

Canada Lynx Habitat Inventory- Latour Divide and Lookout Mountain, Idaho



Idaho Conservation
Data Center
Idaho Department of
Fish and Game
PO Box 25
Boise, Idaho
83707



Jennifer J. Miller
Steven K. Rust

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TABLE OF CONTENTS

INTRODUCTION.....	1
METHODS.....	1
RESULTS.....	2
DISCUSSION.....	6
LITERATURE CITED.....	12
APPENDIX 1.....	14
APPENDIX 2.....	16
APPENDIX 3.....	25

INTRODUCTION

The Canada lynx (*Lynx canadensis*) is a wide ranging forest carnivore. Large feet and long legs distinguish the medium-sized cat as a species that is highly adapted to travel in deep snow characteristic of the boreal and western montane and subalpine regions of North America. Lynx is a specialized predator and uses environments dominated by coniferous or mixed coniferous-deciduous forest with dense undergrowth, but may also utilize open forest, rocky areas, and tundra to forage for abundant prey (Groves et al. 1997; Ruediger et al. 2000).

In Idaho lynx are predicted to occur in montane and subalpine coniferous forest habitats (at generally > 4,000 ft. elevation) as far south in the west as the northern Salmon River and Lemhi mountains and east and south on the Yellowstone Highlands and Caribou Range (McKelvey 2000; Wisdom et al. 2000). Several lynx occurrences are known from the Coeur d'Alene River, St. Joe River, and St. Maries River basins (Idaho Conservation Data Center 2003). Additional references on the occurrence, ecology, and conservation of lynx in Idaho include Clark et al. (1989); Idaho Conservation Effort (1998); Koehler and Aubry (1994); Koehler and Hornocker (1979); Lewis and Wenger (1998); Rust (1946); and Terra-Berns et al. (2000). Gaines et al. (2000) and Carrol et al. (2001) provide recent insight to issues concerning lynx habitat conservation planning.

Lynx prey primarily on snowshoe hare (*Lepus americanus*). Thus lynx foraging and denning habitat selection is closely tied to the distribution and quality of snowshoe hare cover and forage habitats. Lynx home range size and population densities vary with the abundance of prey. Population densities are usually < 0.25 lynx per square mile. In western North America home range sizes have been estimated as 15 to 147 square miles (Groves et al. 1997; Ruediger et al. 2000; Ruggiero et al. 2000). Washington State Department of Natural Resources (1996) and Quade (1999) identify 3 primary habitat components for lynx in the Pacific Northwest: (1) foraging habitats that support snowshoe hare and provide hunting cover, (2) denning sites, and (3) dispersal/travel cover. Ruediger et al. (2000) provide a revised approach to lynx habitat classification. In this approach habitat is either suitable or unsuitable. Suitable habitats include denning and forage habitat.

The US Fish and Wildlife Service (USFWS) listed lynx as threatened in March 2000 (U. S. Fish and Wildlife Service 2000 and see U. S. Fish and Wildlife Service 1994, 1997, 1998, 1999). USDI Bureau of Land Management and US Fish and Wildlife Service (2000) and Ruediger et al. (2000) recognize habitat inventory and monitoring as important contributions to the conservation of lynx. The objective of this study is to delineate and describe suitable lynx habitats on Bureau of Land Management (BLM) lands within lynx analysis units (LAUs) on the Upper Columbia-Salmon Clearwater District of northern Idaho. The study is ongoing. In 2000, work was completed in the upper Latour and West Fork Pine Creek drainages (Rust 2000). In 2001, work was completed in the Pine Creek drainage (Rust 2002). In August 2002, work was completed in Ahrs Canyon, upper Rochat Creek, and upper Street Creek drainages within St. Joe River Basin (Rust and Miller 2003).

METHODS

The study area encompasses BLM lands within the following lynx analysis units: Bitterroot Divide South, Freezeout, Grandmother Mtn., Latour Creek, Lost Rocket, Pine Creek, St. Joe Divide West, and St. Joe Divide East. This area occurs within the Coeur d'Alene River, St. Joe River, and St. Maries River basins, east of Coeur d'Alene, Idaho.

We conducted lynx habitat field inventory work in stands targeted as suitable using (1) criteria summarized by Washington State Department of Natural Resources (1996), Ruggiero et al. (2000), and Quade (1999) (Box 1) and (2) vegetation maps prepared by Upper Columbia-Salmon Clearwater District

(2000) and Landscape Dynamics Lab (2002). Lynx habitat field determinations were crosswalked from the Washington State Department of Natural Resources (1996) classification system to the more recent classification of Ruediger et al. (2000) using the convention shown in Box 1. Vegetation covertype mapping units are classified using the system identified by Landscape Dynamics Lab (2002) (Table 1).

We used both stand level and fixed area sampling techniques to document the composition and structure of targeted stands. Stand level point observation data are intended to rapidly accumulate a large number of geographically-referenced points where knowledge of the vegetation is linked to base environmental data such as elevation, slope aspect, and slope gradient. On a walking route through an area selected for study, data on the plant association, ecological condition, seral status, and the physical environment are collected. New data are collected as a new plant association is encountered or with any significant change in the environmental parameters (slope, aspect, elevation), structural condition, seral status, or ecological condition. Quantitative composition and structure data were collected on 0.1 acre plots using the methods of Bourgeron et al. (1991) and USDA Forest Service (1992). We used conventions modified from Hall et al. (1995) to classify forest stand structural condition and seral status. Geographical positioning system data were collected for plot locations using a Garmin navigation grade unit.

The focus of field reconnaissance was to inventory lynx habitat on BLM lands. The condition and status of lynx habitats on adjacent lands (not managed by the BLM) may, however, influence management on Bureau lands. For this reason, an effort is made to interpolate results across entire LAUs. Interpolation of habitat conditions was conducted using vegetation coverages for the area (Upper Columbia-Salmon Clearwater District 2000; Landscape Dynamics Lab 2002), Landsat TM imagery, digital ortho-photography, general patterns in the environmental distribution of sampled habitats, panoramic photographic series, and reconnaissance field notes.

RESULTS

Lynx habitat field inventories occurred in upper West Fork of Pine Creek, Mt. Wiessner, Fortynine Meadows, and along established Ridgetrail 52 between Orphan Pt. and Breezy Pt., which passes across Lookout Mountain in July and August 2003. For purposes of discussion these sample areas are referred to as upper West Fork of Pine Creek, Mt. Wiessner, Fortynine Meadows, and Lookout Mountain. Fifty-seven plots (including both stand level point observation and fixed area ecology plots) were located in 24 stands that total (approximately) 2789.94 acres. The cumulative extent of stands visited during the 2000 through 2003 field seasons is shown in Figure 1 and 2. A detailed summary of 2000 through 2003 field inventory results is provided in Appendix 2.

Table 2 shows the percentage of lynx habitat observed in lynx analysis units visited for the 2000 through 2003 field seasons. Lynx forage and travel were the most abundant habitat types observed. Habitat suitable for lynx denning was the least.

Additional information on stand composition and structure was acquired through the use of geo-referenced photo-points. Field observations and information provided by Upper Columbia-Salmon Clearwater District (2000) and Landscape Dynamics Lab (2002) were combined to interpolate the occurrence of lynx habitats within upper West Fork of Pine Creek, Mt. Wiessner, Fortynine Meadows, and Lookout Mountain. The cumulative extent of lynx habitats interpolated through 2000 and 2003 field work is shown in Figure 3 and 4.

Snowshoe hare were not observed during the 2003 field season. Snowshoe hare browse and scat, however, were observed on plots located in the Fortynine Meadows and Lookout Mountain inventoried

Table 1. Summary of vegetation covertype classification. Vegetation covertype classes occurring within the lynx analysis units on Upper Columbia-Salmon Clearwater District are listed by map unit code and with percent of occurrence. Covertypes are classified as suitable lynx habitat (S); unsuitable, temporary non-lynx habitat (U); or unsuitable, non-lynx habitat (N). Data are drawn from Landscape Dynamics Lab (2002). The covertype classification is modified from Landscape Dynamics Lab (2002).

Map Code	Covertype Name	Suitability	Percent
3101	Foothills Grassland	N	< 0.1
3104	Montane Parklands and Subalpine Meadows	N	1.8
3202	Warm Mesic Shrubland	U	4.4
4102	Broadleaf Forest	N	< 0.1
4201	Engelmann Spruce (>66 percent cover)	S	2.9
4203	Lodgepole Pine (> 66 percent cover)	S	7.0
4206	Ponderosa Pine (> 66 percent cover)	N	0.5
4207	Grand Fir (> 66 percent cover)	S	3.3
4208	Subalpine Fir (> 66 percent cover)	S	6.8
4210	Western Red Cedar (> 66 percent cover)	S	2.0
4211	Western Hemlock (> 66 percent cover)	S	3.3
4212	Douglas-fir (> 66 percent cover)	N	7.3
4215	Western Larch (> 66 percent cover)	N	3.2
4220	Mixed Subalpine Forest (subalpine fir, mountain hemlock, Douglas-fir, Engelmann spruce, lodgepole pine)	S	8.2
4221	Mixed Mesic Forest (western redcedar, western hemlock, Douglas-fir, Engelmann spruce, western larch, grand fir, lodgepole pine, western white pine)	S	21.2
4222	Mixed Xeric Forest (ponderosa pine, Douglas-fir, lodgepole pine)	N	0.6
4223	Douglas Fir-Lodgepole Forest (> 80 percent cover)	S	2.1
4225	Douglas-fir-Grand Fir Forest (> 80 percent cover)	S	10.3
4226	Western Red Cedar-Grand Fir Forest (> 80 percent cover)	S	3.2
4227	Western Red Cedar-Western Hemlock Forest (> 80 percent cover)	S	0.5
4228	Western Larch-Lodgepole Forest (>80percent cover)	S	3.0
4229	Western Larch-Douglas-fir Forest (> 80 percent cover)	S	4.8
4301	Mix Needleleaf/Broadleaf Forest	S	0.1
5000	Water	N	< 0.1
6101	Needleleaf Dominated Riparian (> 66 percent relative cover)	S	0.8
6102	Broadleaf Dominated Riparian (> 66 percent relative cover)	N	< 0.1
6103	Needleleaf-Broadleaf Riparian Forest (> 25 percent and < 66 percent broadleaf, > 25 percent and < 66 percent needleleaf relative cover)	S	< 0.1
6104	Mixed Riparian (forest and non-forest)	S	0.2
6201	Graminoid and Forb Dominated Riparian (<15percent total shrub cover)	N	< 0.1
6202	Shrub Dominated Riparian	U	0.2
6203	Mixed Non-Forest Riparian	U	0.1
7300	Exposed Rock (talus)	N	1.3
7800	Mixed Barren Land	N	0.5

Table 2. Summary of Lynx Analysis Unit (LAU) acres surveyed for 2000 through 2003 field seasons and the percentage of lynx habitat within each LAU.

Lynx Analysis Unit (LAU)	Total acres	Denning %	Forage %	Travel %	Temporary non-lynx %	Non-Lynx %
Freezeout LAU	1,835.00		42.07	38.96	9.10	9.86
Grandmother Mountain LAU	2,230.00		30.81	54.62	2.29	12.3
Latour Creek LAU	15,505.00	0.33	24.89	41.211	15.96	17.61
Lost Rocket LAU	5,257.00		44.85	38.90	8.79	7.46
Marble Mountain LAU	12.00			100.00		
Pine Creek LAU	13,065.00		36.66	36.94	11.24	15.16
St. Joe Divide west LAU	1,089.00		30.67	54.82	5.05	9.46
Upper Fishhook LAU	21.00		100.00			

areas. Locations of snowshoe hare browse observations of 2000 through 2003 field seasons are shown in Figure 2. As observed in previous years within the study area, snowshoe hare winter browse was most frequently observed on *Salix scouleriana*, but also occurred on *Acer glabrum* (Rocky Mountain maple), *Holodiscus discolor* (oceanspray), *Ledum glandulosum* (western Labrador tea), *Menziesia ferruginea* (rusty menziesia), and *Vaccinium membranaceum* (thinleaf huckleberry).

Vascular plant species observed within the study area during the 2000 through 2003 field seasons are listed in Appendix 2.

Following is a more detailed summary of the 2003 field season sample areas:

Upper West Fork of Pine Creek Summary: Ten stands were sampled in the 2003 field season. The area is predominantly suitable lynx habitat classified as forage-low (using conventions of Ruediger et al. (2000); see Box 1). Hare pellets were observed in 1 stand.

