

Final Report for the 2007 Non-vascular Plant Survey and Reference Collection

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Abstract

This project was designed to increase the knowledge of the non-vascular flora on the Colville National Forest, as well as the skills of botanical employees. Packets of 164 lichens and 318 bryophytes specimens were collected from five Research Natural Areas (RNAs) and sent to experts for identification. This resulted in 72 lichen taxa and 119 bryophyte taxa from five RNAs. Rare lichen species documented from RNAs include: *Nephroma bellum* at Halliday Fen. Rare bryophytes documented in RNAs include *Calypogeia sphagnicola* at Bunchgrass Meadows, *Hedwigia ciliata* at Maitlen Creek, and *Helodium blandowii* and *Rhizomnium nudum* at Salmo Mountain. One documented site each of the lichens *Collema nigrescens* and *Myurella julacea* occurs on the trail to Halliday Fen.

Introduction

There is a dearth of information regarding the occurrence, distribution, abundance, and habitat of non-vascular plants in northeastern Washington. The 2004 USFS R6 Sensitive Species List included 10 species of lichens and mosses suspected for the Colville National Forest. One, *Nephroma bellum*, was documented from the Forest in 2004 with the aid of ISSSSP funding. Through purposive surveys funded by the ISSSSP program and surveys of Forest project areas, we have documented occurrences of 252 lichen and 307 moss taxa, including the 38 rare lichens and 10 rare mosses shown in Appendix A.

Project Objectives :

1. Survey for nonvascular plants in selected areas, including three Research Natural Areas (Maitlin Creek, Round Top Mountain and Salmo Mountain,).
2. Identify 430 non-vascular collections from 2004-2007 surveys, make a reference collection for the Forest, and distribute the remainder of the vouchers to herbaria.
3. Complete sighting forms for sensitive taxa resulting from these surveys, record data on the sensitive plant GIS layer and NRIS database.
4. Curate non-vascular collections.
5. Continue on-the-job training in non-vascular identification.

Study Area

The northeastern Washington study area included five Research Natural Areas on the Colville National Forest:

Bunchgrass Meadows -- 711 acres of bog and fen communities, meandering streams and ponds, and forested slopes ranging from 4961 to 5500 feet in elevation (Photo1).

Halliday Fen -- 724 acres from 2450 to 3975 feet in elevation supporting a mixed conifer overstory of Douglas-fir, grand fir, western white pine, western redcedar and western hemlock with a shrub and forb understory, which encloses a 10 acre alkaline wetland (Photo 2).

Maitlin Creek RNA - 630 acres, most of which is Douglas-fir burned in 1920, elevations range from 2900 to 5377 feet (Photo 3).

Round Top Mountain RNA - 212-acre rounded mountain top is dominated by green fescue with subalpine fir, whitebark pine, and beargrass (Photo 4).

Salmo Mountain RNA - 1390 acres of mixed conifer ranging from 4000 to 6823 feet with an annual precipitation of 45-60 inches (Photo 5).

Methods

a. Field Data Collection: In 2007 six days of surveys on the Colville National Forest were conducted to collect specimens in three Research Natural Areas (Maitlin Creek, Round Top Mountain, and Salmo Mountain). Field data collected included standard specimen documentation and vouchering.

b. Specimen Preparation and Identification: Existing specimens and those collected in 2007 were identified by a combination of cooperators and Forest Service employees.

c. Report Preparation: Final reports were developed by cooperators and Forest Service employees. These consisted of nonvascular taxa lists for the RNAs and specimen location information.

Results

Collections from five RNAs (Bunchgrass Meadows, Halliday Fen, Maitlin Creek, Round Top Mountain, and Salmo Mountain) resulted in vouchers of 164 lichens comprising 72 taxa identified by Dr. Katherine Glew and 318 bryophyte collections totaling 119 taxa identified by Erica Heinlen. This project contributed to survey work which began in 2004 in two RNAs (Bunchgrass Meadows and Halliday Fen) and completed identifications of collections made and funded by the ISSSSP in 2004.

Final Products:

1. Sighting forms, GPS locations, GIS layer and NRIS database updated for sensitive taxa.
2. Reference collection of non-vascular flora for the Forest, including sensitive taxa.
3. Lists of lichens and bryophytes of the Forest, including sensitive taxa (Appendices B and C).
4. Increased identification skills for Forest Service employees.

