

Appendix L

Botany

Special Status Plants

Special Status Plant Categories

Threatened, Endangered, and Proposed plants (FT, FE, and FP)

Plant species formally listed by the US Fish and Wildlife Service (USFWS) protected under the Endangered Species Act. It is the policy of the BLM to conserve listed species and the ecosystems on which they depend (USDI 2001). To date, T&E species include only vascular plants.

State Threatened, Endangered, or Proposed (STO, SEO, SPO)

Plant species listed by the State of Oregon. BLM policy is to manage for the conservation of those species and to comply with state laws protecting them to the extent they are consistent with the Federal Land Policy and Management Act (USDI 2001).

Bureau Sensitive (BSO)

Plants that could easily become endangered or extinct within the State. BLM policy requires that any Bureau action will not contribute to the need to list any of these species (USDI 2001). The Sensitive Species list, which includes vascular plants, lichens, and bryophytes, is tiered to State fish/wildlife/botanical agencies' and Oregon Natural Heritage Program (ONHP) designations.

Bureau Assessment (BAO)

Plants not presently eligible for official federal or state status, but of concern in Oregon and Washington and, at a minimum, may need protection or mitigation from BLM activities (USDI 2001). These vascular plants, lichens, and bryophytes are also tracked by the ONHP.

Bureau Tracking (BTO)

Plant species for which the BLM wishes to collect data in order to enable an early warning for species that may become of concern in the future, species for which more information is needed to determine their status, or species that no longer need active management. Protection and mitigation of these vascular plants, lichens, and bryophytes is discretionary (USDI 2001).

Medford Watch (MW)

This is a unique category to the Medford District BLM. It includes vascular plants, lichens, and bryophytes that have no official designation, but for which the BLM wishes to track and collect data. Protection of these species is discretionary by the line officer.

Survey and Manage (S&M)

Species managed under the Northwest Forest Plan that fall into six categories based on characteristics of rarity, uncommonness, and practicality of pre-disturbance surveys (Table L-1).

Table L-1. Survey and Manage Categories

Relative Rarity	Pre-Disturbance Surveys Practical	Pre-Disturbance Surveys Not Practical	Status Undetermined
Rare	Category A <ul style="list-style-type: none"> • Manage all known sites • Pre-disturbance surveys • Strategic surveys 	Category B <ul style="list-style-type: none"> • Manage all known sites • N/A • Strategic Surveys 	Category E <ul style="list-style-type: none"> • Manage all known sites • N/A • Strategic surveys
Uncommon	Category C <ul style="list-style-type: none"> • Manage high-priority sites • Pre-disturbance surveys • Strategic surveys 	Category D <ul style="list-style-type: none"> • Manage high-priority sites • N/A • Strategic surveys 	Category F <ul style="list-style-type: none"> • N/A • N/A • Strategic surveys

Table L-2. Special Status Plants Mentioned in the Elk Creek Watershed Analysis and South Cascades LSR Assessment, but not Considered for Analysis

Species	Status	Reason Deleted From Suspected List
<i>Allotropa virgata</i>		No longer has special status
<i>Asplenium septentrionale</i>	BAO ONHP 2	No habitat - occurs on granitic rock at high elevations (7,500-10,050')
<i>Boschniakia strobilacea</i>		No longer has special status
<i>Collomia mazama</i>	ONHP 1	Not known to occur in Medford District, occurs near Crater Lake
<i>Corallorhiza maculata</i>		No longer has special status
<i>Corallorhiza mertensiana</i>		No longer has special status
<i>Cupressus bakeri</i>	BAO	Located in Lost Creek Watershed; one site only in Medford District
<i>Eburophyton austinae</i>		No longer has special status
<i>Frasera umpquensis</i>	BSO	Unlikely in project area; occurs at 4,500-6,500' elevation along the Rogue-Umpqua Divide
<i>Hemitomes congestum</i>		No longer has special status
<i>Lewisia cotyledon</i> var <i>cotyledon</i>		No longer has special status; <i>Lewisia cotyledon</i> var <i>howellii</i> could occur
<i>Mimulus pulsiferae</i>		No longer has special status
<i>Mimulus pygmaeus</i> Pygmy monkeyflower		No longer has special status
<i>Monotropa uniflora</i>		No longer has special status
<i>Pityopsis californica</i>		No longer has special status
<i>Pleuriscospora fimbriolata</i>		No longer has special status
<i>Pterospora andromedea</i>		No longer has special status
<i>Polystichum californicum</i> California swordfern		No longer has special status
<i>Rosa spithamea</i> var <i>spithamea</i>		No longer has special status
<i>Sarcodes sanguinea</i>		No longer has special status
<i>Sedum radiatum</i> var <i>depauperatum</i>		No longer has special status
ONHP=Oregon Natural Heritage Program List 1, 2, 3, or 4		