Seven plant associations were sampled in the upper West Fork of Pine Creek area. *Tsuga mertensiana/Xerophyllum tenax* (mountain hemlock/common beargrass), *Xerophyllum tenax* and *Abies grandis/Coptis occidentalis* (grand fir/Idaho goldthread) were most frequently observed and were sampled in 3 and 2 stands, respectively. The remaining associations were sampled only once. The *Tsuga mertensiana/Xerophyllum tenax* association is extensive and occurs on broad moderately sloped ridgecrests of various aspects.

The multi-layered stands within the area are predominantly early to mid seral, open (10 to 15 percent canopy cover), and dominated by medium-sized trees. *Tsuga mertensiana* and *Abies lasiocarpa* (subalpine fir) are the dominant overstory species. In the understory *Acer glabrum* and *Salix scouleriana* (Scouler's willow) (shrubs > 2 meters in height) form dense patchy thickets with *Vaccinium membranaceum*. Other common understory shrubs include *Amelanchier alnifolia* (Saskatoon serviceberry), *Pachistima myrsinites* (boxwood), and *Spiraea betulifolia* (white spirea). Common and characteristic understory herbs and graminoids include: *Anaphalis margaritacea* (western pearly everlasting), *Arnica cordifolia* (heartleaf arnica), *Carex geyeri* (Geyer's sedge), *Heuchera cylindrica* (roundleaf alumroot), and *Xerophyllum tenax*. All stands sampled in the area are in pristine condition.

Mt. Wiessner Summary: Sixteen stands were sampled in the 2003 field season. The predominant lynx habitat condition is forage-high with a few stands being forage-low. One stand is potential lynx denning. Hare pellets were observed in 2 stands.

Eight plant associations were sampled in the Mt. Wiessner area. *Tsuga mertensiana/Xerophyllum tenax*, *Xerophyllum tenax* was sampled on 5 stands and was most frequently observed. *Tsuga mertensiana/Menziesia ferruginea* (rusty menziesia), *Xerophyllum tenax* and *Tsuga mertensiana/Xerophyllum tenax*, *Luzula hitchcockii* (Hitchcock's smooth woodrush) were also sampled on multiple stands. The remaining associations were sampled only once. *Tsuga mertensiana/Xerophyllum tenax*, *Xerophyllum tenax* is widely distributed in the area on mid- to upper-slope positions of steep to gentle, broad slopes, and (occasionally) ridgecrests. The association is found predominately on southerly aspects.

Stands within the area are late-seral. Structural conditions range from stands dominated by large-diameter trees to stands dominated by medium-sized trees. *Tsuga mertensiana* is the dominant overstory species within the area. Small pockets of tree regeneration are present in understory tree strata depending on site aspect and elevation. Common shrubs within the area include *Salix scouleriana*, *Sorbus scopulina* (Greene's mountain ash), and *Vaccinium membranaceum*. Common and characteristic herbaceous species include: *Epilobium angustifolium* (fireweed), *Luzula hitchcockii*, *Thalictrum occidentale* (western meadow-rue), and *Xerophyllum tenax*. Ungulate sign and small animal burrowing were frequently observed. All stands sampled in the area are in pristine condition.

Fortynine Meadows Summary: Sixteen stands were sampled in the 2003 field season. The predominate lynx habitat condition is forage-high with 50 percent of those stands rated as low quality forage. Twenty-five percent of total stands sampled are temporary non-lynx habitat. Hare pellets and browse were observed in 8 stands.

Ten plant associations were sampled in the Fortynine Meadows area. The most frequently observed association was *Tsuga mertensiana/Clintonia uniflora* (bride's bonnet), *Menziesia ferruginea*. It was sampled in 5 stands. All remaining stands were either sampled once or twice. *Tsuga mertensiana/Clintonia uniflora*, *Menziesia ferruginea* occurs on gentle slopes and toeslopes of various aspects.

Multi-layered stands within the area are mid seral, moderately open (25 to 66 percent canopy cover), and dominated by pole- to medium- size trees. *Tsuga mertensiana* and *Abies lasiocarpa* are the dominant overstory species. *Tsuga mertensiana*, *Abies lasiocarpa*, and *Picea engelmannii* (Engelmann spruce) may be present in the understory tree strata depending on site aspect and elevation. Common shrubs within the area include *Menziesia ferruginea* and *Vaccinium membranaceum*. Common and characteristic herbaceous species include *Clintonia uniflora*, *Coptis occidentalis*, *Goodyera oblongifolia* (western rattlesnake plantain, and *Tiarella trifoliata* (threeleaf foamflower). All stands sampled in the area are in pristine condition.

Lookout Mountain Summary: Thirteen stands were sampled in the 2003 field season. The predominate lynx habitat condition is forage-low. Hare browse and/or pellets were observed in 2 stands.

Eight plant associations were sampled in the Lookout Mountain area. *Tsuga mertensiana/Menziesia ferruginea*, *Luzula hitchcockii* was sampled on 3 stands and was most frequently observed. All other associations were either sampled once or twice. *Tsuga mertensiana/Menziesia ferruginea*, *Luzula hitchcockii* is continuous across gentle to moderate slopes of predominately northwesterly aspects.

The multi-layered stands are late seral. Structural conditions range from stands dominated by giant-diameter trees to stands dominated by large-sized trees, and moderate to dense (>40 percent) canopy cover. The dominant overstory species include *Tsuga mertensiana* and *Abies lasiocarpa*. Depending on site conditions *Tsuga mertensiana* and *Abies lasiocarpa* may be found in the understory tree strata. Common shrubs include *Menziesia ferruginea*, *Vaccinium membranaceum*, and *V. scoparium* (grouse whortleberry). Common herbaceous species include: *Luzula hitchcockii*, *Veratrum viride* (green false hellebore), and *Xerophyllum tenax*. Small mammal burrowing and bear scat were observed. All stands sampled are in pristine condition.

DISCUSSION

Lynx utilize a wide range of different habitats throughout the year. Lynx population dispersal and growth are limited, however, by the availability and quality of winter forage habitat. The value, or functionality, of winter forage habitat is dependent on the availability and proximity of denning habitat. Factors that contribute to the distribution and extent of lynx habitats within the study area include: relatively steep gradients in atmospheric and soil moisture availability and soil temperature; disturbance history, particularly the relatively severe fire season of 1910; the mix of public and private land ownerships; and a history of relatively extensive timber harvesting and mining.

The diversity of forest stand structural and seral conditions present within the study area provides a range of lynx winter forage habitats of varying suitability. Due to the continual change in forest stand composition and structure, the availability of suitable lynx forage habitats is spatially and temporally dynamic. Patterns in the distribution and characteristics of forage habitat observed in upper West Fork of

Pine Creek, Mt. Wiessner, Fortynine Meadows, and Lookout Mountain were similar to those observed in previous years within the study area (Rust 2000, Rust 2002; Rust and Miller 2003). Non-suitable, shrub-dominated stands are, however, comparatively more abundant in the Fortynine Meadows area, due to the extent of recent harvest activity at this site.

Lynx forage habitats were observed primarily on high-slope to mid-slope positions of major ridges and watershed divides. Stands classified as winter forage habitat are primarily mid-seral and dominated by medium-sized (9.0 - 20.9 inch dbh) trees. These stands are in the stem exclusion and understory re-initiation stages of stand development (using the terminology of Oliver and Larson 1996). Stands in the early stages of stem exclusion typically possess remnant lynx winter forage habitat characteristics (suitable hare forage and understory cover) and are currently progressing toward a less suitable condition. As relatively dense pole-sized trees compete for limited growing space, foliage is increasingly more concentrated in the upper portion of the canopy, leaving an open understory of shade tolerant, medium-height shrubs and perennial forbs.

Stands in the late stages of stem exclusion (to early stages of understory re-initiation) are progressing toward more suitable lynx winter forage habitat conditions. The mortality of overstory trees allows increasing understory establishment of conifers (which provide understory hiding cover for hare) and re-initiation of growth of deciduous shrub forage. In many stands bark beetle mortality in lodgepole pine is promoting stand understory re-initiation processes and increasing the availability of lynx winter forage habitat conditions.

Lynx are specialized predators adapted to life in deep snow characteristic of mountainous regions of western North America. Lynx are known to occur in the Coeur d'Alene, St. Joe, and St. Maries river basins. USDI Bureau of Land Management and US Fish and Wildlife Service (2000) identify habitat inventory and monitoring as important contributions to the conservation of lynx. The objective of this multi-year study is to delineate potential lynx habitats on BLM lands within LAUs on the Upper Columbia-Salmon Clearwater District. Lynx forage and denning habitats and a snowshoe hare prey base were observed and documented in upper West Fork of Pine Creek, Mt. Wiessner, Fortynine Meadows, and Lookout Mountain within Pine Creek, Grandmother Mountain, Freezeout, Upper Fishhook and Lost Rocket LAUs.

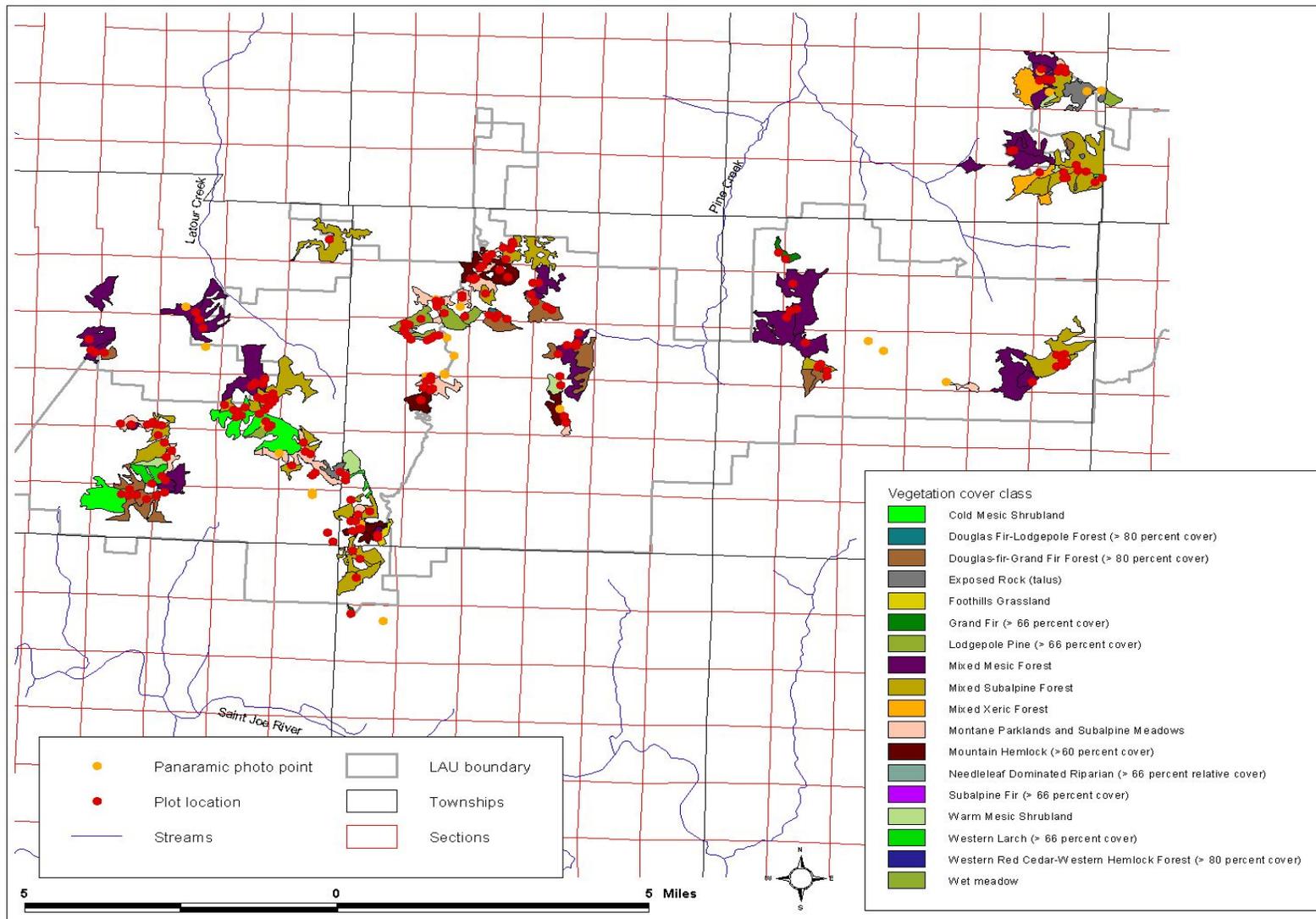


Figure 1. Summary of lynx habitat inventories in northern portion of study area, Latour Creek and Pine Creek LAUs. The locations of 2000 through 2003 field season sample plots, panoramic photo points, and sampled stands are shown.

