

**Botanical Review
Of
Survey and Manage
Plant Species**

Klamath National Forest

PROJECT NAME: Mt. Ashland LSR Habitat Restoration
and Fuels Reduction Project

RANGER DISTRICT: Oak Knoll

COMPARTMENT (S): Cottonwood, Long John, Cow, Sterling, Hungry

Prepared by: _____ Date: _____

Julie Knorr
Botanist
Klamath National Forest

Approved by: _____ Date: _____

Margaret J. Boland
Forest Supervisor
Klamath National Forest

I. Introduction

Botanical review for Survey and Manage bryophyte, lichen, fungi, and vascular plant species has been completed for the Mt. Ashland LSR Habitat Restoration and Fuels Reduction Project, Oak Knoll Ranger District, Klamath National Forest. The purpose of this review is to analyze the proposed project in sufficient detail to determine its effects on the plant species of concern.

A. Location Information

The Mt. Ashland LSR Habitat Restoration and Fuels Reduction Project encompasses all, or portions of the Cottonwood, Long John, Cow, Sterling, and Hungry compartments of the Oak Knoll Ranger District, Klamath National Forest. These compartments are located within the Beaver Analysis Watershed. The project area is north of the Klamath River, and just south of the Siskiyou Crest in the vicinity of Mt. Ashland. The project area lies in the watersheds of Grouse, Beaver, and Long John Creeks. This Botanical Review analyzes the effects of the proposed project upon Survey and Manage plants within the project area boundaries.

The legal description is:

Willamette Meridian: T40S R1W S.25, 26, 34, 35, 36; T40S R1E Sec. 29, 30, 31, 32; T41S R1W Sec. 1, 2, 3, 10, 11, 12, 13, 14; T41S R1E Sec. 5,6,7,8,18; and T41S R2W S. 5, 6, 7, 8, 17, 18. Mt. Diablo Meridian: T48N R9W S. 13 and 24; and T48N R8W S. 15, 16, 17, 20, 21, 22, and 28.

For a map of the proposed project area, see the *Mt. Ashland LSR Habitat Restoration and Fuels Reduction Project DEIS* (USDA 2007).

B. Species of Concern

Only those species of concern that have potentially suitable habitat or documented occurrences in the proposed project area are discussed in this document. In summary, Category A&C species, “surveys required”, and Category B, D, and E species, “manage known sites”, are listed in Table 1-1, *Species Included in Survey and Manage Standards and Guidelines and Category Assignment* (USDA 2003c).

C. Preliminary Botanical Review

Prefield review procedures were followed in accordance with currently available survey protocols. An office prefield review was conducted to determine if suitable habitat was present within the proposed project area (USDA 2006). All S&M species requiring pre-disturbance surveys were considered during this review (USDA 2003c, Table 1-1). All areas proposed for ground-disturbing activities were assessed for the presence of suitable habitat. The objective of this review was to determine if protocol surveys would be required. The prefield review (Step 5) triggered surveys for the following S&M plant species:

SPECIES	CODE	STATUS	SURVEY RECOMMENDED
<i>Ptilidium californicum</i>	PTCA5	S&M Category A	Yes
<i>Cypripedium fasciculatum</i>	CYFA	S&M Category C	Yes
<i>Cypripedium montanum</i>	CYMO2	S&M Category C	Yes

Botanical Pre-field Review: Mt. Ashland LSR Habitat Restoration and Fuels Reduction Project file (USDA 2006), Dated: June 15, 2006

II. Current Management Direction

In 1994, the U.S. Forest Service and Bureau of Land Management adopted standards and guidelines for the management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl, commonly known as the Northwest Forest Plan (USDA 1994). Mitigation measures were included for management of known sites, site-specific pre-habitat disturbing surveys, and/or landscape scale surveys for about 400 rare and/or isolated species, known as Survey and Manage, Protect from Grazing, and Protection Buffer species. In 2001, these agencies amended the Standards and Guidelines for these species to add clarity and provide more concrete direction for management of these species (USDA 2001). The document, referred to as the 2001 ROD, (Record of Decision and Standards & Guidelines) divided these species up into six categories (USDA 2001, Table 1-1) depending upon management objectives. The S&M species, their category assignments, and the management direction for each category can be found within the 2001 ROD Standards & Guidelines, pp. 6-14, and in Table 1-1. That information will only be summarized here.