Discussion

The status of lichens (Appendix D) and bryophytes (Appendix E) documented from the five RNAs indicates that a number of them may be rare in Washington. Rare lichen species documented from the five RNAs include: *Nephroma bellum* at Halliday Fen. Rare bryophytes documented in RNAs include *Calypogeia sphagnicola* at Bunchgrass Meadows, *Hedwigia ciliata* at Maitlin Creek, and *Helodium blandowii* and *Rhizomnium nudum* at Salmo Mountain. One documented site each of the lichens *Collema nigrescens* and *Myurella*

julacea occurs on the trail to Halliday Fen. Appendix F shows the status of these rare taxa.

Although only a handful of sites were surveyed within each RNA, Table 2 shows that the majority of nonvascular taxa were not widespread.

Table 2. Number of Nonvascular Taxa Occurring in One to Four of the RNAs.

Taxa Group	Number of Taxa Occurring in One RNA	Number of Taxa Occurring in Two RNAs	Number of Taxa Occurring in Three RNAs	Number of Taxa Occurring in Four RNAs	Total Taxa Occurring in RNAs
Lichens	57	11	3	1	72
Bryophytes	76	22	16	5	119

Acknowledgements

This project was made possible through funding from the Region 6 Interagency Special Status Sensitive Species Program. Dr. Katie Glew and Erica Heinlen provided expertise in identifying taxa. Amy Cabral, Jake Wilson, and April Barreca collected and curated vouchers.

Appendix A. Rare Lichens and Mosses Documented from the Colville National Forest (Dr. Katherine Glew pers. comm. 2006, NatureServe 2006). An “X” under State Rank indicates that the lichen is rare in Washington, or there is no information for Washington, or it is not known from the U.S. (NatureServe 2006). The global and state ranks in the table are taken from NatureServe (2006) for the lichens and from the Rare Moss Working List of the Washington Natural Heritage Program (2006) for mosses.

Species	Global Rank	State Rank
<i>Rare Lichens</i>		
<i>Acarospora glaucocarpa</i>	G5	X
<i>Agonimia tristicula</i>	G4G5	X
<i>Arctoparmelia subcentrifuga</i>	G4G5	X
<i>Bryoria implexa</i>	GNR	X
<i>Chaenotheca phaeocephala</i>	G2G4	X
<i>Cladonia norvegica</i>	G4G5	S2
<i>Clauzadea immersa</i>	No information.	No information.
<i>Collema bachmanianum</i>	GNR	X
<i>Collema coccophorum</i>	G3G5	X
<i>Collema fuscovirens</i>	G5	X
<i>Endocarpon adsurgens</i>	No information.	No information.
<i>Esslingeriana idahoensis</i>	G4	X
<i>Koerberia sonomensis</i>	G2G4	X
<i>Lecanora argopholis</i>	G5	X
<i>Lecanora carpinea</i>	GNR	X
<i>Lecanora pringlei</i>	GNR	SNR
<i>Lobaria hallii</i>	G4?	SNR
<i>Lobaria pulmonaria</i>	G4G5	X
<i>Nephroma bellum</i>	G3G5	S2
<i>Parmelia hygrophila</i>	G3G5	X
<i>Peltigera extenuata</i>	No information.	No information.
<i>Phylliscum demangeonii</i>	G3G5	S2
<i>Physcia callosa</i>	G3G4	SNR
<i>Placynthium stenophyllum</i>	G2G4	X
<i>Protoblastinea incrustans</i>	No information.	No information.
<i>Ramalina farinacea</i>	G3G5	X
<i>Ramalina pollinaria</i>	G4	SNR
<i>Ramalina thrausta</i>	G3G4	S1
<i>Rhizocarpon lecanorinum</i>	G3G5	X
<i>Rinodina glauca</i>	No information.	No information.
<i>Sarcogyne regularis</i>	G5	X
<i>Solorina spongiosa</i>	G3G5	X
<i>Stereocaulon sasakii</i>	G4G5	X
<i>Umbilicaria americana</i>	G5?	X
<i>Umbilicaria deusta</i>	G5	X
<i>Umbilicaria vellea</i>	G4?	S2