Table L-3. Summary of Botanical Surveys Conducted in the Timbered Rock Project Area

Project	Year(s)	Vascular Surveys (acres)	Lichen and Bryophyte Surveys (acres)	Fungi Surveys (acres)	Survey Area
Silviculture treatments	1990-2001	2,646			Throughout watershed
Timber sale	1990	211			West side of watershed
Hazardous fuels reduction	1998	445			West side of watershed
S&M fungi sampling surveys	1998, 1999			20	Old growth stands in Sugarpine, Hawk, and Elkhorn creeks and along Elk Creek on USACE
S&M fungi strategic surveys	2001			138	Old growth stands throughout the LSR
<i>Cypripedium fasciculatum</i> surveys in old growth conifer stands	2000	93			Old growth stands throughout the LSR
Cooperative grazing project with USACE	2001	121			USACE lands along Elk Creek
<i>Fritillaria gentneri</i> survey	2002	47			USACE lands along Elk Creek
Cooperative project with private landowner	2002, 2003	160	160		Near Berry Rock
Proposed FMZ	2003	40	40		Boundary between Lost Creek and Elk Creek watersheds
Proposed salvage, LSR thinning and riparian thinning units	2003	4,136			Inside and outside Timbered Rock Fire perimeter
Proposed salvage units, helicopter landings, and temporary roads	2003	120	120		Inside Timbered Rock Fire perimeter
S&M strategic surveys	2002	400	400		Deferred Morine Creek drainage
Total Acres		8,319	720	158	

Table L-4. Special Status Plants Documented in the Timbered Rock Project Area with Protection Measures (October 2003)

Scientific Name	Status	Number of Sites	Location and Ownership	Project	Protection Measures
<i>Cimicifuga elata</i>	Bureau Sensitive	1	T32S-R1W-S1 BLM and Umpqua National Forest	FMZ	No hand piles within population boundary; underburn OK when plants dormant and fire would not scorch soil
<i>Cortinarius olympianus</i>	S&M B	1	T32S-R1W-S27; BLM	no projects	none required
<i>Cyripedium fasciculatum</i>	Bureau Sensitive, S&M C	8	T33S-R1W-S1 (2 sites); BLM	no projects	none required
			T33S-R1W-S10 (3 sites); BLM	no projects	none required
			T33S-R1W-S12 (2 sites); BLM	no projects	none required
			T33S-R1E-S21 (1 site); USACE	no projects	none required
<i>Cyripedium montanum</i>	Bureau Tracking, S&M C	6	T33S-R1W-S10 (1 site); BLM	no projects	none required
			T32S-R1E-S9 (1 site); BLM	no projects	none required
			T32S-R1E-S19 (1 site on road bank); BLM	road maintenance	no disturbance to bank within 25' of site
			T33S-R1E-S5 (1 site); BLM	salvage	100' no enter buffer
			T33S-R1E-S16 (1 site); USACE		none required
			T33S-R1E-S29 (1 site); BLM	no projects	none required
<i>Fabronia pussila</i>	Bureau Tracking	1	T33S-R1E-S15 (1 site); BLM	eagle habitat restoration	none required because of status, but no handpiles within 25'; underburn through site OK
<i>Funaria mühlenbergii</i>	Bureau Assessment	1	T33S-R1E-S15 (1 site); BLM	eagle habitat restoration	25' no-enter buffer
<i>Iliamna latibracteata</i>	Bureau Assessment	3	T32S-R1W-S1 (1 site); BLM	research (control unit)	none required because no treatment would occur
			T32S-R1W-S23 (2 sites); BLM	LSR thin	50' no-enter buffer
<i>Limnanthes floccosa</i> ssp <i>bellingiana</i>	Bureau Sensitive	2	T33S-R1E-S15 (2 sites); BLM	eagle habitat restoration	no hand piles within 25'; underburn OK when plants are dormant and fire would not scorch soil
<i>Perideridia howellii</i>	Bureau Tracking	1	T33S-R1W-S24 (1 site); Private		none required
<i>Plectania milleri</i>	Bureau Tracking	1	T32S-R1E-S11 (1 site); BLM	no projects	none required
<i>Ramaria rubripermanens</i>	S&M D	2	USACE		none required
<i>Sedum spathulifolium</i> ssp <i>purdyi</i>	Bureau Tracking	1	T32S-R1E-S9 (1 site); BLM	fuels reduction in owl activity center	none required because of status, but no hand piles within 25'; underburn through site OK with flame lengths under 3'

