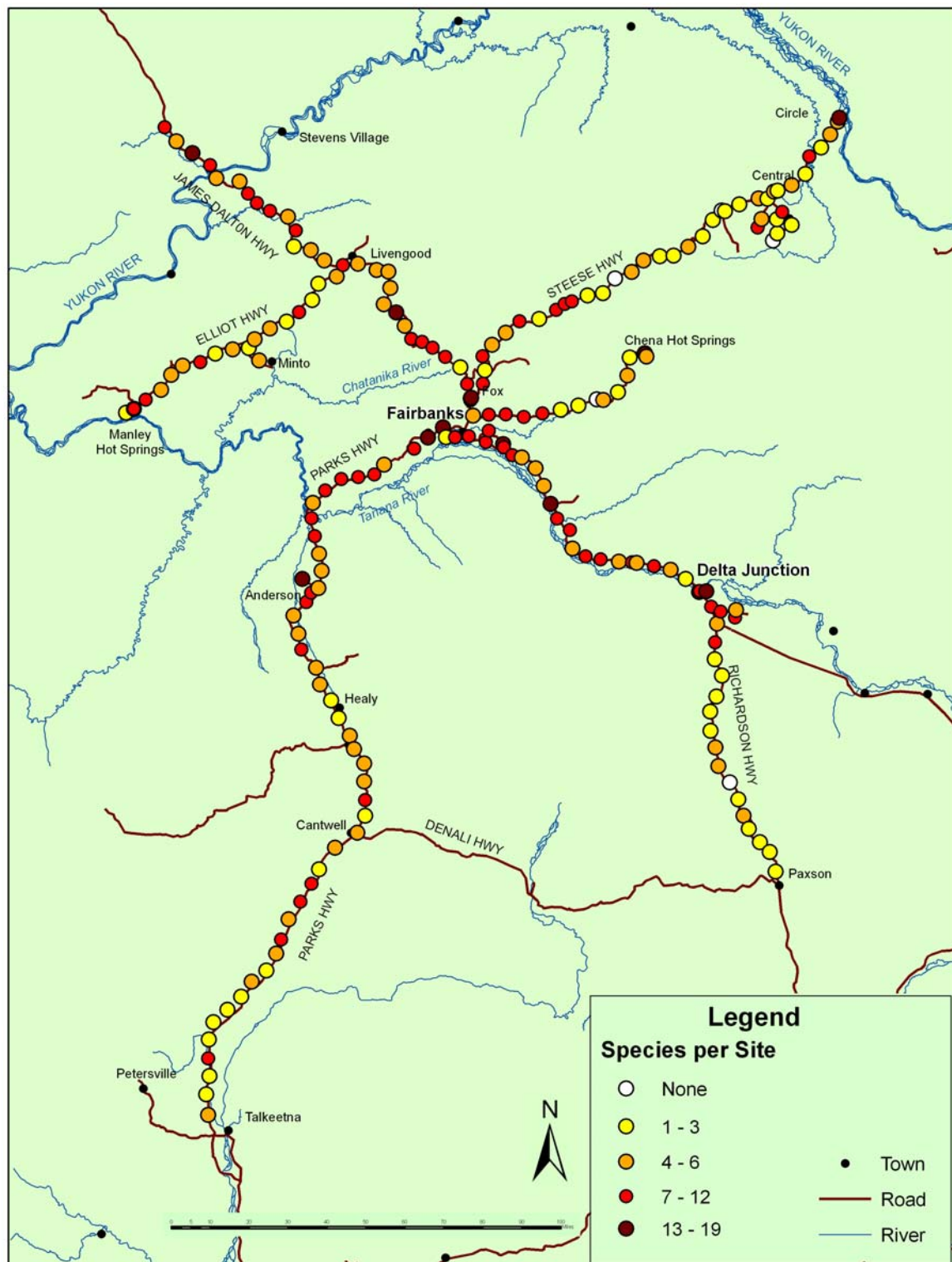


Figure 2. Map showing the numbers of non-native species recorded (a measure of the levels of weed diversity) at each plot throughout the survey area.

Highly invasive species, i.e., those with an invasiveness rank greater than 50 in the AKEPIC system (see <http://akweeds.uaa.alaska.edu/>) were not common, and most of these were only recorded at one or a few locations (Fig. 4).

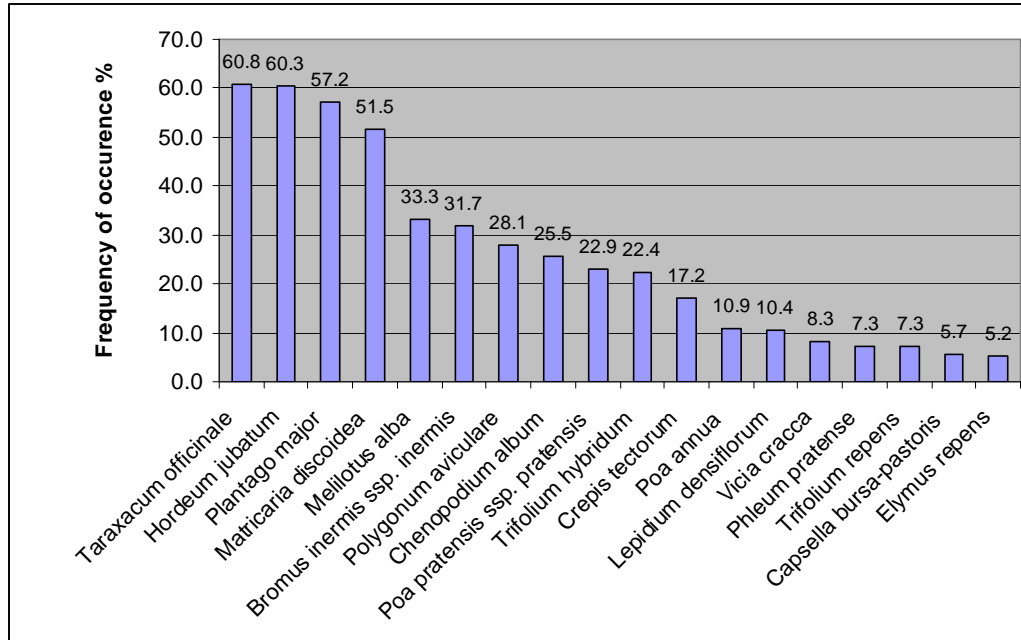
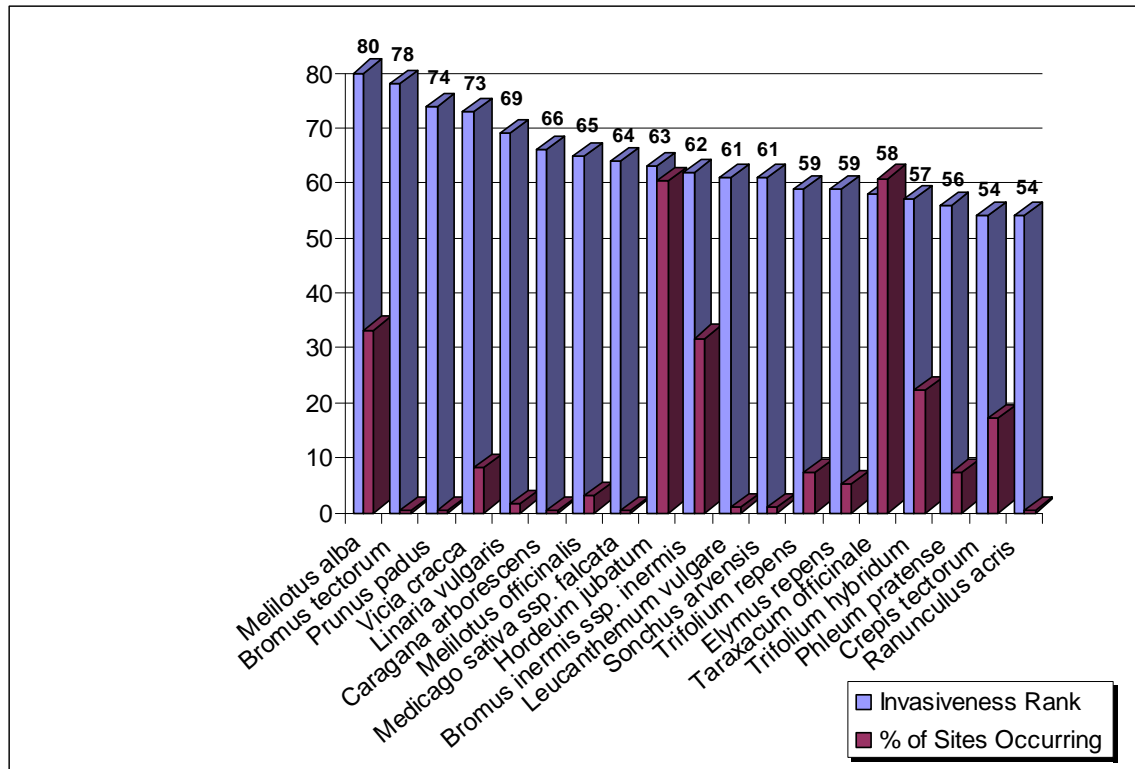


Figure 3. Frequency of occurrence of the 18 most commonly encountered non-native species.



**Figure 4. Invasiveness rank and percentage of sites invaded by each of the most aggressively invasive species found throughout the area surveyed.**

### Noteworthy species

**White sweetclover** (*Melilotus alba*) is one of the most problematic invasive species in Alaska. It was widely distributed throughout the survey area, occurring at 33.3% of all sites (Appendix II). This species often formed large and nearly continuous infestations (Fig. 5). All infestations were observed on right-of-ways and not in undisturbed communities or moving into riparian habitats where highways cross creeks and rivers, as has been seen elsewhere in the state (Conn *et al.* in press).



**Figure 5. Infestation of *Melilotus alba* along the Dalton Highway.**

**Smooth brome** (*Bromus inermis* ssp. *inermis*) is one of the more invasive and widespread non-native species in Alaska, ranked at 62 points out of 100 in the AKEPIC invasive species ranking system, and was broadly spread in the survey area, occurring at 31.7% of all sites (Appendix II). Smooth brome is often used for roadside revegetation projects and appears to persist for many years following sowing in interior Alaska.

This grass was observed along roadsides, on edges of parking lots, in abandoned areas, and clearings along highways. Although it generally formed a canopy cover of less than



5%, there were a few sites where it formed monospecific stands (Fig. 6.). At the Steese Highway and Albert Creek crossing (site #7; 65.591208°N, 144.703986°W, at mile marker 131) an infestation of more than 1 acre was recorded. Apparently, this area was cleared at the time of highway construction. No other non-native or native plant species were observed in this grassy area.

Smooth brome is a good target for control because it often occurs as a pure stand. A repeated cutting of smooth brome is one of the most effective means of control. Mowing four times during the season for a 4-year period can greatly reduce smooth brome persistence (Marten and Hovin 1980).

**Bird vetch** (*Vicia cracca*) was only found in 8.3% of the plots read. However, at most these sites it formed extremely dense infestations, covering the ground vegetation as well as native trees and shrubs, and it appeared to be suppressing the growth of other species at the site.

The most extensive infestations were located on the Richardson and Parks Highway, in the vicinity of Fairbanks. A 10-acre infestation was recorded in a cleared area along Badger Road in North Pole (Fig 7; site #2006-098, 64.83286°N, 147.48766°W).



**Figure 6. Smooth brome infestation in a former clearcut at the intersection of the Steese Highway and Albert Creek crossing.**



**Figure 7. Extensive bird vetch infestation along Badger Road in North Pole.**



**Figure 8. Bird vetch infestation at the intersection of the Parks Highway and Sheep Creek Road.**

Another large infestation of bird vetch was recorded at the intersection of the Parks Highway and Sheep Creek Road (Fig. 8; site 2006-103, 64.86089°N, 147.88043°W). At this site, bird vetch has colonized the entire right-of-way and extends into the adjacent closed alder-willow tall shrub community.

**Cheatgrass** (*Bromus tectorum*) is one of the most notorious invasive species in the western United States. It ranks at 78 out of 100 for invasibility, and has a high probability of successfully establishing and spreading across interior Alaska.

Approximately one acre of disturbed land next to the Chena Hot Springs Resort was heavily infested with cheatgrass (Fig. 9; site 60, 65.05554°N, 146.05695°W). This area is a former sled dog lot with significant soil disturbance, including fill importation and digging. The population of cheatgrass at this site consists of several hundred mature fruiting plants. Considering the highly invasive nature of this species, its currently confined distribution, and the ease with which its seeds could be transported and dispersed by resort visitors, this population should be prioritized for eradication and future monitoring work.



**Figure 9.** Cheatgrass (*Bromus tectorum*) infestation at a sled dog lot by the Chena Hot Springs Resort entrance.

**European bird cherry** (*Prunus padus*), is a highly invasive species (ranked at 74 out of 100 points) and is known to establish and modify riparian plant communities in south-central Alaska. A single individual was recorded and destroyed on imported fill at mile 14 of the Elliot Highway, 2.9 miles north of the Chatanika River (site #6, 65.121138°N, 147.80534). This site should be monitored to control any new individuals that may arise by resprouting from underground parts or the establishment of new individuals.

**Yellow toadflax** (*Linaria vulgaris*) is widespread and extremely abundant in south-central Alaska. However, in the 2005 and 2006 Interior Alaska roadside surveys this species was only observed at three locations: in North Pole at the intersection of the Old Richardson Highway and Buzby Road (site #2006-100, 64.73389°N, 147.30487°W), in the western part of Fairbanks (site #2006-103, see bird vetch site), and at the Manley Post Office & Trading Post gas station in Manley Hot Springs (site #018, 64.99931°N, 150.63406°W). This species is very common in residential areas throughout the Interior and is therefore much more frequent than the results of our highway right-of-way surveys would suggest.



**Figure 10.** Siberian peashrub stand at mile 44, on the Steese Highway.

One infestation of the highly invasive **Siberian peashrub** (*Caragana arborescens*) was found on the Steese Highway, at mile 44, by the parking lot where Boston Creek crosses the highway (Fig. 10, site #2006-007, 65.22587°N, 147.12334°W). This horticultural shrub was recommended for planting in interior Alaska because it is an extremely winter-hardy plant. Siberian peashrub is one of the most aggressive



invaders of mixed forests in the Matanuska-Susitna area (Lapina and Carlson 2004b) and is known to invade and modify the structure and composition of boreal forest communities in Europe. This horticultural shrub was apparently planted around the parking lot and has now formed a multi-aged stand. Plants propagate by seed and a large numbers of seedlings and young plants were observed growing in the adjacent undisturbed mixed spruce-birch forest. Mature plants with an abundant number of fruits were also observed. This infestation should be prioritized for control and subsequent monitoring work.

**Yellow alfalfa** (*Medicago sativa* ssp. *falcata*) was recorded at a single site in North Pole, at the intersection of the Old Richardson Highway and Buzby Road (Fig. 11, site #2006-100, 64.73389°N, 147.30487°W). This species is not considered an aggressive invader of natural communities, but since it is isolated and of a small population, making efforts to control this species now should be very effective.



**Figure 11. Yellow alfalfa infestation growing along the roadside in North Pole.**

**Oxeye daisy** (*Leucanthemum vulgare*) was observed along the Steese Highway, 5.5 miles north-east of Fox, next to a gated driveway leading to private property (Fig. 12, site #BAER 174, 64.991544°N, 147.533088°W). This ornamental plant was probably originally planted by the owner of the adjacent property in a confined area, but has since spread out, as the population was very large at the time of this survey, consisting of approximately 1,000 to 10,000 individuals. The majority of the population (c. 60%) was formed of young, first-year plants and seedlings; however, mature, flowering individuals were also observed. Reducing seed production by cutting and bagging flowering heads should constitute the first step towards controlling this infestation. Digging up the rosettes can be successful, but is very labor intensive. A combination of selective herbicide and fertilizer application generally has positive results (Krueger and Sheley 2002). Cooperation between the Department of Transportation and the property owner will be necessary to control this infestation.



**Figure 12. Oxeye daisy population on the Steese Highway right-of-way.**

**Perennial sowthistle** (*Sonchus arvensis*) is a prohibited noxious weed in Alaska that was recorded in two locations in Fairbanks: (1) at the airport, at the intersection of Old Airport Way and the exit from the airport, north-west of a small lake (Fig. 13, site #062, 64.82376°N, 147.86386°W), and (2) at the intersection of the Parks Highway and Sheep Creek Road in western Fairbanks (Fig. 14, site #2006-103, see birth vetch section). Both

infestations were restricted to right-of-ways and are probably associated with recent road construction.



