



Figure 1

Anthony Lakes Fungi Forays: 2011
Wallowa-Whitman National Forest
Interagency Special Status and Sensitive Species Program
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Jenifer Ferriel
Wallowa-Whitman National Forest, 1550 Dewey Ave., Baker City, OR
541-523-1362, jlferriel@fs.fed.us

Introduction

The 2011 surveys at Anthony Lakes in the Elkhorn Mountains northwest of Baker City, Oregon were a continuation of Brooks' 2009 ISSSSP project. The 2009 project hosted a fall foray in a volunteer partnership with Southern Idaho Mycological Association at Anthony Lakes, in addition to developing a working list of potentially rare fungi for the Blue Mountain Area, including any available information on the ecology and occurrences of the rare or under-collected fungi. The 2009 working list was developed with the idea that after adequate field investigation, some of the species might be recommended to be added to the ORBIC list. The reason for multiple forays in the same area was to add more species to the overall species list for the Anthony Lakes area, possibly detecting some of the species on the 2009 working list of rare or under-collected species. Multi-year, multi-season surveys span a greater range of climatic conditions and are recommended to increase the probability of detecting resident fungi (USDA USFS and USDI BLM, 2008), hence the early summer and fall forays in 2011. The 2011 project consisted of early summer and fall forays, using the same volunteer cooperator in the same vicinity as the 2009 fall foray. The goals of the 2011 surveys were to continue the field investigations initiated in 2009, increase the number of species found in the area, continue to collect information on the ecology of fungi in the Elkhorn Mountains, and continue the relationship between SIMA volunteers and the Wallowa-Whitman National Forest.

Methods

Southern Idaho Mycological Association (SIMA), USFS personnel, and other additional volunteers surveyed sites identified by Brooks, 2009 in the early summer and fall of 2011. Volunteers paired with USFS personnel and split into groups of three to four. Two and a half days were spent surveying the sites. The intuitive controlled method was used. Ten sites were visited during the July 7th to 8th early summer foray. Twelve sites were visited during the September 26th to 29th fall foray.

Specimens were identified, labeled (Figure 1), photographed, and dried within 24 hours after collection. The summer foray did not include a fungi identification expert. Experienced SIMA members sorted and identified the specimens. The fall foray included a fungi identification expert, and SIMA volunteers assisted in preliminary identification and sorting. Curated specimens will be deposited at University of Washington Herbarium, as they were in 2009.

The summer foray was originally planned for June, but had to be postponed until the second week in July, due to the snowpack at Anthony Lakes. The snowpack was still substantial and the sites west of Anthony Lakes were not accessible. Lower elevation sites on the east side of the Elkhorn Crest that had been identified by Brooks but not visited in 2009, were selected as alternative locations, as well as two additional locations not identified by Brooks. The foray participants were unable to stay at Anthony Lakes Campground in July due to snow and subsequently stayed in Baker City, which increased travel time to the sites, but did not seem to adversely affect the foray.

Conditions for the fall foray were dry and cool, with only one day of measureable precipitation from the end of June through the end of September (SNOTEL report for Eilertson Meadows). Participants were able to stay at Anthony Lakes Campground (Figure 2) and the sites west of Anthony Lakes were accessible (Figure 3).



Figure 2



Figure 3

Table 1. Foray Sites and Visit Information.