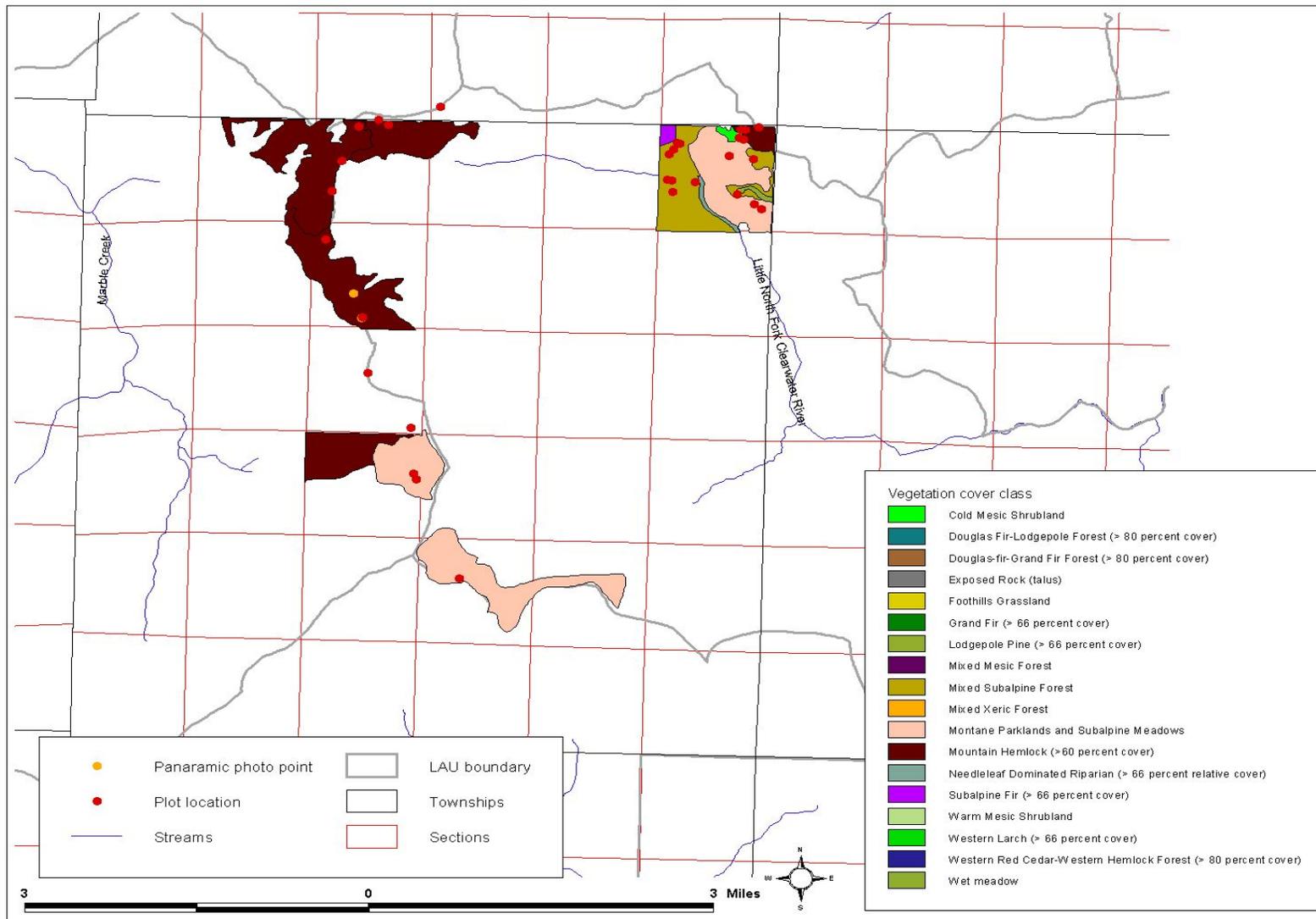


Figure 2. Summary of lynx habitat inventories in southern portion of study area, Grandmother Mountain, Freezeout, Upper Fishhook, and Lost Rocket LAUs. The locations of 2000 through 2003 field season sample plots, panoramic photo points, and sampled stands are shown.

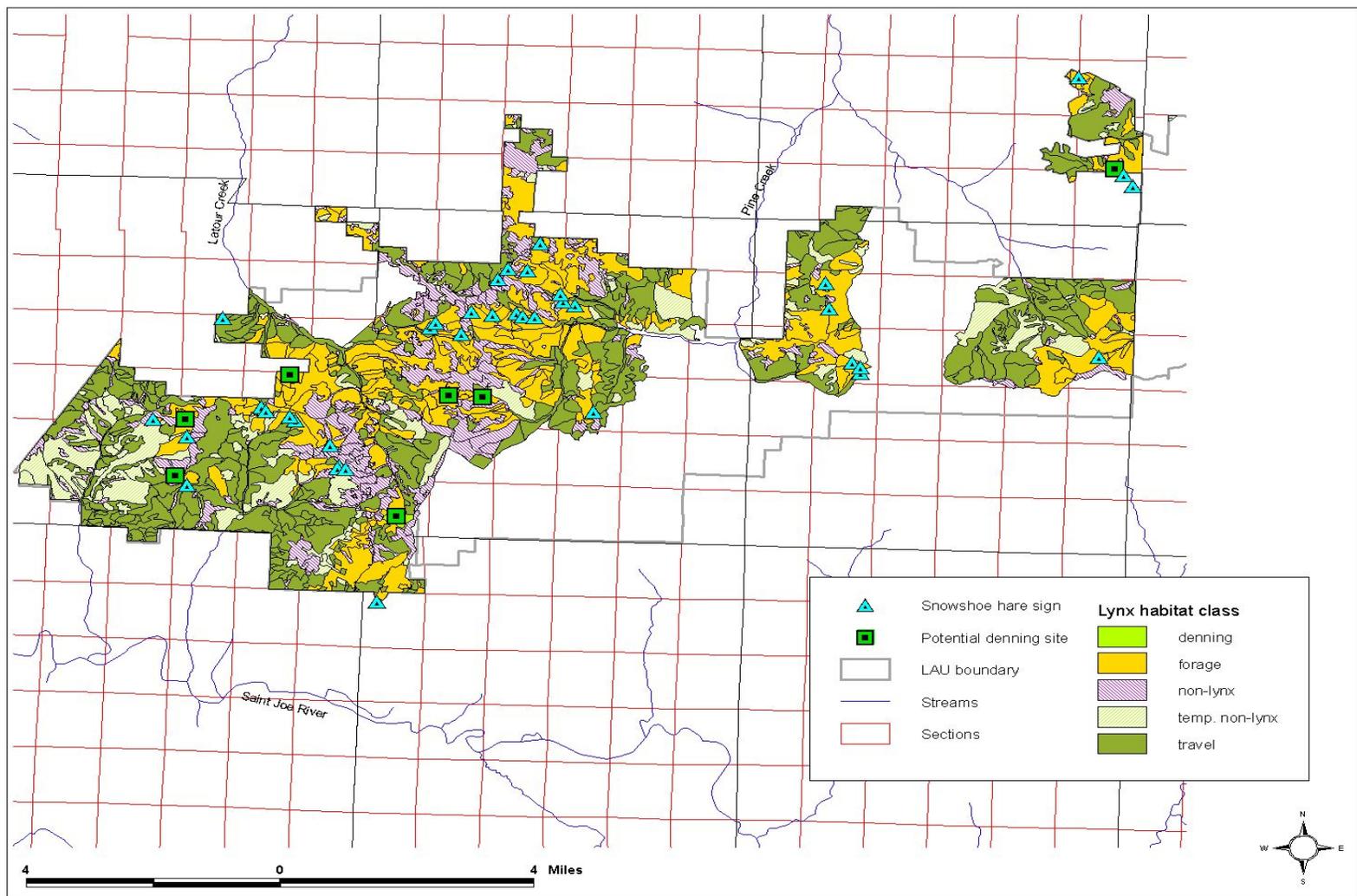


Figure 3. Lynx habitats in northern portion of the study area, Latour Creek and Pine Creek LAUs. Lynx habitat classes are interpolated from 2000 through 2003 field observations. Stands actually sampled are shown in Figure 1. Snowshoe hare and small potential denning site observation points are shown in relation to observed and interpolated lynx habitat.

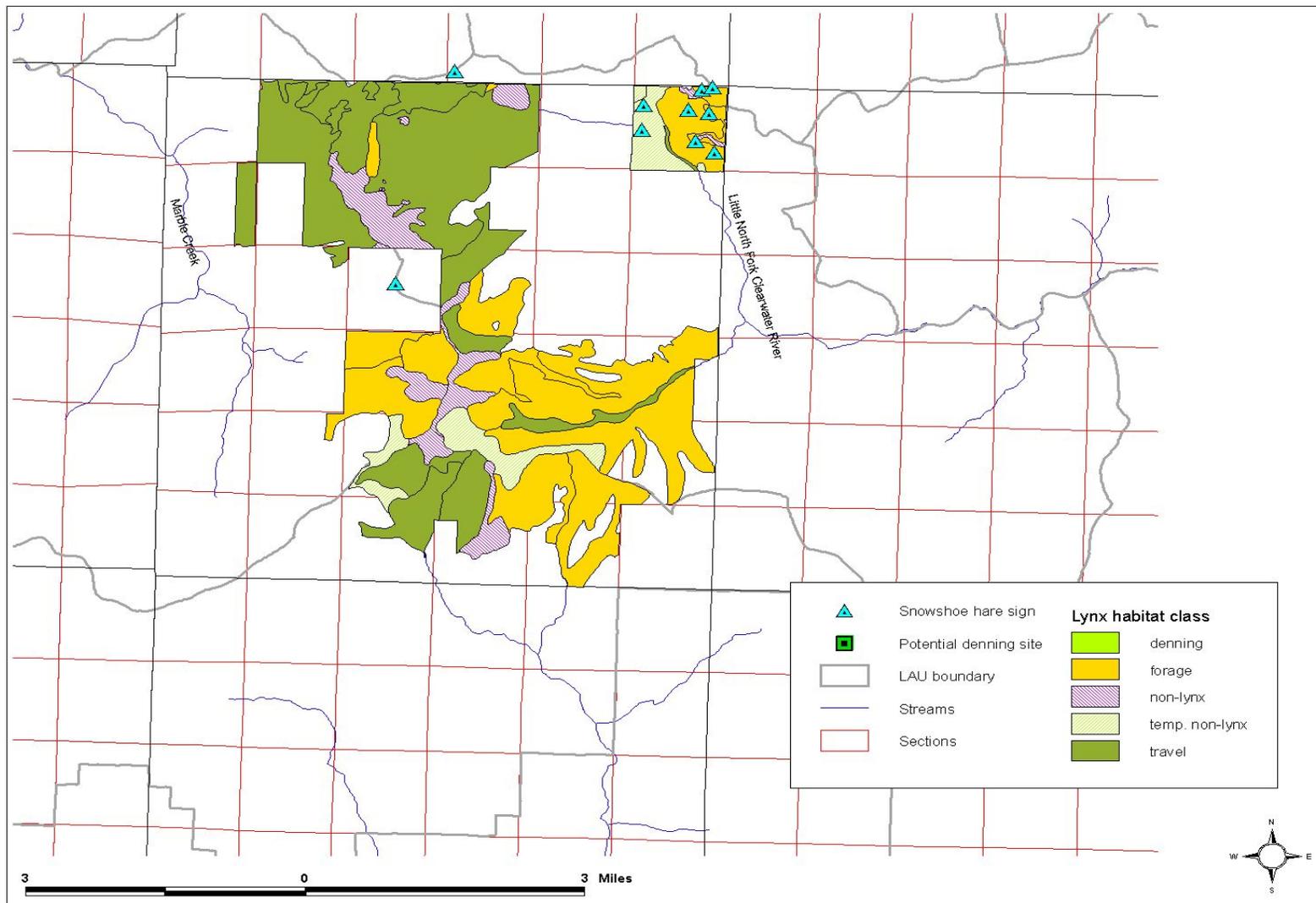


Figure 4. Lynx habitats in southern portion of study area, Grandmother Mountain, Freezeout, Upper Fishhook, and Lost Rocket LAUs. Lynx habitat classes are interpolated from 2000 through 2003 field observations. Stands actually sampled are shown in Figure 2. Snowshoe hare and small potential denning site observation points are shown in relation to observed and interpolated lynx habitat.

