
Invasive Plant Monitoring in Unalakleet and Upriver 2012



November 27, 2012

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Introduction

Two invasive plant surveys involving Unalakleet preceded the 2012 monitoring trip. In 2010 the BLM-AFO entered into an agreement with the Alaska Natural Heritage Program (AKNHP) and the Native Village of Unalakleet (NVU), in which the NVU would hire local youth and AKNHP would train them in invasive plant species identification, survey methods and management. As part of this agreement, sections of Unalakleet and the Unalakleet River were surveyed for non-native plants. The Unalakleet Wild River Invasive Plant Management Plan was produced as a result of these efforts, and can be found at <http://aknhp.uaa.alaska.edu/botany/akepic/publications/>. The report provides a thorough account of locations surveyed and species found, why and how to manage these species, and recommendations for future work.

In 2009 a few locations in the Unalakleet area were surveyed in conjunction with the project Tracking Weeds Along the Iditarod National Historic Trail, and this report can also be found at <http://aknhp.uaa.alaska.edu/botany/akepic/publications/>. The 2009 and 2010 studies provide a baseline to compare with 2012 survey data.

In July of 2012, Unalakleet and the Unalakleet River were surveyed again. However, the survey was not exactly a follow-up to either the 2009 or 2010 trips. The scope was much different and few of the same sites were visited. The 2009 visit focused specifically on the Iditarod Trail and its checkpoints, 2010 was geared toward teaching young scientists about invasive plants and survey methods, and the primary objective in 2012 was to inventory the Unalakleet River fish counting weir and other sites opportunistically. The 2010 report stands as a thorough accounting of invasive plant populations in the Unalakleet area, and recommendations from the 2010 report are still valid. The 2012 trip augments these previous collections with new survey points; this resulting report will consequently be a brief addendum to the 2010 document.

Five sites were surveyed on the 2012 trip: Unalakleet River fish counting weir, North River fish counting tower and Bible Camp garden upriver from the village of Unalakleet, and the United States Post Office and Fish & Game/BLM bunkhouse in the village. The weir site was the primary target for this survey trip, as it is an area of human disturbance that had not previously been surveyed, and the fish counting tower was specifically recommended for monitoring in the 2010 report. The outcomes of the surveys mirrored the conclusions of the 2010 visit. The river and village of Unalakleet host populations of only weakly to moderately invasive species that are widespread throughout Alaska.

Appendix I is included to help future land managers in Unalakleet. It provides a complete list of all species identified in the region to date. Both natives and non-natives are listed.

All non-native plants found in Unalakleet July 31 - August 1, 2012

The following table lists all non-native plants found on this trip. Below are photos corresponding to each of these taxa.

Scientific Name	Common Name	Invasiveness Rank
<i>Chenopodium album</i>	Lamb's quarters	37
<i>Crepis tectorum</i>	Narrowleaf hawksbeard	56
<i>Hordeum jubatum</i> *	Foxtail barley	63
<i>Matricaria discoidea</i>	Pineapple weed	32
<i>Plantago major</i>	Common plantain	44
<i>Poa annua</i>	Annual bluegrass	46
<i>Polygonum aviculare</i>	Prostrate knotweed	45
<i>Senecio vulgaris</i>	Common groundsel	36
<i>Stellaria media</i>	Common chickweed	42
<i>Taraxacum officinale</i>	Common dandelion	58

* Nativity of *Hordeum jubatum* is disputed. Although some historic records note its presence in Alaska before European settlement, it is generally considered a nuisance weed because it can get lodged in the nose and mouth of wildlife and pets and cause infection.