Species	Global Rank	State Rank
<i>Rare Lichens</i>		
<i>Usnea substerilis</i>	GNR	No information.
<i>Rare Mosses</i>		
<i>Bryum calobryoides</i>	G3	S1
<i>Buxbaumia aphylla</i>	G4G5	S3
<i>Buxbaumia viridis</i>	G3G4	SU
<i>Hedwigia ciliate</i>	G5	SNR
<i>Helodium blandowii</i>	G5	S1
<i>Herzogiella seligeri</i>	G3G4	S1
<i>Myurella julacea</i>	G5	S1
<i>Orthotrichum hallii</i>	G4	S1
<i>Polytrichum strictum</i>	G4	S2
<i>Ptilidium crista-castrensis</i>	G5	SU

Appendix B. Lichens of Bunchgrass Meadows, Halliday Fen, Maitlin Creek, and Round Top Mountain Research Natural Areas, Colville National Forest.

Lichen Taxa	Bunchgrass Meadows	Halliday Fen	Maitlin Creek	Round Top Mountain	Salmo Mountain
Alectoria lata	X				
Alectoria sarmentosa		X	X		
Aspicilia cinereorufescens			X		
Bryoria capillaris	X				
Bryoria fuscescens	X	X			
Bryoria fremontii	X				
Bryoria glabra	X				
Bryoria lanestris	X				
Calicium viride		X			
Chaenotheca brunneola		X			
Chaenotheca phaeocephala		X			
Cladina mitis			X		
Cladonia asahinae			X		
Cladonia borealis			X		
Cladonia chlorophaea	X		X		
Cladonia cornuta			X		
Cladonia fimbriata	X	X	X		
Cladonia multiformis		X			
Cladonia pyxidata			X		
Cladonia squamules			X		
Cyphelium inquinans		X			
Diploschistes scruposus			X		
Ephebe lanata					X
Hypogymnia metaphysodes	X				
Hypogymnia physodes	X	X			
Hypogymnia tubulosa	X	X			
Lecanora polytropha			X		X
Lecidea atrobrunnea			X	X	X
Letharia vulpina	X	X			
Lobaria hallii			X		
Lobaria pulmonaria		X			
Lopadium disciforme		X			
Melanelia panniformis		X			
Melanelia soredata			X		
Melanelia subaurifera		X			
Melanelia subolivacea			X		
Mycoblastus affinis					X

Lichen Taxa	Bunchgrass Meadows	Halliday Fen	Maitlin Creek	Round Top Mountain	Salmo Mountain
Mycocalicium subtile		X			
Nephroma bellum		X			
Nephroma helveticum		X			
Nephroma parile		X			
Nephroma resupinatum		X			
Nodobryoria oregana	X				
Parmelia sulcata	X	X			
Parmeliopsis ambigua	X	X	X	X	
Parmeliopsis hyperopta	X				
Peltigera cinnamomea		X			
Peltigera collina		X			
Peltigera edlizabetae		X			
Peltigera membranacea		X			
Peltigera ponojensis		X			
Peltigera rufescens			X		
Peltigera venosa		X			
Phaeophyscia sciastra			X		
Platismatia glauca	X				
Psora globifera			X		
Ramalina dilacerata			X		
Ramalina thrausta		X			
Solorina crocea					X
Stereocaulon tomentosum			X		
Tephromela atra			X	X	
Trapeliopsis granulosa				X	X
Tuckermannopsis chlorophylla	X				
Tuckermannopsis platyphylla	X				
Tuckermannopsis sepincola		X			
Umbilicaria deusta					X
Umbilicaria hyperborea			X	X	X
Umbilicaria phaea?			X		
Umbilicaria torrefacta			X		
Usnea lapponica		X			
Vulpicida pinastri	X	X			
Xanthoria polycarpa			X		

Appendix C. Bryophytes of Bunchgrass Meadows, Halliday Fen, Maitlin Creek, Round Top Mountain, and Salmo Mountain Research Natural Areas, Colville National Forest.