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Appendix 1. Plant associations (4 letter code, scientific and common names) observed during the 2000 through 2003 field seasons within Latour Creek, Pine Creek, and Widow Mountain LAUs. Plant associations are listed alphabetically. Plant association codes and classifications follow Cooper et al. (1991).

Association Code	Scientific Name	Common Name
ABGR/ACGL, ACGL	<i>Abies grandis</i> / <i>Acer glabrum</i> , <i>Acer glabrum</i>	grand fir/Rocky Mountain maple, Rocky Mountain maple
ABGR/ACGL, PHMA	<i>Abies grandis</i> / <i>Acer glabrum</i> , <i>Physocarpus malvaceus</i>	grand fir/Rocky Mountain maple, mallow ninebark
ABGR/CLUN, CLUN	<i>Abies grandis</i> / <i>Clintonia uniflora</i> , <i>Clintonia uniflora</i>	grand fir/bride's bonnet, bride's bonnet
ABGR/CLUN, PHMA	<i>Abies grandis</i> / <i>Clintonia uniflora</i> , <i>Physocarpus malvaceus</i>	grand fir/bride's bonnet, mallow ninebark
ABGR/CLUN, XETE	<i>Abies grandis</i> / <i>Clintonia uniflora</i> , <i>Xerophyllum tenax</i>	grand fir/mallow ninebark, common beargrass
ABGR/COOC	<i>Abies grandis</i> / <i>Coptis occidentalis</i>	grand fir/Idaho goldthread
ABGR/VAGL	<i>Abies grandis</i> / <i>Vaccinium globulare</i>	grand fir/thinleaf huckleberry
ABLA/CACA, LEGL	<i>Abies lasiocarpa</i> / <i>Calamagrostis canadensis</i> , <i>Ledum glandulosum</i>	subalpine fir/bluejoint, western Labrador tea
ABLA/PHMA	<i>Abies lasiocarpa</i> / <i>Physocarpus malvaceus</i>	subalpine fir/mallow ninebark
ABLA/STAM, STAM	<i>Abies lasiocarpa</i> / <i>Streptopus amplexifolius</i> , <i>Streptopus amplexifolius</i>	subalpine fir/claspleaf twistedstalk, claspleaf twistedstalk
ABLA/STAM, LICA	<i>Abies lasiocarpa</i> / <i>Streptopus amplexifolius</i> , <i>Ligusticum canbyi</i>	subalpine fir/claspleaf twistedstalk, Canby's licorice-root
ABLA/XETE, VAGL	<i>Abies lasiocarpa</i> / <i>Xerophyllum tenax</i> , <i>Vaccinium globulare</i>	subalpine fir/common beargrass, thinleaf huckleberry
ABLA/XETE, VASC	<i>Abies lasiocarpa</i> / <i>Xerophyllum tenax</i> , <i>Vaccinium scoparium</i>	subalpine fir/common beargrass, grouse whortleberry
ABLA/XETE, XETE	<i>Abies lasiocarpa</i> / <i>Xerophyllum tenax</i> , <i>Xerophyllum tenax</i>	subalpine fir/common beargrass, common beargrass
AGTR-FEVI	<i>Agropyron trachycaulum</i> - <i>Festuca viridula</i>	slender wheatgrass- greenleaf fescue
ALSI	<i>Allium simillimum</i>	simil onion
CAAQ	<i>Carex aquatilis</i>	water sedge
DECE GRAM MEADOW	<i>Deschampsia cespitosa</i> Graminoid Meadow	tufted hairgrass Graminoid Meadow
FEVI/ASFO	<i>Festuca viridula</i> / <i>Aster foliaceus</i>	greenleaf fescue/aster
FEVI-AGTR	<i>Festuca viridula</i> - <i>Agropyron trachycaulum</i>	greenleaf fescue-slender wheatgrass
FEVI-CAHO	<i>Festuca viridula</i> - <i>Carex hoodii</i>	greenleaf fescue-Hood's sedge
FEVI-CAPU	<i>Festuca viridula</i> - <i>Calamagrostis purpurascens</i>	greenleaf fescue-purple reedgrass
GRAM MEADOW	Graminoid Meadow	Graminoid Meadow
HODI/CARU	<i>Holodiscus discolor</i> / <i>Calamagrostis rubescens</i>	oceanspray/pinegrass
PHEM	<i>Prunus emarginata</i>	bittercherry
PREM/AGTR?	<i>Prunus emarginata</i> / <i>Agropyron trachycaulum</i>	bittercherry/slender wheatgrass
PSME/PHMA, PIPO	<i>Pseudotsuga menziesii</i> / <i>Physocarpus malvaceus</i> , <i>Pinus ponderosa</i>	Douglas-fir/mallow ninebark, ponderosa pine
SPBE/AGTR	<i>Spiraea betulifolia</i> / <i>Agropyron trachycaulum</i>	white spirea/slender wheatgrass
THPL/CLUN, CLUN	<i>Thuja plicata</i> / <i>Clintonia uniflora</i> , <i>Clintonia uniflora</i>	western red cedar/bride's bonnet, bride's bonnet
THPL/CLUN, XETE	<i>Thuja plicata</i> / <i>Clintonia uniflora</i> , <i>Xerophyllum tenax</i>	western red cedar/bride's bonnet, common beargrass
THPL/CLUN, MEFE	<i>Thuja plicata</i> / <i>Clintonia uniflora</i> , <i>Menziesia ferruginea</i>	western red cedar/bride's bonnet, rusty menziesia
TSHE/ASCA, ASCA	<i>Tsuga heterophylla</i> / <i>Asarum caudatum</i> , <i>Asarum caudatum</i>	western hemlock/British Columbia wildginger, British Columbia wildginger

Association Code	Scientific Name	Common Name
TSHE/CLUN, CLUN	<i>Tsuga heterophylla</i> / <i>Clintonia uniflora</i> , <i>Clintonia uniflora</i>	western hemlock/bride's bonnet, bride's bonnet
TSHE/CLUN, MEFE	<i>Tsuga heterophylla</i> / <i>Clintonia uniflora</i> , <i>Menziesia ferruginea</i>	western hemlock/bride's bonnet, rusty menziesia
TSHE/CLUN, XETE	<i>Tsuga heterophylla</i> / <i>Clintonia uniflora</i> , <i>Xerophyllum tenax</i>	western hemlock/bride's bonnet, common beargrass
TSHE/GYDR	<i>Tsuga heterophylla</i> / <i>Gymnocarpium dryopteris</i>	western hemlock/western oakfern
TSME/CLUN	<i>Tsuga mertensiana</i> / <i>Clintonia uniflora</i>	mountain hemlock/bride's bonnet
TSME/CLUN, CLUN	<i>Tsuga mertensiana</i> / <i>Clintonia uniflora</i> , <i>Clintonia uniflora</i>	mountain hemlock/bride's bonnet, bride's bonnet
TSME/CLUN, MEFE	<i>Tsuga mertensiana</i> / <i>Clintonia uniflora</i> , <i>Menziesia ferruginea</i>	mountain hemlock/bride's bonnet, rusty menziesia
TSME/LUHI	<i>Tsuga mertensiana</i> / <i>Luzula hitchcockii</i>	mountain hemlock/Hitchcock's smooth woodrush
TSME/MEFE, LUHI	<i>Tsuga mertensiana</i> / <i>Menziesia ferruginea</i> , <i>Luzula hitchcockii</i>	mountain hemlock/rusty menziesia, Hitchcock's smooth woodrush
TSME/MEFE, MEFE	<i>Tsuga mertensiana</i> / <i>Menziesia ferruginea</i> , <i>Menziesia ferruginea</i>	mountain hemlock/rusty menziesia, rusty menziesia
TSME/MEFE, XETE	<i>Tsuga mertensiana</i> / <i>Menziesia ferruginea</i> , <i>Xerophyllum tenax</i>	mountain hemlock/rusty menziesia, common beargrass
TSME/STAM, MEFE	<i>Tsuga mertensiana</i> / <i>Streptopus amplexifolius</i> , <i>Menziesia ferruginea</i>	mountain hemlock/claspleaf twistedstalk, rusty menziesia
TSME/XETE	<i>Tsuga mertensiana</i> / <i>Xerophyllum tenax</i>	mountain hemlock/common beargrass
TSME/XETE, LUHI	<i>Tsuga mertensiana</i> / <i>Xerophyllum tenax</i> , <i>Luzula hitchcockii</i>	mountain hemlock/common beargrass, Hitchcock's smooth woodrush
TSME/XETE, MEFE	<i>Tsuga mertensiana</i> / <i>Xerophyllum tenax</i> , <i>Menziesia ferruginea</i>	mountain hemlock/common beargrass, rusty menziesia
TSME/XETE, VASC	<i>Tsuga mertensiana</i> / <i>Xerophyllum tenax</i> , <i>Vaccinium scoparium</i>	mountain hemlock/common beargrass, grouse whortleberry
TSME/XETE, XETE	<i>Tsuga mertensiana</i> / <i>Xerophyllum tenax</i> , <i>Xerophyllum tenax</i>	mountain hemlock/common beargrass, common beargrass
VAME/FEVI	<i>Vaccinium membranaceum</i> / <i>Festuca viridula</i>	thinleaf huckleberry/greenleaf fescue
VAME/XETE	<i>Vaccinium membranaceum</i> / <i>Xerophyllum tenax</i>	thinleaf huckleberry/common beargrass
XETE/CAGE	<i>Xerophyllum tenax</i> / <i>Carex geyeri</i>	common beargrass/Geyer's sedge

Appendix 2. Detailed summary of field inventory results. Selected data collected on ecology plots during the 2000 through 2003 field seasons are listed with data for spatially associated vegetation map polygons. Data for the *polygon label* and *assigned cover class* are from Upper Columbia-Salmon Clearwater District (2000) or (for entries beginning “stjo”) Landscape Dynamics Lab (2002). Lynx habitat classes are defined in Box 1. Cover class codes correspond to Table 1. Plant association codes and classification follows Cooper et al. (1991). The plant community nomenclature applied here is: plant association refers to the potential natural vegetation that occupies a habitat type. Keys to structural and ecological condition codes are given at the end of the table.