**Figure 13. Infestation of perennial sowthistle at Old Airport Way, Fairbanks**



**Figure 14. *Sonchus arvensis* on the roadside at the Parks Highway and Sheep Creek Road.**

**Red clover** (*Trifolium pratense*) is a forage plant and is known to escape and establish in disturbed sites in agricultural areas of the Matanuska-Susitna region. This species is apparently new to the survey area and should be targeted for control. An extensive infestation was recorded on the Elliot Highway, near the Aggie Creek crossing, close to the pull-out where a culvert is located (Fig. 15, site #003, 65.19925°N, 148.08788°W). A small (less than 200 individuals) population of red clover was discovered just outside of Circle at mile 161 of the Steese Highway (Fig. 16, site #BLM 2006-005, 65.807752°N, 144.083652°W). The small size of these infestations suggests that mechanical methods of removal could be successful. Plants must be dug out as they are able to resprout from underground parts.



**Figure 15. Extensive infestation of red clover on the Elliot Highway.**



**Figure 16. Roadside infestation of red clover at mile 161 of the Steese Highway.**

**Narrowleaf hawkweed** (*Hieracium umbellatum*) was recorded in several locations in the survey area. Two populations were detected on the Elliot Highway: one at the Fox gas station (site #2006-001, 64.96059°N, 147.61328°), and a second one at the intersection with Amayun Lane just north of Fox (Fig. 17, site #008, 65.01354°N, 147.63603°W).



The hawkweed plants were growing among alder-willow thickets on the roadside, and constituted c. 90% of the understory vegetation. Several infestations of *H. umbellatum* were also observed on the Dalton Highway, north of the Yukon River Bridge and up to Fort Hamlin Hills. Isolated plants of narrowleaf hawkweed were also seen along a section of the Richardson Highway, between mile marker 310 and Fairbanks.



**Figure 17. *Hieracium umbellatum* infestation on the Elliot Highway.**

Another infestation of narrowleaf hawkweed was recorded at the entrance to the Pedro Creek parking lot across from the Felice Pedroni Memorial (Fig. 18, site 2006-002, 65.00861°N, 147.49911°W). Pedro Creek is a very popular recreational site for tourists and local residents. Hawkweed seeds were likely unintentionally brought by visitors or by contaminated construction equipment or fill. The infestation is still relatively small, with less than 1,000 stems, and occupies an area no larger than 0.1 acres. Therefore, mechanical or manual control work should be effective.



**Figure 17. Pedro Creek, site 2006-002. Visitors are panning for gold. Edges of parking lot are infested with *Hieracium umbellatum*.**

Solitary individuals of **bird's-foot trefoil** (*Lotus corniculatus*) were recorded in two locations along the Dalton Highway (Fig. 18, site 89, 66.279834°N, 150.360537°W and site #94, 66.267175°N, 150.345131°W). This plant is known to develop thick mats on disturbed ground and to prevent colonization of native species (CAL-IPC 2003). It has been widely planted for erosion control along roadsides and as a livestock forage elsewhere in western North America (Czarapata 2005). Bird's-foot trefoil easily escapes cultivation and colonizes roadsides, fields, pastures and forests (Turkington and Franko 1980). Fire stimulates seed germination and promotes seedling establishment, making recently burned areas susceptible to invasion (Czarapata 2005). All plants found during the survey were extirpated by hand-pulling. We recommend that these sites be revisited to detect any new individuals that might sprout from remaining root fragments and prevent new seedling establishment.



**Figure 18. Flowering bird's-foot trefoil on roadside and one of the surveyors Michelle Sturdy, AKNHP.**

**Tiny trumpet** (*Collomia linearis*) is a non-native plant that is infrequent in Alaska. However, during this survey it was found and collected from several sites. It was observed growing in great abundance on disturbed ground in the town of Chatanika at mile 28 of the Steese Highway (site #2006-004, 65.10982°N, 147.4787°W), and at the Salcha Elementary School entrance, at mile 325 of the Richardson Highway (site #2006-091, 64.48322°N, 146.97609°W).

Orange hawkweed (*Hieracium aurantiacum*), reed canarygrass (*Phalaris arundinaceae*) and Canada thistle (*Cirsium arvense*), which are highly invasive species and could potentially show a strong ecological and climatic tolerance for interior Alaska, were not found in the survey area.

### **Noteworthy areas**

Certain sites in the survey area harbored large numbers of non-native or highly invasive plant species. These sites require monitoring and should be targeted for control.

**(1) Chena Hot Springs Resort:** This area was particularly rich in non-native species. The former sled dog lot at the resort entrance (Fig. 19, site #60, 65.05554°N, 146.05695°W) is heavily infested with cheatgrass (*Bromus tectorum*), and tall buttercup (*Ranunculus acris*) and common mallow (*Malva neglecta*) were also recorded here. Tall buttercup is a non-native species that has been documented in the south coastal region of Alaska. This plant is poisonous and once established can hinder the growth of native species. Common mallow (*Malva neglecta*) is known as an occasional weed of greenhouses (Welsh 1974), but has not been recorded previously in Alaska (AK Weed



Database 2006, UAM 2006). Twelve other non-native species were recorded at this site. This area appears to be a source of non-native species seeds, especially of cheatgrass, and poses a significant threat to the surrounding areas. Immediate control action and subsequent monitoring work are required. Additional surveys should be conducted in the vicinity to detect and eliminate other possible infestations of cheatgrass.



**Figure 19. Former sled dog lot at the Chena Hot Springs Resort entrance infested with cheatgrass, tall buttercup, common mallow, and other exotic plant species.**

Of the 19 non-native plant species at Chena Hot Springs Resort, some are aggressive invaders, including *Sonchus asper*, *Melilotus officinale*, *Polygonum convolvulus*, and *Galeopsis bifida*.

Spiny sowthistle (*Sonchus asper*) formed a small but fairly well-established population on waste materials produced by well-drilling behind Rocky Lake. This species was not observed on any other type of substrate. Several mature individuals were producing large quantities of seeds (Fig. 20, site #063, 65.043195°N, 146.045572°W).

Wild oats (*Avena fatua*) were collected at the same site as spiny sowthistle (site #063) and at a trailhead where horses were used. It may have been introduced in contaminated horse forage. This species is problematic in agricultural fields, but is usually absent from undisturbed land. Wild oats have rarely been collected in Alaska (AK Weed Database 2006, UAM 2006).

Common sheep sorrel (*Rumex acetosella*) had colonized the edges of the main parking lot (site #061, 65.05366°N, 146.05568°W) and was observed along the hot streams in the resort. This species is known to colonize burned areas, where it can inhibit the reestablishment of native species (see Esser 1995). Wild habitats adjacent to the resort should be inventoried and monitored to prevent sheep sorrel from moving into areas burned in 2004.



**Figure 20. *Sonchus asper* near a hot springs lake.**

**(2) Harding Lake Recreational Area,** Alaska State Parks along the Richardson Highway, Mile 320 (Fig. 21, site 2006-090, 64.43572°N, 146.87819°W).

According to an Alaska State Parks ranger, a substantial drop in the water table occurred in Harding Lake due to beaver activity several years ago. A mixed herbaceous-shrub vegetation community has recently established in the drained lake basin. New colonizers include native willow, sedges and cottongrass species, as well as non-native plant species. Large quantities of *Plantago major*, *Hordeum jubatum*, *Taraxacum officinale* ssp. *officinale* were observed at this site. Approximately three acres were surveyed, but the total infested area was much larger. Monitoring this site over time would help us gain insight into the successional dynamics between native and introduced plant communities.



**Figure 21. The former lake floor of Harding lake is now colonized with native and non-native species.**

**(3) The intersection of the Parks Highway and Sheep Creek Road** west of Fairbanks (Fig. 22; site #2006-103; 64.86089°N, 147.88043°W). A total of 18 non-native species (including several highly invasive species) was recorded here. *Vicia cracca*, *Sonchus arvensis* ssp. *uliginosus* and *Hieracium umbellatum* formed dense stands in the right-of-way. *Vicia cracca* was invading undisturbed tall alder-willow shrub communities. No native shrub or forb species were observed within the right-of-way. Other invasive species such as *Melilotus alba*,



**Figure 22. The intersection of the Parks Highway and Sheep Creek Road had multiple non-native species populations.**

*Linaria vulgaris*, *Elymus repens*, and *Phleum pratense* were also recorded at this site. Eradication of these infestations will require considerable time and expense. We recommend mowing these populations to reduce seed production and stop their expansion.

(4) **Areas of recent road construction and roadside revegetation** also presented a number of infestations. One of these areas was located between mile 52 and 60 on the Steese Highway, near Davidson Ditch. Portions of this section were either under construction at the time of the survey or had been recently built and revegetated (Fig. 23). Certain species, such as *Phleum pratense*, *Crepis tectorum*, and *Elymus sibiricus* were fairly common in this area but were not observed on other sections of the Steese Highway. Single occurrences of *Melilotus officinale*, *Polygonum convolvulus*, and *Viola tricolor* were also recorded here (Fig. 24, site #2006-010, 65.271916°N, 146.710207°W). These species may have been introduced with top soil, seed mix, or contaminated construction equipment.



**Figure 23.** This section of the Steese Highway had been recently revegetated with native *Poa alpina* and non-native *Lolium perenne*.



**Figure 24.** Black bindweed on a recently hydroseeded and mulched roadside.

The section of the Parks Highway from Mile 330 to Mile 350 was either under construction or had recently been revegetated. Open areas where seeded grasses had not established yet are highly susceptible to non-native species invasion (Fig. 25, site #2006-106, 64.74263°N, 148.41946°W). During the 2006 field season, roadsides that were revegetated in 2005 were found to be heavily colonized by non-native invaders (Fig. 26, site #2006-105, 64.79272°N, 148.14815°W). Highly invasive species such as white sweetclover, smooth brome, alsike and white clover were recorded in the sites that had been revegetated in 2005. Therefore, any areas that have undergone road construction and revegetation work should be monitored in the future.





**Figure 25. Parks Highway, Mile 334, site 2006-106. This site was under construction during the 2006 season.**



**Figure 26. Parks Highway, Tanana River overlook parking lot, Mile 345, site 2006-105. This area, which had been revegetated in 2005, had invasive species infestations in 2006.**

Due to the concern that invasive species will infest riparian habitats, additional plots were read in areas where roads cross waterbodies. Well-established populations of white sweetclover (*Melilotus alba*) were recorded at the intersection of the Tanana River with the Richardson Highway (site #2006-079; at Mile 275 near Delta Junction, 64.15259°N, 145.84048°W) and the Parks Highway (site #2006-112, in Nenana, 64.5658°N, 149.08223°W). Sweetclover was also found along a section of the Richardson Highway that runs adjacent to the Tanana River, between Delta Junction and Fairbanks (Fig. 27, site #2006-092, 64.53922°N, 147.01753°W). Other well-established populations of white sweetclover were observed at the Yukon River crossing on the Dalton Highway (site #046, 65.90033°N, 149.76222°W) (Appendix II). Glacial rivers in Alaska are naturally disturbed with exposed mineral soil and little competition, making them extremely susceptible to invasion. Populations of invasive species adjacent to streams are especially dangerous due to the potential for efficient long-distance seed dispersal via the waterway. To reduce the spread of non-native species into natural habitats through water corridors, all infestations located at the intersections of the road system with rivers and streams should be prioritized for control and eradication.



**Figure 27. Artificial riverbank of Tanana River colonized by white sweetclover.**

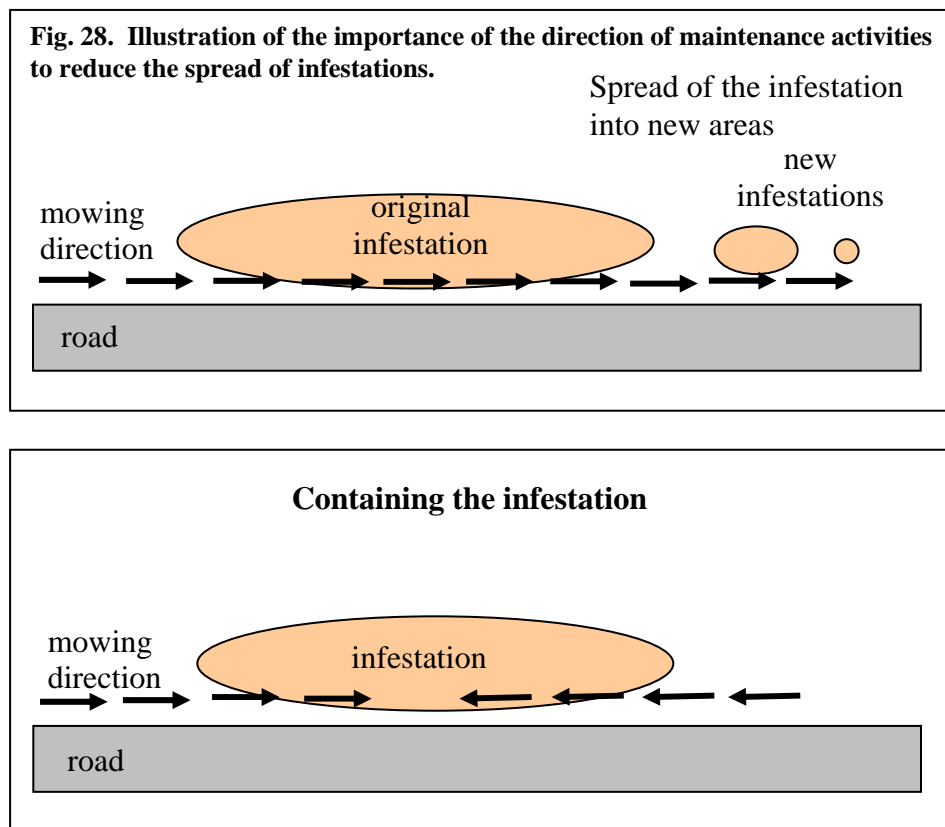
## Recommendations

Priority invasive species, such as cheatgrass, Siberian peashrub, white sweetclover and bird vetch should be targeted for immediate control.

Recently revegetated sections of highways and/or areas of road under construction should be monitored until the seeded roadside vegetation is fully established. Control measures need to be implemented for all non-native species that emerge in these areas.

Intentional introduction of non-native species during roadside revegetation work should be stopped. Alien species used for revegetation in Alaska, such as *Bromus inermis* ssp. *inermis* and *Trifolium hybridum*, have been shown to suppress the establishment of native species and are very aggressive invaders of adjacent native habitats. To reduce the potential of non-native plant invasions into native vegetation, native species should be considered for revegetation projects. Use of certified weed-free seed mixes is essential.

Mowing of roadside vegetation should be done in late spring or early summer to prevent seed production and dispersal. Mowing should begin at the outer edges of each infestation and move toward the center to reduce spread of the propagules into uninfected areas (Fig. 28)



Use of mulches for erosion control along the roads should be limited to very specific areas to minimize the introduction of weeds contaminating the straw or hay mulch. Alternatively, using wood-fiber mulches reduces the probability of unknowingly introducing non-native seeds.

Populations of invasive species near rivers and creek crossings must be treated to reduce the spread of propagules into natural habitats via water corridors. Upstream river crossings should be targeted first.

Parking lots, trailheads, campgrounds, and boat launch sites should be all monitored for early detection of new infestations.

Public awareness on invasive plants and the dangers they pose to Alaskan ecosystems is highly recommended. Public presentations, and the promotion and distribution of weed guides are needed to assist those unfamiliar with invasive species and inform them of the consequences that non-native plant species will have on Alaska's native ecosystems.

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## Appendix I. List of non-native plant species recorded.