Bryophyte Taxa	Bunchgrass Meadows	Halliday Fen	Maitlin Creek	Round Top Mountain	Salmo Mountain
<i>Amblystegium serpens</i>			X		
<i>Aneura pinguis</i>		X			
<i>Atrichum selwynii</i>			X		X
<i>Atrichum tenellum</i>					X
<i>Aulacomnium androgynum</i>		X	X		
<i>Aulacomnium palustre</i>	X	X			X
<i>Barbilophozia atlantica</i>					X
<i>Barbilophozia hatcheri</i>					X
<i>Barbilophozia lycopodioides</i>					X
<i>Barbula convoluta</i>			X		
<i>Brachythecium albicans</i>	X	X	X		
<i>Brachythecium collinum</i>				X	
<i>Brachythecium erythrorrhizon</i>			X		X
<i>Brachythecium frigidum</i>		X			X
<i>Brachythecium hylotapetum</i>			X	X	
<i>Brachythecium leibergii</i>		X	X	X	X
<i>Brachythecium nelsonii</i>					X
<i>Brachythecium oedipodium</i>					X
<i>Brachythecium oxycladon</i>				X	X
<i>Brachythecium salebrosum</i> var. <i>salebrosum</i>			X	X	X
<i>Brachythecium velutinum</i>			X		X
<i>Bryum caespiticium</i>		X	X	X	
<i>Bryum capillare</i> var. <i>capillare</i>			X		
<i>Bryum lisae</i> var. <i>cuspidatum</i>				X	
<i>Bryum pseudotriquetrum</i>	X	X			X
<i>Bryum weigeli</i>		X			
<i>Calliergon giganteum</i>		X			
<i>Calliergon stramineum</i>	X				
<i>Calypogeia muelleriana</i>					X
<i>Calypogeia sphagnicola</i>	X				
<i>Campylium polygamum</i>	X				
<i>Campylium stellatum</i>		X			
<i>Cephaloziella rubella</i>					X
<i>Ceratodon purpureus</i> var. <i>purpureus</i>		X	X	X	X
<i>Claopodium bolanderi</i>			X		
<i>Coenogonium pineti</i>					X
<i>Conocephalum conicum</i>		X			X
<i>Cratoneuron filicinum</i>				X	

Bryophyte Taxa	Bunchgrass Meadows	Halliday Fen	Maitlin Creek	Round Top Mountain	Salmo Mountain
Dendroalsia abietina		X			
Dichodontium pellucidum					X
Dicranum fuscescens var. fuscescens			X	X	X
Dicranum muehlenbeckii					X
Dicranum scoparium		X	X		
Dicranum tauricum			X	X	X
Table Y continued.					
Dicranoweisia crispula				X	
Didymodon vinealis var. vinealis					X
Diplophyllum taxifolium					X
Drepanocladus aduncus	X	X			
Drepanocladus aduncus var. kniefii	X				
Drepanocladus capillifolius				X	
Dryptodon patens		X	X		
Encalypta vulgaris		X			
Eurhynchium praelongum					X
Eurhynchium pulchellum var. pulchellum		X	X		X
Fissidens bryoides			X		
Fontinalis antipyretica var. antipyretica	X				
Grimmia montana			X		
Hedwigia ciliata			X		
Helodium blandowii		X			
Heterocladium dimorphum					X
Homalothecium nevadense			X		
Hygrohypnum ochraceum					X
Jungermannia leiantha					X
Leptobryum pyriforme			X		X
Lescuraea stenophylla					X
Limprichtia revolvens	X				
Lophocolea heterophylla					X
Lophocolea minor					X
Lophozia incisa				X	
Lophozia ventricosa			X		X
Marchantia polymorpha		X			X
Metaneckera menziesii					X
Mnium ambiguum			X		X
Mnium marginatum					X