Site Name	County	Legal	Elev. feet	Plant Communities	Fall 2009	Fall 2011	Summer 2011
7307 Road	Baker	T7S R37E Sec. 12	4800	Subalpine Fir/ Grouse Huckleberry	YES	NO	YES
7312-014 Road	Baker	T7S R37E Sec. 2	5169	Grand Fir/ Pinegrass	NO	NO	YES
7312-021 Road	Baker	T6S R37E Sec. 35	5373	Grand Fir/ Pinegrass	NO	NO	YES
73-220 Road	Grant	T7S R36E Sec. 28	6700	Subalpine Fir/ Grouse Huckleberry	YES	NO	NO
Anthony Creek	Union	T6S R37E Sec. 27	4950	Grand Fir/ Twinflower, Grand Fir/ Grouse Huckleberry, Grand Fir-Lodgepole/ Grouse Huckleberry	YES	YES	YES
Anthony Lake	Baker	T7S R37E Sec. 18	7150	Subalpine Fir/ Grouse Huckleberry	YES	YES	YES
Baldy Creek	Grant	T7S R36E Sec. 33	5600	Subalpine Fir/ Grouse Huckleberry	YES	YES	NO
Cougar Meadows	Grant	T7S R36E Sec. 32	5500	Subalpine Fir/ Grouse Huckleberry, Aspen/ Bluejoint Reedgrass, Tufted Hairgrass Meadow	YES	YES	NO
Crawfish Creek	Grant	T7S R36E Sec. 22	6150	Subalpine Fir/ Grouse Huckleberry	YES	YES	NO
Dutch Flat Creek	Baker	T7S R37E Sec. 13	5300	Grand Fir/Pinegrass, Subalpine Fir/ Grouse Huckleberry	YES	YES	YES
Grande Ronde Lake	Union	T7S R36E Sec. 1	7200	Subalpine Fir/ Grouse Huckleberry	NO	YES	YES
Hoffer Lakes	Baker	T7S R37E Sec. 18	7480	Subalpine Fir/ Grouse Huckleberry	YES	YES	NO
Mud Lake	Baker	T7S R37E Sec. 7	7140	Subalpine Fir/ Grouse Huckleberry	NO	YES	NO
N. Fk. Anthony Creek	Union	T6S R37E Sec. 14	4360	Grand Fir/ Twinflower, Grand Fir/ Grouse Huckleberry, Grand Fir-Lodgepole/ Grouse Huckleberry	NO	YES	YES
Peavy Road	Grant	T7S R36E Sec. 33	5600	Subalpine Fir/ Grouse Huckleberry	YES	YES	NO
Residences	Baker	T7S R37E Sec. 7	7145	Subalpine Fir/ Grouse Huckleberry	YES	NO	YES
Ski Area Summit	Grant	T7S R36E Sec. 13	7700	Subalpine Fir-Whitebark Pine	YES	NO	NO
Van Patton Trailhead	Baker	T7S R37E Sec. 9	6450	Subalpine Fir/ Grouse Huckleberry	YES	YES	YES

Results

Table 2. Species and when they were found.

Scientific Name	Summer 2011	Fall 2009	Fall 2011
<i>Agaricus arvensis</i>		X	
<i>Agaricus silvicola</i>			X
<i>Agaricus sp.</i>	X		
<i>Albatrellus avallaneus</i>			X
<i>Albatrellus confluens</i>	X		
<i>Albatrellus ellisii</i>		X	
<i>Albatrellus flettii</i>		X	X
<i>Albatrellus ovinus</i>		X	X
<i>Albatrellus subrubescens</i>			X
<i>Amanita muscaria</i>		X	
<i>Amanita muscaria var. alba</i>		X	
<i>Amanita muscaria var. formosa</i>	X	X	
<i>Amanita pantherina</i>			X
<i>Amanita silvicola</i>			X
<i>Armillaria ostoyae</i>	X	X	
<i>Bankera fuligineo-alba</i>		X	
<i>Bankera sp.</i>		X	
<i>Boletus barrowsii</i>	X		
<i>Boletus edulis</i>	X	X	X
<i>Bovista pila</i>	X		
<i>Brefeldia maxima</i>	X		
<i>Calbovista subsculpta</i>	X		
<i>Caloscypha fulgens</i>	X		
<i>Calvatia fumosa</i>			X
<i>Calvatia subcreatacea</i>			X
<i>Catathelasma imperialis</i>		X	
<i>Catathelasma ventricosum</i>		X	X
<i>Chroogomphus ochraceus</i>		X	
<i>Chroogomphus vinicolor</i>			X
<i>Chrysomphalina chrysophylla</i>		X	
<i>Clavaria purpurea</i>			X
<i>Clavariadelphus pistillaris</i>		X	
<i>Clavariadelphus truncatus</i>			X
<i>Clavulinopsis fusiformis</i>		X	
<i>Clitocybe albirhiza</i>	X		
<i>Clitocybe dilatata</i>			X
<i>Clitocybe glacialis</i>	X		
<i>Coltricia cinnamomea</i>	X		
<i>Coltricia perennis</i>	X		