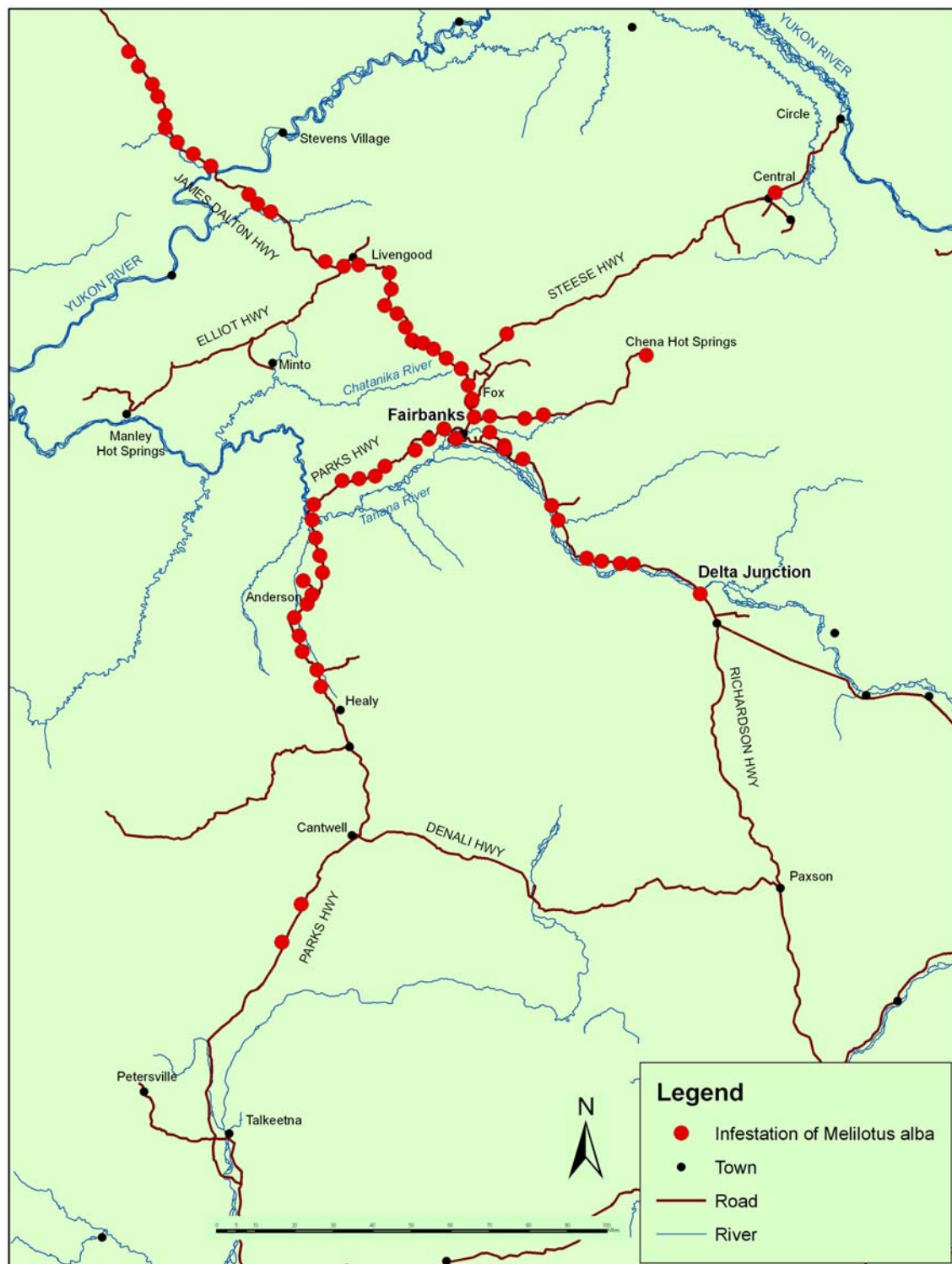
Species Code	Plant Name	Family	Invasiveness Rank
ALGE2	<i>Alopecurus geniculatus</i> L.	Poaceae	not ranked
ALPR3	<i>Alopecurus pratensis</i> L.	Poaceae	not ranked
AVFA	<i>Avena fatua</i> L.	Poaceae	not ranked
BRNA	<i>Brassica napus</i> L.	Brassicaceae	not ranked
BRRA	<i>Brassica rapa</i> L.	Brassicaceae	not ranked
BRINI	<i>Bromus inermis</i> Leyss. ssp. <i>inermis</i>	Poaceae	62
BRTE	<i>Bromus tectorum</i> L.	Poaceae	78
CABU2	<i>Capsella bursa-pastoris</i> (L.) Medik.	Brassicaceae	40
CAAR18	<i>Caragana arborescens</i> Lam.	Fabaceae	66
CEFO2	<i>Cerastium fontanum</i> ssp. <i>vulgare</i> (Hartman) Greuter & Burdet	Caryophyllaceae	39
CHALA	<i>Chenopodium album</i> L.	Chenopodiaceae	35
COLI2	<i>Collomia linearis</i> Nutt.	Polemoniaceae	not ranked
CRTE3	<i>Crepis tectorum</i> L.	Asteraceae	52
DESO2	<i>Descurainia sophia</i> (L.) Webb ex Prantl	Brassicaceae	41
ELRE4	<i>Elymus repens</i> (L.) Gould	Poaceae	59
ELSI	<i>Elymus sibiricus</i> L.	Poaceae	not ranked
GABI3	<i>Galeopsis bifida</i> Boenn.	Lamiaceae	40
HEAN3	<i>Helianthus annuus</i> L.	Asteraceae	not ranked
HISC	<i>Hieracium scabrum</i> Michx.	Asteraceae	not ranked
HIUM	<i>Hieracium umbellatum</i> L.	Asteraceae	46
HOJU	<i>Hordeum jubatum</i> L.	Poaceae	63
HOVU	<i>Hordeum vulgare</i> L.	Poaceae	not ranked
LASQ	<i>Lappula squarrosa</i> (Retz.) Dumort.	Boraginaceae	44
LEAU2	<i>Leontodon autumnalis</i> L.	Asteraceae	not ranked
LEDE	<i>Lepidium densiflorum</i> Schrad.	Brassicaceae	25
LEVU	<i>Leucanthemum vulgare</i> Lam.	Asteraceae	61
LIVU2	<i>Linaria vulgaris</i> P. Mill.	Scrophulariaceae	69
LOPEP	<i>Lolium perenne</i> ssp. <i>perenne</i> L.	Poaceae	41
LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i> (Lam.) Husnot	Poaceae	41
MANE	<i>Malva neglecta</i> Wallr.	Malvaceae	not ranked
MADI6	<i>Matricaria discoidea</i> DC.	Asteraceae	33
MESAF	<i>Medicago sativa</i> ssp. <i>falcata</i> (L.) Arcang.	Fabaceae	64
MEAL12	<i>Melilotus alba</i> Medikus	Fabaceae	80
MEOF	<i>Melilotus officinalis</i> (L.) Lam.	Fabaceae	65
PHPR3	<i>Phleum pratense</i> L.	Poaceae	56
PLMA2	<i>Plantago major</i> L.	Plantaginaceae	44
POAN	<i>Poa annua</i> L.	Poaceae	46
POPRI2	<i>Poa pratensis</i> L. ssp. <i>irrigata</i> (Lindm.) Lindb. f.	Poaceae	52
POPRP2	<i>Poa pratensis</i> ssp. <i>pratensis</i> L.	Poaceae	52
POAV	<i>Polygonum aviculare</i> L.	Polygonaceae	45
POCO10	<i>Polygonum convolvulus</i> L.	Polygonaceae	50

## Appendix I. List of non-native plant species recorded (cont.)

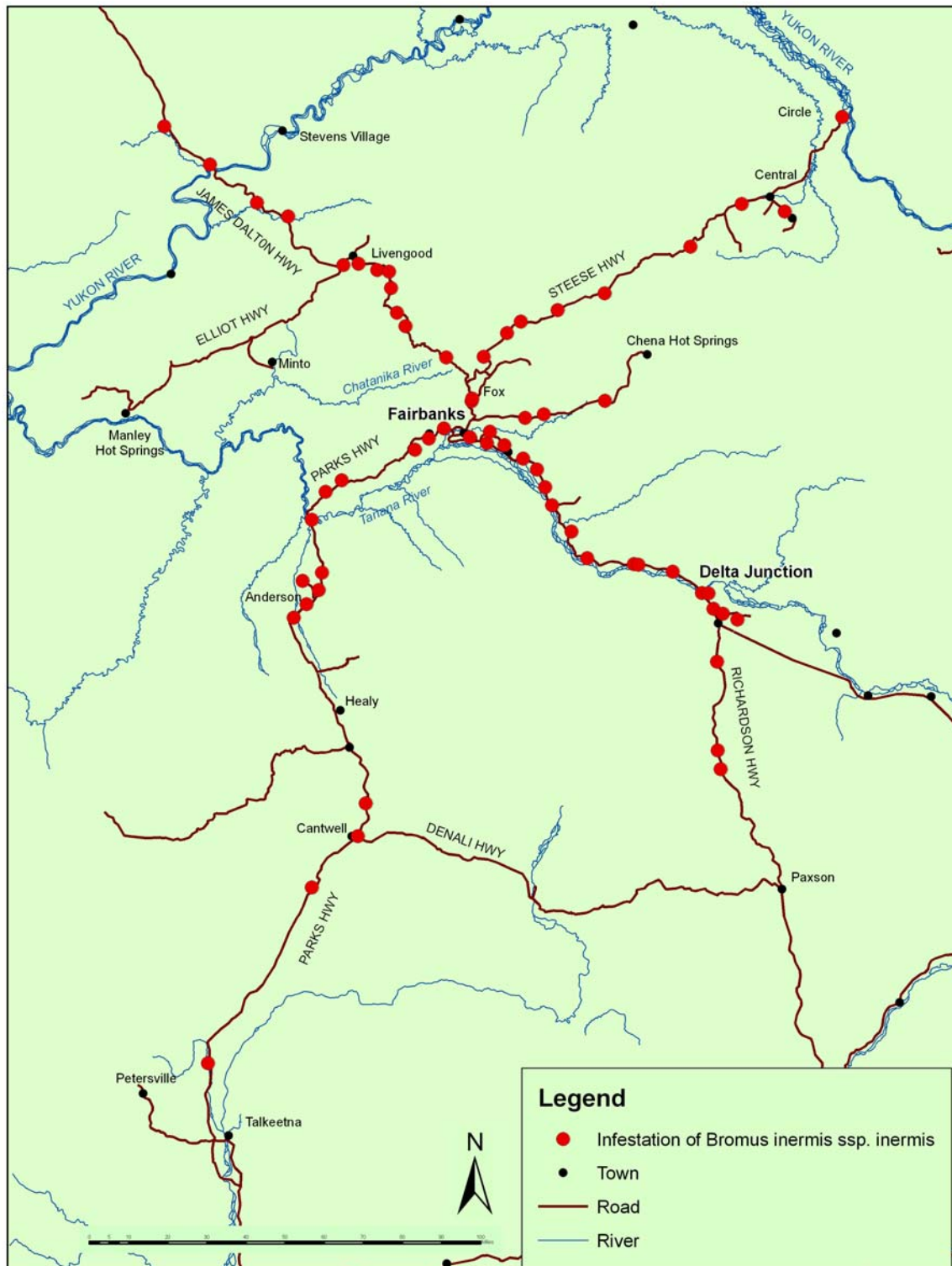
POPE3	<i>Polygonum persicaria</i> L.	Polygonaceae	47
PRPA5	<i>Prunus padus</i> L.	Rosaceae	74
RAAC3	<i>Ranunculus acris</i> L.	Ranunculaceae	54
RAAC3	<i>Ranunculus acris</i> L.	Ranunculaceae	54
RUAC3	<i>Rumex acetosella</i> L.	Polygonaceae	51
RULO2	<i>Rumex longifolius</i> DC.	Polygonaceae	48
SOAR2	<i>Sonchus arvensis</i> L.	Asteraceae	61
SOAS	<i>Sonchus asper</i> (L.) Hill	Asteraceae	not ranked
SPAR	<i>Spergula arvensis</i> L.	Caryophyllaceae	32
SPRU	<i>Spergularia rubra</i> (L.) J.& K. Presl	Caryophyllaceae	not ranked
STME2	<i>Stellaria media</i> (L.) Vill.	Caryophyllaceae	42
THAR5	<i>Tlaspi arvense</i> L.	Brassicaceae	not ranked
TAOF	<i>Taraxacum officinale</i> ssp. <i>officinale</i> G.H. Weber ex Wiggers	Asteraceae	58
TRHY	<i>Trifolium hybridum</i> L.	Fabaceae	57
TRPR2	<i>Trifolium pratense</i> L.	Fabaceae	53
TRRE3	<i>Trifolium repens</i> L.	Fabaceae	59
TRPE21	<i>Tripleurospermum perforata</i> (Merat) M. Lainz	Asteraceae	48
VICRC	<i>Vicia cracca</i> L.	Fabaceae	73
VITR	<i>Viola tricolor</i> L.	Violaceae	not ranked

## Appendix II. Maps of infestations.

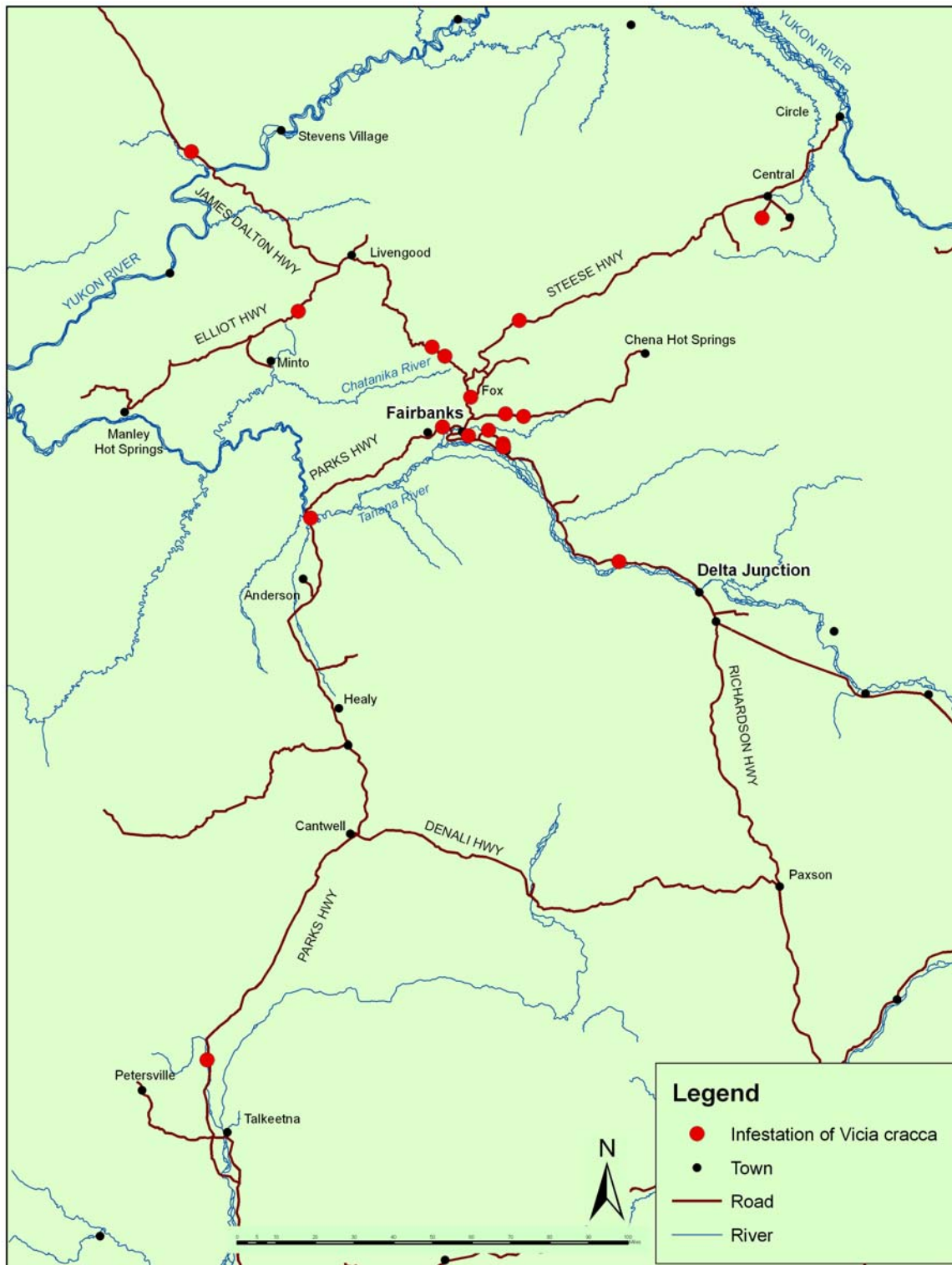
### White sweetclover (*Melilotus alba*)



Smooth brome (*Bromus inermis* ssp. *inermis*).