Chenopodium album
Lamb's quarters



Crepis tectorum
Narrowleaf hawksbeard



Hordeum jubatum
Foxtail barley



Matricaria discoidea
Pineapple weed



Plantago major
Common plantain



Poa annua
Annual bluegrass



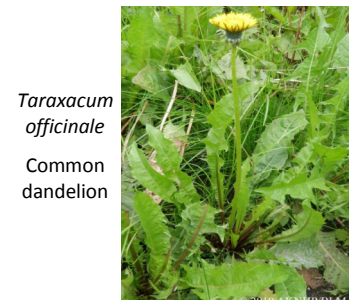
Polygonum aviculare
Prostrate knotweed



Senecio vulgaris
Common groundsel



Stellaria media
Common chickweed



Taraxacum officinale
Common dandelion

Unalakleet River Weir, UNK2012-001
63.885348, -160.461469
Area surveyed: 0.5 acre

Surveying the Unalakleet River fish counting weir was the primary goal of this trip. Established in 2010, the weir site is only accessible by boat. It has a shared kitchen cabin and shed and houses Alaska Department of Fish & Game employees in several platform tents. There is a clearing between these structures, another clearing where the weir meets the river bank, and foot trails leading to each tent. Otherwise, the site has a dense canopy cover and understory of cottonwoods, alders and Canada bluejoint, among other species, which should prevent invasive plants from moving outside of the disturbed clearings. Future monitoring should focus on the two main clearings and the foot paths that lead to each tent.

Few weeds were found at the weir. There was a small patch of *Matricaria discoidea* where steps lead from the boat launch to the main entrance clearing of the site. A few of stems of *Poa annua* were also found in the same location. All stems of non-native species were removed.

Scientific name	Common name	Infested area (acres)	Percent cover	Stem Count
<i>Matricaria discoidea</i>	Pineapple weed	.001	10	6-25
<i>Poa annua</i>	Annual bluegrass	.001	1	1-5



Weir Site viewed from the Unalakleet River



The weir



Platform tents and dense understory of native willows and Canada bluejoint



The main entrance clearing viewed from three different angles. The shed (top right) and shared cabin (bottom right) border the clearing where pineapple weed and annual bluegrass were found (above).



North River Tower, UNK2012-002

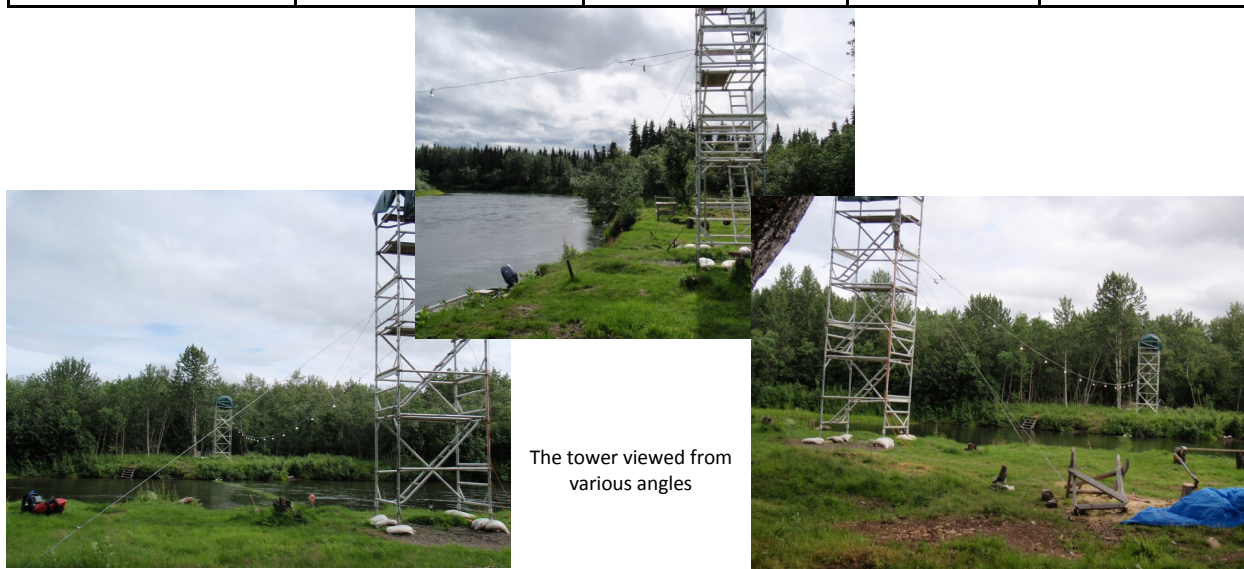
63.88614, -160.65831

Area surveyed: 0.5 acre

The fish counting tower, established in 2003, on the North River was surveyed. In addition to the tower, this site hosts platform tents and a shed and is ringed by a fence. Beyond the fence, the forest consists of spruce, willows and alders. The encompassed area is mowed, on average, three times a summer. The area had been mowed one week before this survey.

