

Plant Species Evaluated for Clearwater National Forest Species of Concern/Interest

This process follows the direction in FSH 1909.12 Chapter 30, section 43.22. Only plants known to occur on national forest land are included in the process.

1. T&E Species List: *None*

2. Species of Concern Master List

- A. Species identified as proposed and candidate under the ESA.
- B. Species with ranks of G1 through G3 on the NatureServe ranking system.
- C. Intraspecific (subspecific) taxa with ranks of T1 through T3 on the NatureServe ranking system.
- D. Species petitioned for listing with a positive “90-day finding”.
- E. Species recently delisted

Table 1. Plant Species Evaluated for Species of Concern for the Clearwater National Forest

Category	Species	Guild
Proposed or Candidate	None	
Species with G1 through G3 rank	<i>Botrychium montanum</i>	Mesic conifer
	<i>Buxbaumia viridis</i>	Mesic conifer
	<i>Calochortus nitidus</i>	Grassland/Open pine
	<i>Cardamine constancei</i>	Mesic conifer
	<i>Cladonia anderegii</i>	Forested riparian
	<i>Collema curtisporum</i>	Broadleaf riparian
	<i>Dasynotus daubenmirei</i>	Mid- to high-elev. seral
	<i>Hypogymnia inactiva</i>	Mesic conifer
	<i>Lomatium salmoniflorum</i>	Basalt outcrop in grassland
	<i>Mimulus ampliatus</i>	Grassland/Open pine
	<i>Platismatia herrei</i>	Mesic conifer
	<i>Pseudocyphellaria anomala</i>	Mesic conifer
	<i>Synthyris platycarpa</i>	Grand fir mosaic
	<i>Tauschia tenuissima</i>	Grassland/Open pine
	<i>Trifolium douglasii</i>	Grassland/Open pine
	<i>Tripterocladium leucocladulum</i>	
	<i>Waldsteinia idahoensis</i>	Cold WRC/AF/GF
Intraspecific taxa T1 through T3 rank	<i>Corydalis caseana</i> ssp. <i>hastata</i>	Forested riparian
	<i>Haplopappus hirtus</i> var. <i>sonchifolius</i>	Grassland/Open pine
Species petitioned for listing	None	
Species recently delisted	None	

Suspected CNF species: *Aster jessicae* (candidate), *Botrychium crenulatum*, *Cirsium brevifolium*.

3. Species Evaluated for Species of Interest on the Clearwater National Forest

- A. Species with ranks of S1, S2, N1, or N2 on the NatureServe ranking system.
- B. State listed threatened and endangered species that do not meet the criteria as species of concern.

- C. Additional species that valid existing information indicates are of regional or local conservation concern due to factors that may include:
1. Significant threats to populations or habitat
 2. Declining trends in populations or habitat
 3. Rarity
 4. Restricted ranges
- D. Other species of public interest – may consider invasive species.

Table 2. Plant Species Evaluated for Species of Interest – Plants with Ranks of S1, S2, N1, or N2:

Species	Status	Notes	Guild/Habitat
<i>Asplenium trichomanes</i>	G5/S1	Historic collection from June Ck. Never relocated.	rocks in mesic conifer, forest riparian
<i>Blechnum spicant</i>	G5/S3		mesic conifer, forest riparian
<i>Botrychium lanceolatum</i> var. <i>lanceolatum</i>	G5T4/S3		mesic conifer, meadow
<i>Botrychium minganense</i>	G4/S3		mesic conifer, meadow
<i>Botrychium simplex</i>	G5/S1	Clearwater identification questionable.	mesic conifer, meadow
<i>Buxbaumia viridis</i>	G3G4/S2	May prove common. May be on SOC list.	mesic conifer, forested riparian
<i>Carex californica</i>	G5/S3		parkland, gfm
<i>Carex hendersonii</i>	G5/S3		mesic conifer, forest riparian
<i>Carex leptalea</i>	G5/S2		meadow (bogs)
<i>Cephalanthera austini</i> ae	G4/S3	Formerly <i>Eburophyton austini</i> ae	mesic conifer
<i>Cladonia transcendentis</i>	G5/S3		mesic conifer, forest riparian
<i>Cornus nuttallii</i>	G4/S1	Decimated by disease	mesic conifer
<i>Cypripedium fasciculatum</i>	G4/S3		mesic conifer
<i>Diphasiastrum sitchense</i>	G5/S2		subalpine parkland, cold AF
<i>Dodecatheon dentatum</i>	G4/S3		forest riparian
<i>Hierchloa odorata</i>	G4G5/S1	Widespread but rare, probably displaced by reed canary grass invasions. Under review.	meadow
<i>Hookeria lucens</i>	G5/S1		forest riparian
<i>Lobaria linita</i>	G4G5/S1	Present in Idaho Co., but exact location uncertain at this time.	general
<i>Mertensia bella</i>	G4/S3		mesic conifer, gfm
<i>Mimulus alsonoides</i>	G5/S1		mesic conifer/rocks
<i>Mimulus clivicola</i>	G4/S3		shrub areas in grasslands, dry forest
<i>Orobanche pinorum</i>	G4/S2		shrubs, open forests
<i>Pentagramma triangularis</i>	G5/S1	Known from the Snake side of Island.	rocks in canyon riparian, open dry forests, grasslands
<i>Petasites frigidus</i> var. <i>palmatus</i>	G5/S1	CNF occurrence is only Idaho location.	forest riparian
<i>Petasites sagittatus</i>	G5/S3	Only occurrence outside of	meadow (wet, bogs)

Species	Status	Notes	Guild/Habitat
		IPNF in ID	
<i>Pilophorus acicularis</i>	G4/S1		rocks, moist
<i>Platismatia herrei</i>	G3G5/S2		mesic forests
<i>Polypodium glycyrrhiza</i>	G5/S1	Only two locations inland from coast.	mesic forests, forest riparian
<i>Pseudocyphellaria anomala</i>	G2G4/S2	Widespread, but seldom found. Possibly more common than currently believed.	mesic forests
<i>Rhizomnium nudum</i>	G4/S2		mesic conifer, forest riparian
<i>Rubus spectabilis</i>	G5/S2	Palouse has the only inland occurrence outside of the Priest Lake populations.	forest riparian
<i>Sphaerophorus globosus</i>	G4G5/S1		mesic conifer, forest riparian
<i>Suksdorfia violacea</i>	G4/SNR	S1 in OR/ALB; S3 in MT/BC. Status not known in ID/WA. Should be reviewed.	rocks in mesic conifer
<i>Thelypteris nevadensis</i>	G4/S1	Only inland occurrences are on CNF	mesic conifer, forest riparian
<i>Triantha occidentalis</i> ssp. <i>brevistyla</i>	G5T4/S1		meadow (wet), canyon riparian
<i>Trientalis latifolia</i>	G5/S3	Common on NF Clearwater, very rare elsewhere.	mesic conifer

Table 3. Plant Species Evaluated for Species of Interest - Plants with regional or local concern:

Species	Notes	Guild/Habitat
whitebark pine	Declined due to white pine blister rust, mountain pine beetle, lack of fire	Cold AF
western larch	Declined due to lack of fire, harvest, and possibly climatic conditions (late spring frosts)	Mesic conifer
ponderosa pine	Declined due to harvest and lack of fire	Open pine/Mesic conifer
western redcedar over 5' in diameter in groves	Declined due to additional fire	Mesic conifer
western white pine	Declined due to white pine blister rust and harvest, lack of fire	Mesic conifer
Pacific yew	Important for moose winter range on the Nez Perce, declines mostly due to harvest	Cold WRC/AF/GF
alpine larch	Relatively rare species on the zone	Cold AF
redstem ceanothus	Important winter browse species	Mesic seral
beargrass	Important cultural species, also tied to some wildlife species	Cold WRC/AF/GF
deciduous hardwoods	Rare occurrence on the zone	Deciduous riparian/Mesic seral
camas	Important cultural species	Grassland/Cool meadow
cous cous	Important cultural species	Grassland/Open pine
huckleberry	Important cultural species	Mesic conifer
native grassland species	Declining due to grazing and invasion by weeds.	Grassland/Open pine

These plants can be grouped into guilds with similar habitat requirements. The following table shows these guilds and the species that make them up. This list includes species being evaluated for species of interest or concern.