Table L-4. Special Status Plants Documented in the Timbered Rock Project Area with Protection Measures (October 2003)

Scientific Name	Status	Number of Sites	Location and Ownership	Project	Protection Measures
<i>Sulcaria badia</i>	Bureau Sensitive	1	T33S-R1E-S24 (1 site); BLM	pine habitat restoration	50' no-enter buffer; low intensity underburn through site OK with flame lengths under 3'
<i>Tortula subulata</i>	Bureau Tracking	2	T33S-R1W-S10 (1 site); BLM	no projects	none required
			T33S-R1E-S21 (1 site); BLM	no projects	none required
<i>Tremiscus helvelloides</i>	S&M D	1	T32S-R2E-S29 (1 site); BLM	no projects	none required
<i>Tripterocladium leucocladulum</i>	Bureau Assessment	1	T33S-R1E-S24 (1 site); Private		none required

Table L-5. Special Status Plants Known or Suspected to Occur in the Elk Creek Watershed

Scientific Name	Status	Known/ Suspected	Habitat
Vascular Plants			
<i>Cimicifuga elata</i> Tall bugbane	BSO	Known	Openings in mature conifer stands; clearcuts; 4,300-5,400' elevation.
<i>Cypripedium fasciculatum</i> Clustered lady'slipper	BSO, SM C	Known	Variety of habitats. Moist to dry mixed evergreen forests, with heavy duff and filtered sunlight. May be tied to disturbance. 1,000-3,500' elevation.
<i>Cypripedium montanum</i> Mountain lady'slipper	BTO, SM C	Known	Mixed conifer and mixed evergreen/oak woodlands; north aspect; 60-80% canopy; 2,500-4,000' elevation.
<i>Iliamna latibracteata</i> California's wild hollyhock	BAO	Known	Moist, often shaded places, creek banks, disturbed areas, 1,500'-6,000' elevation.
<i>Isopyrum stipitatum</i> Siskiyou false rue anemone	BAO	Suspected	Chaparral slopes and foothills woodlands, 1,800-4,200' elevation.
<i>Lewisia cotyledon</i> var <i>howellii</i> Howell's lewisia	BTO	Known	Rock outcrops; full sun or partial shade; 2,000-4,000' elevation.
<i>Microseris laciniata</i> ssp <i>detlingii</i> Detling's silverpuffs	BSO	Suspected	Chaparral; grassy openings among oaks; shallow, clay soils, <6,000' elevation.
<i>Pellaea andromedifolia</i> Coffee cliffbrake	BAO	Suspected	Rocky or dry areas; 90-5,400' elevation.
<i>Perideridia howellii</i> Howell's yampah	BTO	Known	Meadows; moist slopes; along streambanks; 900-4,500' elevation.
<i>Ribes inerme</i> var <i>klamathense</i> Klamath gooseberry	BTO	Suspected	Conifer forest edges; meadow edges; streamsides; 3,600-9,900' elevation.
<i>Romanzoffia thompsonii</i> Thompson's romanzoffia	BSO	Suspected	Rocky, moist seeps; usually on warm, south-facing slopes.
<i>Scribneria bolanderi</i> Scribner's grass	BTO	Suspected	Rocky scablands in chaparral or oak woodlands; 1500'-7500' elevation.
<i>Sedum spathulifolium</i> ssp <i>purdyi</i> Purdy's stonecrop	BTO	Known	Grows in thin mats of moss and soil or in gravel on rocky slopes and cliffs of granite or slate; 150-7,500' elevation.