There was abundant *Matricaria discoidea* at this site; due to mowing it was very short and spread out, so it was not pulled. A few stems of *Stellaria media* were growing along the eroded river bank and were removed.

Scientific name	Common name	Infested area (acres)	Percent cover	Stem Count
<i>Matricaria discoidea</i>	Pineapple weed	.5	10	500+
<i>Stellaria media</i>	Common chickweed	.001	1	1-5



Covenant Bible Camp Garden, UNK2012-003

63.89493, -160.62906

Area surveyed: 2 acres

The Bible Camp garden was established in the 1970s by Muktuk Marston in an effort to augment native subsistence lifestyles with sustainable gardening, and it originally grew potatoes. The area can be accessed by road or river. On this survey, the site was reached by parking the boat at the bridge, where the road from Unalakleet leads into the Camp. The area surveyed included the garden area itself, as well as the dirt road approaching the site.

The garden was surrounded by a thick mat of *Stellaria media*, interspersed with *Plantago major* and *Matricaria discoidea*. The meadow margins and disturbed soils along the road hosted abundant *Plantago major*, *Matricaria discoidea* and a few stems of *Taraxacum officinale*. No plants were removed given their great abundance and distribution. This population of weeds appears to be well established, which is not surprising given the long history of disturbance at this location.

Scientific name	Common name	Infested area (acres)	Percent cover	Stem Count
<i>Matricaria discoidea</i>	Pineapple weed	2	10	500+
<i>Plantago major</i>	Common plantain	2	10	500+
<i>Taraxacum officinale</i>	Common dandelion	.001	10	1-5
<i>Stellaria media</i>	Common chickweed	1	50	500+



Bible Camp garden. The thick mat of light green surrounding the cultivated area consists mostly of non-native *Stellaria media*.



Iditarod Race Checkpoint at Post Office, UNK2012-004

63.87468, -160.78915

Area surveyed: 0.5 acre

The area behind the Unalakleet Post Office serves as an Iditarod checkpoint during the Race. The area surveyed includes the perimeter of the building and extends to the slough behind it. This site was highly disturbed, consisting mostly of dirt parking lot, ringed with grasses and forbs. There was a thicker patch of less disturbed vegetation bordering the slough consisting of a variety of native plants, including *Leymus mollis* (American dunegrass), *Elymus trachycaulus* ssp. *trachycaulus* (slender wheat-grass), *Mertensia paniculata* (tall bluebells), *Artemisia tilesii* (Tilesius' wormwood), *Castilleja caudata* (Port Clarence Indian paintbrush), and *Ligusticum scoticum* (Scottish licorice-root).

Senecio vulgaris, *Stellaria media* and *Crepis tectorum* were only found around the front side of building. *Hordeum jubatum* and *Matricaria discoidea* were not so particular. Given that this site uses imported straw for sled dog bedding, it is not surprising that foxtail barley was found here, as it is a common straw-associate and is often found at checkpoints along the Iditarod Trail.

Scientific name	Common name	Infested area (acres)	Percent cover	Stem Count
<i>Matricaria discoidea</i>	Pineapple weed	.5	10	500+
<i>Hordeum jubatum</i>	Foxtail barley	.5	1	6-25
<i>Senecio vulgaris</i>	Common groundsel	.001	1	6-25
<i>Stellaria media</i>	Common chickweed	.1	10	500+
<i>Crepis tectorum</i>	Narrowleaf hawksbeard	.001	1	1-5



Area behind the Unalakleet Post Office serves as the Iditarod checkpoint during the Race. A likely spot for non-native plant introductions via sled dog bedding straw or other imported goods and equipment.