Bryophyte Taxa	Bunchgrass Meadows	Halliday Fen	Maitlin Creek	Round Top Mountain	Salmo Mountain
Mnium spinulosum		X	X		X
Myurella julacea		X			
Oncophorus virens					X
Orthotrichum speciosum var. speciosum			X		
Orthotrichum striatum		X			
Pellia endiviifolia					X
Plagiomnium ellipticum	X	X			
Plagiomnium medium var. medium					X
Plagiothecium denticulatum					X
Plagiothecium laetum			X		X
Platydictya jungermannioides					X
Pohlia andalusica	X				
Pohlia nutans			X	X	X
Pohlia prolifera			X		X
Pohlia wahlenbergii		X			
Polytrichum commune var. commune	X				
Polytrichum formosum	X				
Polytrichum juniperinum		X	X		X
Polytrichum lyallii			X	X	X
Polytrichum piliferum		X	X	X	X
Pseudoleskea (Lescuraea) patens				X	X
Pseudoleskea (Lescuraea) radicata var. radicata		X	X	X	X
Pseudoleskeella tectorum					X
Pterigynandrum filiforme			X		
Ptilidium californicum					X
Ptilidium pulcherrimum			X		X
Racomitrium canescens			X	X	X
Racomitrium ericoides		X			
Racomitrium heterostichum			X		
Racomitrium sudeticum					X
Roellia roellii				X	
Rhizomnium nudum					X
Rhizomnium pseudopunctatum					X
Rhytidiadelphus squarrosus					X
Rhytidiadelphus triquetrus		X	X		
Rhytidiopsis robusta			X	X	X

Bryophyte Taxa	Bunchgrass Meadows	Halliday Fen	Maitlin Creek	Round Top Mountain	Salmo Mountain
Sanionia uncinata		X	X		X
Scapania mucronata	X				
Scapania paludicola	X				
Scapania undulata					X
Schistidium apocarpum		X	X	X	X
Schistidium atrichum			X		
Sphagnum recurvum	X				
Sphagnum teres	X				
Timmia austriaca					X
Tortella tortuosa					X
Tortula ruralis			X	X	X

Appendix D. Status of Lichen Taxa Documented from Research Natural Areas on the Colville National Forest (NatureServe, March 2008; and *WA NHP Working List of Rare Lichens).

Lichen Taxa	Comments	Status
Alectoria lata	*Potentially Threatened in WA	G3G4 S2 Occurs in the Pacific coast regions of northern California north to Washington, and also in Chihuahua, Sinaloa, Guatemala, and eastern Asia; typically in forests at high elevations and growing on conifers, rocks, and soil.
Alectoria sarmentosa		G5
Aspicilia cinereorufescens		No information.
Bryoria capillaris		G4
Bryoria fuscescens		G5?
Bryoria fremontii		G3G5
Bryoria glabra		G3G5
Bryoria lanestris		G5?
Calicium viride		G4G5
Chaenotheca brunneola		G4 S1 Grows on rooted wood and on hardwood bark in a scattered distribution across North America: Pacific Northwest and British Columbia; from the Great Lakes region to Newfoundland, throughout Florida, and with individual centers in California, Missouri, and the lower Appalachians. Common on conifers in open to sheltered coastal and humid intermontane localities; incompletely circumpolar. Individual plants are fragile, but are tiny and occur in masses on twigs and branches that are not easily damaged except by catastrophic damage. Small size, hard to find, undoubtedly undercollected rangewide.
Chaenotheca phaeocephala	Glew recognizes as rare in WA.	G2G4 This lichen species is known from boreal regions in Europe and is very rare in North America (Oregon, Wisconsin, and the Northwest Territories). It grows on the bark of conifers and some deciduous trees.
Cladina mitis		G5
Cladonia asahinae		G3G5
Cladonia borealis		G5 Arctic-alpine species occurs in Alaska, throughout Canada and south into the Rocky Mountains in the U.S.; in full sun on soil or rocks.
Cladonia chlorophaea		GU
Cladonia cornuta		
Cladonia fimbriata		G3G5
Cladonia multiformis		G3G5
Cladonia pyxidata		G5
Cladonia squamosa		G5
Lichen Taxa	Comments	Status

Cyphelium inquinans		G3G4
Diploschistes scruposus		G5
Ephebe lanata		G5
Hypogymnia metaphysodes		G3G5
Hypogymnia physodes		G5
Hypogymnia tubulosa		G5?
Lecanora polytropa		G5
Lecidea atrobrunnea		G4G5
Letharia vulpina		G5
Lobaria hallii	Glew recognizes as rare ion WA.	G4? SNR
Lobaria pulmonaria		G4G5
Lopadium disciforme		GNR
Melanelia panniformis		G4G5
Melanelia sorediata		GNR
Melanelia subaurifera		G3G5
Melanelia subolivacea		G5?
Mycoblastus affinis		G3G5
Mycocalicium subtile		G3G4
Nephroma bellum		G3G5
Nephroma helveticum		G4G5
Nephroma parile		G3G5
Nephroma resupinatum		G3G5
Nodobryoria oregana		G3G5
Parmelia sulcata		G5
Parmeliopsis ambigua		G3G5
Parmeliopsis hyperopta		G3G5
Lichen Taxa	Comments	Status