Table L-5. Special Status Plants Known or Suspected to Occur in the Elk Creek Watershed

Scientific Name	Status	Known/ Suspected	Habitat
Lichens			
<i>Leptogium rivale</i>	SM E	Suspected	On rocks in small perennial streams in conifer forests.
<i>Pannaria saubinetti</i>	SM F	Suspected	Rocks or trees; moist or wet forests; in deep shade to somewhat open sites.
<i>Ramalina thrausta</i>	SM A	Suspected	On hardwoods, conifers or shrubs in open Oregon white oak/Douglas fir/poison oak plant association, sometimes with riparian influence, but dry habitats in the Butte Falls Resource Area.
<i>Sulcaria badia</i>	BSO	Known	Hardwoods in well-lit to partially-shaded situations in low elevations.
Bryophytes			
<i>Crumia latifolia</i>	BAO	Suspected	Wet rocks or cliff faces, usually calcareous.
<i>Fabronia pusilla</i>	MW	Known	Rock or bark, lowlands-7,100' elevation.
<i>Funaria muhlenbergii</i>	BAO	Known	Dry exposed soil, among rocks or on cliff ledges in open areas free from other vegetation, chaparral rocky scabland in Butte Falls Resource Area, low elevations.
<i>Hedwigia detonsa</i>	MW	Suspected	Dry, usually acidic rocks; river canyons; open forested lands (endemic to CA).
<i>Hedwigia stellata</i>	BTO	Suspected	Dry, usually acidic rocks, grasslands, savannas.
<i>Tortula subulata</i>	BTO	Suspected	Soil, especially on upturned root wads, disturbed sites.
<i>Tripterocladium leuocladulum</i>	BAO	Known	Shaded to exposed rocks, cliffs, and hardwood bark; low elevation.
Fungi			
<i>Cortinarius olympianus</i>	SM B	Known	Old growth conifer forests, soil and duff.
<i>Ramaria rubripermanens</i>	SM D	Known	Soil and duff.
<i>Tremiscus helvelloides</i>	SM B	Known	Soil over decaying wood under conifers.

Description of Special Status Plants Documented in the Timbered Rock Project Area (October 2003)

Vascular Plants

Cimicifuga elata (tall bugbane), Bureau Sensitive – One site was discovered by a Forest Service botanist during surveys prior to power-line maintenance. The population is located on a north-facing slope in moist mature forest on Umpqua National Forest Service and Roseburg BLM land, outside the Elk Creek Watershed. Only a small portion of the eastern edge of the population was affected by fire suppression efforts. A few plants were impacted by construction of a staging area and firelines, but most of the population was undisturbed. Many plants were observed intact after the fire was controlled. *Cimicifuga elata* is a long-lived perennial and western North America endemic whose range extends from southern British Columbia to Jackson County, Oregon. Eighty-five sites have been found in the Medford District; one in the Butte Falls Resource Area. Following a Conservation Strategy signed in 1996 and monitoring studies conducted throughout Oregon in the 1990s, the species was assessed as stable across its range. It has been found to respond favorably to disturbance and canopy removal (Kaye 2000a, 21). Part of the *Cimicifuga elata* site in Timbered Rock lies within a proposed fuel management zone that straddles the watershed boundary.

Cypripedium fasciculatum (clustered lady slipper), Bureau Sensitive and S&M C – Eight sites of this species have been discovered in the Elk Creek Watershed, all outside the fire perimeter. *Cypripedium fasciculatum* is a perennial orchid with shallow, rhizomatous roots and mycorrhizal associations. It occurs in a variety of habitats with a great diversity of soils, elevation, aspect, and plant communities (USDA and USDI 1998a, p 10). Approximately 530 sites are documented in the

Medford District; 69 of which are in the Butte Falls Resource Area. Although its distribution extends throughout the western United States, populations are widely scattered and disjunct with generally few plants per population. The Medford District BLM has by far the most number of sites within the Northwest Forest Plan area (Washington, Oregon, northern California). Studies indicate that *Cypripedium fasciculatum* may survive low to moderate severity fires. Recovery may take longer or may not occur after high severity fire that burns the duff layer, damages shallow rhizomes and associated mycorrhizal fungi, and removes or kills host trees (USDA and USDI 1998, 7; Applegate 2002, 3). None of the eight sites are located in proposed project areas.