Fish & Game/BLM Bunkhouse, UNK2012-005

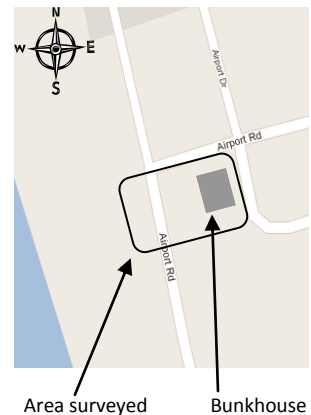
63.87872, -160.79732

Area surveyed: 0.5 acre

The yard of the Bunkhouse was surveyed, extending to the upper beach on the western side of Airport Road. The area immediately around the Bunkhouse is mostly a mix of native and non-native mowed grasses and forbs, with unmowed plants growing up along the edges. The photo below shows native *Polemonium acutiflorum* (tall Jacob's ladder) and *Cerastium beeringianum* (Bering chickweed) dominating one corner of the yard. Other native species present include *Ligusticum scoticum* (Scottish licorice-root), *Taraxacum ceratophorum* (horned dandelion), *Tripleurospermum maritima* (false mayweed), *Descurainia sophioides* (northern tansymustard), *Erysimum cheiranthoides* (wallflower mustard), *Lathyrus japonicus* (beach pea), *Poa pratensis* ssp. *alpigena* (bluegrass) and *Potentilla norvegica* (Norwegian cinquefoil).

Chenopodium album was only found growing in the sand on the western side of the road, along with *Matricaria discoidea*. All other species were found growing in the Bunkhouse yard. No plants were pulled given their low invasiveness rankings and presence throughout Unalakleet.

Scientific name	Common name	Infested area (acres)	Percent cover	Stem Count
<i>Matricaria discoidea</i>	Pineapple weed	.001	1	6-25
<i>Hordeum jubatum</i>	Foxtail barley	.1	1	26-50
<i>Stellaria media</i>	Common chickweed	.1	5	151-500
<i>Chenopodium album</i>	Lamb's quarters	.001	1	6-25
<i>Polygonum aviculare</i>	Prostrate knotweed	.001	.1	1-5



Bunkhouse yard (top left), native *Polemonium acutiflorum* (tall Jacob's ladder) and *Cerastium beeringianum* (Bering chickweed) in a corner of the yard (bottom left), and Airport Road (bottom right).

