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Mycorrhizal fungi in disturbed sites at Mt. Rainier National Park

Efren Cazares
Dept. Forest Science
Oregon State University
Corvallis, OR 97331

And

Laurie Kurth
Mt. Rainier National Park
Ashford, WA

Introduction

The National Park Service's primary mission is to conserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment of this and future generations. Currently, the Service is unable to attain its mission in many parks, owing to a serious lack of scientific information about the nature and condition of resources in those parks and the effect of visitor impacts to those resources, especially biological resources. For many years, Mount Rainier National Park has conducted inventories of human impacts focused on loss of vegetation and soils represented by development and extent of social trails, development of new campsites, and expansion in the footprint of existing camps. In order to protect the resources from impairment, the park's General Management Plan calls for study and implementation of carrying capacity/indicators and standards by 2007. The park is faced with defining acceptable levels of impacts that do not lead to ecological impairment of the resources. To conduct this work an interdisciplinary work plan has been developed in which the use of mycorrhizal fungi as a potential indicator and standard is outlined.

Mycorrhizal fungi richness in impacted and intact forest ecosystems will be determined in selected campsites in Mt. Rainier National Park. Transects will be established in several established low-elevation, forested frontcountry and backcountry camps where data on tree species diversity and density has been compiled. Frontcountry camps will represent some of the more severe impacts to soil and vegetation in the park resulting from continuous trampling and driving throughout the summer season. Backcountry camps represent a mid-level of impacts resulting from extensive use by backpackers throughout the summer season. These sites will be compared with adjacent intact forest communities. Ectomycorrhizal fungal diversity will be determined along transects and compared between the severe, moderate, and non-impacted sites.

Study sites
The front-country (car) campsites were Cougar Rock and Ohanapecosh and the backcountry campsites were Lake George and Nickel Creek. Front-country campsites represent some of the more severe impacts to soil and vegetation in the park resulting from continuous trampling and driving throughout the summer season. Backcountry campsites represent a mid-level of impacts resulting from extensive use by backpackers throughout the summer season. These sites will be compared with adjacent intact forest communities.

Objectives
1. A preliminary look at the mycorrhizal fungi richness in campsites with different levels of disturbance.
2. Determine mycorrhizal fungal species as potential indicators of disturbance

Methods
In October 2004, we sampled using a time-constraint of 100 person minutes (one time) mycorrhizal fungi fruiting bodies from a 1000 m2 of disturbed and undisturbed areas in four campgrounds: Cougar Rock, Ohanapecosh, Lake George and Nickel Creek.
Field trials of time-constraint sampling conducted at Crater Lake indicated that 1000 m^2 plots sampled for 100 person minutes (Four people would required 25 minutes to sample this area) captured the asymptotes of detected species diversity. Rather than sampling quantities of randomly placed microplots, time-constraint sampling (Claridge et al. 2000) permits macroplots to be sampled for a consistent number of person-minutes. It allows surveyors to employ intuition and experience to increase the sampling coverage and maximize data collection, particularly for hypogeous fungal species. The method has been successfully used to quantify fungal diversity and habitat associations over broad ecotypes in southeastern Australia.
Representative fungal fruitbodies of each different species in the sample area were labeled, photographed, catalogued and dried for further study in the laboratory. All voucher specimens will be deposited in the Cryptogamic collection at Oregon State University.

Results and Discussion
We identified 209 collections representing 85 mycorrhizal fungal species. Many fungal collections remain unidentified because their taxonomy is extremely difficult. The amount of data obtained from this preliminary study is very significant even though the design was not made to draw conclusions based on statistical analysis. A list of species (richness) of mycorrhizal fungi for each campground is provided in the Appendix 1. Digital images of all identified species are readily available for future presentations.

The majority of the mycorrhizal fungi in the Pacific Northwest fruit in the autumn and spring when temperature and moisture reach optimal conditions for most of the species. The autumn of 2004 was an exceptional season for fungal fruiting in the region. We believe that the fungal species found in this study are representative of the mycorrhizal fungal population in the area even though were sampled only once in time and space.

A time-constraint sampling method seemed very straightforward and efficient for this type of study. The undisturbed adjacent areas in the frontcountry (car) camps showed a higher number of mycorrhizal species than disturbed areas. In backcountry camp sites the number of mycorrhizal fungal species in undisturbed vs. disturbed areas was similar. See Figure 1 and Appendix 1 for details.