Of the six categories of S&M plants, only category A and C require surveys prior to habitat-disturbing activities in addition to protecting known or high-priority sites. For these categories, the Management Direction (S&G p.8) states:

Surveys will be conducted at the project level prior to habitat-disturbing activities, and in accordance with Survey Protocols, to avoid loss of undiscovered sites by habitat-disturbing activities. Species sites found as a result of these surveys will be managed as known sites.

Survey protocols currently exist for bryophytes, fungi, lichens, and vascular plants (USDA 1997a, 1998a, 1998b, 1998c, 1999a, 2002c, 2003e). Management Recommendations have been issued for bryophytes, fungi, vascular plants, and lichens (USDA 1997b, 1997c, 1998d, 1999b, 2000, 2002d).

An annual species review requirement was a part of the 2001 ROD. As information is gathered about species associated with old growth and late-successional forests, modifications will be made to survey and manage requirements. The 2001 Annual Species Review (ASR) was the first review under this requirement (USDA 2002b). The ASR memorandum (June 14, 2002) changed the category placement for species displayed in Table 1-1 of the 2001 S&M ROD. The species review added four lichen species to the list requiring pre-project surveys (Category A & C). Survey protocols have been prepared for these species, effective date October 18, 2002. (USDA 2002c). Survey requirements for these species do not apply to activities for which NEPA decisions or decision documents are signed earlier than one year after the survey protocols' official release (USDA 2002b, p. 2).

The 2002 ASR memorandum changed the category placement for species displayed in Table 1-1 of the 2001 S&M ROD, as amended June 14, 2002 (USDA 2003). Some species were removed from the list, and others changed category within the list.

The 2003 ASR memorandum changed the category placement for species displayed in Table 1-1 of the 2001 S&M ROD, as amended December 19, 2003 (USDA 2003c). Some species were removed from the list, and others changed category within the list.

In addition, three of the six categories of S&M plants, Categories B, D, and E, require that existing known sites be managed, or that high-priority sites be managed. The 2001, 2002, and 2003 ASR changed category placement of some of these species also, removing some from the list entirely and changing the category placement of others. Species in these categories are to be managed according to currently available Management Recommendations.

III. Description Of Proposed Action

A. Proposed Action

Alternative 2 was designed to meet the purpose and need for action. It will treat 4,706 acres in 256 stands as described below. Activity fuels will be treated in all stands. Road actions consist of maintenance, year-round closures, decommissioning, designating existing unauthorized roads as National Forest System roads, and the construction of temporary spur roads. Some landings will be constructed but existing landings will be used wherever possible. Refer to the Draft EIS for more complete descriptions of project activities and maps.

Restoration Silvicultural Treatments

- Variable density thinning of trees larger than nine inches in diameter at breast height (DBH) on 2589 acres in 158 stands.
- Small diameter thinning of trees 9 inches DBH and below on 408 acres in 16 stands.

Defensible Fuel Profile Zone

- Variable density thinning of trees larger than nine inches DBH on 1286 acres in 49 stands as part of a defensible fuels profile zone along upper slopes and ridges.

Associated Activities

- Weeding and cleaning of understory trees in a subset of the 3,875 acres and 207 stands identified for variable density thinning above (weeding and cleaning will occur as needed on a stand by stand basis).

Restoration Support Actions

- Helicopter systems to remove trees on 1071 acres in 65 stands.
- Skyline systems to remove trees on 1602 acres in 75 stands.
- Ground-based equipment systems to remove trees on 1202 acres in 67 stands.
- An estimated 7 existing landings will be used and may be enlarged to accommodate processing of small trees for bio-mass utilization; landing size will not exceed 0.5 acre for each ground-based landing or 1 acre for each helicopter landing.
- An estimated 15 new ground-based system landings, 14 skyline system landings and 11 helicopter landings will be constructed. No new landings will be constructed within Riparian Reserves. Ground-based and skyline landings will be up to a 0.5 acre in size, helicopter landings will be up to 1 acre in size. The total acreage disturbed by landing construction will not exceed 25 acres.
- Landings will be hydrologically restored post-project. If it is determined by an earth scientist that special erosion control measures are needed, they will be implemented on a site by site basis.