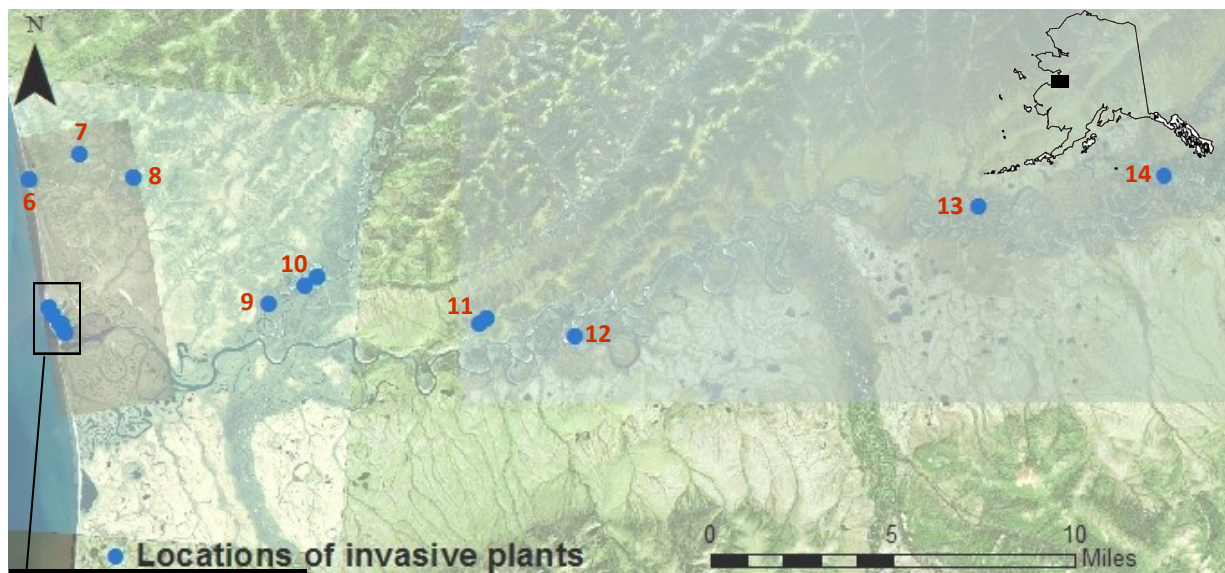
Baseline Data

There was a small decrease in the variety of non-native species found between 2009/10 and 2012. However, this could be due to different sampling locations and procedures. Three species were found on the earlier trips but were not found in 2012: *Capsella bursa-pastoris* (Shepherd's purse), *Cerastium fontanum* ssp. *vulgare* (big chickweed) and *Poa pratensis* ssp. *pratensis* or ssp. *irrigata* (bluegrass). The list below provides a baseline with which to compare non-native species found on future surveys of the Unalakleet region.

If the Unalakleet school or community get involved in invasive plant management, it will be easiest for them to start by learning to identify the thirteen species listed below, rather than learn a myriad of others that are not known from their area. Similarly, Appendix I provides a complete list of vascular plants identified to date from Unalakleet and the vicinity; this list could be a big help to someone with no botany background, as it helps narrow the scope of what plants may be found in the area. If any plants are found that are not recognized from these lists, they should be identified and reported if they are on Alaska's Non-Native Plant Species List, which can be found at <http://aknhp.uaa.alaska.edu/botany/akepic/non-native-plants-alaska/>

Scientific name	Common name	Invasiveness Rank	2009/10	2012
<i>Capsella bursa-pastoris</i>	Shepherd's purse	40	x	
<i>Cerastium fontanum</i> ssp. <i>vulgare</i>	Big chickweed	36	x	
<i>Chenopodium album</i>	Lambsquarters	37	x	x
<i>Crepis tectorum</i>	Narrowleaf hawksbeard	56	x	x
<i>Hordeum jubatum</i>	Foxtail barley	63	x	x
<i>Matricaria discoidea</i>	Pineapple weed	32	x	x
<i>Plantago major</i>	Common plantain	44	x	x
<i>Poa annua</i>	Annual bluegrass	46	x	x
<i>Poa pratensis</i> ssp. <i>irrigata</i> or <i>Poa pratensis</i> ssp. <i>pratensis</i>	Spreading bluegrass or Kentucky bluegrass	52	x	
<i>Polygonum aviculare</i>	Prostrate knotweed	45	x	x
<i>Senecio vulgaris</i>	Common groundsel	36	x	x
<i>Stellaria media</i>	Common chickweed	42	x	x
<i>Taraxacum officinale</i>	Common dandelion	58	x	x

All non-native plants identified from Unalakleet and the Unalakleet River area, 2009-2012



1. Bunkhouse: *Chenopodium album*, *Hordeum jubatum*, *Matricaria discoidea*, *Polygonum aviculare*, *Stellaria media*

2. Between playground and road: *Capsella bursa-pastoris*, *Chenopodium album*, *Hordeum jubatum*, *Matricaria discoidea*, *Polygonum aviculare*, *Stellaria media*

3. Post office: *Crepis tectorum*, *Hordeum jubatum*, *Matricaria discoidea*, *Senecio vulgaris*, *Stellaria media*

4. Between slough and dog yard: *Chenopodium album*, *Hordeum jubatum*, *Matricaria discoidea*

5. Near boat ramp: *Chenopodium album*, *Hordeum jubatum*, *Matricaria discoidea*

6. Next to cargo dock: *Chenopodium album*, *Hordeum jubatum*, *Matricaria discoidea*, *Polygonum aviculare*, *Plantago major*