Plot id	Plant association	Series	Seral status	Structural condition	Ecological Condition	Polygon label	Lynx_habit	Assigned cover class	Observed cover class
000728-1051	TSME/MEFE, XETE		mid	mt	A	ROP417	non-lynx	7300	7300
000728-1135	TSME/MEFE, XETE		early-mid	tbdæ	A	ROP420	non-lynx	4220	3202
000728-1216	TSME/MEFE, MEFE		mid	mt	A	ROP948	non-lynx	3203	3203
000728-1322	TSME/STAM, MEFE		mid	mt	A	ROP488	forage-low	4208	4220
000728-1520	TSME/MEFE, LUHI		mid	mt	A	ROP500	forage-high	4208	4220
000728-1713	TSME/XETE, LUHI		late	lt	A	ROP490	non-lynx	7300	3104
000728-1734	TSME/MEFE, LUHI		late	lt	A	ROP985	forage-high	4220	4220
000728-1808	TSME/XETE, LUHI		late	lt	A	ROP984	non-lynx	3104	3104
000731-1655	THPL/CLUN, CLUN		mid	mt	A	ROP808	forage-high	4208	4221
000731-1735	TSME/CLUN, MEFE		mid-late	lt	A	ROP810	forage-high	4221	4221
000731-1818	TSME/CLUN, MEFE		mid-late	lt	A	ROP810	forage-high	4221	4221
000731-1909	ABGR/COOC		mid		A	ROP813	forage-high	4225	4225
000801-1722	TSME/CLUN, MEFE		mid	mt	A	ROP830	forage-high	4220	4220
000801-1848		XETE	late	hedæ	A	ROP401	non-lynx	3104	3104
000801-1946	CAAQ		late	hedæ	A	ROP401	non-lynx	3104	3104
000801-2017	TSME/MEFE, XETE		mid	po	A	ROP405	forage-high	4220	4220
000802-0931	TSME/XETE, XETE		mid	mt	A	ROP399	forage-high	4220	4220
000802-1051	TSME/XETE		early-mid	tbdau	A	ROP837	non-lynx	3203	3203
000802-1131	TSME/MEFE, XETE		mid	mt	A	ROP399	forage-high	4220	4220
000802-1157	TSME/MEFE, LUHI		mid	mt	A	ROP900	forage-high	4208	4220
000802-1225	TSME/MEFE, LUHI		mid	mt	A	ROP325	forage-high	4220	4220
000802-1415	TSME/XETE, LUHI		mid	mt	A	ROP325	forage-high	4220	4220
000802-1443	TSME/CLUN, XETE		mid	mt	A	ROP839	forage-high	4220	4220

Plot id	Plant association	Series	Seral status	Structural condition	Ecological Condition	Polygon label	Lynx_habit	Assigned cover class	Observed cover class
000802-1550	ALSI		late	tbdac	A	ROP839	forage-high	4220	4220
000802-1636	TSHE/CLUN, MEFE		mid	mt	A	ROP838	forage-high	4220	4220
000802-1719	TSHE/CLUN, MEFE		mid	mt	A	ROP830	forage-high	4220	4221
000802-1759	TSHE/GYDR		mid		A	ROP830	forage-high	4220	4221
000802-1818	TSHE/CLUN, CLUN		mid	mt	A	ROP325	forage-high	4220	4221
000802-1848	THPL/CLUN, XETE		mid	mt	A	ROP325	forage-high	4220	4221
000802-1919	TSHE/CLUN, CLUN		mid-late	mt	A	ROP325	forage-high	4220	4221
000802-1951	TSME/MEFE, XETE		mid	mt	A	ROP325	forage-high	4220	4220
000802-2008	TSME/XETE, LUHI		mid	mt	A	ROP325	forage-high	4220	4220
000803-1619	TSME/MEFE, XETE		late	ltdau	A	ROP187	forage-high	4229	4220
000803-1920		XETE	late	hedae	A	TWI293	non-lynx	3104	3104
000803-1956		FEVI	late	hedae	A	TWI293	non-lynx	3104	3104
000804-1255	TSME/LUHI		pnc		A	TWI324	non-lynx	3104	3104
000804-1349	TSME/XETE, XETE		late	mt	A	TWI324	non-lynx	3104	3104
000804-1359	ABLA/XETE, VASC		mid	lt	A	TWI324	non-lynx	3104	3104
000804-1436	TSME/XETE, XETE		late	lt	A	TWI794	forage-high	4208	4204
000804-1532	TSME/XETE, XETE		late	ltdae	A	TWI794	forage-high	4208	4204
000804-1654		FEVI	late	hedae	A	TWI794	non-lynx	4208	3104
000804-1747		XETE	late	hedae	A	TWI324	non-lynx	3104	3104
000804-1848		XETE	late	hedae	A	TWI324	non-lynx	3104	3104
000823-1040	TSME/XETE, LUHI		mid	mtdae	A	TWI317	forage-high	4220	4203
000823-1250	TSME/XETE, XETE		mid	mt	A	TWI317	forage-high	4220	4203
000823-1315	TSME/XETE, XETE		mid-late	mt	A	TWI317	forage-high	4220	4203
000823-1350	TSME/MEFE, MEFE		late	lt	A	TWI332	forage-high	4208	4204
000823-1515	TSME/MEFE, XETE		mid	po	A	TWI332	forage-high	4208	4208
000823-1540	TSHE/GYDR		late		A	TWI316	forage-high	6101	6101
000823-1645	TSME/CLUN, XETE		early-mid	mt	A	TWI316	forage-high	6101	6101
000823-1720	TSME/XETE, XETE		early	mt	A	TWI314	forage-high	4220	4203

Plot id	Plant association	Series	Seral status	Structural condition	Ecological Condition	Polygon label	Lynx_habit	Assigned cover class	Observed cover class
000823-1745	TSME/CLUN, MEFE		early-mid	mt	A	TWI314	forage-high	4220	4203
000823-1830	TSME/CLUN, XETE		early-mid	mt	A	TWI314	forage-high	4220	4203
000823-1930	TSME/XETE, XETE		early-mid	mt	A	TWI314	forage-high	4220	4203
000824-0925	TSME/XETE, VASC		mid-late	mt	AB	TWI711	forage-high	4220	4203
000824-1005	TSME/XETE, XETE		early mid	mtdae	AB	TWI290	forage-high	4220	4203
000824-1200	TSME/XETE, XETE		early-mid	mt	A	TWI290	forage-high	4220	4203
000824-1305	TSME/XETE, XETE		early-mid	mt	B	TWI748	forage-high	4203	4225
000824-1335	TSME/CLUN, CLUN		mid	lt	A	TWI294	forage-high	4220	4223
000824-1405	TSME/CLUN, CLUN		early-mid	mt	A	TWI295	forage-high	3203	3203
000824-1605	TSHE/CLUN, CLUN		early-mid	mt	A	TWI310	forage-high	4221	4225
000824-1650	TSME/CLUN, CLUN		early-mid	mt	A	TWI310	forage-high	4221	4203
000824-1735	ABGR/CLUN, XETE		early-mid	mt	A	TWI310	forage-high	4221	4203
000824-1815	ABGR/CLUN, CLUN		late	lt	A	TWI717	forage-high	4221	4221
000824-1855	TSME/CLUN, MEFE		early-late	lt	A	TWI302	forage-high	4220	4221
000824-1930	TSHE/CLUN, XETE		late	lt	B	TWI251	forage-high	4221	4221
000825-0845		XETE	late	hedae	A	TWI289	non-lynx	7300	3104
000825-0935		FEVI	late	hedae	A	TWI289	non-lynx	7300	3104
000825-1020		CAGE	late	hedae	A	TWI289	non-lynx	7300	3104
000825-1130		FEVI	late	hedae	A	TWI709	non-lynx	3104	3104
000825-1450	TSHE/ASCA, ASCA		mid-late	mt	AB	MAS726	forage-low	4221	4221*
000825-1525	TSHE/CLUN, CLUN		mid	mt	B	MAS726	forage-low	4221	4221*
000825-1615	ABGR/CLUN, PHMA		mid-late	mt	AB	MAS243	forage-high	4221	4221
000825-1700	TSHE/CLUN, CLUN		early-mid	mt	A	MAS255	forage-high	4221	4221
000825-1730	THPL/CLUN, CLUN		mid	mt	A	MAS243	forage-high	4221	4221
000825-1800	TSHE/ASCA, ASCA		early-mid	mt	B	MAS255	forage-high	4221	4221
000825-1900	TSHE/CLUN, MEFE		mid	mt	B	MAS264	forage-high	4221	4221
000825-1935	TSME/XETE, MEFE		mid	po	A	MAS804	forage-high	4225	4220
000826-0655	TSME/XETE, MEFE		mid	po	B	MAS804	forage-high	4225	4220

Plot id	Plant association	Series	Seral status	Structural condition	Ecological Condition	Polygon label	Lynx_habit	Assigned cover class	Observed cover class
000826-0720	ABGR/ACGL, ACGL		early	tbdau	C	MAS752	temp. non-lynx	3203	3203
000826-0755	ABGR/ACGL, ACGL		mid	mt	A	MAS269	forage-high	4222	4225
000826-0825	TSME/XETE, MEFE		mid	mt	B	MAS804	forage-high	4225	4220
010912-1447	TSHE/CLUN, CLUN		mid	mtdae	AB	ROP239	forage-low	4221	4221
010912-1539	TSHE/CLUN, CLUN		mid	mtmbu	AB	ROP239	forage-low	4221	4221
010912-1618	TSHE/CLUN, CLUN		mid	mtmbu	AB	ROP239	forage-high	4221	4221
010913-0945	TSME/XETE, XETE		mid	mtmbe	AB	ROP399	forage-high	4220	3203
010913-0946	TSME/XETE, XETE		mid-late	mtmbu	A	ROP399	forage-low	4220	3203
010913-1006	TSME/XETE, XETE		mid	mtmbe	AB	ROP399	forage-high	4220	3203
010913-1103	TSME/XETE, XETE		mid	mtmbe	AB	ROP399	forage-low	4220	3203
010913-1105	TSME/XETE, XETE		mid	mtmbe	A	ROP399	forage-low	4220	3203
010913-1121	TSME/XETE, XETE		mid	mtmbe	AB	ROP399	forage-low	4220	3203
010913-1500	TSME/XETE, XETE		mid	mtmae	A	MAS077	forage-high	4220	4220
010913-1508	ABLA/XETE, XETE		mid	mtmbe	A	MAS077	forage-low	4220	4220
010913-1528	ABLA/PHMA		mid	mtdae	A	MAS077	forage-low	4220	4220
010913-1551	TSME/XETE, XETE		mid	mtmbe	AB	MAS077	forage-low	4220	4220
010914-1149	ABGR/ACGL, PHMA		mid	mtdae	AB	MAS077	forage-low	4220	4220
010914-1246	ABGR/ACGL, PHMA		mid	ltdae	AB	MAS033	forage-high	4220	4221
010914-1323	ABLA/PHMA		mid	ltdae	AB	MAS033	forage-low	4220	4221
010914-1349	ABGR/ACGL, PHMA		mid	ltmau	AB	MAS056	forage-high	4222	4222
010914-1503	THPL/CLUN, MEFE		mid	ltdae	AB	MAS070	forage-low	4221	4221
010914-1520	ABGR/ACGL, PHMA		mid	ltmbu	A	MAS070	forage-low	4221	4221
010914-1614	PSME/PHMA, PIPO		mid	ltmau	AB	MAS068	forage-high	4222	4222
010914-1723	TSME/XETE, XETE		mid	mtmbu	AB	MAS101	forage-high	4221	4220
010914-1730	TSME/XETE		mid	mtdau	A	MAS101	forage-high	4221	4220
010914-1745	ABLA/XETE, VAGL		mid-late	mtmbu	B	MAS676	forage-high	4222	4220
010914-1810	TSME/XETE, XETE		mid	mtdau	A	MAS101	forage-high	4221	4220
010914-1814	TSME/XETE, XETE		mid-late	mtmbu	A	MAS654	forage-high	4220	4220

Plot id	Plant association	Series	Seral status	Structural condition	Ecological Condition	Polygon label	Lynx_habit	Assigned cover class	Observed cover class
010914-1850	TSME/XETE, XETE		mid-late	mtmbu	B	MAS654	forage-high	4220	4220
010915-1025	ABLA/XETE, XETE		mid	pombe	AB	MAS114	forage-high	4220	4220
010915-1030	TSME/XETE, XETE		mid	pombe	A	MAS114	forage-low	4220	4302
010915-1500	TSME/MEFE, MEFE		mid	mtmbu	A	MAS163	forage-high	4220	4220
010915-1535	TSME/MEFE, MEFE		mid	pombu	AB	MAS163	forage-high	4220	4220
010915-1539	TSME/MEFE, XETE		mid-late	mtmbu	A	MAS717	forage-high	4220	4220
010915-1620	TSME/MEFE, XETE		mid	mtmbu	A	MAS573	forage-high	4220	4220
010915-1621	TSME/XETE		early-mid	mtmbu	A	MAS573	forage-high	4220	4220
010915-1659	TSME/XETE, XETE		mid	mtmbu	A	MAS163	forage-low	4220	4220
010915-1715	TSME/XETE, XETE		mid	missing	A	MAS163	forage-high	4220	4220
010915-1800	TSME/XETE, XETE		mid	mtdau	A	MAS408	forage-high	4221	4221
020820-1218	TSME/XETE, XETE		mid	mtmbu	A	ROP928	non-lynx	4225	4215
020820-1351	TSME/XETE, XETE		mid	mtmbu	A	ROP929	forage-high	4203	4221
020820-1519	TSME/XETE, XETE		mid	mtmae	A	ROP989	forage-low	4220	4221
020820-1624	ABGR/CLUN, XETE		mid	mtmbu	A	ROP970	forage-low	4225	4225
020820-1658	ABGR/VAGL		mid	mtmbe	A	ROP452	forage-low	4222	4225
020820-1740	ABGR/VAGL		mid	ltobu	A	ROP452	temp. non-lynx	4222	4225
020820-1803	ABGR/CLUN, XETE		mid	mtmae	A	ROP969	forage-low	4225	4225
020820-1832	ABGR/CLUN, PHMA		early-mid	tbdau	A	ROP447	temp. non-lynx	3202	3203
020820-1918	TSME/XETE, XETE		mid	mtmau	A	ROP450	forage-low	4225	4225
020820-1956	TSME/MEFE, MEFE		mid	mtdau	A	ROP929	forage-high	4203	4233
020821-1110	VAME/XETE		late	maobe	A	ROP390	non-lynx	3104	3104
020821-1158	TSME/XETE, XETE		early-mid	poou	A	ROP390	temp. non-lynx	3104	3104
020821-1221	TSME/XETE, XETE		mid	mtobu	A	ROP388	forage-high	4229	4220
020821-1251	TSME/XETE, XETE		mid	mtmbu	A	ROP388	forage-high	4229	4221
020821-1330	TSME/XETE, XETE		mid	mtmau	A	ROP388	forage-high	4229	4220
020821-1501	HODI/CARU		late	mbnae	A	ROP386	non-lynx	3104	3104
020821-1540	VAME/XETE		late	lsnae	A	ROP386	non-lynx	3104	3104