Table 2. Continued

Scientific Name	Summer 2011	Fall 2009	Fall 2011
<i>Conocybe tenera</i>		X	
<i>Coprinus atramentarius</i>		X	
<i>Coprinus micaceus</i>		X	
<i>Cortinarius caperatus</i>			X
<i>Cortinarius cf. infractus</i>			X
<i>Cortinarius cf. violaceus</i>		X	
<i>Cortinarius cinnamomeus</i>			X
<i>Cortinarius glaucopus</i>	X		
<i>Cortinarius prasinus</i>	X		
<i>Cortinarius semisanguineus</i>		X	
<i>Cortinarius sp. 14</i>	X		
<i>Cortinarius sp. 15</i>	X		
<i>Cortinarius sp. 16</i>		X	
<i>Cortinarius sp. 17</i>		X	
<i>Cortinarius sp. 18</i>			X
<i>Cortinarius sp. 4</i>			X
<i>Cortinarius sp. 6</i>			X
<i>Cortinarius subgenus Phlegmacium</i>			X
<i>Cortinarius subgenus Phlegmacium section Callochroi</i>			X
<i>Cortinarius subgenus Telamonia</i>	X		X
<i>Cortinarius traganus</i>		X	
<i>Cryptoporus volvatus</i>	X		
<i>Daldinia grandis</i>		X	
<i>Discina perlata</i>	X		
<i>Echinodontium tinctorum</i>			X
<i>Entoloma rhodopolium group</i>	X		
<i>Fistulina hepatica</i>			X
<i>Fomitopsis pinicola</i>	X	X	X
<i>Fuscoboletinus laricinus</i>	X		
<i>Fuscoboletinus ochraceoroseus</i>		X	
<i>Fuscoboletus aeruginascens</i>			X
<i>Fuscoboletus ochraceoroseus</i>			X
<i>Galerina autumnalis</i>	X		
<i>Galerina heterocystis</i>		X	
<i>Galerina sp. 1</i>			X
<i>Galerina sp. 2</i>			X
<i>Geastrum striatum</i>	X		
<i>Geopyxis carbonaria</i>	X		
<i>Gloeophyllum sepiarium</i>		X	X
<i>Gomphidius glutinosus</i>	X	X	X

Table 2. Continued

Scientific Name	Summer 2011	Fall 2009	Fall 2011
<i>Gomphidius subroseus</i>	X	X	
<i>Gomphus clavatus</i>			X
<i>Guepiniopsis alpina</i>	X		
<i>Gymnopus dryophilus</i>			X
<i>Gyromitra californica</i>			X
<i>Gyromitra esculenta</i>	X		
<i>Gyromitra infula</i>	X	X	
<i>Gyromitra melaleucooides</i>	X		
<i>Gyromitra montana</i>	X		
<i>Helvella elastica</i>		X	
<i>Helvella lacunosa</i>		X	X
<i>Helvella leucomelaena</i>	X		
<i>Helvella maculata</i>			X
<i>Helvella queletii</i> ss. lato	X		
<i>Hemimycena</i> sp.		X	
<i>Hericium abietis</i>			X
<i>Heterobasidion annosum</i>	X		
<i>Hydnellum aurantiacum</i>		X	X
<i>Hydnellum caeruleum</i>			X
<i>Hydnellum suaveolens</i>		X	X
<i>Hydnum repandum</i>		X	
<i>Hygrocybe conica</i>		X	X
<i>Hygrocybe miniata</i>		X	
<i>Hygrophorus agathosmus</i>			X
<i>Hygrophorus aurantiaca</i>			X
<i>Hygrophorus calophyllus</i>			X
<i>Hygrophorus</i> cf. <i>borealis</i>		X	
<i>Hygrophorus chrysodon</i>		X	
<i>Hygrophorus erubescens</i>		X	X
<i>Hygrophorus hypothejus</i>		X	
<i>Hygrophorus inocybiformis</i>		X	
<i>Hygrophorus marzuolus</i>	X		
<i>Hygrophorus olivaceoalbus</i>		X	
<i>Hygrophorus pudorinus</i>		X	X
<i>Hygrophorus purpurascens</i>		X	
<i>Hygrophorus</i> sp. 1		X	X
<i>Hygrophorus</i> sp. 2		X	X
<i>Hygrophorus speciosus</i>			X
<i>Hygrophorus subalpinus</i>	X		