7. Old Army Hill: *Hordeum jubatum*, *Plantago major*

8. Air Force Hill: *Crepis tectorum*, *Hordeum jubatum*, *Senecio vulgaris*, *Taraxacum officinale*

9. North River fish counting tower: *Matricaria discoidea*, *Stellaria media*

10. Bible Camp chapel and garden areas: *Matricaria discoidea*, *Plantago major*, *Poa annua*, *Stellaria media*, *Taraxacum officinale*

11. White Alice tower and nearby: *Crepis tectorum*, *Hordeum jubatum*, *Matricaria discoidea*, *Plantago major*, *Taraxacum officinale*

12. Fish counting weir: *Matricaria discoidea*, *Poa annua*

13. Log jam/gravel bar (2010, river features may change over time): *Chenopodium album*, *Poa pratensis* ssp. *pratensis* or ssp. *irrigata*

14. Point bar (2010, river features may change over time): *Chenopodium album*

Conclusions and Recommendations

Overall, species declined slightly between 2009/2010 and 2012 without human assistance, indicating some incipient populations did not persist without disturbance. However, the apparent disappearance of these species may be due to different sampling locations and procedures. Future surveys would be useful to gauge changes in infestation sizes and non-native species present. Outlined below are three primary activities to reduce the risk of invasive species spread in this region.

Community involvement and outreach

- Invasive plant management could be incorporated into the Unalakleet school curriculum to simultaneously teach youths about environmental stewardship and manage invasive species in the area. This would also increase awareness about the importance of cleaning boots, gear and boats.
- It is particularly important for people traveling outside Alaska and outside the Unalakleet region to be aware of the importance of cleaning boots, gear and boats.
- A cooperative weed management area (CWMA) should be established for ongoing invasive plant management in the area.
- For future management, the community should target the boat launch, as it is an obvious jumping-off point for invasive plant seeds to move upriver, and also the Post Office, given the abundance and diversity of non-native species at this site.

Control actions and monitoring

- Given that there is a variety and abundance of non-native plants at the ADF&G/BLM bunkhouse, and employees are often traveling upriver, it would be beneficial to control and/or monitor species at this site and to educate staff so that they are not vectors for spread.
- The location where straw is burned after use during the Iditarod race needs to be determined, as this location is also likely to harbor non-native species.
- The Unalakleet River fish counting weir and North River fish counting tower should be monitored annually for more aggressive species that may turn up. Given the cost of sending personnel from Anchorage to Unalakleet each year, a request could be made to staff at the fish counting stations to look out for plants they do not recognize being present in previous years and to submit photos or specimens of such species to an appropriate agency or botanist.
- Recommendations made in the 2010 Unalakleet report are still valid. The report discusses locations and species that should be prioritized for control, and includes many more sites than were visited in 2012.
- Many of the species found throughout Unalakleet and upriver are of low Invasiveness Rank and are unlikely to cause much of an ecological impact. These species are very widespread throughout Alaska, have high dispersal rates and would be very difficult to eradicate. Consequently, they should not be prioritized for control.

Conclusions and Recommendations (continued)

Prevention and reporting

- Given that Unalakleet only has weakly to moderately invasive species that are widespread throughout the state, their biggest concern lies in preventing new species from getting established.
- The biggest threat for the Unalakleet River is the arrival of species that have not yet been reported, including *Melilotus albus* (white sweetclover), *Phalaris arundinacea* (reed canarygrass), *Lythrum salicaria* (purple loosestrife), *Elodea nuttallii* (western waterweed) and *Elodea canadensis* (Canadian waterweed).
- Make it known throughout the community that highly ranked species and invasive species not previously known from the area should be reported immediately at www.uaf.edu/ces/ipm/cmp/ or by calling 877-520-5211.

For future invasive plant managers in Unalakleet, Appendix I on the following pages includes a full species list of plants collected or identified from the region to date. This should be helpful in the future for identifying plants and distinguishing between natives and non-natives.