Peltigera cinnamomea		GNR
Peltigera collina		G3G4
Peltigera edlizabethae		G5?
Peltigera membranacea		G4G5
Peltigera ponojensis		G4g5
Pettigera rufescens		G5
Peltigera venosa		G4G5
Phaeophyscia sciastra		G4
Platismatia glauca		G5
Psora globifera		G4G5
Ramalina dilacerata		G3G5
Ramalina thrausta	*Potentially Endangered in WA.	G3G4 S1
Solorina crocea		G5?
Stereocaulon tomentosum		G5
Tephromela atra		G5
Trapeliopsis granulosa		GNR
Tuckermannopsis chlorophylla		G4G5
Tuckermannopsis platyphylla		GNR
Tuckermannopsis sepincola	Glew recognizes as rare in WA.	G5
Umbilicaria deusta		G5
Umbilicaria hyperborea		G3G5
Umbilicaria phaea	*Potentially Endangered in WA.	G5? SNR
Umbilicaria torrefacta		G5?
Usnea lapponica		G5?
Vulpicida pinastri		G4G5
Xanthoria polycarpa		G4G5

Appendix E. Status of Bryophyte Taxa Documented from Research Natural Areas on the Colville National Forest (NatureServe, March 2008).

Bryophyte Taxa	Status
<i>Amblystegium serpens</i>	G5
<i>Aneura pinguis</i>	G5
<i>Atrichum selwynii</i>	G4 SNR
<i>Atrichum tenellum</i>	G4G5
<i>Aulacomnium androgynum</i>	G5
<i>Aulacomnium palustre</i>	G5
<i>Barbilophozia atlantica</i>	G4
<i>Barbilophozia hatcheri</i>	G5
<i>Barbilophozia lycopodioides</i>	G5
<i>Barbula convoluta</i>	G5
<i>Brachythecium albicans</i>	G5
<i>Brachythecium collinum</i>	G5?
<i>Brachythecium erythrorrhizon</i>	G5
<i>Brachythecium frigidum</i>	G4
<i>Brachythecium hylotapetum</i>	GU
<i>Brachythecium leibergii</i>	G5?
<i>Brachythecium nelsonii</i>	G3G5
<i>Brachythecium oedipodium</i>	G4G5
<i>Brachythecium oxycladon</i>	G5
<i>Brachythecium salebrosum</i> var. <i>salebrosum</i>	G5
<i>Brachythecium velutinum</i>	G5
<i>Bryum caespiticium</i>	G5
<i>Bryum capillare</i> var. <i>capillare</i>	G5T5
<i>Bryum lisae</i> var. <i>cuspidatum</i>	G5T5
<i>Bryum pseudotriquetrum</i>	G5
<i>Bryum weigeli</i>	G4G5
<i>Calliergon giganteum</i>	G5
<i>Calliergon stramineum</i>	G5
<i>Calypogeia muelleriana</i>	G5
<i>Calypogeia sphagnicola</i>	G4
<i>Campylium polygamum</i>	G5
<i>Campylium stellatum</i>	G5
<i>Cephaloziella rubella</i>	G5
<i>Ceratodon purpureus</i> var. <i>purpureus</i>	G5T5
<i>Claopodium bolanderi</i>	G4
<i>Conocephalum conicum</i>	G5
<i>Cratoneuron filicinum</i>	G5
<i>Dendroalsia abietina</i>	G4
<i>Dichodontium pellucidum</i>	G4G5
<i>Dicranum fuscescens</i> var. <i>fuscescens</i>	G5TNR
<i>Dicranum muehlenbeckii</i>	G3G5
<i>Dicranum scoparium</i>	G5