Table 4. Habitat Guilds for Plant Species Evaluated for Species of Concern or Interest – Clearwater National Forest

Guild	Species	Concern/Interest
Mesic conifer	Botrychium montanum	Concern
	Buxbaumia viridis	Concern
	Cardamine constancei	Concern
	Hypogymnia inactiva	Concern
	Platismatia herrei	Concern
	Pseudocypbellaria anomala	Concern
	(rocks) Asplenium trichomanes	Interest
	Blechnum spicant	Interest
	Botrychium lanceolatum var. lanceolatum	Interest
	Botrychium minganense	Interest
	Botrychium simplex	Interest
	Buxbaumia viridis	Interest
	Carex hendersonii	Interest
	Cephalanthera austiniiae	Interest
	Cladonia transcendens	Interest
	Cornus nuttallii	Interest
	Cypripedium fasciculatum	Interest
	huckleberry	Interest
	Mertensia bella	Interest
	(rocks) Mimulus alsonoides	Interest
	Platismatia herrei	Interest
	Polypodium glycyrrhiza	Interest
	ponderosa pine	Interest
	Pseudocypbellaria anomala	Interest
	redstem ceanothus	Interest
	Rhizomnium nudum	Interest
	Sphaerophorus globosus	Interest
(rocks) Suksdorfia violacea	Interest	
Thelypteris nevadensis	Interest	
Trientalis latifolia	Interest	
western larch	Interest	
western redcedar over 5' in diameter in groves	Interest	
western white pine	Interest	
Grassland/Open pine forest	Calochortus nitidus	Concern
	Mimulus ampliatus	Concern
	Tauschia tenuissima	Concern
	Trifolium douglasii	Concern
	Circium brevifolium	Concern
	Haplopappus hirtus var. sonchifolius	Concern
	Mimulus clivicola	Interest
	Orobanche pinorum	Interest
	(rocks) Pentagramma triangularis	Interest
	ponderosa pine	Interest
camas	Interest	
cous cous	Interest	
native grassland species	Interest	

Guild	Species	Concern/Interest
Forested riparian	Cladonia andereggii	Concern
	Corydalis caseana ssp. hastata	Concern
	Cardamine constancei	Concern
	Buxbaumia viridis	Interest
	(rocks) Asplenium trichomanes	Interest
	Blechnum spicant	Interest
	Carex hendersonii	Interest
	Cladonia transcendens	Interest
	Dodecatheon dentatum	Interest
	Hookeria lucens	Interest
	Petasites frigidus var. palmatus	Interest
	(rocks) Pilophorus acicularis	Interest
	Polypodium glycyrrhiza	Interest
	Rhizomnium nudum	Interest
	Rubus spectabilis	Interest
	Sphaerophorus globosus	Interest
	Thelypteris nevadensis	Interest
Broadleaf riparian	Collema curtisporum	Concern
	deciduous hardwoods	Interest
Mid to high mountain seral	Dasynotus daubenmirei	Concern
Grand fir mosaic	Syntheris platycarpa	Concern
	Carex buxbaumia	Interest
	Mertensia bella	Interest
Cool meadows	Waldsteinia idahoensis	Concern
	Botrychium lanceolatum var. lanceolatum	Interest
	Botrychium minganense	Interest
	Botrychium simplex	Interest
	native grassland species	Interest
Cold cedar/subalpine fir/grand fir	Waldsteinia idahoensis	Concern
	Diphasiastrum sitchense	Interest
	whitebark pine	Interest
	Pacific yew	Interest
	alpine larch	Interest
	beargrass	Interest
Basalt outcrops in grassland/dry forest	Lomatium salmoniflorum	Concern
Serai grand fir	Dasynotus daubenmirei	Concern
	deciduous hardwoods	Interest
	huckleberry	Interest
Subalpine park	Carex californica	Interest
	Diphasiastrum sitchense	Interest
	native grassland species	Interest
Canyon riparian	Pentagramma triangularis	Interest
	Triantha occidentalis ssp. brevistyla	Interest
	deciduous hardwoods	Interest
Low to mid-elev. Riparian meadow	Carex leptalea	Interest
	Petasites sagittatus	Interest
	Triantha occidentalis ssp. brevistyla	Interest

Using the suggested criteria in section 43.22a through c, some species may not require further consideration in the planning process because:

1. There are no known occurrences or suitable habitat of the species on the Forest, Grassland, Prairie, or other comparable administrative unit.
 2. They are secure within the plan area.
 3. They are not affected by management or potential plan components
- Document the rationale for eliminating species from further evaluation.