Appendix I: Complete list of native and non-native species identified in the Unalakleet area to date

Family	Scientific name	Common name	Non-native
Apiaceae	<i>Bupleurum americanum</i>	American thorum wax	
Apiaceae	<i>Cicuta virosa</i>	Mackenzie's water hemlock	
Apiaceae	<i>Ligusticum scoticum</i>	Scottish licorice-root	
Asteraceae	<i>Achillea sibirica</i>	Siberian yarrow	
Asteraceae	<i>Antennaria friesiana</i>	Fries' pussytoes	
Asteraceae	<i>Arctanthemum arcticum</i>	Arctic daisy	
Asteraceae	<i>Arnica griscomii</i> ssp. <i>frigida</i>	Snow arnica	
Asteraceae	<i>Artemisia tilesii</i>	Tilesius' wormwood	
Asteraceae	<i>Crepis tectorum</i>	Narrowleaf hawksbeard	x
Asteraceae	<i>Matricaria discoidea</i>	Pineapple weed	x
Asteraceae	<i>Saussurea nuda</i>	Clustered sawwort	
Asteraceae	<i>Senecio vulgaris</i>	Common groundsel	x
Asteraceae	<i>Taraxacum ceratophorum</i>	Horned dandelion	
Asteraceae	<i>Taraxacum officinale</i>	Common dandelion	x
Asteraceae	<i>Tripleurospermum maritima</i>	False mayweed	
Boraginaceae	<i>Mertensia paniculata</i>	Tall bluebells	
Brassicaceae	<i>Capsella bursa-pastoris</i>	Shepherd's purse	x
Brassicaceae	<i>Cochlearia groenlandica</i>	Danish scurvygrass	
Brassicaceae	<i>Descurainia sophioides</i>	Northern tansymustard	
Brassicaceae	<i>Erysimum cheiranthoides</i>	Wormseed wallflower	
Brassicaceae	<i>Rorippa palustris</i>	Bog yellowcress	
Caryophyllaceae	<i>Cerastium beeringianum</i>	Bering chickweed	
Caryophyllaceae	<i>Cerastium fontanum</i> ssp. <i>vulgare</i>	Big chickweed	x
Caryophyllaceae	<i>Minuartia dawsonensis</i>	Rock stitchwort	
Caryophyllaceae	<i>Minuartia obtusiloba</i>	Twinflower sandwort	
Caryophyllaceae	<i>Silene uralensis</i> ssp. <i>uralensis</i>	Apetalous catchfly	
Caryophyllaceae	<i>Stellaria crassifolia</i>	Fleshy starwort	
Caryophyllaceae	<i>Stellaria media</i>	Common chickweed	x
Caryophyllaceae	<i>Wilhelmsia physodes</i>	Merckia	
Chenopodiaceae	<i>Chenopodium album</i>	Lamb's quarters	x
Crassulaceae	<i>Rhodiola rosea</i>	Roseroot stonecrop	
Cyperaceae	<i>Carex gmelinii</i>	Gmelin's sedge	
Cyperaceae	<i>Carex lyngbyei</i>	Lyngbye's sedge	
Cyperaceae	<i>Carex microchaeta</i>	Smallawned sedge	
Cyperaceae	<i>Eriophorum angustifolium</i>	Tall cottongrass	
Ericaceae	<i>Vaccinium oxycoccos</i>	Small cranberry	
Fabaceae	<i>Astragalus alpinus</i>	Alpine milkvetch	
Fabaceae	<i>Hedysarum alpinum</i>	Alpine sweetvetch	
Fabaceae	<i>Lathyrus japonicus</i>	Beach pea	
Fabaceae	<i>Lupinus arcticus</i>	Arctic lupine	
Gentianaceae	<i>Gentianella propinqua</i>	Fourpart dwarf gentian	

Appendix I: Complete list of native and non-native species identified in the Unalakleet area to date (continued)