We determined that fungal species found exclusively in either undisturbed or disturbed areas are the potential indicators of disturbance. For example, species found only in undisturbed areas were: *Boletus zelleri (2)*, Gomphidius subroseus (2), Hygrophorus pudorinus (1), Leccinum aurantiacum (1), Ramaria acrisiccescens (1), R. fasciculata var. sparsiramosa (1), R. fennica (1), R. flavigelatinosa* var. *carnisalmonea (1), R. leptoformosa (2), R. rubrievanescens (1), R. stuntzii (1), R. vinosimaculans (1), Russula vinosobrunnea* (1) and *Tricholoma magnivelare (1)*. Species found only in disturbed areas were: *Amanita muscaria (1), A. pantherina (1), A. silvicola (1), Chroogomphus tomentosus (1), Gomphidius oregonensis (3), Hydnellum complectipes (1), Lactarius candidus (1), Ramaria flavigelatinosa var. megalospora (1), R. sandaracina* var. *euosma (1), Rhizopogon parksii (1), R. vinicolor (1), Russula aeruginea (1), Russula atrata (1), Suillus brevipes (2), Tricholoma fulvum (1) and T. imbricatum (1)*. (*Numbers in parenthesis indicates the times a species was found out of the 4 undisturbed or disturbed sites in this study). These results are only a "snapshot" of the mycorrhizal fungal population that will help to design long-term studies to determine what species are truly indicators of levels of disturbance.

The most important factor to maintain the viability of any mycorrhizal fungal population is the presence of the plant host. The fungal individuals are attached to the hosts at the root tips forming mycorrhizal (mutually beneficial) associations that are unique for each species. The fruiting bodies or mushrooms indicate only the presence or existence of a particular species in the area. It does not indicate how much of this individual is colonizing the root system of a particular host. Fungal fruiting is extremely variable among species and individuals creating a challenge to detect the occurrence in a particular area. In other words, what we observe aboveground is not a reflection of what is happening belowground. Forest management practices that maintain a diverse forest canopy are essential to maintain the mycorrhizal fungal diversity.

APPENDIX 1	
COUGAR ROCK-DISTURBED 29822-29871	**Trappe coll. #**
Boletus mirabilis Murr.	29846
Dermocybe semisanguineus (Fr.) Guillette	29858
Gomphus floccosus (Schw.) Singer	29868
Hydnellum complectipes D. Hall	29856
Hygrophorus camarophyllus (Fr.) Dumee,Granj. & Maire	29849-29860
H. eburneus (Bull. ex Fr.) Fr.	29853
H. capreolarius Kalchbr.	29867
Laccaria laccata (Scop. ex Fr.) Cke.	29825-29841
Lactarius kauffmanii Smith & Hesler	29836-29840
L. rubrilacteus Smith & Hesler	29851
L. uvidus (Fr.) Fr.	29847-29871
Ramaria sandaracina var euosma Marr & D. E. Stuntz	29835
Russula occidentalis Singer	29859
R. silvicola Shaeffer	29837
R. xerampelina Fr.	29823-29844
Suillus brevipes (Pk.) Kuntze	29854
S. lakei (Murr.) Smith & Thiers	29831
Tricholoma flavovirens (Pers. ex Fr.) Lund.	29822
T. saponaceum (Fr.) Kummer	29842-29861
Tricholomopsis rutilans (Schaeff. ex Fr.) Sing.	29843
COUGAR ROCK-UNDISTURBED 29872-29916	**Trappe coll. #**
Boletus mirabilis Murr.	29912
B. zelleri Murr.	29883
Dermocybe semisanguineus (Fr.) Guillette	29877
Gomphidius subroseus Kauffman	29908
Gomphus floccosus (Schw.) Singer	29884
Hebeloma crustuliniforme (Bull. ex St. Amans) Quel´	29882
Hygrophorus eburneus (Bull. ex Fr.) Fr.	29906
H. capreolarius Kalchbr.	29888
H. pudorinus (Fr.) Fr.	29873
Laccaria laccata (Scop. ex Fr.) Cke.	29874
Lactarius kauffmanii Smith & Hesler	29911
L. pseudomucidus Smith & Hesler	29900
L. rubrilacteus Smith & Hesler	29887
L. uvidus (Fr.) Fr.	29910
Leccinum aurantiacum (Fr.) S.F. Gray	29876
Ramaria rubrievanescens Marr & D.E. Stuntz	29875
R. fennica complex	29890
R. vinosimaculans Marr & D.E. Stuntz	29891
R. leptoformosa Marr & D.E. Stuntz	29895
R. fasciculata var sparsiramosa Marr & D.E. Stuntz	29896
Rozites caperata (Pers. ex Fr.) Karst.	29905
Russula brevipes Pk.	29899
R. occidentalis Singer	29872
R. silvicola Shaeffer	29916
R. xerampelina Fr.	29886
Tricholoma flavovirens (Pers. ex Fr.) Lund.	29878
T. magnivelare	29898