Plot id	Plant association	Series	Seral status	Structural condition	Ecological Condition	Polygon label	Lynx_habit	Assigned cover class	Observed cover class
020821-1720	TSME/XETE, XETE		mid	mtmbu	A	ROP385	forage-high	4222	4221
020821-1754	VAME/FEVI		mid	mbmae	A	ROP386	non-lynx	3104	3104
020821-1830	TSME/MEFE, XETE		mid-late	mtmbu	A	ROP386	forage-high	3104	4233
020821-1851	TSME/XETE, XETE		mid	mtdau	A	ROP892	forage-high	3203	4220
020822-1220	TSME/XETE, LUHI		late	gtmbu	A	SJB089	forage-low	4221	4204
020822-1326	TSME/MEFE, LUHI		late	gtmau	A	ROP498	denning	4208	4204
020822-1441	XETE/CAGE		late	hedae	A	TWI439	non-lynx	3104	3104
020822-1531	TSME/XETE, LUHI		mid	mtmbu	A	ROP498	forage-high	4208	4204
020822-1622	TSME/XETE, VASC		late	ltmau	A	ROP982	forage-high	3104	4204
020822-1648	FEVI-AGTR		late	hedae	A	ROP980	non-lynx	3104	3101
020822-1812	TSME/XETE, XETE		late	ltmau	A	SJB081	forage-high	4221	4220
020822-1835	TSME/XETE, XETE		late	ltmbu	AB	SJB089	forage-low	4221	4204
020822-1856	TSME/XETE, XETE		mid - late	mtoau	AB	SJB088	non-lynx	4225	4220
020822-1925	TSME/MEFE, XETE		mid	mtmbu	A	SJB089	forage-high	4221	4220
020823-1002	TSME/XETE, VASC		mid-early	mtmau	A	ROP946	forage-high	4220	4220
020823-1027	TSME/XETE, XETE		mid	mtmbu	A	ROP946	forage-high	4220	4220
020823-1102	TSME/XETE, XETE		mid	mtmbu	A	ROP944	forage-high	4220	4220
020823-1144	ABGR/ACGL, ACGL		late	ltmbu	A	SJB094	forage-high	4225	4207
030801-1235	TSHE/GYDR?		mid	mtdae	A	TWI763	forage-low	4221	4221
030801-1320	THPL/CLUN, CLUN		mid	mtdae	A	TWI762	forage-low	4221	4221
030801-1415	ABGR/COOC		mid	mtdae	A	TWI763	forage-low	4221	4221
030801-1440	ABGR/COOC		mid	mtdae	A	TWI365	forage-low	4227	4225
030801-1505	TSHE/CLUN, CLUN		mid	mtdae	A	TWI762	forage-low	4221	4221
030801-1530	TSHE/CLUN, TETE		mid	mtmbe	A	TWI356	forage-low	4226	4225
030801-1615	TSME/XETE, XETE		early mid	mtoae	A	TWI358	temp. non-lynx	3202	3202
030801-1650	TSME/XETE, XETE		early mid	mtoae	A	TWI358	temp. non-lynx	3202	3202
030801-1800	GRAM MEADOW		late	hedae	A	TWI363	non-lynx	3104	3104
030801-1850	TSME/XETE, XETE		late	mtdae	A	TWI360	forage-high	4229	4204

Plot id	Plant association	Series	Seral status	Structural condition	Ecological Condition	Polygon label	Lynx_habit	Assigned cover class	Observed cover class
030802-1125	TSME/XETE, LUHI		late	ltmbe	A	TWI665	forage-high	4208	4204
030802-1220	TSME/XETE, XETE		late	mtmbe	A	TWI665	denning	4208	4204
030802-1330	TSME/MEFE, XETE		late	mtmbe	A	TWI665	forage-low	4208	4204
030802-1435	TSME/XETE, XETE		late	mtmae	A	TWI247	forage-high	4220	4220
030802-1455	TSME/MEFE, XETE		late	mtmae	A	TWI247	temp. non-lynx	4220	4204
030802-1520	TSME/XETE, LUHI		late	mtmbe	A	TWI247	forage-low	4220	4220
030802-1545	TSME/XETE, XETE		late	mtmbe	A	TWI247	forage-low	4220	4220
030802-1615	TSME/XETE, XETE		late-pnc	ltmbe	A	TWI247	forage-low	4220	4204
030802-1700	TSME/MEFE, XETE		mid	pomae	A	TWI298	forage-high	4208	4204
030802-1720	TSME/MEFE, XETE		late	ltmbe	A	TWI298	forage-high	4208	4204
030802-1800	TSME/XETE, XETE		mid	mtmae	A	TWI714	forage-high	4220	4220
030803-1115	FEVI/ASFO		late	hedae	A	TWI297	non-lynx	3104	3104
030803-1315	PREM/AGTR		late	maoae	A	TWI297	non-lynx	3104	3104
030803-1425	SPBE/AGTR		late	mamae	A	TWI297	non-lynx	3104	3104
030803-1540	FEVI-CAPU		late	lsoae	A	TWI297	non-lynx	3104	3104
030803-1650	FEVI-AGTR		late	hedae	A	TWI297	non-lynx	3104	3104
030804-1638	ABLA/CACA, LEGL		mid	pombu	B	WDM033	forage-high	4204	4208
030804-1717	TSME/MEFE, XETE		mid	pomae	B	WDM033	forage-high	4204	3104
030804-1808	TSME/STAM, MEFE		late	ltmbu	B	WDM031	forage-high	4220	4220
030805-1105	TSME/XETE, LUHI		mid	mtdau	A		forage-low		
030805-1142	TSME/MEFE, LUHI		late	ltdau	A	WDM041	forage-low	3201	4204
030805-1200	ABLA/XETE, XETE		late	mtoa	A		non-lynx		
030805-1243	TSME/XETE, VASC		mid	mtmbu	A	WDM043	forage-low	4204	4208
030805-1317	TSME.XETE, XETE		late	ltmbu	A	WDM043	forage-low	4204	4204
030805-1345	TSME/MEFE, LUHI		mid-late	ltmbu	A	WDM043	forage-high	4204	4204
030805-1516	TSME/XETE, LUHI		mid	mtmau	A	WDM047	forage-high	7300	4204
030805-1640	PHEM		late		A	WDM047	non-lynx	7300	3203
030805-1742	TSME/MEFE, LUHI		late	gtmbu	A		forage-low		

Plot id	Plant association	Series	Seral status	Structural condition	Ecological Condition	Polygon label	Lynx_habit	Assigned cover class	Observed cover class
030805-1834	TSME/LUHI		mid	mtmbu	A		forage-low		
030805-1915	FEVI-CAHO		late	hedae	A	WDM074	non-lynx	4204	3104
030805-1956	TSME/LUHI		mid	mtmbu	A	WDM074	forage-high	4204	4204
030806-0620	FEVI-CAHO		late	hedae	A	WDM090	non-lynx	4204	3104
030806-1010	TSME/CLUN		mid	mtmbu	BC	WDM023	temp. non-lynx	4208	4208
030806-1023	TSME/CLUN, MEFE		mid	pombu	AB	WDM031	forage-high	4220	4220
030806-1040	DECE GRAM MEADOW		late	hedae	AB	WDM034	non-lynx	3203	3203
030806-1057	TSME/CLUN, MEFE		mid	mtdau	AB	WDM033	forage-low	4204	4204
030806-1105	ABLA/CACA, LEGL		mid	mtmae	A	WDM023	forage-high	4208	3104
030806-1120	TSME/CLUN, MEFE		mid-late	mtmbu	AB	WDM023	forage-high	4208	4204
030806-1155	TSME/CLUN, MEFE		mid	mtmbu	B	WDM023	forage-high	4208	4204
030806-1310	TSME/CLUN, CLUN		mid	mtmae	B	WDM036	temp. non-lynx	4220	4220
030806-1324	TSME/CLUN, MEFE		mid	mtmbu	A	WDM036	forage-high	4220	4220
030806-1330	TSME/CLUN, MEFE		mid	mtobe	A	WDM036	temp. non-lynx	4220	4220
030806-1345	ABLA/STAM, STAM		mid	mtmau	B	WDM036	non-lynx	4220	4220
030806-1440	ABLA/STAM, LICA		mid	mtobu	AB	WDM036	temp. non-lynx	4220	4220
030806-1450	TSME/MEFE		early-mid	poobu	C	WDM036	temp. non-lynx	4220	4220
030806-1505	TSME/STAM, MEFE		mid	mtmbu	A	WDM036	forage-high	4220	4220
030806-1536	TSME/STAM, MEFE		early	pooau	B	WDM036	temp. non-lynx	4220	4202

Structural Condition

A five character string incorporating code for height, canopy cover, and canopy layering (strata) is given as follows:

	Code	Description
Height classes:		
Herbland	he	herbland. Grasses and herbs the only lifeform present.
Shrubland	ls	low shrub. Shrubs are 0 - 1.5 feet tall.
	Ma	medium shrub. Shrubs are 1.6 - 2.5 feet tall.
	Mb	medium tall shrub. Shrubs are 2.6 - 4.0 feet tall.
	ta	tall shrub. Shrubs are 4 - 6.5 feet tall.
	tb	very tall shrub. Shrubs are ≥ 6.5 (and < 16.5) feet tall.
Forest	--	trees, if present, are < 1 inch diameter at breast height (dbh); grasses, herbs, or shrubs may be dominant (refer to previous classes).
	sa	sapling tree. 20 trees per acre 1 - 4.9 inches dbh. ¹
	po	pole tree. 15 trees per acre 5 - 8.9 inches dbh.
	mt	medium tree. 10 trees per acre 9 - 20.9 inches dbh.
	lt	large tree. 10 trees per acre 21 - 31.9 inches dbh.
	vt	giant tree. 5 trees per acre > 31.9 inches dbh.
Cover classes:	na	< 10 percent canopy cover.
	oa	≥ 10 and < 15 percent canopy cover.
	ob	≥ 15 and ≤ 25 percent canopy cover.
	ma	> 25 and ≤ 40 percent canopy cover.
	mb	> 40 and ≤ 66 percent canopy cover.
	da	> 66 percent cover.
Shrub strata	n	no strata.
	e	one stratum with < 30 percent difference in height.
	u	Two or more strata (of the same life form) with > 30 percent difference in height. If shrubland, a second shrub strata must have ≥ 25 percent cover. If herbland or grassland, a second herb or grass strata must have ≥ 10 percent cover (including cryptograms).

Ecological Condition

Code	Description
A	Pristine condition. Evidence of post-industrial human-caused disturbance is absent. Exotic species are absent
B	Little evidence of post-industrial human-caused disturbance is present. Stand composition and structure is predominantly natural. Exotic species are only common (\leq one percent cover).
C	Post-industrial human-caused disturbance is apparent. Stand composition and structure is altered. Exotic species are well represented to abundant (5 – 25 percent cover)
D	Evidence of post-industrial human-caused disturbance is prevalent. Stand composition and structure is altered. Native species are present, but are in peril of loss. Increasers dominate the stand. Invader species are a significant compositional component.
F	Native stand composition, structure, and function are significantly altered. Re-establishment of native stand composition, structure, and function will require large energy inputs.