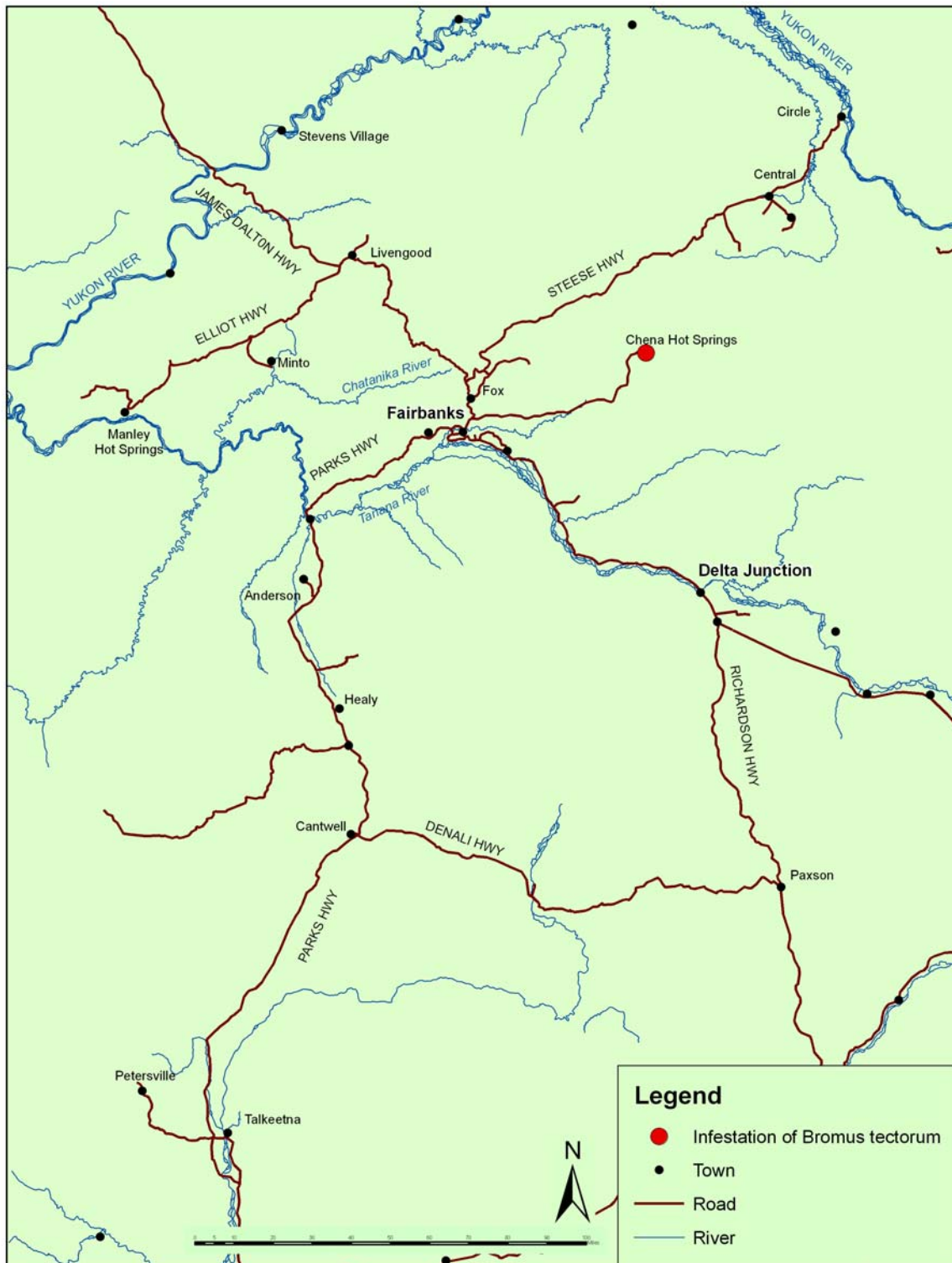


## Bird vetch (*Vicia cracca*)

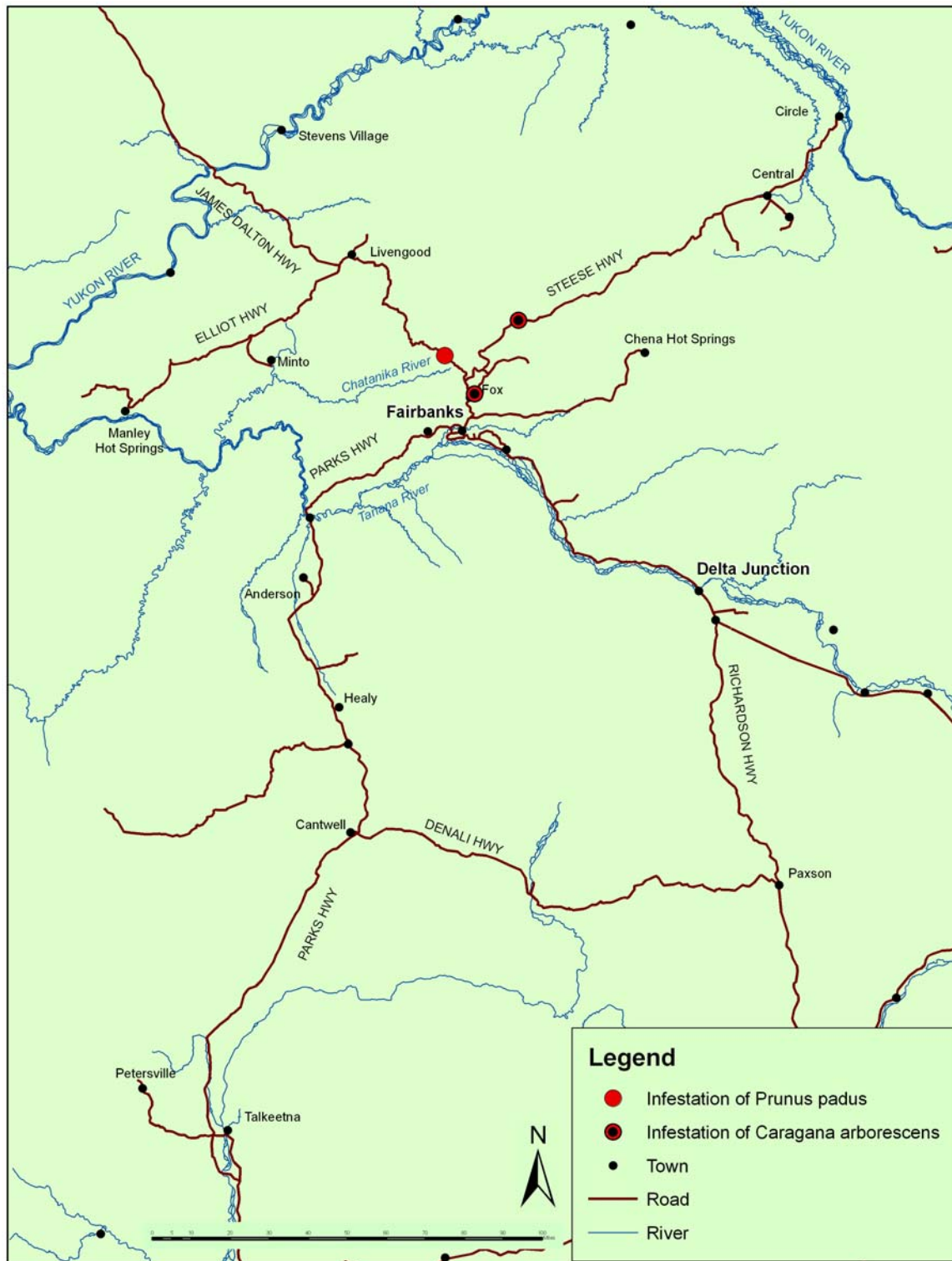




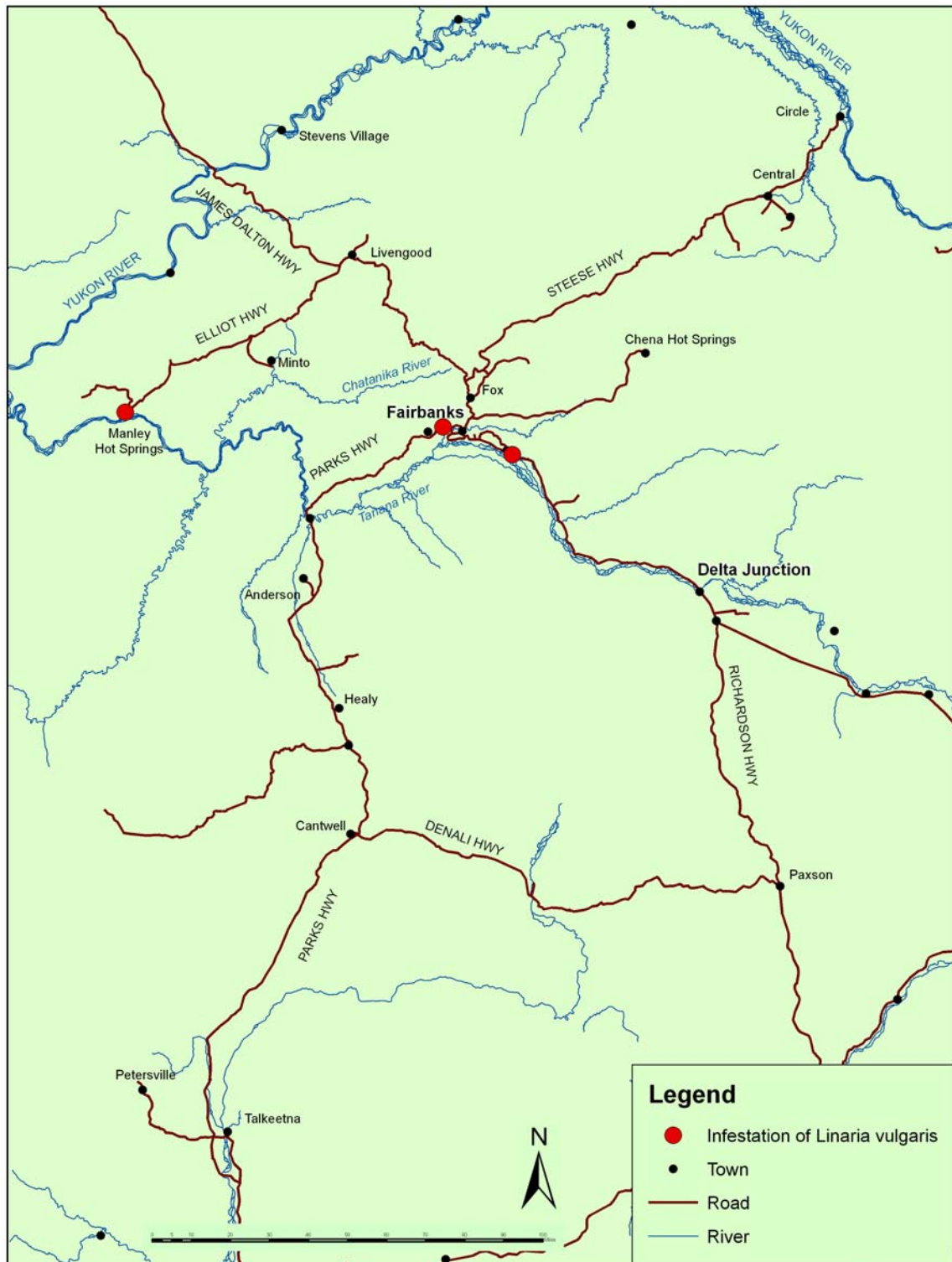
## Cheatgrass (*Bromus tectorum*)



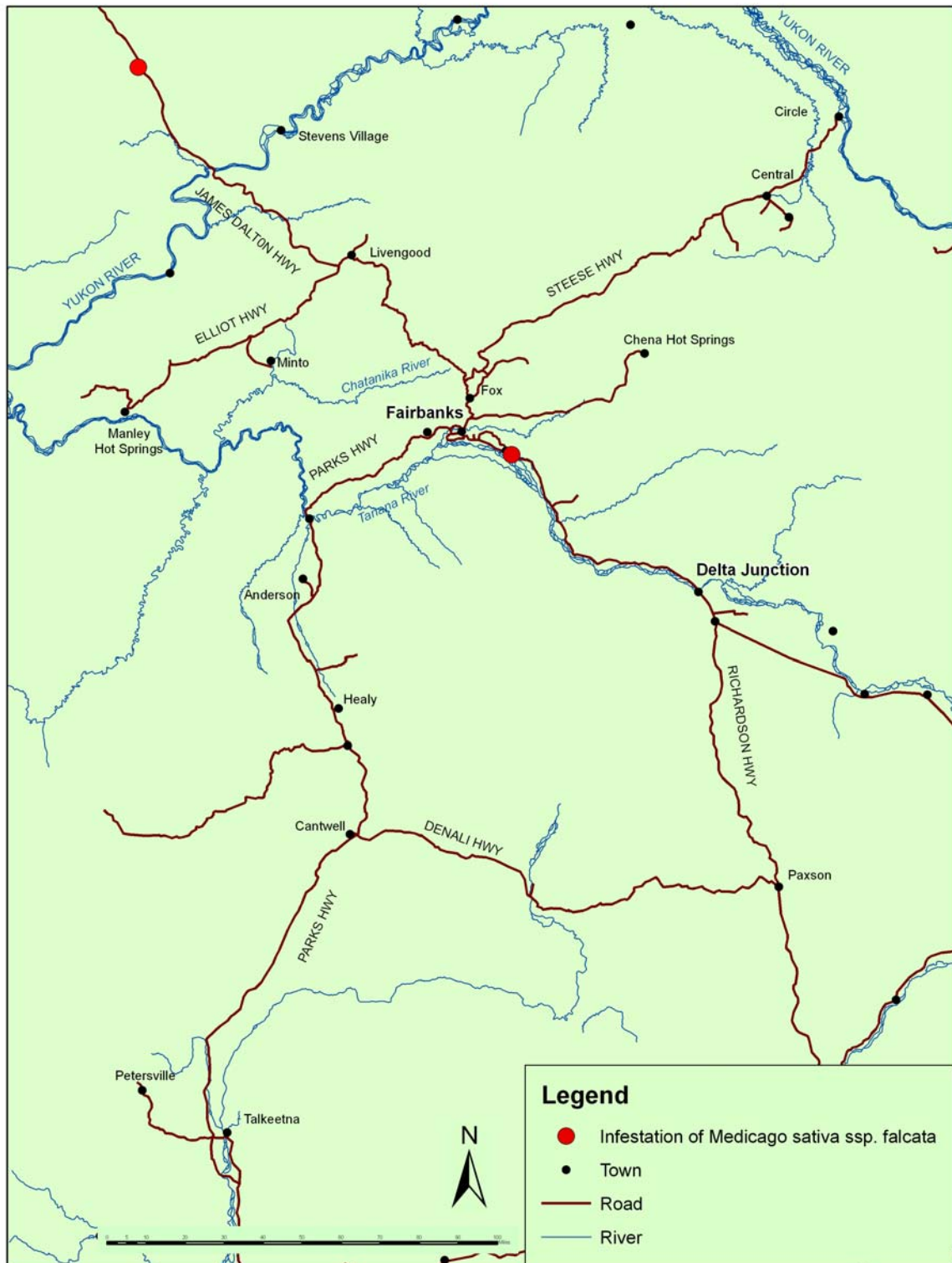
European bird cherry (*Prunus padus*) and Siberian peashrub (*Caragana arborescens*)