43.22d - Rationale for eliminating species from further consideration:

1. The lists above only include plants with KNOWN occurrences on either forest.
2. Plants that are secure (not threatened by management actions) within the plan area:
 - Plants with expanding populations –
 - Dasynotus daubenmirei*
 - Waldsteinia idahoensis*
 - Trientalis latifolia*
 - Habitat requirements are conserved by plan components –
 - All riparian associated species (plan components in Watersheds and Aquatic Ecosystems)
 - Grassland/Open pine associated species (plan components in Grassland and Shrubland Vegetation and in Invasive Weeds)
 - Meadow associated species (plan components in Grassland and Shrubland Vegetation)
 - Seral forest associated species (plan components in Forest Vegetation, all settings)
 - Grand fir mosaic associated species (plan components in Grassland and Shrubland Vegetation)
 - Ponderosa pine (plan components for Breakland and Upland settings)
 - Western larch (plan components for all settings)
 - Western white pine (plan components for all settings)
 - Whitebark pine (plan components for Subalpine settings)
 - Alpine larch (plan components for Subalpine settings)
 - Redstem ceanothus (plan components for disturbance on Breakland and Upland settings)
 - Beargrass (plan components for Subalpine setting and Grassland and Shrublands)
 - Deciduous hardwoods (plan components for disturbance on all settings)
 - Huckleberry (plan components for vegetation composition and disturbance on all settings)
 - Native grassland species (plan components for Grassland and Shrubland and Invasive Weeds)
 - Camas and Cous-cous (plan components for Grassland and Shrubland and Invasive Weeds)
 - Mesic conifer associates and other cold grand fir, subalpine fir and cedar associates – see Appendix A. for each species, its specific habitat and the plan components that address the conservation of that habitat.
 - Not affected by management –
 - Species associated with rock outcrops
 - Not enough information to complete a credible assessment

In addition to the above criteria, the Responsible Official should consider level of knowledge about species when determining those species-of-concern and species-of-interest that will be considered in detail in the planning process. In general, only those species about which enough information is known to complete a credible assessment should be carried forward for additional evaluation.

The Responsible Official may consider the following types of information:

1. Current taxonomy.
2. Distribution (including historical and current trends).
3. Abundance (including historical and current trends).
4. Demographics and population trends including population effects resulting from hunting, fishing, trapping, and natural population fluctuations.
5. Diversity (phenotypic, genetic, and ecological).
6. Habitat requirements at appropriate spatial scales.
7. Habitat amount, distribution, and trends.
8. Ecological function.
9. Key biological interactions.
10. Limiting factors.
11. Risk factors including various natural and human disturbances (wildland fire, trails, roads, and dams).

In conclusion, strategic and detailed Forest Plan components have been developed that address species needs. Thus, all known species habitat needs have been accounted for and the Responsible Official has determined that there is no need for a list of Plant Species of Concern or Species of Interest.

Appendix A. ‘Mesic Conifer’ and ‘Cold Grand fir, Subalpine fir and Cedar’ Guilds – Habitat Requirements and Associated Plan components by species.