Family	Scientific name	Common name	Non-native
Hippuridaceae	<i>Hippuris tetraphylla</i>	Fourleaf mare's-tail	
Liliaceae	<i>Tofieldia coccinea</i>	Northern false-asphodel	
Ophioglossaceae	<i>Botrychium lunaria</i>	Common moonwort	
Orobanchaceae	<i>Castilleja caudata</i>	Port Clarence Indian paintbrush	
Orobanchaceae	<i>Castilleja elegans</i>	Elegant Indian paintbrush	
Orobanchaceae	<i>Pedicularis lanata</i>	Woolly lousewort	
Orobanchaceae	<i>Pedicularis verticillata</i>	Whorled lousewort	
Pinaceae	<i>Larix laricina</i>	Tamarack	
Plantaginaceae	<i>Plantago major</i>	Common plantain	x
Poaceae	<i>Arctagrostis latifolia</i>	Wideleaf polargrass	
Poaceae	<i>Beckmannia syzigachne</i>	Slough grass	
Poaceae	<i>Elymus trachycaulus</i> ssp. <i>glaucus</i>	Slender wheatgrass	
Poaceae	<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i>	Slender wheatgrass	
Poaceae	<i>Hordeum jubatum</i>	Foxtail barley	y/n
Poaceae	<i>Leymus mollis</i>	American dunegrass	
Poaceae	<i>Poa annua</i>	Annual bluegrass	x
Poaceae	<i>Poa eminens</i>	Largeflower speargrass	
Poaceae	<i>Poa glauca</i>	Glaucous bluegrass	
Poaceae	<i>Poa macrocalyx</i>	Largeglume bluegrass	
Poaceae	<i>Poa palustris</i>	Fowl bluegrass	
Poaceae	<i>Poa pratensis</i> ssp. <i>alpigena</i>	Kentucky bluegrass	
Poaceae	<i>Poa pratensis</i> ssp. <i>irrigata</i> and/or ssp. <i>pratensis</i>	Spreading bluegrass/Kentucky bluegrass	x
Poaceae	<i>Puccinellia nuttalliana</i>	Nuttall alkaligrass	
Poaceae	<i>Trisetum spicatum</i>	Spike trisetum	
Polemoniaceae	<i>Polemonium acutiflorum</i>	Tall Jacob's ladder	
Polygonaceae	<i>Polygonum alpinum</i>	Alaska wild rhubarb	
Polygonaceae	<i>Polygonum aviculare</i>	Prostrate knotweed	x
Polygonaceae	<i>Polygonum humifusum</i> ssp. <i>caurianum</i>	Alaska knotweed	
Polygonaceae	<i>Polygonum viviparum</i>	Alpine bistort	
Polygonaceae	<i>Rumex arcticus</i>	Arctic dock	
Ranunculaceae	<i>Aconitum delphiniifolium</i>	Larkspurleaf monkshood	
Ranunculaceae	<i>Thalictrum sparsiflorum</i>	Fewflower meadowrue	
Rosaceae	<i>Argentina anserina</i>	Silverweed cinquefoil	
Rosaceae	<i>Dryas octopetala</i>	Eightpetal mountain-avens	
Rosaceae	<i>Potentilla norvegica</i>	Norwegian cinquefoil	
Rosaceae	<i>Potentilla villosa</i>	Villous cinquefoil	
Rosaceae	<i>Rosa acicularis</i>	Prickly rose	
Rosaceae	<i>Rubus arcticus</i>	Arctic blackberry	
Rubiaceae	<i>Galium boreale</i>	Northern bedstraw	

Appendix I: Complete list of native and non-native species identified in the Unalakleet area to date (continued)

Family	Scientific name	Common name	Non-native
Rubiaceae	<i>Galium trifidum</i>	Threepetal bedstraw	
Saxifragaceae	<i>Parnassia palustris</i>	Marsh grass of Parnassus	
Valerianaceae	<i>Valeriana capitata</i>	Captiate valerian	
Woodsiaceae	<i>Woodsia ilvensis</i>	Rusty woodsia	