Bryophyte Taxa	Status
Dicranum tauricum	G4
Dicranoweisia crispula	G4G5
Didymodon vinealis var. vinealis	G5T5?
Diplophyllum taxifolium	G5
Drepanocladus aduncus	G5
Drepanocladus aduncus var. kniefii	G5T4T5
Drepanocladus capillifolius	GU
Dryptodon patens	G4G5
Encalypta vulgaris	G5
Eurhynchium praelongum	G5
Eurhynchium pulchellum var. pulchellum	G5TNR
Fissidens bryoides	G5
Fontinalis antipyretica var. antipyretica	G5TNR
Grimmia montana	G5?
Hedwigia ciliata	G5 SNR
Helodium blandowii	G5 S1
Heterocladium dimorphum	G4G5
Homalothecium nevadense	G4
Hygrohypnum ochraceum	G5
Jungermannia leiantha	G5
Leptobryum pyriforme	G5
Lescurea stenophylla	G5?
Limprichtia revolvens	G4G5
Lophocolea heterophylla	G5
Lophocolea minor	G5
Lophozia incisa	G5
Lophozia ventricosa	G5
Marchantia polymorpha	G5
Metaneckera menziesii	G4G5
Mnium ambiguum	G5
Mnium marginatum	G5
Mnium spinulosum	G5
Myurella julacea	G5 S1
Oncophorus virens	G5
Orthotrichum speciosum var. speciosum	G5T4T5
Orthotrichum striatum	G4G5
Pellia endiviifolia	G5
Plagiomnium ellipticum	G5
Plagiothecium laetum	G5
Plagiomnium medium var. medium	G5TNR
Plagiothecium denticulatum	G5
Platydictya jungermannioides	G5
Pohlia andalusica	G3G5
Pohlia nutans	G5

Bryophyte Taxa	Status
Pohlia proligera	G4G5
Pohlia wahlenbergii	G5
Polytrichum commune var. commune	G5t5
Polytrichum formosum	G5
Polytrichum juniperinum	G5
Polytrichum lyallii	GU
Polytrichum piliferum	G5
Pseudoleskea (Lescurea) patens	G5
Pseudoleskea (Lescurea) radicata var. radicata	G5TNR
Pseudoleskeela tectorum	No information.
Pterigynandrum filiforme	G4G5
Ptilidium californicum	G3G4
Ptilidium pulcherrimum	G5
Racomitrium canescens	G5
Racomitrium ericoides	GU
Racomitrium heterostichum	G5
Racomitrium sudeticum	G5?
Roellia roellii	G4
Rhizomnium nudum	G4
Rhizomnium pseudopunctatum	G5
Rhytidiadelphus squarrosus	G4G5
Rhytidiadelphus triquetrus	G5
Rhytidiopsis robusta	G4
Sanionia uncinata	G5
Scapania mucronata	G5
Scapania paludicola	G5
Scapania undulata	G5
Schistidium apocarpum	G5
Schistidium atrichum	No information.
Sphagnum recurvum	G5
Sphagnum teres	G5
Timmia austriaca	G4G5
Tortella tortuosa	G5
Tortula ruralis	G5

Appendix F. Status of Rare Nonvascular Taxa Documented from Research Natural Areas on the Colville National Forest.

Taxa	On a List of ISSSSP High Priority Special Status and Sensitive Species	FS Status	BLM OR Status	BLM WA Status	WA NHP Status* or Nature Serve+	Comments	Voucher
Liverworts							
Calypogeia sphagnicola	First Priority	FSSO			+G4		Yes
Mosses							
Hedwigia ciliata					*G5 SNR	On WA NHP Working List of Rare Mosses.	Yes
Helodium blandowii					*G5 S1	On WA NHP Working List of Rare Mosses.	Yes
Myurella julacea					*G5 S1	On WA NHP Working List of Rare Mosses.	Yes
Rhizomnium nudum	First Priority	FSSO	BAO		+G4		Yes
Lichens							
Collema nigrescens	First Priority	FSSW			+G5? SNR		Yes
Nephroma bellum	First Priority	FSSW			+G3G5		Yes
Ramalina thrausta					+G3G4 S1	On NHP List of Potentially Endangered Lichens in WA.	Yes
Solarina spongiosa						1 of 2 sites in WA.	Yes

Photo 1. Bunchgrass Meadows.



Photo 2. Halliday Fen.



Photo 3. Matilen Creek.



Photo 4. Rountop Mountain.



Photo 5. Salmo Mountain.