¹ This applies to the largest trees present. A class is determined by the average diameter at breast height (dbh) of the number of trees per acre indicated.

Appendix 3. Vascular plant species observed during the 2000 through 2003 field seasons within Latour Creek and Pine Creek LAUs. Species are listed alphabetically by life form. Distribution within the study area is indicated by study site. Nomenclature follows Hitchcock and Cronquist (1973).

Species	Common Name	Ahrs Canyon	Butler Creek	Fortynine Meadows	Highland-Douglas Creeks	Latour Peak	Lookout Mountain	Point 6168	Rochat Peak	Street-Rochat Creeks	Upper Hunter Creek	West Fork Pine Creek
Trees												
<i>Abies grandis</i>	grand fir	x	x		x					x	x	x
<i>Abies lasiocarpa</i>	subalpine fir	x	x	x	x	x	x	x		x	x	x
<i>Betula papyrifera</i>	paper birch				x							
<i>Larix occidentalis</i>	western larch		x		x	x			x	x	x	x
<i>Picea engelmannii</i>	Engelmann spruce	x		x	x	x			x	x		x
<i>Pinus albicaulis</i>	whitebark pine						x					
<i>Pinus contorta</i>	lodgepole pine	x	x		x	x	x	x	x	x		x
<i>Pinus monticola</i>	western white pine		x	x	x	x	x		x	x	x	x
<i>Pinus ponderosa</i>	ponderosa pine				x				x			x
<i>Populus tremuloides</i>	quaking aspen				x				x			
<i>Populus trichocarpa</i>	quaking aspen	x										
<i>Pseudotsuga menziesii</i>	Douglas-fir	x	x		x	x		x	x	x	x	x
<i>Rhamnus purshiana</i>	Pursh's buckthorn								x			
<i>Taxus brevifolia</i>	Pacific yew										x	x
<i>Thuja plicata</i>	western red cedar		x		x				x		x	x
<i>Tsuga heterophylla</i>	western hemlock				x	x			x		x	x
<i>Tsuga mertensiana</i>	mountain hemlock	x	x	x	x	x	x	x	x	x	x	x
Shrubs												
<i>Acer glabrum</i>	Rocky Mountain maple	x	x		x	x		x	x	x	x	x
<i>Alnus sinuata</i>	Sitka alder		x		x	x			x		x	x
<i>Amelanchier alnifolia</i>	Saskatoon serviceberry	x	x		x	x		x	x	x	x	x
<i>Berberis repens</i>	creeping barberry				x							x
<i>Cassiope mertensiana</i>	western moss heather			x								

Species	Common Name	Ahrs Canyon	Butler Creek	Fortynine Meadows	Highland-Douglas Creeks	Latour Peak	Lookout Mountain	Point 6168	Rochat Peak	Street-Rochat Creeks	Upper Hunter Creek	West Fork Pine Creek
Shrubs (continued)												
<i>Ceanothus velutinus</i>	snowbrush ceanothus				x			x	x	x	x	
<i>Cornus stolonifera</i>	redosier dogwood											x
<i>Holodiscus discolor</i>	oceanspray	x	x		x	x			x	x	x	x
<i>Juniperus communis</i>	common juniper								x			
<i>Kalmia microphylla</i>	alpine laurel			x								
<i>Ledum glandulosum</i>	western Labrador tea			x								
<i>Lonicera ciliosa</i>	orange honeysuckle				x							
<i>Lonicera involucrata</i>	twinberry honeysuckle			x								
<i>Lonicera utahensis</i>	Utah honeysuckle	x	x	x	x	x	x	x	x	x	x	x
<i>Menziesia ferruginea</i>	rusty menziesia	x	x	x	x	x	x		x	x	x	x
<i>Pachistima myrsinites</i>	boxwood	x	x		x	x			x	x	x	x
<i>Philadelphus lewisii</i>	Lewis' mock orange				x				x			
<i>Phyllodoce empetriformis</i>	pink mountainheath						x	x				
<i>Physocarpus malvaceus</i>	mallow ninebark	x	x		x					x	x	x
<i>Prunus emarginata</i>	bitter cherry	x			x	x		x	x	x		
<i>Ribes hudsonianum</i>	northern black currant			x								
<i>Ribes lacustre</i>	prickly currant			x		x			x			
<i>Ribes montigenum</i>	gooseberry currant			x		x	x					
<i>Ribes viscosissimum</i>	sticky currant					x			x	x		x
<i>Ribes viscosissimum viscosissimum</i>	sticky currant		x									
<i>Rosa gymnocarpa</i>	dwarf rose	x	x		x	x			x	x	x	x
<i>Rubus idaeus</i>	American red raspberry						x					
<i>Rubus parviflorus</i>	thimbleberry	x	x		x	x			x	x	x	x
<i>Salix drummondiana</i>	Drummond's willow			x								

Species	Common Name	Ahrs Canyon	Butler Creek	Fortynine Meadows	Highland-Douglas Creeks	Latour Peak	Lookout Mountain	Point 6168	Rochat Peak	Street-Rochat Creeks	Upper Hunter Creek	West Fork Pine Creek
Shrubs (continued)												
<i>Salix scouleriana</i>	Scouler's willow	x	x		x	x			x	x	x	x
<i>Sambucus cerulea</i>	blue elderberry								x			
<i>Sambucus racemosa</i>	red elderberry	x	x			x	x		x		x	
<i>Sambucus</i> spp.	elderberry	x										
<i>Sorbus scopulina</i>	Greene's mountain ash	x	x		x	x	x	x	x	x	x	x
<i>Sorbus sitchensis</i>	western mountain ash					x		x	x			
<i>Spiraea betulifolia</i>	white spirea	x	x		x	x		x	x	x	x	x
<i>Spiraea densiflora</i>	subalpine spirea					x		x	x			
<i>Symphoricarpos albus</i>	common snowberry	x			x							
<i>Vaccinium globulare</i>	globe huckleberry	x	x	x	x	x		x	x	x	x	x
<i>Vaccinium membranaceum</i>	thinleaf huckleberry	x	x		x	x	x	x	x	x	x	x
<i>Vaccinium myrtillus</i>	whortleberry	x				x		x	x			
<i>Vaccinium scoparium</i>	grouse whortleberry	x		x	x	x	x	x	x	x		x
Herbs												
<i>Achillea millefolium</i>	common yarrow	x		x	x	x		x	x	x	x	
<i>Aconitum columbianum</i>	Columbian monkshood								x			x
<i>Actaea rubra</i>	red baneberry		x						x		x	x
<i>Adenocaulon bicolor</i>	American trailplant	x	x		x				x	x	x	x
<i>Agastache urticifolia</i>	nettleleaf giant hyssop	x										
<i>Agoseris aurantiaca</i>	orange agoseris	x				x	x		x	x		
<i>Agoseris grandiflora</i>	big flower agoseris											x
<i>Agoseris retrorsa</i>	spearleaf agoseris					x		x	x			
<i>Anaphalis margaritacea</i>	western pearly everlasting	x	x	x	x	x	x		x			
<i>Anemone oregana</i>	Oregon anemone		x			x			x		x	x
<i>Anemone piperi</i>	Piper's anemone	x	x		x		x		x	x	x	x

Species	Common Name	Ahrs Canyon	Butler Creek	Fortynine Meadows	Highland-Douglas Creeks	Latour Peak	Lookout Mountain	Point 6168	Rochat Peak	Street-Rochat Creeks	Upper Hunter Creek	West Fork Pine Creek
Herbs (continued)												
<i>Antennaria microphylla</i>	littleleaf pussytoes	x	x	x		x	x	x	x	x		
<i>Antennaria racemosa</i>	raceme pussytoes		x		x				x			x
<i>Antennaria umbrinella</i>	brown pussy-toes						x					
<i>Apocynum androsaemifolium</i>	spreading dogbane				x				x			x
<i>Aquilegia flavescens</i>	yellow columbine								x			
<i>Arenaria capillaris</i>	slender mountain sandwort					x	x	x	x			
<i>Arenaria congesta</i>	ballhead sandwort					x		x	x	x		
<i>Arenaria kingii</i>	King's sandwort	x				x			x	x		
<i>Arenaria macrophylla</i>	bigleaf sandwort	x	x		x	x			x	x	x	x
<i>Arnica cordifolia</i>	heartleaf arnica	x	x	x	x	x	x	x	x	x	x	x
<i>Asarum caudatum</i>	British Columbia wildginger		x			x			x		x	x
<i>Aster foliaceus</i>	leafy aster	x				x	x		x			x
<i>Aster integrifolius</i>	thickstem aster								x			
<i>Aster</i> spp.	aster			x		x		x	x	x		
<i>Besseyia rubra</i>	red besseyia									x		
<i>Brickellia grandiflora</i>	tasselflower brickellbush							x	x			
<i>Calochortus elegans</i>	elegant mariposa lily					x	x	x	x	x		
<i>Calochortus eurycarpus</i>	white mariposa lily	x										
<i>Caltha leptosepala</i>	white marsh marigold			x								
<i>Campanula rotundifolia</i>	bluebell bellflower	x	x			x		x	x	x		
<i>Castilleja hispida</i>	harsh Indian paintbrush	x										
<i>Castilleja hispida acuta</i>	harsh paintbrush								x			
<i>Castilleja miniata</i>	giant red Indian paintbrush		x			x	x					
<i>Castilleja miniata miniata</i>	giant red Indian paintbrush								x			
<i>Castilleja</i> spp.	Indian paintbrush						x					

Species	Common Name	Ahrs Canyon	Butler Creek	Fortynine Meadows	Highland-Douglas Creeks	Latour Peak	Lookout Mountain	Point 6168	Rochat Peak	Street-Rochat Creeks	Upper Hunter Creek	West Fork Pine Creek
Herbs (continued)												
<i>Centaurea diffusa</i>	white knapweed										x	
<i>Centaurea maculosa</i>	spotted knapweed				x							
<i>Chimaphila menziesii</i>	little prince's pine	x	x		x				x	x	x	x
<i>Chimaphila umbellata</i>	pipsissewa	x	x	x	x	x		x		x	x	x
<i>Chrysanthemum leucanthemum</i>	oxeye daisy		x		x							
<i>Circaea alpina</i>	small enchanter's nightshade		x									x
<i>Cirsium arvense</i>	Canada thistle				x							
<i>Clintonia uniflora</i>	bride's bonnet	x	x	x	x	x			x	x	x	x
<i>Collinsia parviflora</i>	maiden blue eyed Mary									x		
<i>Coptis occidentalis</i>	Idaho goldthread		x	x	x	x			x	x	x	x
<i>Corallorhiza maculata</i>	spotted coral-root		x		x							
<i>Corallorhiza mertensiana</i>	Mertens' coral-root	x	x			x						x
<i>Dicentra formosa</i>	bleeding heart								x			
<i>Disporum hookeri</i>	drops of gold	x	x			x			x		x	x
<i>Dodecatheon pauciflorum</i>	darkthroat shootingstar						x					
<i>Dodecatheon</i> spp.	shootingstar			x								
<i>Epilobium angustifolium</i>	fireweed	x	x	x	x	x	x	x	x	x	x	
<i>Epilobium glaberrimum</i>	glaucus willowherb								x			
<i>Epilobium</i> spp.	willowherb							x				
<i>Eriogonum flavum</i>	alpine golden buckwheat						x		x	x		
<i>Eriogonum heracleoides</i>	parsnipflower buckwheat								x			
<i>Eriogonum umbellatum</i>	sulphur-flower buckwheat	x				x				x		
<i>Eriogonum umbellatum subalpinum</i>	sulfur flower					x	x	x	x			
<i>Erythronium grandiflorum</i>	yellow avalanche-lily	x			x	x		x	x	x		