Table 2. Continued

Scientific Name	Summer 2011	Fall 2009	Fall 2011
<i>Hypholoma fasciculare</i>	X	X	
<i>Hypomyces lateritius</i>		X	
<i>Hypomyces luteovirens</i>			X
<i>Inocybe geophylla</i>	X	X	
<i>Inocybe lanuginosa</i>		X	
<i>Inocybe sororia</i>		X	
<i>Inocybe sp.</i>			X
<i>Inonotus tomentosus</i>		X	
<i>Laccaria amethystina</i>			X
<i>Laccaria laccata</i>		X	X
<i>Laccaria proxima</i>		X	
<i>Laccaria pumila</i>		X	
<i>Laccaria sp.</i>	X		
<i>Lachnellula willkommii</i>	X		
<i>Lactarius circellatus var. borealis</i>			X
<i>Lactarius deliciosus</i>		X	X
<i>Lactarius olympianus</i>			X
<i>Lactarius resimus</i>		X	
<i>Lactarius rufus</i>		X	
<i>Lactarius sp.</i>		X	
<i>Lactarius subdulcis</i>			X
<i>Lactarius thynos</i>			X
<i>Leccinum scabrum</i>		X	
<i>Lentinellus montanus</i>	X		
<i>Leucopaxillus albissimus</i>			X
<i>Lycogala epidendrum</i>	X		
<i>Lycoperdon foetidum</i>		X	
<i>Lycoperdon perlatum</i>	X		
<i>Lyophyllum decastes</i>		X	
<i>Marasmius plicatulus</i>			X
<i>Megacollybia platyphylla</i>	X		
<i>Melanoleuca angelesiana</i>	X		
<i>Morchella elata</i>	X		
<i>Morchella esculenta</i>	X		
<i>Morchella sp.</i>	X		
<i>Mycena overholtzii</i>	X		
<i>Mycena rosella</i>		X	
<i>Neolentinus lepideus</i>	X		
<i>Neolentinus ponderosus</i>		X	
<i>Nolanea stricta</i>	X		
<i>Nolanea verna</i>	X		

Table 2. Continued

Scientific Name	Summer 2011	Fall 2009	Fall 2011
<i>Paxillus panuoides</i>		X	
<i>Phaeolus schweinitzii</i>			X
<i>Phlebia radiata</i>	X		
<i>Phlogiotis helvelloides</i>		X	X
<i>Pholiota astragalina</i>		X	
<i>Pholiota squarrosa</i>		X	X
<i>Plectania nanfeldtii</i>	X		
<i>Pleurotus pulmonarius</i>	X		
<i>Pluteus cervinus</i>		X	X
<i>Polyzellus multiplex</i>		X	
<i>Polyporus arcularius</i>	X		
<i>Polyporus badius</i>	X	X	X
<i>Polyporus elegans</i>	X		X
<i>Polyzellus multiplex</i>			X
<i>Psathyrella spadicia</i>		X	
<i>Psilocybe squamosa</i>		X	
<i>Pycnoporellus alboluteus</i>	X		
<i>Pycnoporus cinnabarinus</i>	X		
<i>Ramaria botrytis</i>	X		
<i>Ramaria magnipes</i> var. <i>magnipes</i>	X		
<i>Ramaria rasilispora</i>			X
<i>Ramaria</i> sp.		X	X
<i>Rhizopogon albidus</i>		X	
<i>Rhizopogon ochraceorubens</i>	X	X	
<i>Rhizopogon</i> sp.			X
<i>Rozites caperata</i>		X	
<i>Russula adusta</i>		X	
<i>Russula aeruginea</i>			X
<i>Russula albonigra</i>		X	
<i>Russula brevipes</i>		X	X
<i>Russula densifolia</i>		X	
<i>Russula emetica</i>		X	X
<i>Russula fragrantissima</i>		X	
<i>Russula rosacea</i>		X	X
<i>Russula xerampelina</i>		X	
<i>Sarcodon fuscoindicus</i>			X
<i>Sarcodon imbricatus</i>		X	X
<i>Sarcosphaera coronaria</i>	X		
<i>Sarcosphaera crassa</i>	X		
<i>Scutellinia scutellata</i>		X	X
<i>Stropharia hornemanii</i>		X	

Table 2. Continued

Scientific Name	Summer 2011	Fall 2009	Fall 2011
<i>Suillus brevipes</i>	X	X	X
<i>Suillus cavipes</i>		X	X
<i>Suillus flavidus</i>		X	
<i>Suillus granulatus</i>			X
<i>Suillus grevillei</i>			X
<i>Suillus lakei</i>	X		
<i>Suillus sp.</i>	X		
<i>Suillus tomentosus</i>		X	X
<i>Suillus umbonatus</i>			X
<i>Tricholoma aurantium</i>		X	
<i>Tricholoma flavovirens</i>		X	
<i>Tricholoma focale</i>		X	
<i>Tricholoma imbricatum</i>		X	X
<i>Tricholoma pardinum</i>		X	X
<i>Tricholoma platyphylla</i>		X	
<i>Tricholoma saponaceum</i>		X	X
<i>Tricholoma vaccinum</i>		X	
<i>Tricholoma virgatum</i>		X	
<i>Tricholoma zelleri</i>			X
<i>Tricholomopsis cf. decora</i>		X	
<i>Xeromphalina campanella</i>	X	X	X

Discussion

Summary of 2011 Forays

The early summer foray yielded 73 species. The fall foray yielded 92 species. Of the fungi collected, Cortinarius was the most difficult genus to identify to species. Cortinarius identification to subgenera may be all that is possible with dried material, and limited information on fresh characteristics.