Cypripedium montanum (mountain lady slipper), Bureau Tracking and S&M C – Like *Cypripedium fasciculatum*, *Cypripedium montanum* is a rhizomatous orchid that has a symbiotic relationship with a soil fungus. It is endemic to western North America where it is widely distributed, but most populations contain fewer than ten plants. Typical habitat is in mixed conifer or mixed evergreen/oak woodland plant communities with 60-80 percent canopy closure. The role and effects of fire on the species is unknown (USDA and USDI 1998a, 1-2). There are 206 known sites of *Cypripedium montanum* in the Medford District and 60 known sites in the Butte Falls Resource Area. Six sites have been documented in the project area. One site was known within the fire perimeter prior to the fire, on a ridge-line in an early seral conifer forest with residual 150 year old over story trees. The area burned at low severity, although a plantation next to it burned at high severity. When the site was discovered in 2001, eight plants were noted. When the site was revisited in 2003, no plants were visible. This site is outside any planned projects. Only one of the eight mountain lady slipper sites is located in a planned project unit (Table L-4).

Iliamna latibracteata (globe mallow), Bureau Assessment – Three sites of this species are known in the project area; two are west of the burned area and one is within the fire perimeter. *Iliamna latibracteata* is endemic to southwestern Oregon and northwestern California. Sites have been documented in Coos, Douglas, Josephine, and Jackson Counties in Oregon and Humboldt and Del Norte Counties in California. Typical habitat is moist, often shady places (Knight and Seevers 1992, 100). Thirteen sites have been discovered in the Medford District; ten of which are in the Butte Falls Resource Area. Several of the sites in Butte Falls are located in previously harvested areas along old skid roads, in clearcuts, and along road banks. It is a species that may require some disturbance to create a more open canopy within the forest. While the effects of fire on this species is unknown, a study on the closely related *Iliamna corei* in Virginia concluded that fire stimulates seed germination and maintains suitable habitat (Center for Plant Conservation March 12, 2003, 1). Only one site is located within a control research unit.

Limnanthes floccosa ssp *bellingiana* (Bellinger's meadowfoam), Bureau Sensitive – Two sites were discovered in seasonally wet meadows on the east side of the project area. This spring-blooming plant grows in heavy clay soils where vegetation consists mostly of sparse annual grasses and forbs. Bellinger's meadowfoam is a Jackson County endemic that is closely related to the endangered *Limnanthes floccosa* ssp *grandiflora*. Thirty-seven sites have been reported in the Medford BLM District; with twenty-one of those in Butte Falls Resource Area. Both sites are actually in the Lost Creek Watershed, but are located in a proposed eagle habitat restoration unit that straddles the watershed boundary.

Perideridia howellii (Howell's yampah), Bureau Tracking – This medium-size perennial plant occurs in wet drainages or meadows. 100 sites have been documented in the District and 29 in the Butte Falls Resource Area. The one site discovered to date in the Elk Creek Watershed is located on private land and was discovered during a survey for a cooperative project. Because it is a riparian species, *Perideridia howellii* is protected from most projects within riparian reserves. Although this site is on private land, it is likely that more sites would be discovered on BLM land.

Sedum spathulifolium ssp *purdyi* (Purdy's stonecrop), Bureau Tracking – One site has been reported within the Timbered Rock Fire perimeter on a rock outcrop in an early seral conifer forest with residual 150 year old overstory trees. The site burned at low severity and a revisit in 2003 found mosses on the rocks around the plants scorched, but the stonecrop plants intact. This sedum is endemic to the Klamath Mountains in southern Oregon and northern California and the Feather River drainage in the Sierra Nevada. It is usually found in shade to partial shade on rocky slopes and cliffs (Hickman 1993, Knight and Seevers 1992, 188). Twenty-one sites are known in the Medford District, one of which is in the Butte Falls Resource Area. The site is in an area proposed for fuels treatment in an owl activity center.

Lichens

Sulcaria badia, Bureau Sensitive – One site of this epiphytic lichen was recently discovered on BLM land within the Elk Creek Watershed. Twenty-nine sites have been reported in the Medford District, although not all sites have been verified. Two sites have been verified in the Butte Falls Resource Area; one in Sams Valley and one in the Elk Creek Watershed.