T. pardinum Quelet	29914
T. saponaceum (Fr.) Kummer	29902
T. zelleri (D.E. Stuntz & A.H. Sm.) Ovrebo & Tylutki	29904
LAKE GEORGE-DISTURBED 29934-29962	**Trappe coll. #**
Boletus edulis Bull. ex Fr.	29941
B. mirabilis Murr.	29950
Craterellus tubaeformis (Fr.) Quel.	29960
Dermocybe semisanguineus (Fr.) Guillette	29942
Gomphidius oregonensis Pk.	29961
Laccaria bicolor (Maire) Oroton	29938
L. laccata (Scop. ex Fr.) Cke.	29946
Rozites caperata (Pers. ex Fr.) Karst	29958
Russula atrata Shaffer	29951-29952-29953
R. occidentalis Singer	29935
Suillus caerulescens Smith & Thiers	29939
Thaxterogaster pingue (Zeller) Smith & Singer	29957
Tricholoma flavovirens (Pers. ex Fr.) Lund.	29949
T. fulvum (DC. ex Fr.) Sacc.	29944
LAKE GEORGE-UNDISTURBED 29964-29991	**Trappe coll. #**
Boletus edulis Bull. ex Fr.	29970
B. mirabilis Murr.	29989-29988
Craterellus tubaeformis (Fr.) Quel.	29984
Elaphomyces granulatus Fr.	29966
Hydnum repandum L. ex Fr.	29969-29986
Hygrophorus camarophyllus (Fr.) Dumee,Grandj. & Maire	29982
H. eburneus (Bull. ex Fr.) Fr.	29971
Laccaria laccata (Scop. ex Fr.) Cke.	29968
Lactarius rubrilacteus Smith & Hesler	29985
Russula mariae Pk.	29977
R. vinosobrunnea (Bres) Romagnesi	29991

NICKEL CREEK-DISTURBED 29729-29771	**Trappe coll. #**
Amanita muscaria (L. ex Fr.) Pk	29761
Boletus edulis Bull. ex Fr.	29737
B. mirabilis Murr.	29762
Craterellus tubaeformis (Fr.) Quel.	29729
Dermocybe semisanguineus (Fr.) Guillette	29739
Gomphidius oregonensis Pk.	29735
Gomphus floccosus (Schw.) Singer	29760-29764
Helvella lacunosa Afzelius ex Fr.	29759
Laccaria laccata (Scop. ex Fr.) Cke.	29736
Lactarius rubrilacteus Smith & Hesler	29740
Ramaria flavigelatinosa var. megalospora Marr & D.E. Stuntz	29743
Russula occidentalis Singer	29731-29757
R. silvicola Shaeffer	29747
R. xerampelina Fr.	29738
Suillus brevipes (Pk.) Kuntze	29752
S. luteus (Fr.) S.F. Gray	29744
Thaxterogaster pingue (Zeller) Smith & Singer	29748
Tricholoma flavovirens (Pers. ex Fr.) Lund.	29756
T. pardinum Quelet	29771
T. saponaceum (Fr.) Kummer	29734
T. virgatum (Fr. ex Fr.) Kummer	29754-29770
Tricholoma zelleri (Stuntz & Smith) Ovrebo & Tylutki	29745
Tricholomopsis rutilans (Schaeff. ex Fr.) Singer	29755-29767
NICKEL CREEK-UNDISTURBED 29772-29821	**Trappe coll. #**
Boletus edulis Bull ex Fr.	29779
B. mirabilis Murr.	29814
B. smithii Thiers	29800
B. zelleri Murr.	29782
Craterellus tubaeformis (Fr.) Quel.	29821
Dermocybe semisanguineus (Fr.) Guillette	29786
Gomphus floccosus (Schw.) Singer	29807
Hygrophorus eburneus (Bull. ex Fr.) Fr.	29812
Laccaria laccata (Scop. ex Fr.) Cke.	2978529790
Lactarius submucidus Smith & Hesler	29804
L. uvidus (Fr.) Fr.	29787-29805-29817
Polyzellus multiplex (Underwood) Murrill	29784
Ramaria flavigelatinosa var carnisalmonea Marr & D.E. Stuntz	29791
R. stuntzii Marr & D.E. Stuntz	29792
R. acrisiccescens Marr & D.E. Stuntz	29794
Rozites caperata (Pers. ex Fr.) Karst.	29773
Russula occidentalis Singer	29775-29780-29781-29809
R. silvicola Shaffer	29820
R. variata Ban. apud Pk.	29810
Thaxterogaster pingue (Zeller) Singer & A.H. Sm.	29818
Tricholoma flavovirens (Pers. ex Fr.) Lund.	29772-29781
T. pardinum Quelet	29796
T. virgatum (Fr. ex Fr.) Kummer	29811
Tricholomopsis rutilans (Schaeff. ex Fr.) Sing.	29806