Listed Species

The following species found during the 2009 and 2011 forays are listed as described below. Of the species listed in Table 3, *Albatrellus flettii* and *Catathelasma ventricosum* were found in 2011 and 2009. *Mycena overholtzii* was unique to the early summer 2011 foray. *Albatrellus ellisii* was unique to the fall 2009 foray. *Sarcodon fuscoindicus* and *Albatrellus avallaneus* were unique to the fall 2011 foray.

Table 3. Species on various R6 lists.

Species	R6 USFS			ORBIC 2010		
	Survey and Manage	USFS R6 Sensitive 2008	USFS R6 Strategic 2008	Global	State	List
<i>Albatrellus avallaneus</i> (Figure 4)	Yes	OR		G2		
<i>Albatrellus ellisii</i> (Figure 5)	Yes	WA		G4	S2S3	4
<i>Albatrellus flettii</i> (Figure 6)	Yes			G4	S4	None

Table 3. Continued

Species	R6 USFS			ORBIC 2010		
	Survey and Manage	USFS R6 Sensitive 2008	USFS R6 Strategic 2008	Global	State	List
<i>Catathelasma ventricosum</i> (Figure 7)			OR	G3G4	S2S4	3
<i>Mycena overholtzii</i> (Figure 8)	Yes			G2G4	S2S4	None
<i>Sarcodon fuscoindicus</i> (Figure 9)	Yes		OR	G3	S2S3	None

Lessons Learned

Forays are an outstanding opportunity for developing relationships with local fungi enthusiasts and experts. Partnerships with volunteer organizations are a great chance to engage the public and increase our knowledge of our rare biological resources. The disadvantage of the foray using volunteers is that there is little flexibility in the timing of the foray. Forays using volunteers have to be planned well in advance, making foray conditions subject to whatever weather conditions bring for the planned date. There is no flexibility to change the scheduled foray dates once they are set. The 2009 fall foray was dry and 2011 fall foray was even drier. Records from the nearest Snotel station at Eilertson Meadows, about 6 air miles southeast of Anthony Lakes, show the accumulated precipitation for June through the end of September 2009 was 6.7” with no precipitation in September. In contrast, June through the end of September 2011 had accumulated precipitation of 1.5”, with no precipitation in September. The early summer foray had sites inaccessible due to snow drifts. Administration and oversight volunteers is more time consuming than writing a small purchase order, but less time consuming than writing and administering a contract.

Better communication with volunteers on labeling and curation of specimens prior to fungi collection was needed. The fall 2011 foray had a wind event early in the morning on the second day that sent unsecured specimens sitting on a picnic table flying, scrambling the labels and losing some specimens. The unfortunate event could have been avoided by assigning someone to secure the specimens some extra weight and a tarp. Providing a short training session on how to fill out the labels and tree identification would improve the quality of information gathered.

I suggest starting to implement foray plans about a year beforehand. I started the planning process about four months in advance, yet I was unable to find an identification expert for the summer foray. Mycologists who are qualified to act as identification experts are very busy people. The identification experts should be contacted at least four to six months prior to the foray. Accommodations on National Forest lands are often difficult to find because they are reserved months in advance. Campgrounds and cabins are generally listed on a national website, which means popular times, such as weekends from June until October, are generally reserved as soon as they are made available.

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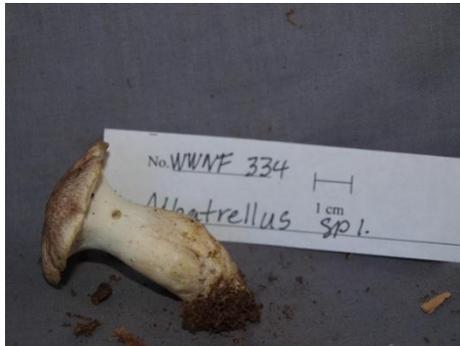


Figure 4



Figure 7



Figure 5



Figure 8



Figure 6



Figure 9