Fuels Reduction Treatments

- Whole-tree Removal on slopes less than 45% on 1202 acres in 67 stands.
- Mastication to reduce activity and natural fuels on 809 acres in 51 stands; mastication combined with handpile/burn on 436 acres in 15 stands.
- Hand-pile and burn to reduce activity and natural fuels on 980 acres in 76 stands; handpile and burn followed by underburning on 979 acres in 42 stands.
- Underburning to reduce activity and natural fuels on 1502 acres in 72 stands. Additional underburning will occur outside of stand boundaries to riparian features.
- Underburning to reduce natural fuel build-up in two stands on 120 acres.
- Thinning out small trees and burning piled material to reduce ladder and surface fuels within riparian reserves on 303 acres in 31 stands.

Restoration Support Road Actions

- Change from open to year-round closure:

Road Segment:	Miles:
40S09	3.05
40S10 segment	0.82

40S13A	1.72
40S15A	2.20
40S16A	1.01
41S13	0.50
Total Miles:	9.30

- Decommission System roads:

<u>Road Segment:</u>	<u>Miles:</u>
40S20	.49

- Existing Unauthorized roads put on the System:

<u>Road Segment:</u>	<u>Miles:</u>
40S06.2	1.98
40S16.1 segment	0.23
40S16.6	0.12
41S15.1 segment	0.10
Total Miles:	2.43

- Existing Unauthorized roads used for the Project: opened, used, hydrologically stabilized and closed:

<u>Road Segment:</u>	<u>Miles:</u>
40S09.1A	0.77
40S09.1A1	0.11
40S09.2	0.18
40S12.1	0.15
40S13.1	0.42
40S13.2	0.08
40S14.1	0.12
40S14.2	1.14
40S16.1 segment	0.10
40S16.5 segment	0.04
40S16.5B	0.17
40S20.1	0.47
40S20.1A	0.76
41S07.3	0.80
41S09A.1	0.21
41S10.2	0.07
41S10.3	0.14
41S15.1 segment	0.19
41S15.3	0.73
41S15.3A	0.53
48N30A.1	0.18
48N37.1	0.64
Total Miles:	8.00

New Spur Road Construction: construct, use, decommission.

<u>Road Segment:</u>	<u>Miles:</u>
T206A	0.27
T206B	0.07

T207	0.43
T216	0.14
T228A	0.19
T228B	0.19
T232	0.06
T235	0.29
T254	0.73
T264	0.11
T266	0.14
T277A	0.16
T300	0.12
T317	0.82
T317	0.31
T320A	0.39
T320B	0.43
T320C	0.36
T374	0.14
T380	0.45
T383	0.2
T401	0.86
Total Miles:	6.86

B. Resource Protection Measures

Mitigation for plant species of concern has been designed into the proposed action. One population of *Ptilidium californicum* (PTCA5) was previously known within the project area. It is located within a Thin & Handpile <9” unit (#465) which is surrounded by a larger Commercial Thin >9” unit (#300). One new population of *Ptilidium californicum* (PTCA5) was discovered during project surveys. It is located within a Commercial Thin >9” unit (#284). Based upon the recommendations of the botanist, site-specific habitat protection areas will be laid out on the ground around the Sensitive plant populations. The sites have been evaluated on the ground to determine the buffer widths. Factors considered include overstory trees available for shading, the need to thin dense stands to prevent deterioration of the stand within the buffer, protection from prescribed fire or the need to apply prescribed fire within the buffer to prevent catastrophic wildfire, and other habitat protection needs.