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Herbs (continued)												
<i>Fragaria vesca</i>	woodland strawberry	x			x						x	
<i>Frasera</i> spp.	green gentian	x							x			
<i>Galium triflorum</i>	fragrant bedstraw	x	x	x	x	x			x		x	x
<i>Gaultheria ovatifolia</i>	Western teaberry			x								
<i>Gayophytum</i> spp.	groundsmoke									x		
<i>Gentiana calycosa</i>	Rainier pleated gentian			x								
<i>Gentiana calycosa calycosa</i>	Rainier pleated gentian								x			
<i>Geum macrophyllum</i>	largeleaf avens		x									
<i>Geum triflorum</i>	old man's whiskers					x						
<i>Gilia aggregata</i>	scarlet gilia	x				x						
<i>Goodyera oblongifolia</i>	western rattlesnake plantain	x	x		x	x	x		x	x	x	x
<i>Habenaria saccata</i>	slender bog orchid								x			
<i>Habenaria unalascensis</i>	slender-spire orchid								x			
<i>Hedysarum occidentale</i>	western sweetvetch					x						x
<i>Helianthella uniflora</i>	oneflower helianthella				x	x			x			x
<i>Heracleum lanatum</i>	common cowparsnip											x
<i>Heuchera cylindrica</i>	roundleaf alumroot					x						x
<i>Heuchera cylindrica glabella</i>	roundleaf alumroot								x			
<i>Hieracium albertinum</i>	western hawkweed	x				x	x					
<i>Hieracium albiflorum</i>	white hawkweed	x	x	x	x	x	x	x	x		x	x
<i>Hieracium cynoglossoides</i>	houndstongue hawkweed	x				x		x	x	x		
<i>Hieracium gracile</i>	slender hawkweed	x				x	x	x	x			
<i>Hieracium pratense</i>	meadow hawkweed		x									
<i>Hypericum formosum</i>	western St. John's-wort	x										
<i>Hypericum formosum scouleri</i>	western St. John's-wort					x		x	x			

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Herbs (continued)												
<i>Hypericum perforatum</i>	common St. Johnswort	x	x		x							
<i>Hypericum</i> spp.	St. Johnswort			x								
<i>Hypopitys monotropa</i>	pinemap				x				x	x	x	
<i>Ligusticum canbyi</i>	Canby's licorice-root					x	x		x			
<i>Ligusticum</i> spp.	licorice-root			x								
<i>Linnaea borealis</i>	twinflower			x	x		x				x	x
<i>Listera convallarioides</i>	broadlipped twayblade	x	x				x					
<i>Lomatium dissectum</i>	fernleaf biscuitroot								x	x		
<i>Lomatium</i> spp.	biscuitroot					x		x				
<i>Lomatium triternatum</i>	nineleaf biscuitroot	x							x	x		
<i>Lupinus argenteus argenteus</i>	silvery lupine								x			
<i>Lupinus polyphyllus</i>	bigleaf lupine	x				x				x		
<i>Lupinus polyphyllus burkei</i>	lupine				x				x			
<i>Lupinus</i> spp.	lupine			x	x	x		x	x			
<i>Microseris nutans</i>	nodding microceris					x		x	x			
<i>Microseris troximoides</i>	weevil prairie-dandelion					x						
<i>Mimulus lewisii</i>	purple monkeyflower						x					
<i>Mimulus moschatus</i>	muskflower											x
<i>Mitella pentandra</i>	five-stamen miterwort				x	x			x		x	
<i>Mitella</i> spp.	miterwort						x		x			
<i>Mitella stauropetala</i>	smallflower miterwort		x						x			
<i>Montia cordifolia</i>	heartleaf springbeauty					x			x			x
<i>Oplopanax horridum</i>	Devil's club											x
<i>Osmorhiza chilensis</i>	sweetcicely	x	x		x	x	x		x	x	x	x
<i>Osmorhiza purpurea</i>	purple sweetroot					x		x				

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Herbs (continued)												
<i>Pedicularis bracteosa</i>	bracted lousewort	x	x	x	x	x	x		x	x		x
<i>Pedicularis contorta</i>	coiled lousewort	x	x			x	x		x	x		x
<i>Pedicularis groenlandica</i>	elephanthead lousewort			x					x			
<i>Pedicularis racemosa</i>	sickle-top lousewort	x	x	x		x	x		x			
<i>Penstemon attenuatus</i>	sulphur penstemon	x		x		x		x		x		x
<i>Penstemon attenuatus attenuatus</i>	taper-leaved penstemon		x						x			
<i>Penstemon fruticosus</i>	bush penstemon	x				x	x	x	x			
<i>Penstemon humilis</i>	low beardtongue						x					
<i>Penstemon lyallii</i>	Lyall's beardtongue	x				x		x	x	x		
<i>Phacelia hastata</i>	silverleaf phacelia				x							
<i>Phlox diffusa</i>	spreading phlox					x	x	x				
<i>Plantago major</i>	common plantain				x							
<i>Pleurospora fimbriolata</i>	fringed pinesap					x						
<i>Polemonium occidentale</i>	western polemonium	x				x		x	x			
<i>Polemonium pulcherrimum</i>	Jacob's-ladder			x		x	x			x		
<i>Polygonum bistortoides</i>	American bistort					x						
<i>Polygonum phytolaccaefolium</i>	fleeceflower	x				x		x	x	x		x
<i>Prunella vulgaris</i>	common selfheal		x		x							
<i>Pterospora andromedea</i>	woodland pinedrops	x			x				x	x		
<i>Pyrola asarifolia</i>	liverleaf wintergreen	x	x		x	x			x	x	x	x
<i>Pyrola picta</i>	whiteveined wintergreen										x	
<i>Pyrola secunda</i>	sidebells pyrola	x	x	x	x	x	x	x	x	x	x	x
<i>Rudbeckia</i> spp.	coneflower											x
<i>Rumex occidentalis</i>	western dock		x									

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Herbs (continued)												
<i>Sanguisorba sitchensis</i>	Canadian burnet			x			x					
<i>Saxifraga adscendens</i>	wedgeleaf saxifrage								x			
<i>Saxifraga cernua</i>	nodding saxifrage								x			
<i>Saxifraga ferruginea</i>	russethair saxifrage								x			
<i>Saxifraga</i> spp.	saxifrage			x								
<i>Sedum lanceolatum</i>	spearleaf stonecrop					x			x			
<i>Senecio integerrimus</i>	lambstongue ragwort				x		x		x	x		
<i>Senecio megacephalus</i>	rocky ragwort					x						
<i>Senecio serra</i>	tall ragwort			x	x							
<i>Senecio</i> spp.	ragwort			x				x	x			x
<i>Senecio triangularis</i>	arrowleaf ragwort	x	x	x		x	x		x		x	x
<i>Silene douglasii</i>	seabluff catchfly					x	x					
<i>Silene menziesii</i>	Menzies' campion				x							
<i>Silene parryi</i>	Parry's silene	x				x		x	x			
<i>Silene scouleri</i>	simple campion								x			
<i>Smilacina racemosa</i>	false Solomon's seal	x	x		x	x			x	x	x	x
<i>Smilacina stellata</i>	false Solomon's seal	x	x	x	x	x			x	x	x	x
<i>Spiranthes romanzoffiana</i>	hooded ladies'-tresses			x								
<i>Stellaria media</i>	common chickweed					x						
<i>Stellaria nitens</i>	shiny chickweed								x			
<i>Stenanthium occidentale</i>	western featherbells								x			
<i>Streptopus amplexifolius</i>	claspleaf twistedstalk					x			x			x
<i>Synthyris missurica</i>	tailed kittentails					x			x			
<i>Thalictrum fendleri</i>	Fendler's meadow-rue	x							x	x	x	x
<i>Thalictrum occidentale</i>	western meadow-rue		x	x	x	x	x		x			x

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Herbs (continued)												
<i>Tiarella trifoliata</i>	threeleaf foamflower	x	x	x		x					x	x
<i>Tiarella trifoliata unifoliata</i>	foamflower		x									
<i>Tofieldia glutinosa</i>	sticky tofieldia			x								
<i>Trautvetteria caroliniensis</i>	Carolina bugbane			x			x		x			x
<i>Trifolium longipes</i>	longstalk clover		x		x							
<i>Trifolium repens</i>	white clover		x		x							
<i>Trillium ovatum</i>	Pacific trillium	x	x			x			x	x	x	x
<i>Valeriana sitchensis</i>	Sitka valerian	x	x		x	x	x		x			x
<i>Veratrum</i> spp.	false hellebore											x
<i>Veratrum viride</i>	green false hellebore	x		x	x	x	x	x	x		x	
<i>Veronica americana</i>	American speedwell		x									
<i>Veronica cusickii</i>	Cusick's speedwell							x	x			
<i>Viola glabella</i>	pioneer violet		x			x			x			x
<i>Viola orbiculata</i>	darkwoods violet	x		x	x	x	x	x	x	x	x	x
<i>Viola</i> spp.	violet		x			x						x
<i>Xerophyllum tenax</i>	common beargrass	x	x	x	x	x	x	x	x	x	x	x
Grasses, Sedges, and Rushes												
<i>Agropyron spicatum</i>	bluebunch wheatgrass				x				x			
<i>Agropyron</i> spp.	wheatgrass							x		x		
<i>Agropyron trachycaulum</i>	slender wheatgrass					x						
<i>Bromus</i> spp.	brome					x					x	x
<i>Bromus vulgaris</i>	Columbia brome				x		x					
<i>Bromus vulgaris vulgaris</i>	Columbia brome		x									
<i>Calamagrostis canadensis</i>	bluejoint			x			x		x			
<i>Calamagrostis purpurascens</i>	purple reedgrass	x			x		x		x			

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Grasses, Sedges, and Rushes (continued)												
<i>Calamagrostis rubescens</i>	pinegrass	x	x		x	x			x	x		x
<i>Calamagrostis tweedyi</i>	Tweedy's reedgrass				x				x			
<i>Carex aquatilis</i>	water sedge								x			
<i>Carex arcta</i>	northern cluster sedge		x									
<i>Carex concinnoides</i>	northwestern sedge		x		x				x			x
<i>Carex geyeri</i>	Geyer's sedge	x		x	x	x	x	x	x	x	x	
<i>Carex hoodii</i>	Hood's sedge						x					
<i>Carex laeviculmis</i>	smoothstem sedge		x									
<i>Carex mertensii</i>	Mertens' sedge								x			
<i>Carex nigricans</i>	black alpine sedge	x					x	x	x			
<i>Carex paysonis</i>	Payson's sedge						x					
<i>Carex rossii</i>	Ross' sedge	x	x	x	x	x	x	x	x	x		x
<i>Carex</i> spp.	sedge							x				
<i>Dactylis glomerata</i>	orchardgrass				x							
<i>Danthonia intermedia</i>	timber oatgrass					x			x	x		
<i>Elymus glaucus</i>	blue wildrye	x		x	x		x		x	x		x
<i>Festuca idahoensis</i>	Idaho fescue					x	x					
<i>Festuca idahoensis idahoensis</i>	Idaho fescue								x			
<i>Festuca occidentalis</i>	western fescue		x						x	x		
<i>Festuca viridula</i>	greenleaf fescue	x			x	x	x	x	x	x		
<i>Juncus ensifolius</i>	swordleaf rush				x		x					
<i>Juncus parryi</i>	Parry's rush	x				x		x	x			
<i>Luzula hitchcockii</i>	Hitchcock's smooth woodrush	x		x		x	x	x	x	x		x
<i>Luzula spicata</i>	spiked woodrush								x			
<i>Phleum pratense</i>	timothy				x						x	

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Grasses, Sedges, and Rushes (continued)												
<i>Poa annua</i>	annual bluegrass								x			
<i>Poa secunda</i>	Sandberg bluegrass								x			
<i>Trisetum spicatum</i>	spike trisetum						x		x			
Ferns and Mosses												
<i>Athyrium filix-femina</i>	common ladyfern		x						x		x	x
<i>Cheilanthes feei</i>	slender lipfern								x			
<i>Cheilanthes gracillima</i>	lace lipfern							x	x			
<i>Cryptogramma crispera</i>	rock-brake	x				x			x			
<i>Dryopteris austriaca</i>	mountain wood fern											x
<i>Dryopteris filix-mas</i>	male fern		x			x						
<i>Equisetum arvense</i>	field horsetail			x					x			
<i>Gymnocarpium dryopteris</i>	western oakfern			x		x			x		x	x
<i>Lycopodium</i> spp.	clubmoss			x			x					
<i>Polystichum lonchitis</i>	northern hollyfern	x	x			x			x		x	x
<i>Polystichum munitum</i>	western swordfern		x						x		x	x
<i>Polystichum munitum munitum</i>	western swordfern				x	x						
<i>Pteridium aquilinum</i>	western brackenfern	x	x		x	x			x	x	x	x
<i>Selaginella wallacei</i>	Wallace's spikemoss								x	x		
<i>Sphagnum</i> spp.	sphagnum								x			
<i>Thelypteris limbosperma</i>	woodfern								x			