Species	Habitat	Plan components
<i>Botrychium montanum</i>	<p>Mountain moonwort is most abundant in moist, springy western redcedar (<i>Thuja plicata</i>) forests. It is also found along grassy trail edges.</p> <p>Mountain moonwort occurs at elevations ranging from 3,200 to 6,000 feet(1,030-1,935 m). It may grow in pure stands but is generally associated with Virginia grape-fern (<i>Botrychium virginianum</i>) and occasionally with other <i>Botrychium</i> spp. [8].</p> <p>Dark coniferous forests, usually near swamps and streams</p>	<p>Riparian components in Watersheds and Aquatic Ecosystems</p>
<i>Buxbaumia viridis</i>	<p>Green shield-moss is a short-lived, ephemeral species which occurs on decaying conifer wood in sheltered and shaded situations. It grows as scattered individuals</p>	<p>Desired conditions for dead/down wood in Forest Vegetation and in Riparian Vegetation sections</p>
<i>Cardamine constancei</i>	<p><i>C. constancei</i> is found in river breaklands and on stream terraces in areas associated with the warm, moist maritime-like environment of low-elevation river canyons, where numerous west coast disjunct plants are concentrated. Populations are found at elevations ranging from 1,050 to 3,500 ft, in canyons where the river elevation is less than 3,000 ft. It grows in moist, partially to completely shaded sites within western redcedar and western hemlock forests, particularly in <i>Thuja plicata/Adiantum pedatum</i> (western redcedar/ maidenhair fern), <i>T. plicata/Gymnocarpium dryopteris</i> (western redcedar/oakfern), <i>Tsuga heterophylla/G. dryopteris</i> (western hemlock/oakfern) and <i>T. heterophylla/Asarum caudatum</i> (western hemlock/wild ginger) habitat types. It grows in a variety of stand types ranging from early-seral to climax stages, stands subjected to selective removal, and even-aged stands. Populations are often found on stream terrace positions, but these are generally not continuous with the often more vigorous populations upslope, even though intervening habitat appears suitable (Lichthardt 1999).</p> <p>Because this species has an affinity for stream-side terraces, which are also used by people for recreational activities and due to the flooding of Dworshak Reservoir, the overall, long term trend for this species is probably one of decline. However, there are still many populations and their is ample evidence that the species may be benefited or perhaps require some level of disturbance to maintain healthy populations. Populations are densest along forest edges and areas of lighter burns. Probably the largest known population is in an area severely burned in 1986. Most vigorous populations are found in 60-80 year old stands, that were the result of stand-replacing fires. This, and the fact that significant flowering only takes place after opening of the canopy, implicate fire and fire frequency as important factors in population viability. The effects of timber harvest is being investigated with monitoring plots at one site on the North Fork Ranger District.</p>	<p>Desired conditions for Riparian vegetation and Objectives for disturbance processes</p>

<p><i>Hypogymnia inactiva</i></p>	<p>NOT an old growth associate in BC Many of the most abundant lichens in the Eagle Rock RS (e.g., <i>Alectoria sarmentosa</i>, <i>H. enteromorpha</i>, <i>H. imshaugii</i>, <i>H. inactiva</i>, <i>Platismatia glauca</i>, <i>Platismatia herrei</i>) were not associated with particular kinds of trees. They occurred on a wide variety of substrates throughout the stand. <i>Hypogymnia inactiva</i> (Krog) Ohlsson is a green algal foliose lichen that is not at all restricted to old-growth forests. It is a ubiquitous colonist of exposed twigs in conifer forests of western Oregon and Washington and occurs along the Pacific Coast from Alaska to California inland to Montana. It often reaches its greatest abundance before stands are 150 yr old (McCune 1993, Neitlich 1993).</p>	<p>Desired conditions for Forest Vegetation that picture a variety of size classes</p>
<p><i>Platismatia herrei</i></p>	<p>Many of the most abundant lichens in the Eagle Rock RS (e.g., <i>Alectoria sarmentosa</i>, <i>H. enteromorpha</i>, <i>H. imshaugii</i>, <i>H. inactiva</i>, <i>Platismatia glauca</i>, <i>Platismatia herrei</i>) were not associated with particular kinds of trees. They occurred on a wide variety of substrates throughout the stand. Mostly on conifer bark and wood</p>	<p>Desired conditions for Forest Vegetation that picture a variety of size classes</p>
<p><i>Pseudocyphellaria anomala</i></p>	<p>On bark of deciduous trees and shrubs</p>	<p>Desired conditions for Grassland and Shrubland vegetation, as well as Forest Vegetation desired conditions for seral shrub conditions.</p>
<p><i>Cephalanthera austini</i></p>	<p>It is a species of old-growth or mature forests. This elusive orchid is an almost totally white mycoheterotrophic species that always grows in conjunction with fungi from a single fungal family: the <i>Thelophoraceae</i>. Specifically, in the <i>Thelophoraceae</i>, they have been found in association with the black thelophorids (Lee pers. com. 2003), a group known to be found only in intact mature forests (Lee pers. com. 2003). The fungi, in turn, form associations with several species of trees. Like other species of <i>Cephalanthera</i>, the Phantom Orchid appears to do well on grazed sites. Widespread but small populations; moderate threats, mostly from logging.</p>	<p>Desired conditions for large size classes in Forest Vegetation. Continued grazing within allotments. Wildlife habitat across the forest.</p>
<p><i>Cladonia transcendens</i></p>	<p>On bark and wood, commonly on fence posts, stumps, tree bases, fallen logs. East of Cascades, largely restricted to moist, partially shaded locations, often near streams or in cool canyons.</p>	<p>Desired conditions for Riparian Vegetation</p>
<p><i>Sphaerophorus globosus</i></p>	<p>On bark and wood in low elevation moist forests. <i>Fuscopannaria pacifica</i> and <i>Sphaerophorus globosus</i> were both found primarily along the North Fork of the Clearwater River and on the Lochsa River where there was a floodplain on one side. <i>Sphaerophorus globosus</i> was abundant on large old western red cedar, especially in the drainage of the North Fork of the Clearwater River where there was a floodplain on one side.</p>	<p>Desired conditions for Riparian Vegetation and for Wild and Scenic River management</p>