Population	Location	Treatment	Buffer
PTCA5-5-61	Unit #300	Thinning >9”; skyline. Handpile/burn.	No timber harvest, one site tree distance around population.
	Unit #465	Thinning <9”; handpile / burn.	No thin/handpile/burn 25 ft. around population.
PTCA5-5-92	Unit #284	Thinning >9”; skyline. underburn.	No timber harvest, one site tree distance around population. No underburn 25 ft. around population.

The buffer width for timber harvest is equivalent to one site tree height in distance. This buffer, a strip outside of the actual population area, is an area in which no timber harvest ground-disturbing activities will occur. Within this buffer, small diameter trees will be thinned/handpiled/burned (U#300) or underburned (U#284) to within 25 ft. of the population. There will be no ground disturbing activities of any kind within 25 ft. of the population.

IV. Existing Environment

A. Known Sites

The ISMS Known Sites Database and the Klamath GIS S&M plant layer has been reviewed to search for known sites of Category B, C, and E species within the Mt. Ashland LSR Habitat Restoration and Fuels Reduction Project area. There are currently no known sites of these species within the Mt. Ashland LSR Habitat Restoration and Fuels Reduction Project area. (Pre-field Review Appendix A-2 & A-3).

B. Field Survey

Field surveys have been conducted for the proposed project areas in October 2003, July, August and September 2004, May, June, July, and August 2005, and October, November, and December 2006 in accordance with current species protocols. Surveys were intuitive controlled, traversing units and other activity areas searching for the specific habitats for the species of concern. Surveys were timed to correspond with the time period that each species could be most readily identified. Surveys were conducted by botanists, or wildlife biologists and biological technicians trained in the identification of the target species. Documentation includes traverse routes marked on topographic maps. For all units, forms were completed (see project file) which include the location of the unit, date of survey, seral stage and vegetation series, other habitat information, and a list of associated species. Unit surveys and populations located were documented on survey and site report forms. Field surveys conducted within the general area, and specifically for this project, are adequate to determine the presence of Survey and Manage plant species.

One population of *Ptilidium californicum* was previously known from the project area, and one new PTCA5 was located during project surveys. One new population of *Cypripedium montanum* was located within the project area.

SPECIES FOUND	POPULATION NUMBER(S)	LEGAL LOCATION
<i>Ptilidium californicum</i>	PTCA5-5-61	T48N R8W Sec. 21
<i>Ptilidium californicum</i>	PTCA5-5-92	T41S R1W Sec. 11

<i>Cypripedium montanum</i>	CYMO2-5-83	T48N R8W Sec. 15
-----------------------------	------------	------------------

Sensitive/S&M Plant Survey Reports, dated: 2003, 2004, 2005, 2006 (USDA 2006a)

Sensitive/S&M Plant Population Reports, dated: 6-19-02, 7-22-04, 10-27-2006 (USDA 2006b)

C. Species Accounts – Vascular plants

- *Cypripedium montanum* - mountain lady-slipper orchid – CYMO2:

One population of this species was discovered within the lower Grouse Creek drainage. This population is not within or adjacent to any area proposed for ground disturbing activities. It is approximately ¼ mile from the closest project activity area.

D. Species Accounts – Bryophytes

The following species account is based on the best available information. The majority of information has come from the *Draft Management Recommendations - Bryophytes* (USDA 1997a) and from the *Draft Conservation Assessment for Ptilidium californicum* (USDA 2006d). In addition, this analysis is based upon an Interagency Species Management System (ISMS) query of the results of the pre-project surveys, strategic surveys, and purposive surveys that have been completed within Oregon, Washington, and California, and on the species range listed in the scientific literature.

- *Ptilidium californicum* Pacific fuzzwort – PTCA5:

Ptilidium californicum is a bryophyte classed within the liverwort group. It is distributed throughout the North Pacific, ranging from Japan, the Russian far East, into Alaska, western British Columbia, and then south through Washington, Oregon, Idaho, Montana, and northern California, the southern extent of the range. Within the range of the northern spotted owl, populations are known from almost every National Forest and BLM District in Oregon and Washington. In California, the ISMS database lists known sites on the Rogue River, Six Rivers, Siskiyou, and Shasta-Trinity National Forests adjacent to the Klamath and south to the Lassen and Mendocino National Forests. Ninety three populations of this species are known to occur on the Klamath N.F., distributed across every Ranger District.