## Yellow toadflax (*Linaria vulgaris*)

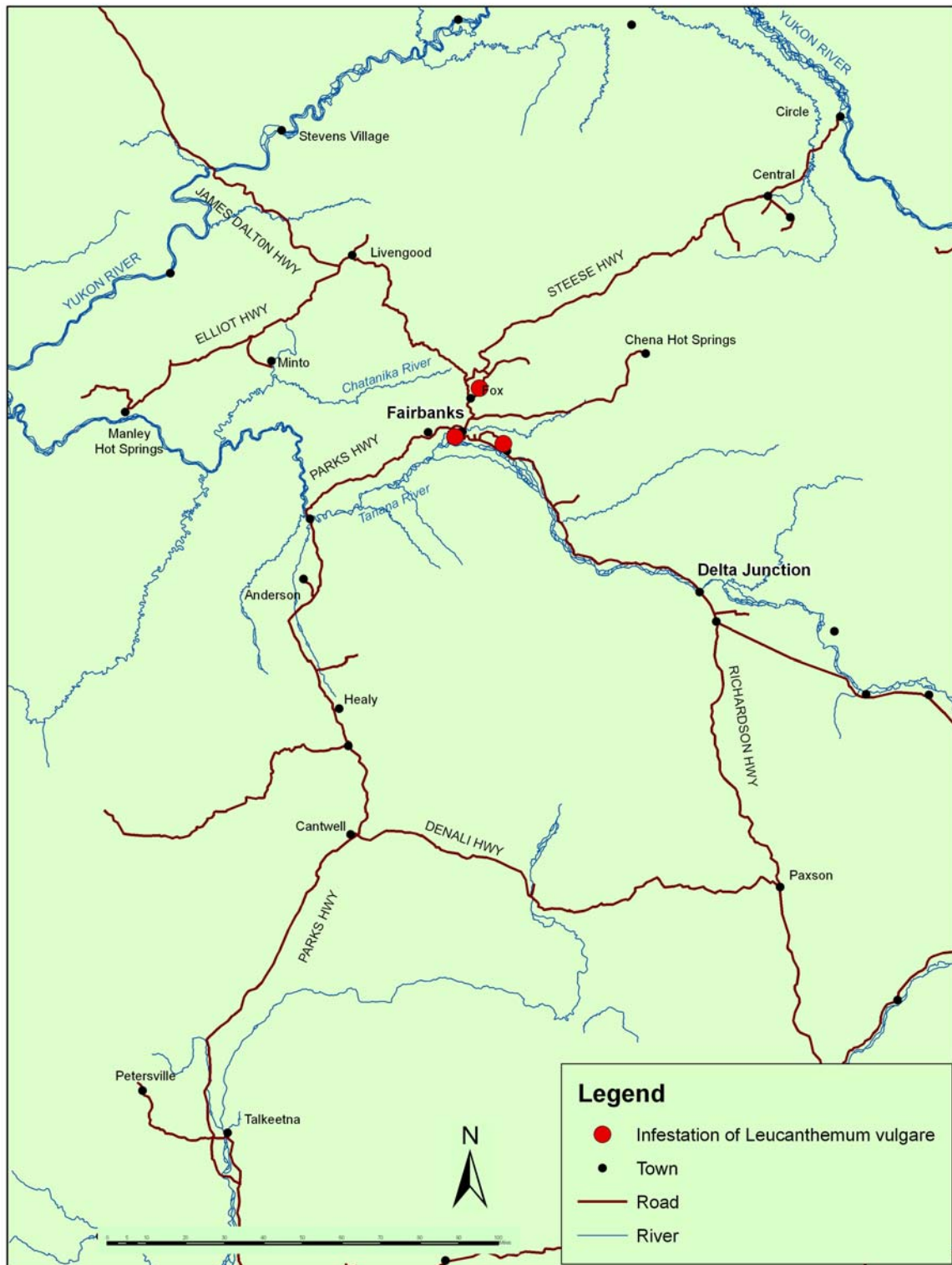


## Yellow alfalfa (*Medicago sativa* ssp. *falcata*)

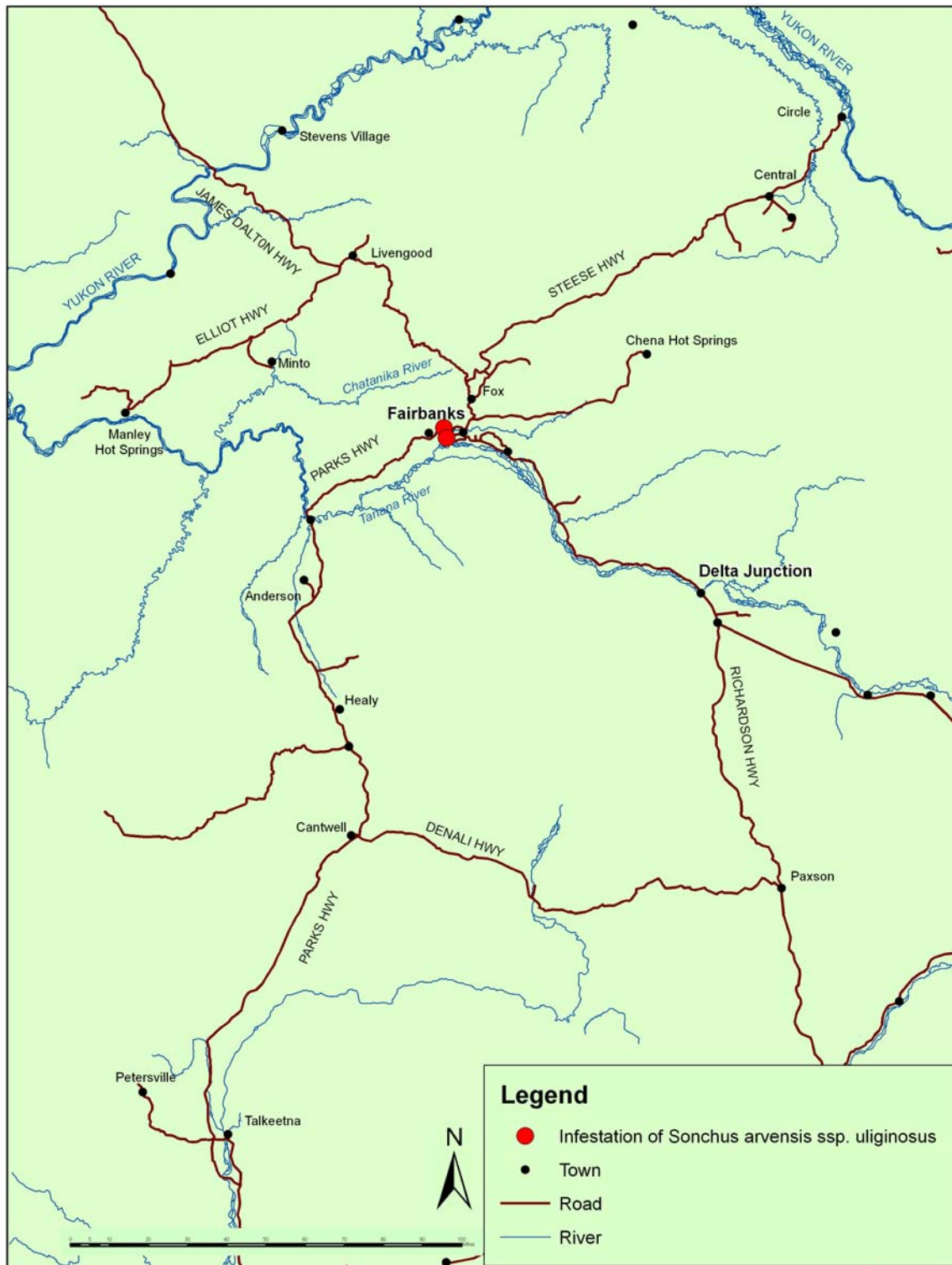




## Oxeye daisy (*Leucanthemum vulgare*)

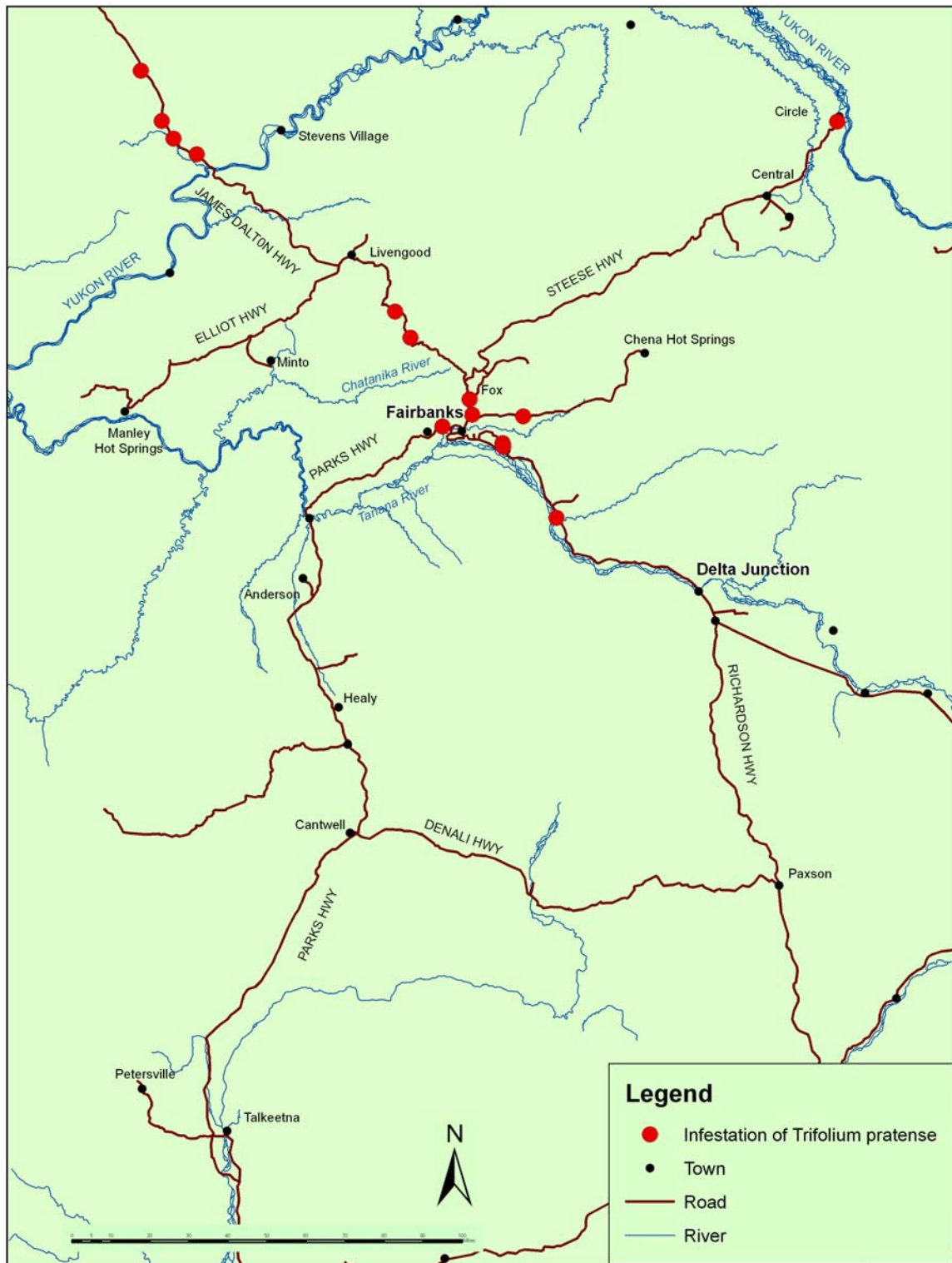


**Perennial sowthistle (*Sonchus arvensis* ssp. *uliginosus*)**

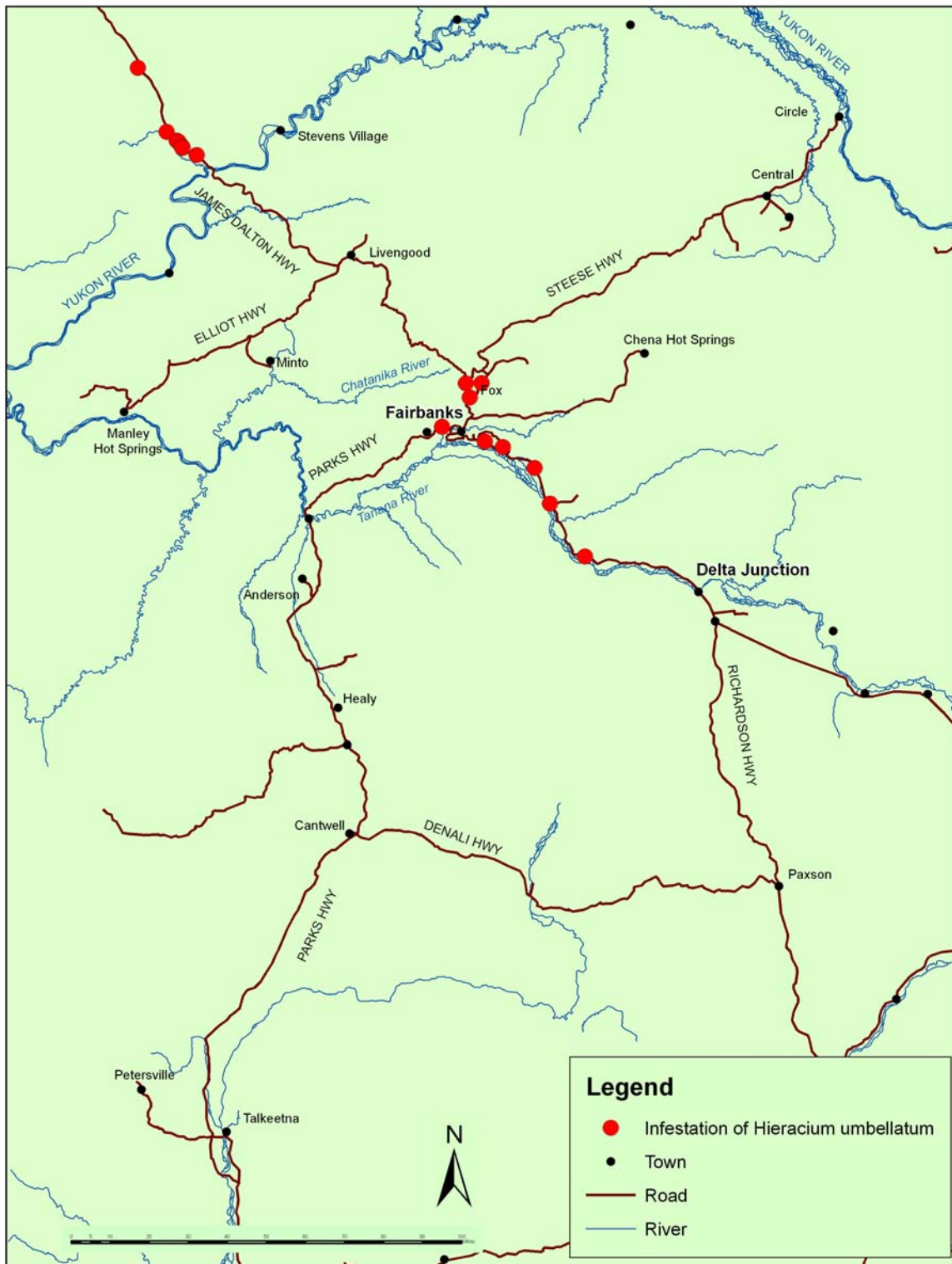




## Red clover (*Trifolium pratense*)



## Narrowleaf hawkweed (*Hieracium umbellatum* L.)



### Appendix III. List of plant specimens collected.

Plant Name	Collection Date	Site Code	Vegetation Community	Latitude	Longitude	Quad Name	Location Notes
<i>Achillea millefolium</i> L.	8/25/2005	040	Mixed Herbaceous Shrub Roadside/Lot	65.68801	149.09288	Livengood	Dalton HWY, just north of Hess Cr, old access to pipeline
<i>Achillea millefolium</i> L.	8/25/2005	049	Forb-Graminoid Roadside/Lot	66.05053	150.15137	Tanana	Dalton HWY, mile marker 74 Sand Hill, Trans Alaska Pipeline right of way pullout
<i>Achillea millefolium</i> L.	7/18/2006	2006-015	Mixed Herbaceous-Shrub Roadside/Lot	65.36171	146.08595	Circle	Steese HWY& Montana Creek, "Montana Creek Station State of Alaska", gravel parking, side road
<i>Achillea millefolium</i> L.	8/1/2006	2006-088	Mixed Herbaceous-Shrub Roadside/Lot	64.33154	146.76776	Big Delta	Richardson HWY at mile marker 310, parking
<i>Achillea millefolium</i> L.	8/2/2006	2006-108	Mixed Herbaceous-Shrub Roadside/Lot	64.70422	148.65236	Fairbanks	Parks HWY just west of mile marker 325
<i>Achillea millefolium</i> L.	8/3/2006	2006-113	Mixed Herbaceous-Shrub Roadside/Lot	64.49826	149.06773	Fairbanks	Parks HWY mile marker 300, Workshop Acres Greenhouse on west side of road
<i>Achillea millefolium</i> L.	8/3/2006	2006-121	Mixed Herbaceous-Shrub Roadside/Lot	64.14188	149.26608	Fairbanks	Parks HWY mile marker 270
<i>Achillea millefolium</i> L.	8/3/2006	2006-130	Closed Black Spruce Forest	63.57769	148.80754	Healy	Parks HWY mile marker 225
<i>Achillea millefolium</i> L.	8/4/2006	2006-143	Mixed Herbaceous-Shrub Roadside/Lot	62.52813	150.23474	Talkeetna	Parks HWY, mile marker 130
<i>Alopecurus geniculatus</i> L.	8/2/2006	2006-104	Early Seral-Herbaceous, Roadside/Lot	64.82812	148.01982	Fairbanks	Parks HWH mile marker 350, just east of Alder Creek, after road construction, seeded roadside, badly infested
<i>Alopecurus pratensis</i> L.	8/2/2006	2006-102	Graminoid Roadside/Lot	64.82079	147.78409	Fairbanks	Fairbanks, Robert Mitchell EXPY mile marker 360