<i>Blechnum spicant</i>	Here, <i>B. spicant</i> is found at mid-elevations in moist, mineral soils of shaded mature western redcedar and western hemlock habitat types. Deerfern can be found in all habitats of these series, though it is most often present at the moister sites. Rarely the species occurs in wet areas of other series (Blake and Ebrahimi 1992). It has a strong affinity for draws and riparian areas where it prefers the slope usually above and adjacent to the wet lady fern union. It rarely, if ever forms part of this wet community, but is associated with the slightly drier maidenhair fern (<i>Adiantum pedatum</i>), and wild ginger (<i>Asarum caudatum</i>) communities. Occasionally it does occupy locations far up the slope and away from the riparian area.	Desired conditions for Riparian Vegetation. Desired conditions for Forest Vegetation that describe levels of large trees.
<i>Botrychium lanceolatum</i> var. <i>lanceolatum</i>	Lance-leaved moonwort grows in a wide variety of habitats including wet to moist grassy and rocky slopes, meadows, woods, roadsides and edges of lakes generally at fairly high elevations. Soils tend to be cold and mostly subacid in nature. In Idaho, plants have been documented from open riparian meadows, shaded western redcedar, roadsides and other habitats. Elevations are variable. The populations on the Clearwater National Forest are associated with seeps or riparian areas that are protected from management activities.	Desired conditions for Riparian Vegetation
<i>Botrychium minganense</i>	<i>B. minganense</i> , <i>B. montanum</i> , & <i>B. pinnatum</i> are rare to uncommon grape ferns that are mostly restricted to cedar seep areas.	Desired conditions for Riparian Vegetation
<i>Botrychium simplex</i>	In Washington, most occurrences are located in dry meadows and old homesteads. The taxon also occurs in moist meadows, coniferous forests, roadsides, and scree slopes. Elevation ranges from 2100 to 7600 feet.	Desired conditions for Grassland and Shrubland Vegetation
<i>Carex hendersonii</i>	In Idaho, Henderson's sedge grows in quite distinct habitats along moist low-elevation river canyons. Habitat types are <i>Thuja plicata/Adiantum pedatum</i> (western redcedar/maidenhair fern), <i>Thuja plicata/Asarum caudatum</i> (western redcedar/wild ginger), and <i>Thuja plicata/Clintonia uniflora</i> (western redcedar/bead lily) for almost all known location on the Clearwater National Forest.	Desired conditions for Riparian Vegetation and for Wild and Scenic River management
<i>Cornus nuttallii</i>	Found on early to late-seral sites. Responds well (sprouting) following fire or cutting.	Desired conditions and objectives for fire
<i>Cypripedium fasciculatum</i>	In contrast to the typical <i>C. fasciculatum</i> occurrences in Montana, over 95% of the occurrences in Idaho are found in moist, well-shaded western red cedar forests in both riparian and upland habitats. The most common habitat types include <i>Thuja plicata/Adiantum pedatum</i> (western red cedar/maidenhair fern), <i>T. plicata/Asarum caudatum</i> (western red cedar/wild ginger), <i>T. plicata/Clintonia uniflora</i> (western red cedar/beadlily), <i>T. plicata/Athyrium filix-femina</i> (western red cedar/ladyfern), and <i>T. plicata/Gymnocarpium dryopteris</i> (western red cedar/oakfern). Recently, occurrences have been found in dry grand fir and Douglas fir habitat types on the Idaho Panhandle National Forest and Douglas fir habitat type on the Nez Perce National Forest. Although most survey efforts have focused on western red cedar habitats, future surveys in drier habitat types could be very productive. Occurrences are found on all aspects, on slopes ranging from flat to over 90%, in	Desired conditions for Riparian Vegetation