Throughout its range in northern California, PTCA5 tends to occur in old stands, specifically those classified as old-growth or second-growth with legacy components. Currently, the preferred habitat appears to be moist, mature, mixed conifer forests with dominant elements of Douglas-fir and/or white fir. Approximately 98% of the sites occur at elevations above 3500' in elevation. Populations of *Ptilidium* are almost always found on the shaded aspects of host trees, amongst numerous species of mosses at the base of the tree. The host tree species is most often Douglas-fir or white fir with a DBH larger than 30 inches, but PTCA5 has also been found on

other species of trees, including hardwoods and down logs at much smaller diameters where the moisture at the site is high. Very little habitat for PTCA5 was located within the project area during surveys. All areas of suitable habitat have been surveyed.

Specific Populations Within Project Area

One population, PTCA5-5-61 was previously known from within the project area. This population is located 10 ft. out of a dry draw, within Unit #465, which is a small unit within the larger Commercial Thin Unit #300.

One population, PTCA5-5-92, was located during project surveys. This population is located midslope, within Commercial Thin Unit #284.

V. Mitigation Measures

Species Specific Management Recommendations

- *Cypripedium montanum*:

Management guidelines for *Cypripedium montanum* are given on p.14 of the Management Recommendations (USDA 1998d). The important guidelines for the population in Mt. Ashland LSR Project are:

- 1) Maintain or restore habitat conditions in areas with populations of *Cypripedium montanum*.
- 2) Maintain canopy closure at 60 percent or greater.
- 3) Maintain down logs, snags, and duff layer within the habitat area for soil moisture and mycorrhizal associates.
- 4) Maintain/secure known sites from prescribed burns.

- *Ptilidium californicum*:

Management guidelines for *Ptilidium californicum* are given on pp.5&6 of the Management Recommendations (USDA 1999b). The management goal for the species is to “maintain microclimate conditions associated with *Ptilidium californicum*”. The important guidelines for the population in Mt. Ashland LSR Habitat Restoration and Fuels Reduction Project are:

- 1) Maintain habitat for this species at known sites by retaining old-growth white fir forest in California. Avoid disturbance at known sites, including modifications of the canopy. specifically, avoid logging, road construction, campground construction, and collection of special forest products in the vicinity of known sites.
- 2) Do not remove fallen trees and logs, as these serve as substrate in addition to bark of living trees.

Resource Protection Measures

The following mitigation measures have been incorporated into the project design. Site specific buffers will be laid out at each site.

UNIT	POPULATION	MITIGATION
U#300	PTCA5-5-61	No timber harvest, one site tree distance around population.
U#465	PTCA5-5-61	No thin/handpile/burn, 25 ft. around population.
U#284	PTCA5-5-92	No timber harvest, one site tree distance around population. No underburn 25 ft. around population.

VI. Effects Of The Alternatives

The significance of management activities upon Survey and Manage plant species depends upon many factors, including the current habitat conditions of the known populations, the habitat conditions necessary to support the species, and the degree of species sensitivity to short-term and long-term habitat modification. Each alternative is evaluated in terms of how the proposed activities would meet the requirements of the species specific Management Recommendations discussed above in Section V.

The effects of the alternatives upon *Cypripedium montanum* and *Ptilidium californicum* have been discussed in detail in the Mt. Ashland project Biological Assessment/Evaluation for TES Plant Species (USDA 2007a). That information will only be summarized here.

A. Effects of the No Action Alternative (Alternative 1)

- *Cypripedium montanum*:

In this alternative, the known site of this species is located within a timber stand that is currently not overstocked or exhibiting excess fuel levels. This population would not be affected by an increased risk of wildfire. There would be no direct, indirect or cumulative effects to this species. Management Recommendations for this species would be met.