OHANAPECOSH-DISTURBED 29605-29663	**Trappe coll. #**
Amanita pantherina (DC. ex Fr.) Secr.	29615
Amanita silvicola Kauffman	29618
Boletus mirabilis Murr.	29644
Chroogomphus tomentosus (Murr.) Miller	29639
Craterellus tubaeformis (Fr.) Quel.	29616
Gomphidius oregonensis Pk.	29624-29658
Helvella lacunosa Afzelius ex Fr.	29650
Hygrophorus eburneus (Bull. ex Fr.) Fr.	29642-29662
Inocybe subcarpta Kunher & Boursier	29617-29620
Laccaria bicolor (Maire) Oroton	29635-29647-29653
L. laccata (Scop. ex Fr.) Cke.	29646
Lactarius candidus	29654
L. fallax Smith & Hesler	29619
L. pseudomucidus Smith & Hesler	29626-29651
L. rubrilacteus Smith & Hesler	29610
Rhizopogon parksii A.H. Smith	29608-29612
R. vinicolor A.H. Smith	29656
Russula aeruginea Fr.	29614
R. brevipes Pk.	29638
R. mariae Pk.	29655
R. occidentalis Singer	29659
R. xerampelina Fr.	29605-29645
Suillus caerulescens Smith & Thiers	29660
Tricholoma imbricatum (Fr. ex Fr.) Kummer	29634