	riparian bottoms and toe and mid-slopes, and in full shade to filtered sunlight. Canopy closure measurements of 55-65% and 70-80% were recorded in plots on the Idaho Panhandle National Forest in western red cedar habitat types.	
<i>Mertensia bella</i>	In Idaho, Oregon bluebells occurs within the grand fir (<i>Abies grandis</i>) zone, between 4,000 and 6,000 ft, where it occupies forest openings, Sitka alder (<i>Alnus sinuata</i>) glades, clearcuts, and older roadcuts, primarily on moist, shady north aspects. It occurs on sites with seasonally high moisture due to late snow pack or drainage patterns. Habitat types associated with Oregon bluebells include grand fir/wild ginger (<i>Abies grandis</i> / <i>Asarum caudatum</i>), western redcedar/wild ginger (<i>Thuja plicata</i> / <i>A. caudatum</i>), western redcedar/lady fern (<i>T. plicata</i> / <i>Athyrium filix-femina</i>), and Sitka alder/miner's lettuce (<i>Alnus sinuata</i> / <i>Montia cordifolia</i>). Within these types, Oregon bluebells is a species of disturbed sites, natural and man-made forest openings, and alder glades. The upper limit of Oregon bluebells seems to coincide with the lower limits of the subalpine fir (<i>Abies lasiocarpa</i>) zone.	Desired conditions for Grassland and Shrubland Vegetation
<i>Polypodium glycyrrhiza</i>	Idaho populations occur at low elevations (1,800 ft) in moss-covered rock crevices along streams, within moist western redcedar forest. Sites are shaded, mossy, and wet year-round from seepage. The Elk Creek population is in a western redcedar habitat type, but the cover type is mid-seral Douglas fir and grand fir. However, the plants are on the mossy north face of a boulder that is near the stream edge.	Desired conditions for Riparian Vegetation
<i>Rhizomnium nudum</i>	In general the habitat can be described as cool and oceanic (Koponen 1973). Grows in boreal and temperate forests on soil, humus, or rotten logs, often along streams or in damp depressions, and occasionally among boulders or talus at cliff bases, within conifer forests, from near sea level to subalpine zones. Most populations on the Clearwater National Forest are riparian, but it occasionally is found on moist slopes well above the streams.	Desired conditions for dead/down wood in Forest Vegetation and in Riparian Vegetation sections
<i>Thelypteris nevadensis</i>	There are only two known inland populations, both occurring on the Clearwater National Forest in the Isabella Creek drainage, a tributary of the North Fork Clearwater (Lichthardt 1999). Both Idaho populations occur in seeps where the soil is saturated for much of the growing season, at elevations of 3,000 to 3,200 ft.	Desired conditions for Riparian Vegetation
<i>Diphasiastrum sitchense</i>	Subalpine-alpine meadows and open rocky areas at mid-to high elevations in the mountains; occasionally in conifer forest or under brush.	Desired conditions for Grassland and Shrubland Vegetation
<i>WRC over 5' diameter in groves</i>	Associated with WRC habitats with fern understories, in riparian areas. Inventory queries indicate there are over 200 occurrences on the Clearwater NF, and around 2 on the Nez Perce NF. Neither inventory includes wilderness, and some of the best examples on the Nez Perce are in the Selway-Bitterroot Wilderness.	Desired conditions for Riparian Vegetation
<i>Pacific yew</i>	On cold and moist to wet grand fir and western redcedar	Desired conditions in

	<p>habitat types. Yew also seems to survive and grow well under moderate-to-dense canopies produced by conventional shelterwood regimes. Shelterwood, seed tree, and clearcut, or clearcut-with-reserves management probably will result in major yew crown modifications. The effect seems to be temporary and increased mortality from exposure alone is not expected.</p>	<p>Forest Vegetation for stand structure on breaklands and uplands.</p>
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