- *Ptilidium californicum*:

In this alternative, the known sites of PTCA5 may be affected by an increased risk of wildfire. In this alternative, no small diameter trees will be thinned, piled, and burned, and no intermediate diameter trees will be commercially thinned. The timber stand in which the populations are located is overstocked with small and intermediate diameter conifers, and is at risk for a moderate to high intensity wildfire. There is potential for effects to the populations from a wildfire which could scorch the base of the tree on which the PTCA5 occurs, killing the plant. This would be a direct effect to the population. There may be an indirect effect to the population if there is a crown fire that kills overstory trees that provide the existing shade. There is not

likely to be a cumulative effect to the species from this and other projects because only two populations are known within the project area boundary. An adverse effect to these populations from an increased risk of wildfire may affect the species viability within the project area boundary, but is not likely to affect viability on the Klamath National Forest or within the species range. Ninety three populations are known on the Klamath National Forest, well distributed across all districts, and the species is common in Oregon and Washington. Although the population sites may be affected by an increased risk of wildfire, Management Recommendations for the species would be met by protecting the site from the effects of management activities.

B. Effects of the Proposed Action Alternative (Alternative 2)

- *Cypripedium montanum*

In this alternative, this species is located more than ¼ mile from the closest proposed project activity area. There will be no direct effect to individuals or populations and existing habitat conditions would be maintained at each population site. The distance from the closest activity area is great enough that there would be no indirect effects from any of the project activities. There will be no direct, indirect, or cumulative effects to these species. Management Recommendations for this species would be met.

- *Ptilidium californicum*:

Timber harvest effects: In this alternative, there will be no timber harvest related ground disturbing activities within or adjacent to the *Ptilidium californicum* populations present. A protection buffer of one site tree (approximately 150 ft.) will be designated on the ground. Within this buffer, no timber harvest will occur, and no trees >9 inches will be removed. This will retain all existing shade and cover provided by the moderate to large sized trees. A buffer of this size will preserve existing moisture levels at the PTCA5 site, and will provide for additional large diameter recruitment trees to serve as substrate for the species. There will be no heavy equipment operated within the buffer, and this will protect the PTCA5 plants from mechanical damage. There will be no direct effect to individuals and no indirect effect to the species habitat quality because all habitat elements will be retained. Because these populations will be maintained, there will be no cumulative effect from this and other project activities occurring within the project area boundary.

Fuel treatment effects: In this alternative, fuels within the units will be treated by thinning small diameter trees <9 inches, hand piling, and burning piles (U#300 & 465) or underburning (U#284). The PTCA5 populations will be protected from these activities with a fuel treatment buffer of 25 ft. Retention of all existing small diameter trees within this buffer will provide additional shading and moisture retention adjacent to the population. No handpiles will be constructed or burned and no underburning will occur within this buffer. This buffer will protect the population from direct mechanical damage from thinning and the heat and radiation effects of pile burning or underburning.

Small diameter trees outside this buffer do not provide additional shading and contribute to

increased fuel loading and wildfire risk levels. These small diameter trees outside the 25 ft. buffer will be thinned and burned or underburned. This is likely to provide a beneficial effect to the population and habitat through the reduction of fuel loading and wildfire risk.

Associated activities effects: Pre-commercial thinning, other fuel treatment activities, restoration support road actions and all other proposed actions in this alternative would have no effects to these *Ptilidium californicum* populations. These activities are proposed in areas that are not within or adjacent to the populations or their buffer area.

Summary – PTCA5: Because these populations will be protected, there will be no direct, indirect, or cumulative effects to the *Ptilidium californicum* populations. Management Recommendations for this species would be met.

C. Effects of Alternative 4

In this alternative, effects to the species of concern will be the same as the effects in Alternative 2.

D. Effects of Alternative 5

In this alternative, effects to the species of concern will be the same as the effects in Alternative 2.

References Cited

USDA Forest Service and USDI Bureau of Land Management 1994. Record of Decision for amendments to Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl; standards and guidelines for management of habitat for late-successional and old growth forest related species within the range of the northern spotted owl. Portland, Oregon: U.S. Department of Agriculture (Forest Service), U.S. Department of Interior (Bureau of Land Management).

USDA Forest Service 1997a. Survey protocols for Survey and Manage Component 2 Bryophytes. Version 2.0. December 11, 1997.