### List of plant specimens collected (cont.).

<i>Avena fatua</i> L.	9/4/2005	063	Forb-Graminoid Roadside/Lot			Circle	Chena Hot Spring Resort, north of Rocky Lake, trailhead
<i>Brassica napus</i> L.	8/2/2006	2006-104	Early Seral-Herbaceous, Roadside/Lot	64.82812	148.01982	Fairbanks	Parks HWH mile marker 350, just east of Alder Creek, after road construction, seeded roadside, badly infested
<i>Brassica rapa</i> L.	8/2/2006	2006-107	Graminoid Roadside/Lot	64.70963	148.51097	Fairbanks	Parks HWH mile marker 330
<i>Brassica rapa</i> L.	8/2/2006	2006107	Graminoid Roadside/Lot	64.70963	148.51097	Fairbanks	Parks Wimple marker 330
<i>Bromus inermis</i> ssp. <i>inermis</i> Leyss.	8/23/2005	001	Graminoid Roadside/Lot	65.30164	148.20158	Livengood	Elliot HWY, North of crossing Globe Creek and HWY, north of mile marker 40
<i>Bromus inermis</i> ssp. <i>inermis</i> Leyss.	8/23/2005	006	Mixed Herbaceous-Shrub Roadside/Lot	65.121138	147.80534	Livengood	Elliot HWY, mile 14 , 2.9 mile north of Chatanika Cr
<i>Bromus inermis</i> ssp. <i>inermis</i> Leyss.	8/25/2005	049	Forb-Graminoid Roadside/Lot	66.05053	150.15137	Tanana	Dalton HWY, mile marker 74 Sand Hill, Trans Alaska Pipeline right of way pullout
<i>Bromus inermis</i> ssp. <i>inermis</i> Leyss.	8/26/2005	056	Forb-Graminoid Roadside/Lot			Big Delta	Chena Hot Spring Rd, Tamarack arctic display pullover
<i>Bromus inermis</i> ssp. <i>inermis</i> Leyss.	8/1/2006	2006-078	Forb-Graminoid Roadside/Lot	64.15174	145.77933	Big Delta	Richardson HWY, east of HWY at mile marker 272, Agricultural Loop, abandoned fields
<i>Bromus inermis</i> ssp. <i>inermis</i> Leyss.	8/2/2006	2006-105	Mixed Herbaceous-Shrub Roadside/Lot	64.79272	148.14815	Fairbanks	Parks HWY mile marker 345, pullover, Nenana River overlook
<i>Bromus inermis</i> ssp. <i>inermis</i> Leyss.	8/3/2006	2006-116	Graminoid Roadside/Lot	64.30522	149.069	Fairbanks	Parks HWY mile marker 285, south of Windy Creek
<i>Bromus tectorum</i> L.	8/26/2005	060	Early Seral-Herbaceous, Roadside/Lot	65.05554	146.05695	Circle	Chena Hot Spring Rd, just at the gate to Chena Hot Springs Resort, former sled dog lot on east side of road, Disturbance Type also includes Trampling



### List of plant specimens collected (cont.).

<i>Capsella bursa-pastoris</i> (L.) Medik.	8/25/2005	047	Forb-Graminoid Roadside/Lot	65.94887	149.91457	Livengood	Dalton HWY, north of Yukon River by unnamed creek going into Ray River, north of landing strip
<i>Capsella bursa-pastoris</i> (L.) Medik.	8/1/2006	2006-078	Forb-Graminoid Roadside/Lot	64.15174	145.77933	Big Delta	Richardson HWY, east of HWY at mile marker 272, Agricultural Loop, abandoned fields
<i>Capsella bursa-pastoris</i> (L.) Medik.	8/2/2006	2006-104	Early Seral-Herbaceous, Roadside/Lot	64.82812	148.01982	Fairbanks	Parks HWY mile marker 350, just east of Alder Creek, after road construction, seeded roadside, badly infested
<i>Capsella bursa-pastoris</i> (L.) Medik.	8/3/2006	2006-122	Mixed Herbaceous-Shrub Roadside/Lot			Fairbanks	Parks HWY mile marker 265, parking, gravel pit behind it
<i>Capsella bursa-pastoris</i> (L.) Medik.	8/23/2005	003	Mixed Herbaceous-Shrub Roadside/Lot	65.19925	148.08788	Livengood	Elliot HWY, near crossing of Aggie Creek and HWY, pull out with water pipe
<i>Capsella bursa-pastoris</i> (L.) Medik.	8/26/2005	060	Early Seral-Herbaceous, Roadside/Lot	65.05554	146.05695	Circle	Chena Hot Spring Rd, just at the gate to Chena Hot Springs Resort, former sled dog lot on east side of road, Disturbance Type also includes Trampling
<i>Caragana arborescens</i> Lam.	7/17/2006	2006-007	Mixed Herbaceous-Shrub Roadside/Lot	65.22587	147.12334	Livengood	Steese HWY & Boston Creek crossing
<i>Cerastium fontanum</i> ssp. <i>vulgare</i> (Hartman) Greuter & Burdet	8/26/2005	060	Early Seral-Herbaceous, Roadside/Lot	65.05554	146.05695	Circle	Chena Hot Spring Rd, just at the gate to Chena Hot Springs Resort, former sled dog lot on east side of road, Disturbance Type also includes Trampling
<i>Cerastium fontanum</i> ssp. <i>vulgare</i> (Hartman) Greuter & Burdet	8/1/2006	2006-080	III.G.7 Open Forest Roadside/Lot	64.15508	145.83484	Big Delta	Richardson HWY, mile marker 275, Rekas Roadhouse State Historical Park, parking
<i>Chenopodium album</i> L.	8/23/2005	001	Graminoid Roadside/Lot	65.30164	148.20158	Livengood	Elliot HWY, North of crossing Globe Creek and HWY, north of mile marker 40
<i>Chenopodium album</i> L.	8/23/2005	012	Forb-Graminoid Roadside/Lot	65.17168	149.96037	Tanana	Elliot HWY, approximately 7 miles east of Eurica, newly revegetated hillside

### List of plant specimens collected (cont.).

<i>Chenopodium album</i> L.	8/24/2005	017	Alder and Willow Roadside/Lot	65.01261	150.56447	Tanana	Elliot HWY, 2.2 miles east of Manley
<i>Chenopodium album</i> L.	8/25/2005	038	Early Seral-Herbaceous, Roadside/Lot	65.57719	149.06058	Livengood	Dalton HWY, Forest is burned on both side of road, Possibly site was cleared for loading of fire fighting equipment
<i>Chenopodium album</i> L.	8/1/2006	2006- 074	Mixed Herbaceous- Shrub Roadside/Lot	64.04185	145.56567	Big Delta	Delta Junction, Nilson Rd mile marker 5, gravel pit on north side, hay field BRINI on south side of road
<i>Chenopodium album</i> L.	8/2/2006	2006- 104	Early Seral-Herbaceous, Roadside/Lot	64.82812	148.01982	Fairbanks	Parks HWH mile marker 350, just east of Alder Creek, after road construction, seeded roadside, badly infested
<i>Chenopodium album</i> L.	8/2/2006	2006- 110	Mixed Herbaceous- Shrub Roadside/Lot	64.6645	148.94566	Fairbanks	Parks HWY mile marker 315 Little Goldstream Creek
<i>Collomia linearis</i> Nutt.	7/17/2006	2006- 004	Mixed Herbaceous- Shrub Roadside/Lot	65.10982	147.4787	Livengood	Steese HWY, Chatanika, mile marker 28
<i>Collomia linearis</i> Nutt.	8/1/2006	2006- 091	Forb Roadside/Lot	64.48322	146.97609	Big Delta	Richardson HWY mile marker 325, Salcha Elementary School entrance
<i>Crepis tectorum</i> L.	8/23/2005	001	Graminoid Roadside/Lot	65.30164	148.20158	Livengood	Elliot HWY, North of crossing Globe Creek and HWY, north of mile marker 40
<i>Crepis tectorum</i> L.	8/25/2005	035	Forb-Graminoid Roadside/Lot	65.49413	148.63571	Livengood	Dalton HWY, just north of mile marker 72
<i>Crepis tectorum</i> L.	8/1/2006	2006- 074	Mixed Herbaceous- Shrub Roadside/Lot	64.04185	145.56567	Big Delta	Delta Junction, Nilson Rd mile marker 5, gravel pit on north side, hay field BRINI on south side of road
<i>Crepis tectorum</i> L.	8/2/2006	2006- 104	Early Seral-Herbaceous, Roadside/Lot	64.82812	148.01982	Fairbanks	Parks HWH mile marker 350, just east of Alder Creek, after road construction, seeded roadside, badly infested
<i>Crepis tectorum</i> L.	8/2/2006	2006- 110	Mixed Herbaceous- Shrub Roadside/Lot	64.6645	148.94566	Fairbanks	Parks HWY mile marker 315 Little Goldstream Creek

### List of plant specimens collected (cont.).

<i>Crepis tectorum</i> L.	8/3/2006	2006-117	Closed Tall AlderWillow Shrub	64.34389	149.2	Fairbanks	Anderson, Nenana River, Riverside, campground
<i>Crepis tectorum</i> L.	8/3/2006	2006-122	Mixed Herbaceous-Shrub Roadside/Lot			Fairbanks	Parks HWY mile marker 265, parking, gravel pit behind it
<i>Crepis tectorum</i> L.	8/3/2006	2006-134	Mixed Herbaceous-Shrub Roadside/Lot	63.01613	149.58786	Healy	Parks HWY, parking between mile marker 174 and 175, Hurricane GL bridge
<i>Descurainia sophia</i> (L.) Webb ex Prantl	8/25/2005	046	Mixed Herbaceous-Shrub Roadside/Lot	65.90033	149.76222	Livengood	Dalton HWY, just north of Yukon River, Trans Alaska Pipeline access road on north side of road
<i>Descurainia sophia</i> (L.) Webb ex Prantl	8/25/2005	047	Forb-Graminoid Roadside/Lot	65.94887	149.91457	Livengood	Dalton HWY, north of Yukon River by unnamed creek going into Ray River, north of landing strip
<i>Elymus repens</i> (L.) Gould	8/25/2005	032	Mixed Herbaceous-Shrub Roadside/Lot	65.45517	148.23927	Livengood	Elliot HWY, southeast of Livengood, south of Tolovana River crossing HWY
<i>Elymus repens</i> (L.) Gould	8/26/2005	061	Forb-Graminoid Roadside/Lot	65.05366	146.05568	Circle	Chena Hot Spring Resort, main parking lot
<i>Elymus repens</i> (L.) Gould	7/19/2006	2006-048	Closed Forest Roadside/Lot	65.46552	144.92545	Circle	Central, road southwest of Central to cabins along Deadwood Creek, Discovery Gulch
<i>Elymus repens</i> (L.) Gould	8/1/2006	2006-078	Forb-Graminoid Roadside/Lot	64.15174	145.77933	Big Delta	Richardson HWY, east of HWY at mile marker 272, Agricultural Loop, abandoned fields
<i>Elymus repens</i> (L.) Gould	8/1/2006	2006-100	Forb Roadside/Lot	64.73389	147.30487	Fairbanks	Old Richardson HWY & Buzby Rd
<i>Elymus sibiricus</i> L.	7/18/2006	2006-009	Forb-Graminoid Roadside/Lot	65.25314	146.78976	Circle	Steese HWY mile 55, new constructed section of road, newly hydroseeded
<i>Elymus sibiricus</i> L.	8/1/2006	2006-088	Mixed Herbaceous-Shrub Roadside/Lot	64.33154	146.76776	Big Delta	Richardson HWY at mile marker 310, parking

### List of plant specimens collected (cont.).

<i>Elymus sibiricus</i> L.	8/3/2006	2006-127	Mixed Herbaceous-Shrub Roadside/Lot	63.75073	148.89783	Healy	Parks HWY mile marker 239, McKinley Resort parking lot
<i>Erysimum cheiranthoides</i> L.	8/25/2005	033	Mixed Herbaceous-Shrub Roadside/Lot	65.46548	148.34175	Livengood	Elliot HWY, Tolovana River along south side of HWY, big road grade
<i>Erysimum cheiranthoides</i> L.	7/31/2006	2006-066	Mixed Herbaceous-Shrub Roadside/Lot	63.57291	145.86449	Mount Hayes	Richardson HWY at 230 mile marker
<i>Erysimum cheiranthoides</i> L.	8/3/2006	2006-128	Open Black Spruce Forest	63.7001	148.87163	Healy	Parks HWY mile marker 235, railroad crossing
<i>Galeopsis bifida</i> Boenn.	8/26/2005	061	Forb-Graminoid Roadside/Lot	65.05366	146.05568	Circle	Chena Hot Spring Resort, main parking lot
<i>Galeopsis bifida</i> Boenn.	8/1/2006	2006-078	Forb-Graminoid Roadside/Lot	64.15174	145.77933	Big Delta	Richardson HWY, east of HWY at mile marker 272, Agricultural Loop, abandoned fields
<i>Hieracium umbellatum</i> L.	8/23/2005	008	Mixed Herbaceous-Shrub Roadside/Lot	65.01354	147.63603	Fairbanks	Elliot HWY & Amayun Lane, mail boxes, west side of hwy
<i>Hieracium umbellatum</i> L.	8/1/2006	2006-088	Mixed Herbaceous-Shrub Roadside/Lot	64.33154	146.76776	Big Delta	Richardson HWY at mike marker 310, parking
<i>Hordeum jubatum</i> L.	8/23/2005	001	Graminoid Roadside/Lot	65.30164	148.20158	Livengood	Elliot HWY, North of crossing Globe Creek and HWY, north of mile marker 40
<i>Hordeum jubatum</i> L.	8/24/2005	023	Mixed Herbaceous-Shrub Roadside/Lot	65.24393	149.46733	Livengood	Elliot HWY, east of intersection of HWY with road to Minto, on hill, view of Tolovana River
<i>Hordeum jubatum</i> L.	8/25/2005	049	Forb-Graminoid Roadside/Lot	66.05053	150.15137	Tanana	Dalton HWY, mile marker 74 Sand Hill, Trans Alaska Pipeline right of way pullout
<i>Hordeum jubatum</i> L.	8/1/2006	2006-088	Mixed Herbaceous-Shrub Roadside/Lot	64.33154	146.76776	Big Delta	Richardson HWY at mike marker 310, parking
<i>Hordeum jubatum</i> L.	8/3/2006	2006-117	Closed Tall AlderWillow Shrub	64.34389	149.2	Fairbanks	Anderson, Nenana River, Riverside, campground