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Sulcaria badia is believed to be rare across its range, which extends from western Washington to northwestern California. It is also considered at risk because it occurs in lower elevations, particularly in proximity with agricultural lands where it has been affected by loss of habitat and could be affected by air pollution in some areas (McCune and Geiser 1997, 281). Typical substrate is the bark or wood of oaks, maples, or apple trees. *Sulcaria badia*'s response to fire is unknown, although it can be assumed that direct flames and smoke from a high intensity fire would negatively impact it. Even if specimens are not burned, heat and smoke may also impair its ability to perform photosynthesis. Because it occurs in the Butte Falls Resource Area in oak woodlands and these plant communities often burn at moderate to low intensity, however, it is possible that it may be adapted to a frequent, but low intensity fire regime. The site in the Timbered Rock project area is located in a proposed pine restoration unit.

Bryophytes

Fabronia pusilla, Bureau Tracking – Typical habitat for this small bryophyte is on rock outcrops in xeric, harsh sites of open oak woodland, meadow, or chaparral habitats. It is endemic to western North America. 33 sites have been documented in the Medford BLM District, with 12 of those in the Butte Falls Resource Area. The site in the Timbered Rock project area is actually in the Lost Creek watershed in an eagle habitat restoration unit that straddles the watershed boundary.

Funaria muhlenbergii, Bureau Assessment – This bryophyte is less than a centimeter tall and is found, with difficulty, on mineral soil in chaparral scabland habitat, usually under the protection of rocks. It is a western U.S. endemic; 22 sites have been found in the Medford District, with 15 of those in the Butte Falls Resource Area. The one site documented to date in the project area is on the eastern side, in the Lost Creek Watershed, in an eagle habitat restoration unit.

Tortula subulata, Bureau Tracking – The range of this third diminutive bryophyte is the west coast of North America from B.C. to California. Typical habitat is in conifer stands on soil, often in disturbed sites such as upturned root wads, roadsides, and trails. 253 sites have been documented in the Medford District, with 50 of those in the Butte Falls Resource Area. The two sites found in the Timbered Rock project area are outside proposed projects.

Tripterocladium leucocladulum, Bureau Assessment – One site of this moss was recently discovered on private land during surveys for a cooperative project. At least 80 sites are known in the Medford District. It is a western North American endemic and it is found on soil, rock, or trees. It has not been well-studied and the effects of fire on this moss and its recovery mechanisms after fire are unknown. Even in low severity burn areas where the fire burned along the ground only, *Tripterocladium leucocladulum*, if present, could have been impacted.

Fungi

Cortinarius olympianus, S&M B – This fall-fruiting gilled fungus was discovered in one area in 2001 during surveys in the Elk Creek LSR that focused on detecting several genera, including this species. Six sites have been discovered in the Medford District; one of which is in the Butte Falls Resource Area. This fungi is endemic to the Pacific Northwest and is believed to be associated with old growth habitat. It grows in the soil in an ectomycorrhizal association with the roots of various conifers. Fire could harm populations as a result of disturbance to soil, duff, coarse woody debris, or mortality of host trees (Castellano and O'Dell 1997, 9-6).

Plectania milleri, Bureau Tracking – This small cup fungus that grows on soil and duff in old growth forests formerly had S&M status, but was removed from the list because it was determined not to be rare. It was retained on the BLM Special Status list as a Tracking species; information is collected if it is encountered, but sites are not protected. One site was discovered during fungi surveys in 1999 on BLM-administered land.

Ramaria rubripermanens, S&M D – This coral fungus was discovered on USACE land in 1999 by the Survey and Manage Fungi Taxa group from Oregon State University. It is endemic to the Pacific Northwest and is fairly abundant in Oregon, but less common in Washington and California; 74 sites are known in the Medford District. It fruits in both spring and fall in humus or soil and is ectomycorrhizal with various conifer species. The impacts of fire to the species depends on the severity of burn and damage to host trees, soil, and duff layers.

Tremiscus helvelloides (aka. *Phlogiotis helvelloides*), S&M D – One site of this jelly fungus was discovered in the Elk Creek Watershed during fungi surveys in 2001. Forty-one sites have been documented in the Medford District. This species is widely distributed, but uncommon where it occurs. It grows in forest stands in duff or humus and is ectomycorrhizal with conifer roots. As with the other fungi, impacts of fire to the species depends on burn severity and damage to host trees, soil, and duff layers.