USDA 1997b. Management Recommendations, Bryophytes (19 species). Version 2.0. 1997.

USDA 1997c. Management Recommendations for Survey and Manage Fungi, Version 2.0. September 1997.

USDA Forest Service 1998a. Survey Protocols for *Bridgeoporus nobilissimus* Fungi. Version 2.0. Hibler & O'Dell, September 17, 1998.

USDA Forest Service 1998b. Survey Protocols for Component 2 Lichens. Version 2.0. March 12, 1998.

USDA Forest Service 1998c. Survey protocols for Survey & Manage Strategy 2 Vascular Plants. Version 2.0. Whiteaker et al., December 1998.

USDA Forest Service 1998d. Management Recommendations for Vascular Plants. December 1998.

USDA Forest Service 1999a. Survey Protocols for Protection Buffer Bryophytes. Version 2.0. December 3, 1999.

USDA 1999b. Management Recommendations, Bryophytes (5 species). Version 2.0. March 1999.

USDA Forest Service 2000. Management Recommendations for Survey and Manage Lichens. Version 2.0. March 2000.

USDA Forest Service and USDI Bureau of Land Management. January 2001. Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl.

USDA Forest Service and USDI Bureau of Land Management 2002b. Implementation of 2001 Survey and Manage Annual Species Review. BLM-Instruction Memorandum No. OR-2002-064. Results and Implementation summary table (Attachment 1) and revised Table 1-1 (Attachment 2).

USDA Forest Service 2002c. Survey Protocols for Category A&C Lichens. Version 2.0 September 2002. (October 18, 2002 transmittal date).

USDA Forest Service and USDI Bureau of Land Management 2002d. Amendments to Survey and Manage Management Recommendations designed to facilitate certain National Fire Plan activities – Vascular Plants, Lichens, Bryophytes, and Fungi. August 16, 2002. FS-Memorandum. BLM-Instruction Memorandum No. OR-2002-080.

USDA Forest Service and USDI Bureau of Land Management 2003. Implementation of 2002 Survey and Manage Annual Species Review. FS-Memorandum. BLM-Instruction Memorandum No. OR-2003-050. Results and Implementation Summary Table (Attachment 1) and revised Table 1-1 (Attachment 2).

USDA Forest Service and USDI Bureau of Land Management 2003c. Implementation of 2003 Survey and Manage Annual Species Review. FS-Memorandum. BLM – Instruction Memorandum No. OR-2004-034. December 19, 2003.

USDA Forest Service 2003e. 2003 Amendment to the Survey Protocol for Survey and Manage Category A&C Lichens. Version 2.1 September 2003. (September 22, 2003 transmittal date).

USDA Forest Service 2006. Botanical Pre-field Review of Proposed Projects and Results of Preliminary Field Review, Mt. Ashland LSR Habitat Restoration and Fuels Reduction Project. Appendix A-1, A-2, A-3. Unpublished document on file. Supervisor's Office, Klamath National Forest, Yreka, CA. Klamath National Forest. June 15, 2006.

USDA Forest Service. 2006a. 2670: Sensitive Plant Survey reports, Mt. Ashland LSR Habitat Restoration and Fuels Reduction Project. Unpublished notes on file, Supervisor's Office, Klamath National Forest. Yreka, CA.

USDA Forest Service 2006b. Botany Program population site reports. 1979-2006. Unpublished notes on file. Klamath National Forest, Yreka, CA.

USDA Forest Service. 2006d. Conservation Assessment for *Ptilidium californicum*. September, 2006. On file, Klamath National Forest, Yreka, CA.

USDA Forest Service 2007. *Mt. Ashland LSR Habitat Restoration and Fuels Reduction Project Draft Environmental Impact Statement*. Klamath National Forest, Yreka, CA. 2007.

USDA Forest Service. 2007a. *Biological Assessment/Evaluation for Sensitive, Threatened, and Endangered Plant Species*. Mt. Ashland LSR Habitat Restoration and Fuels Reduction Project. March 29, 2007. On file, Klamath National Forest, Yreka, CA.