### List of plant specimens collected (cont.).

<i>Hordeum jubatum</i> L.	8/3/2006	2006-122	Mixed Herbaceous-Shrub Roadside/Lot			Fairbanks	Parks HWY mile marker 265, parking, gravel pit behind it
<i>Hordeum jubatum</i> L.	8/3/2006	2006-130	Closed Black Spruce Forest	63.57769	148.80754	Healy	Parks HWY mile marker 225
<i>Hordeum jubatum</i> L.	8/3/2006	2006-131	Alder and Willow Roadside/Lot	63.50824	148.81258	Healy	Parks HWY mile marker 220
<i>Hordeum jubatum</i> L.	8/4/2006	2006-142	Graminoid Roadside/Lot	62.59275	150.23737	Talkeetna	Parks HWY, mile marker 135
<i>Hordeum vulgare</i> L.	8/2/2006	2006-107	Graminoid Roadside/Lot	64.70963	148.51097	Fairbanks	Parks HWH mile marker 330
<i>Lappula squarrosa</i> (Retz.) Dumort.	8/1/2006	2006-089	Early Seral-Herbaceous, Roadside/Lot	64.36555	146.87366	Big Delta	Richardson HWY mile marker 315, RV park&Gift Ice Cream Coffee Shop
<i>Lepidium densiflorum</i> Schrad.	7/31/2006	2006-061	Early Seral-Herbaceous, Roadside/Lot	63.25497	147.68391	Mount Hayes	Richardson HWY at 205 mile marker, gravel bar, west side of road
<i>Lepidium densiflorum</i> Schrad.	8/1/2006	2006-074	Mixed Herbaceous-Shrub Roadside/Lot	64.04185	145.56567	Big Delta	Delta Junction, Nilson Rd mile marker 5, gravel pit on north side, hay field BRINI on south side of road
<i>Lepidium densiflorum</i> Schrad.	8/2/2006	2006-110	Mixed Herbaceous-Shrub Roadside/Lot	64.6645	148.94566	Fairbanks	Parks HWY mile marker 315 Little Goldstream Creek
<i>Lepidium densiflorum</i> Schrad.	8/3/2006	2006-117	Closed Tall AlderWillow Shrub	64.34389	149.2	Fairbanks	Anderson, Nenana River, Riverside, campground
<i>Lepidium densiflorum</i> Schrad.	8/3/2006	2006-122	Mixed Herbaceous-Shrub Roadside/Lot			Fairbanks	Parks HWY mile marker 265, parking, gravel pit behind it
<i>Leucanthemum vulgare</i> Lam.	8/2/2006	2006-102	III.G.2 Graminoid Roadside/Lot	64.82079	147.78409	Fairbanks	Fairbanks, Robert Mitchell EXPY mile marker 360
<i>Linaria vulgaris</i> P. Mill.	8/24/2005	018	Alder and Willow Roadside/Lot	64.99931	150.63406	Tanana	Manley Postoffice&Trading Post&Gas station

### List of plant specimens collected (cont.).

<i>Linaria vulgaris</i> P. Mill.	8/1/2006	2006-100	Forb Roadside/Lot	64.73389	147.30487	Fairbanks	Old Richardson HWY & Buzby Rd
<i>Lolium perenne</i> L. ssp. <i>perenne</i>	8/2/2006	2006-104	Early Seral-Herbaceous, Roadside/Lot	64.82812	148.01982	Fairbanks	Parks HWH mile marker 350, just east of Alder Creek, after road construction, seeded roadside, badly infested
<i>Lolium perenne</i> ssp. <i>multiflorum</i> (Lam.) Husnot	8/24/2005	013	Graminoid Roadside/Lot	65.16177	150.1171	Tanana	Elliot HWY, MILE 128, just east of Hutlinana Cr, side colonized (revegetated?) by Agropyron
<i>Lolium perenne</i> ssp. <i>multiflorum</i> (Lam.) Husnot	8/25/2005	039	Forb-Graminoid Roadside/Lot	65.63514	149.03136	Livengood	Dalton HWY, scenic overlook on west side, former gravel pit
<i>Malva neglecta</i> Wallr.	8/26/2005	060	Early Seral-Herbaceous, Roadside/Lot	65.05554	146.05695	Circle	Chena Hot Spring Rd, just at the gate to Chena Hot Springs Resort, former sled dog lot on east side of road, Disturbance Type also includes Trampling
<i>Matricaria discoidea</i> DC.	8/23/2005	001	Graminoid Roadside/Lot	65.30164	148.20158	Livengood	Elliot HWY, North of crossing Globe Creek and HWY, north of mile marker 40
<i>Matricaria discoidea</i> DC.	8/23/2005	003	Mixed Herbaceous-Shrub Roadside/Lot	65.19925	148.08788	Livengood	Elliot HWY, near crossing of Aggie Creek and HWY, pull out with water pipe
<i>Matricaria discoidea</i> DC.	8/23/2005	012	Forb-Graminoid Roadside/Lot	65.17168	149.96037	Tanana	Elliot HWY, approximately 7 miles east of Eurica, newly revegetated hillside
<i>Matricaria discoidea</i> DC.	8/24/2005	017	Alder and Willow Roadside/Lot	65.01261	150.56447	Tanana	Elliot HWY, 2.2 miles east of Manley
<i>Matricaria discoidea</i> DC.	8/25/2005	037	Early Seral-Herbaceous, Roadside/Lot	65.55871	148.91269	Livengood	Dalton HWY, approximately 5.2 miles from (west) from Lost Cr. Possibly site was cleared for loading of fire fighting equipment, adjacent forest is burned
<i>Matricaria discoidea</i> DC.	8/25/2005	038	Early Seral-Herbaceous, Roadside/Lot	65.57719	149.06058	Livengood	Dalton HWY, Forest is burned on both side of road, Possible site was cleared for loading of fire fighting equipment

### List of plant specimens collected (cont.).

<b><i>Matricaria discoidea</i> DC.</b>	7/31/2006	2006-059	Mixed Herbaceous-Shrub Roadside/Lot	63.16339	145.52798	Mount Hayes	Richardson HWY, approximately 10 mile north of Paxson, at north side of Summit Lake, gate to BLM property
<b><i>Matricaria discoidea</i> DC.</b>	8/1/2006	2006-074	Mixed Herbaceous-Shrub Roadside/Lot	64.04185	145.56567	Big Delta	Delta Junction, Nilson Rd mile marker 5, gravel pit on north side, hay field BRINI on south side of road
<b><i>Matricaria discoidea</i> DC.</b>	8/2/2006	2006-107	Graminoid Roadside/Lot	64.70963	148.51097	Fairbanks	Parks HWH mile marker 330
<b><i>Matricaria discoidea</i> DC.</b>	8/3/2006	2006-113	Mixed Herbaceous-Shrub Roadside/Lot	64.49826	149.06773	Fairbanks	Parks HWY mile marker 300, Workshop Acres Greenhouse on west side of road
<b><i>Matricaria discoidea</i> DC.</b>	8/3/2006	2006-131	Alder and Willow Roadside/Lot	63.50824	148.81258	Healy	Parks HWY mile marker 220
<b><i>Matricaria discoidea</i> DC.</b>	8/3/2006	2006-133	Forb-Graminoid Roadside/Lot	63.08871	149.5135	Healy	Parks HWY mile marker 180, lake, parking
<b><i>Matricaria discoidea</i> DC.</b>	8/4/2006	2006-145	Mixed Herbaceous-Shrub Roadside/Lot	62.38395	150.26341	Talkeetna	Parks HWY, mile marker 120
<b><i>Melilotus alba</i> Medikus</b>	8/23/2005	001	Graminoid Roadside/Lot	65.30164	148.20158	Livengood	Elliot HWY, North of crossing Globe Creek and HWY, north of mile marker 40
<b><i>Melilotus alba</i> Medikus</b>	8/25/2005	036	Early Seral-Herbaceous, Roadside/Lot	65.51665	148.79979	Livengood	Dalton HWY & Lost Cr
<b><i>Melilotus alba</i> Medikus</b>	8/25/2005	041	Mixed Herbaceous-Shrub Roadside/Lot	65.71561	149.25168	Livengood	Dalton HWY, Mile marker 31, site possibly was cleared for loading of fire fighting equipment
<b><i>Melilotus alba</i> Medikus</b>	8/25/2005	042	Mixed Herbaceous-Shrub Roadside/Lot	65.74712	149.36311	Livengood	Dalton HWY, mile marker 36, adjacent to road forest is burning, flames and smoke
<b><i>Melilotus alba</i> Medikus</b>	8/25/2005	049	Forb-Graminoid Roadside/Lot	66.05053	150.15137	Tanana	Dalton HWY, mile marker 74 Sand Hill, Trans Alaska Pipeline right of way pullout
<b><i>Melilotus alba</i> Medikus</b>	8/25/2005	64	Mixed Herbaceous-Shrub Roadside/Lot	64.95849	147.61531	Fairbanks	Elliot HWY, South of Fox, Gas station, infestation next to espresso

### List of plant specimens collected (cont.).

<i>Melilotus alba</i> Medikus	7/19/2006	2006-031	Closed SprucePaper Birch Forest	65.58876	144.73668	Circle	Steese HWY at 130 mile marker
<i>Melilotus alba</i> Medikus	8/1/2006	2006-079	Forb Roadside/Lot	64.15259	145.84048	Big Delta	Richardson HWY, mile marker 275, Tesoro Alaska Gas station, just south of Tanana River bridge
<i>Melilotus alba</i> Medikus	8/2/2006	2006-104	Early Seral-Herbaceous, Roadside/Lot	64.82812	148.01982	Fairbanks	Parks HWH mile marker 350, just east of Alder Creek, after road construction, seeded roadside, badly infested
<i>Melilotus alba</i> Medikus	8/3/2006	2006-113	Mixed Herbaceous-Shrub Roadside/Lot	64.49826	149.06773	Fairbanks	Parks HWY mile marker 300, Workshop Acres Greenhouse on west side of road
<i>Melilotus alba</i> Medikus	8/3/2006	2006-121	Mixed Herbaceous-Shrub Roadside/Lot	64.14188	149.26608	Fairbanks	Parks HWY mile marker 270
<i>Melilotus officinalis</i> (L.) Lam.	8/23/2005	001	Graminoid Roadside/Lot	65.30164	148.20158	Livengood	Elliot HWY, North of crossing Globe Creek and HWY, north of mile marker 40
<i>Melilotus officinalis</i> (L.) Lam.	9/4/2005	063	Forb-Graminoid Roadside/Lot			Circle	Chena Hot Spring Resort, north of Rocky Lake, trailhead
<i>Melilotus officinalis</i> (L.) Lam.	7/18/2006	2006-009	Forb-Graminoid Roadside/Lot	65.25314	146.78976	Circle	Steese HWY mile 55, new constructed section of road, newly hydroseeded
<i>Phleum pratense</i> L.	8/1/2006	2006-074	Mixed Herbaceous-Shrub Roadside/Lot	64.04185	145.56567	Big Delta	Delta Junction, Nilson Rd mile marker 5, gravel pit on north side, hay field BRINI on south side of road
<i>Phleum pratense</i> L.	8/3/2006	2006-133	Forb-Graminoid Roadside/Lot	63.08871	149.5135	Healy	Parks HWY mile marker 180, lake, parking
<i>Plantago major</i> L.	8/23/2005	001	Graminoid Roadside/Lot	65.30164	148.20158	Livengood	Elliot HWY, North of crossing Globe Creek and HWY, north of mile marker 40
<i>Plantago major</i> L.	8/23/2005	012	Forb-Graminoid Roadside/Lot	65.17168	149.96037	Tanana	Elliot HWY, approximately 7 miles east of Eurica, newly revegetated hillside
<i>Plantago major</i> L.	8/1/2006	2006-074	Mixed Herbaceous-Shrub Roadside/Lot	64.04185	145.56567	Big Delta	Delta Junction, Nilson Rd mile marker 5, gravel pit on north side, hay field BRINI on south side of road



### List of plant specimens collected (cont.).

<i>Plantago major</i> L.	8/2/2006	2006-107	Graminoid Roadside/Lot	64.70963	148.51097	Fairbanks	Parks HWH mile marker 330
<i>Plantago major</i> L.	8/3/2006	2006-113	Mixed Herbaceous-Shrub Roadside/Lot	64.49826	149.06773	Fairbanks	Parks HWY mile marker 300, Workshop Acres Greenhouse on west side of road
<i>Plantago major</i> L.	8/3/2006	2006-122	Mixed Herbaceous-Shrub Roadside/Lot			Fairbanks	Parks HWY mile marker 265, parking, gravel pit behind it
<i>Plantago major</i> L.	8/3/2006	2006-133	Forb-Graminoid Roadside/Lot	63.08871	149.5135	Healy	Parks HWY mile marker 180, lake, parking
<i>Plantago major</i> L.	8/4/2006	2006-145	Mixed Herbaceous-Shrub Roadside/Lot	62.38395	150.26341	Talkeetna	Parks HWY, mile marker 120
<i>Poa annua</i> L.	8/23/2005	003	Mixed Herbaceous-Shrub Roadside/Lot	65.19925	148.08788	Livengood	Elliot HWY, near crossing of Aggie Creek and HWY, pull out with water pipe
<i>Poa annua</i> L.	8/26/2005	060	Early Seral-Herbaceous, Roadside/Lot	65.05554	146.05695	Circle	Chena Hot Spring Rd, just at the gate to Chena Hot Springs Resort, former sled dog lot on east side of road, Disturbance Type also includes Trampling
<i>Poa annua</i> L.	8/1/2006	2006-076	III.G.5 Alder and/or Willow Roadside/Lot	64.07063	145.67995	Big Delta	Delta Junction, Jack Warren Rd & Reeve Ave
<i>Poa annua</i> L.	8/2/2006	2006-107	Graminoid Roadside/Lot	64.70963	148.51097	Fairbanks	Parks HWH mile marker 330
<i>Poa annua</i> L.	8/3/2006	2006-117	Closed Tall AlderWillow Shrub	64.34389	149.2	Fairbanks	Anderson, Nenana River, Riverside, campground
<i>Poa annua</i> L.	8/3/2006	2006-133	Forb-Graminoid Roadside/Lot	63.08871	149.5135	Healy	Parks HWY mile marker 180, lake, parking
<i>Poa pratensis</i> L.	8/23/2005	003	Mixed Herbaceous-Shrub Roadside/Lot	65.19925	148.08788	Livengood	Elliot HWY, near crossing of Aggie Creek and HWY, pull out with water pipe
<i>Poa pratensis</i> L.	8/24/2005	026	Mixed Herbaceous-Shrub Roadside/Lot	65.33172	149.05913	Livengood	Elliot HWY, southwest of Livengood

### List of plant specimens collected (cont.).

<i>Poa pratensis</i> L.	8/25/2005	047	Forb-Graminoid Roadside/Lot	65.94887	149.91457	Livengood	Dalton HWY, north of Yukon River by unnamed creek going into Ray River, north of landing strip
<i>Poa pratensis</i> L.	8/25/2005	049	Forb-Graminoid Roadside/Lot	66.05053	150.15137	Tanana	Dalton HWY, mile marker 74 Sand Hill, Trans Alaska Pipeline right of way pullout
<i>Poa pratensis</i> L. ssp. <i>irrigata</i> (Lindm.) Lindb. F.	8/24/2005	021	Mixed Herbaceous- Shrub Roadside/Lot	65.2116	149.52386	Livengood	Road to Minto, just south of Elliot Hwy
<i>Poa pratensis</i> L. ssp. <i>irrigata</i> (Lindm.) Lindb. F.	8/25/2005	049	Forb-Graminoid Roadside/Lot	66.05053	150.15137	Tanana	Dalton HWY, mile marker 74 Sand Hill, Trans Alaska Pipeline right of way pullout
<i>Poa pratensis</i> L. ssp. <i>irrigata</i> (Lindm.) Lindb. F.	8/26/2005	052	Mixed Herbaceous- Shrub Roadside/Lot	64.87666	147.00694	Big Delta	Chena Hot Spring Rd
<i>Poa pratensis</i> L. ssp. <i>irrigata</i> (Lindm.) Lindb. F.	8/3/2006	2006- 134	Mixed Herbaceous- Shrub Roadside/Lot	63.01613	149.58786	Healy	Parks HWY, parking between mile marker 174 and 175, Hurricane GL bridge
<i>Poa pratensis</i> L. ssp. <i>pratensis</i>	7/18/2006	2006- 009	Forb-Graminoid Roadside/Lot	65.25314	146.78976	Circle	Steese HWY mile 55, new constructed section of road, newly hydroseeded
<i>Poa pratensis</i> L. ssp. <i>pratensis</i>	7/18/2006	2006- 020	Mixed Herbaceous- Shrub Roadside/Lot	65.46054	145.42203	Circle	Steese HWY, 105 mile, view on Eagle Creek on south side of road, mined
<i>Poa pratensis</i> L. ssp. <i>pratensis</i>	7/19/2006	2006- 034	Mixed Herbaceous- Shrub Roadside/Lot	65.70088	144.37798	Circle	Steese HWY at 145 mile marker
<i>Poa pratensis</i> L. ssp. <i>pratensis</i>	7/31/2006	2006- 060	Alder and Willow Roadside/Lot	63.2042	145.59752	Mount Hayes	Richardson HWY at 200 mile marker, gravel pit on east side of road
<i>Poa pratensis</i> L. ssp. <i>pratensis</i>	7/31/2006	2006- 060	Alder and Willow Roadside/Lot	63.2042	145.59752	Mount Hayes	Richardson HWY at 200 mile marker, gravel pit on east side of road
<i>Poa pratensis</i> L. ssp. <i>pratensis</i>	7/31/2006	2006- 061	Early Seral-Herbaceous, Roadside/Lot	63.25497	147.68391	Mount Hayes	Richardson HWY at 205 mile marker, gravel bar, west side of road
<i>Poa pratensis</i> L. ssp. <i>pratensis</i>	8/3/2006	2006- 128	Open Black Spruce Forest	63.7001	148.87163	Healy	Parks HWY mile marker 235, railroad crossing

### List of plant specimens collected (cont.).

<i>Poa pratensis</i> ssp. <i>irrigata</i> (Lindm.) Lindb. F.	8/23/2005	001	Graminoid Roadside/Lot	65.30164	148.20158	Livengood	Elliot HWY, North of crossing Globe Creek and HWY, north of mile marker 40
<i>Polygonum aviculare</i> L.	8/23/2005	001	Graminoid Roadside/Lot	65.30164	148.20158	Livengood	Elliot HWY, North of crossing Globe Creek and HWY, north of mile marker 40
<i>Polygonum aviculare</i> L.	8/23/2005	012	Forb-Graminoid Roadside/Lot	65.17168	149.96037	Tanana	Elliot HWY, approximately 7 miles east of Eurica, newly revegetated hillside
<i>Polygonum aviculare</i> L.	8/24/2005	017	Alder and Willow Roadside/Lot	65.01261	150.56447	Tanana	Elliot HWY, 2.2 miles east of Manley
<i>Polygonum aviculare</i> L.	8/25/2005	036	Early Seral-Herbaceous, Roadside/Lot	65.51665	148.79979	Livengood	Dalton HWY & Lost Cr
<i>Polygonum aviculare</i> L.	8/25/2005	049	Forb-Graminoid Roadside/Lot	66.05053	150.15137	Tanana	Dalton HWY, mile marker 74 Sand Hill, Trans Alaska Pipeline right of way pullout
<i>Polygonum aviculare</i> L.	8/1/2006	2006-074	Mixed Herbaceous-Shrub Roadside/Lot	64.04185	145.56567	Big Delta	Delta Junction, Nilson Rd mile marker 5, gravel pit on north side, hay field BRINI on south side of road
<i>Polygonum aviculare</i> L.	8/1/2006	2006-077	Mixed Herbaceous-Shrub Roadside/Lot	64.09318	145.7563	Big Delta	Richardson HWY at mile marker 270, ATV trail
<i>Polygonum aviculare</i> L.	8/2/2006	2006-107	Graminoid Roadside/Lot	64.70963	148.51097	Fairbanks	Parks HWH mile marker 330
<i>Polygonum aviculare</i> L.	8/3/2006	2006-117	Closed Tall AlderWillow Shrub	64.34389	149.2	Fairbanks	Anderson, Nenana River, Riverside, campground
<i>Polygonum aviculare</i> L.	8/3/2006	2006-122	Mixed Herbaceous-Shrub Roadside/Lot			Fairbanks	Parks HWY mile marker 265, parking, gravel pit behind it
<i>Polygonum aviculare</i> L.	8/3/2006	2006-135	Mixed Herbaceous-Shrub Roadside/Lot	62.96501	149.63339	Talkeetna Mountains	Parks HWY, mile marker 170
<i>Polygonum aviculare</i> L.	8/4/2006	2006-142	Graminoid Roadside/Lot	62.59275	150.23737	Talkeetna	Parks HWY, mile marker 135

### List of plant specimens collected (cont.).

<i>Polygonum convolvulus</i> L.	9/4/2005	063	Forb-Graminoid Roadside/Lot			Circle	Chena Hot Spring Resort, north of Rocky Lake, trailhead
<i>Polygonum convolvulus</i> L.	7/21/2006	2006-010	Graminoid Roadside/Lot	65.27191605	146.710207	Circle	Steese HWY, mile marker 58, Burnt. Road pullout on S side of rd. Adjacent to burn.
<i>Polygonum convolvulus</i> L.	8/1/2006	2006-078	Forb-Graminoid Roadside/Lot	64.15174	145.77933	Big Delta	Richardson HWY, east of HWY at mile marker 272, Agricultural Loop, abandoned fields
<i>Polygonum persicaria</i> L.	8/4/2006	2006-142	Graminoid Roadside/Lot	62.59275	150.23737	Talkeetna	Parks HWY, mile marker 135
<i>Prunus padus</i> L.	8/23/2005	006	Mixed Herbaceous-Shrub Roadside/Lot	65.121138	147.80534	Livengood	Elliot HWY, mile 14 , 2.9 mile north of Chatanika Cr
<i>Ranunculus acris</i> L.	8/26/2005	060	Early Seral-Herbaceous, Roadside/Lot	65.05554	146.05695	Circle	Chena Hot Spring Rd, just at the gate to Chena Hot Springs Resort, former sled dog lot on east side of road, Disturbance Type also includes Trampling
<i>Rumex acetosella</i> L.	8/26/2005	061	Forb-Graminoid Roadside/Lot	65.05366	146.05568	Circle	Chena Hot Spring Resort, main parking lot
<i>Rumex longifolius</i> DC.	7/19/2006	2006-034	Mixed Herbaceous-Shrub Roadside/Lot	65.70088	144.37798	Circle	Steese HWY at 145 mile marker
<i>Sonchus arvensis</i> L.	8/26/2005	062	Forb-Graminoid Roadside/Lot	64.82376	147.86386	Fairbanks	Faribanks, Airport, intersection of Old Airport Way and road exit from airport, northwest of lakes
<i>Sonchus arvensis</i> L.	8/2/2006	2006-103	Forb Roadside/Lot	64.86089	147.88043	Fairbanks	Parks HWY& Sheep Rd, between mile marker 355 and 356
<i>Sonchus asper</i> (L.) Hill	8/26/2005	061	Forb-Graminoid Roadside/Lot	65.05366	146.05568	Circle	Chena Hot Spring Resort, main parking lot
<i>Sonchus asper</i> (L.) Hill	9/4/2005	063	Forb-Graminoid Roadside/Lot			Circle	Chena Hot Spring Resort, north of Rocky Lake, trailhead



### List of plant specimens collected (cont.).

<i>Sonchus asper</i> (L.) Hill	9/4/2005	063	Forb-Graminoid Roadside/Lot			Circle	Chena Hot Spring Resort, north of Rocky Lake, trailhead
<i>Spergula arvensis</i> L.	8/26/2005	061	Forb-Graminoid Roadside/Lot	65.05366	146.05568	Circle	Chena Hot Spring Resort, main parking lot
<i>Spergularia rubra</i> (L.) J.& K. Presl	8/23/2005	004	Mixed Herbaceous- Shrub Roadside/Lot	65.18484	147.99635	Livengood	Elliot HWY, Snowshoe Creek, mile 27, side road in curve of hwy
<i>Spergularia rubra</i> (L.) J.& K. Presl	8/23/2005	005	Mixed Herbaceous- Shrub Roadside/Lot	65.15943	147.90936	Livengood	Elliot HWY, mile 20, gravel pit on north side of road, disturbance type also include Material Extraction
<i>Spergularia rubra</i> (L.) J.& K. Presl	8/26/2005	058	Alder and Willow Roadside/Lot	64.98138	146.23048	Big Delta	Chena Hot Spring Rd, Parking area at North Fork, Slough in back of parking, Disturbance Type also includes Mechanical Brush, Tree Cutting
<i>Stellaria media</i> (L.) Vill.	8/26/2005	060	Early Seral-Herbaceous, Roadside/Lot	65.05554	146.05695	Circle	Chena Hot Spring Rd, just at the gate to Chena Hot Springs Resort, former sled dog lot on east side of road, Disturbance Type also includes Trampling
<i>Stellaria media</i> (L.) Vill.	8/1/2006	2006-080	III.G.7 Open Forest Roadside/Lot	64.15508	145.83484	Big Delta	Richardson HWY, mile marker 275, Rekas Roadhouse State Historical Park, parking
<i>Stellaria media</i> (L.) Vill.	8/3/2006	2006-123	Mixed Herbaceous- Shrub Roadside/Lot	64.01077	149.13802	Fairbanks	Parks HWY mile marker 260
<i>Taraxacum officinale</i> ssp. <i>officinale</i> G.H. Weber ex Wiggers	8/23/2005	001	Graminoid Roadside/Lot	65.30164	148.20158	Livengood	Elliot HWY, North of crossing Globe Creek and HWY, north of mile marker 40
<i>Taraxacum officinale</i> ssp. <i>officinale</i> G.H. Weber ex Wiggers	8/24/2005	027	Mixed Herbaceous- Shrub Roadside/Lot	65.37337	148.93428	Livengood	Elliot HWY, southwest of Livengood, cliff on west side with eagle's nest, mineral substrate
<i>Taraxacum officinale</i> ssp. <i>officinale</i> G.H. Weber ex Wiggers	8/25/2005	037	Early Seral-Herbaceous, Roadside/Lot	65.55871	148.91269	Livengood	Dalton HWY, approximately 5.2 miles from (west) from Lost Cr. Possibly site was cleared for loading of fire fighting equipment, adjacent forest is burned

### List of plant specimens collected (cont.).

<i>Taraxacum officinale</i> ssp. <i>officinale</i> G.H. Weber ex Wiggers	8/25/2005	049	Forb-Graminoid Roadside/Lot	66.05053	150.15137	Tanana	Dalton HWY, mile marker 74 Sand Hill, Trans Alaska Pipeline right of way pullout
<i>Taraxacum officinale</i> ssp. <i>officinale</i> G.H. Weber ex Wiggers	8/1/2006	2006-095	Forb-Graminoid Roadside/Lot	64.72147	147.22475	Fairbanks	Richardson HWY mile marker 345, Rail road crossing, cliff with vandal's sings, BLM gate Limited access pipeline right of way
<i>Taraxacum officinale</i> ssp. <i>officinale</i> G.H. Weber ex Wiggers	8/3/2006	2006-114	Mixed Herbaceous-Shrub Roadside/Lot	64.43179	149.04202	Fairbanks	Parks HWY mile marker 295
<i>Taraxacum officinale</i> ssp. <i>officinale</i> G.H. Weber ex Wiggers	8/3/2006	2006-115	Mixed Herbaceous-Shrub Roadside/Lot	64.36829	149.02904	Fairbanks	Parks HWY mile marker 290, houses on west side, little lake on east side of road
<i>Taraxacum officinale</i> ssp. <i>officinale</i> G.H. Weber ex Wiggers	8/3/2006	2006-116	Graminoid Roadside/Lot	64.30522	149.069	Fairbanks	Parks HWY mile marker 285, south of Windy Creek
<i>Taraxacum officinale</i> ssp. <i>officinale</i> G.H. Weber ex Wiggers	8/3/2006	2006-131	Alder and Willow Roadside/Lot	63.50824	148.81258	Healy	Parks HWY mile marker 220
<i>Thlaspi arvense</i> L.	8/1/2006	2006-077	Mixed Herbaceous-Shrub Roadside/Lot	64.09318	145.7563	Big Delta	Richardson HWY at mile marker 270, ATV trail
<i>Trifolium hybridum</i> L.	8/23/2005	001	Graminoid Roadside/Lot	65.30164	148.20158	Livengood	Elliot HWY, North of crossing Globe Creek and HWY, north of mile marker 40
<i>Trifolium hybridum</i> L.	8/25/2005	048	Forb-Graminoid Roadside/Lot	65.99609	150.05302	Livengood	Dalton HWY, north of Yukon River , large pullout
<i>Trifolium hybridum</i> L.	8/26/2005	050	Mixed Herbaceous-Shrub Roadside/Lot	64.88734	147.32483	Fairbanks	Chena Hot Spring Rd, 4miles east of intersection with Eberhardt Rd, driveway and mailbox 3070, Disturbance Type also include Mowing and Mechanical Brush, Tree Cutting
<i>Trifolium hybridum</i> L.	8/1/2006	2006-079	Forb Roadside/Lot	64.15259	145.84048	Big Delta	Richardson HWY, mile marker 275, Tesoro Alaska Gas station, just south of Tanana River bridge

### List of plant specimens collected (cont.).

<i>Trifolium hybridum</i> L.	8/2/2006	2006-104	Early Seral-Herbaceous, Roadside/Lot	64.82812	148.01982	Fairbanks	Parks HWH mile marker 350, just east of Alder Creek, after road construction, seeded roadside, badly infested
<i>Trifolium hybridum</i> L.	8/3/2006	2006-117	Closed Tall AlderWillow Shrub	64.34389	149.2	Fairbanks	Anderson, Nenana River, Riverside, campground
<i>Trifolium hybridum</i> L.	8/3/2006	2006-118	Mixed Herbaceous-Shrub Roadside/Lot	64.29025	149.13371	Fairbanks	intersection Clear Air Force Station and Anderson
<i>Trifolium hybridum</i> L.	8/3/2006	2006-134	Mixed Herbaceous-Shrub Roadside/Lot	63.01613	149.58786	Healy	Parks HWY, parking between mile marker 174 and 175, Hurricane GL bridge
<i>Trifolium hybridum</i> L.	8/4/2006	2006-142	Graminoid Roadside/Lot	62.59275	150.23737	Talkeetna	Parks HWY, mile marker 135
<i>Trifolium pratense</i> L.	8/23/2005	001	Graminoid Roadside/Lot	65.30164	148.20158	Livengood	Elliot HWY, North of crossing Globe Creek and HWY, north of mile marker 40
<i>Trifolium pratense</i> L.	8/23/2005	001	Graminoid Roadside/Lot	65.30164	148.20158	Livengood	Elliot HWY, North of crossing Globe Creek and HWY, north of mile marker 40
<i>Trifolium pratense</i> L.	8/1/2006	2006-091	Forb Roadside/Lot	64.48322	146.97609	Big Delta	Richardson HWY mile marker 325, Salcha Elementary School entrance
<i>Trifolium repens</i> L.	8/1/2006	2006-079	Forb Roadside/Lot	64.15259	145.84048	Big Delta	Richardson HWY, mile marker 275, Tesoro Alaska Gas station, just south of Tanana River bridge
<i>Trifolium repens</i> L.	8/3/2006	2006-134	Mixed Herbaceous-Shrub Roadside/Lot	63.01613	149.58786	Healy	Parks HWY, parking between mile marker 174 and 175, Hurricane GL bridge
<i>Trifolium repens</i> L.	8/4/2006	2006-142	Graminoid Roadside/Lot	62.59275	150.23737	Talkeetna	Parks HWY, mile marker 135
<i>Tripleurospermum perforata</i> (Merat) M. Lainz	8/26/2005	061	Forb-Graminoid Roadside/Lot	65.05366	146.05568	Circle	Chena Hot Spring Resort, main parking lot
<i>Tripleurospermum perforata</i> (Merat) M. Lainz	8/4/2006	2006-142	Graminoid Roadside/Lot	62.59275	150.23737	Talkeetna	Parks HWY, mile marker 135

### List of plant specimens collected (cont.).

<i>Vicia cracca</i> L.	8/23/2005	005	Mixed Herbaceous-Shrub Roadside/Lot	65.15943	147.90936	Livengood	Elliot HWY, mile 20, gravel pit on north side of road, disturbance type also include Material Extraction
<i>Vicia cracca</i> L.	8/24/2005	026	Mixed Herbaceous-Shrub Roadside/Lot	65.33172	149.05913	Livengood	Elliot HWY, southwest of Livengood
<i>Vicia cracca</i> L.	8/25/2005	047	Forb-Graminoid Roadside/Lot	65.94887	149.91457	Livengood	Dalton HWY, north of Yukon River by unnamed creek going into Ray River, north of landing strip
<i>Vicia cracca</i> L.	7/19/2006	2006-047	Early Seral-Herbaceous, Roadside/Lot	65.49454	144.88133	Circle	Central, road southwest of Central to cabins along Deadwood Creek
<i>Vicia cracca</i> L.	8/1/2006	2006-086	Mixed Herbaceous-Shrub Roadside/Lot	64.29939	146.49065	Big Delta	Richardson HWY mile marker 300
<i>Vicia cracca</i> L.	8/4/2006	2006-142	Graminoid Roadside/Lot	62.59275	150.23737	Talkeetna	Parks HWY, mile marker 135
<i>Viola tricolor</i> L.	7/21/2006	2006-010	Graminoid Roadside/Lot	65.27191605	146.710207	Circle	Steese HWY, mile marker 58, Burnt. road pullout on S side of rd. Adjacent to burn.