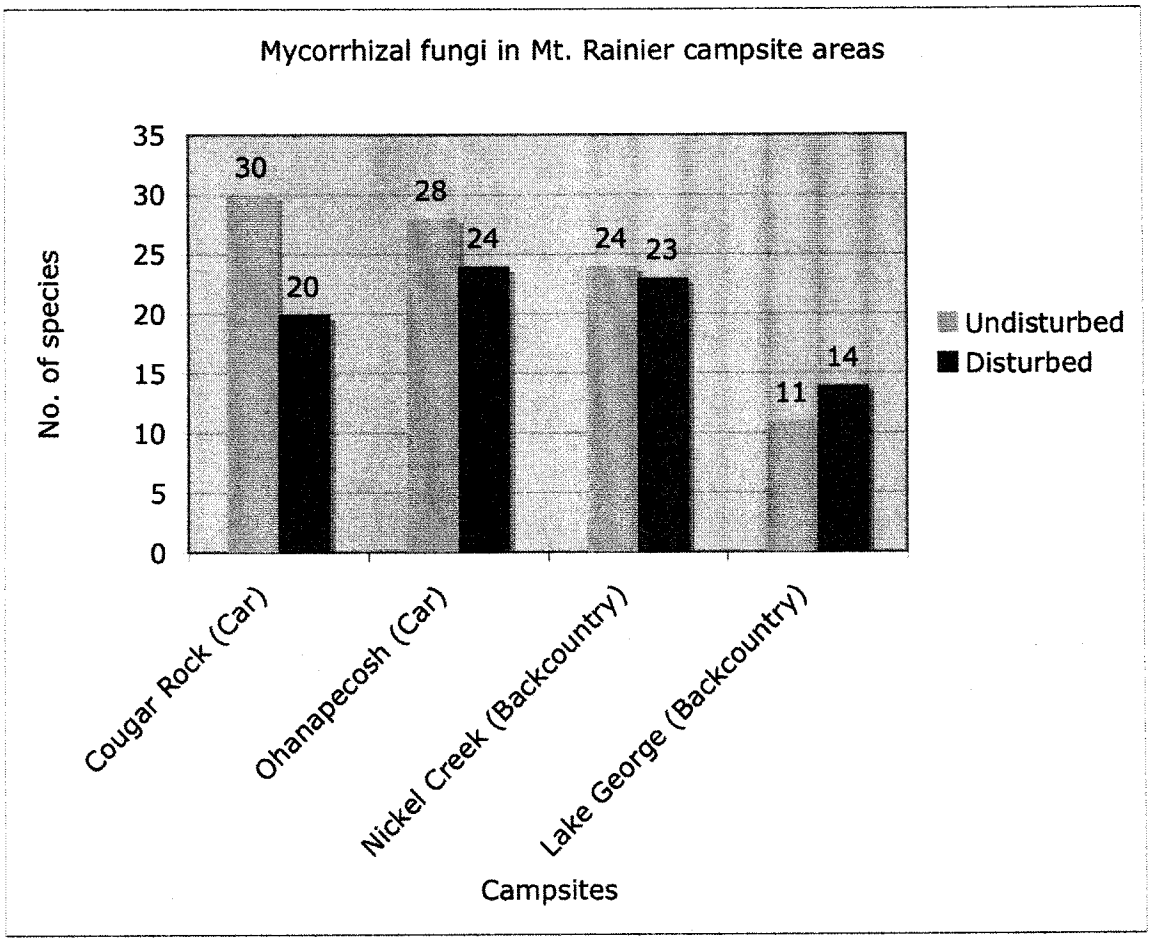
OHANAPECOSH UNDISTURBED 29664-29728	**Trappe coll. #**
Boletus mirabilis Murr.	29728
B. piperatus Bull. ex Fr.	29693
Cantharellus formosus Corner	29695-29700
Craterellus tubaeformis (Fr.) Quelet	29706-29721
Gomphidius subroseus Kauffman	29685-29697
Gomphus clavatus (Fr.) S.F. Gray	29719
Helvella lacunosa Afzelius ex Fr.	29688
Hygrophorus camarophyllus (Fr.) Dumee, Grandj. & Maire	29702
H. chrysodon (Fr.) Fr.	29680
H. eburneus (Bull. ex Fr.) Fr.	29701-29703
Inocybe subcarpta Kunher & Boursier	29723
Laccaria bicolor (Maire) Oroton	29696
L. laccata (Scop. ex Fr.) Cke.	29686
Lactarius deliciosus (L. ex. Fr.) S.F. Gray	29726
L. fallax var. concolor Smith & Hesler	29711
L. pseudomucidus Smith & Hesler	29687-29720
L. rubrilacteus Smith & Hesler	29676
Ramaria flavobrunnescens var. aromatica Marr & D.E. Stuntz	29689
R. celerivirescens Marr & D.E. Stuntz	29704
R. synaptopoda Marr & D.E. Stuntz	29705
R. leptoformosa Marr & D.E. Stuntz	29708-29714
R. mariae Pk.	29681
Suillus caerulescens Smith & Thiers	29665
S. lakei (Murr.) Smith & Thiers	29717
Tricholoma flavovirens (Pers. ex Fr.) Lund	29709
T. saponaceum (Fr.) Kummer	29671
T. terreum (Schaeff.ex Fr.) Kummer	29692
T. zelleri (D.E. Stuntz & A.H. Sm.) Ovrebo & Tylutki	29694

COUGAR ROCK		
Species	**DISTURBED**	**UNDISTURBED**
Boletus mirabilis Murr.	X	X
Boletus zelleri Murr.		X
Dermocybe semisanguineus (Fr.) Guillette	X	X
Gomphidius subroseus Kauffman		X
Gomphus floccosus (Schw.) Singer	X	X
Hebeloma crustuliniforme (Bull. ex St. Amans) Quel´		X
Hydnellum complectipes D. Hall	X	
Hygrophorus eburneus (Bull. ex Fr.) Fr.	X	X
H. camarophyllus (Fr.) Dumee,Grandj. & Maire	X	
Hygrophorus capreolarius Kalchbr.	X	X
H. pudorinus (Fr.) Fr.		X
Laccaria laccata (Scope ex Fr.) Cke.	X	X
Lactarius kauffmanii Smith & Hesler	X	X
L. pseudomucidus Smith & Hesler		X
L. rubrilacteus Smith & Hesler	X	X
L. uvidus (Fr.) Fr.	X	X
Leccinum aurantiacum (Fr.) S.F. Gray		X
Ramaria rubrievanescens Marr & D.E. Stuntz		X
R. fennica complex		X
R. vinosimaculans Marr & D.E. Stuntz		X
R. leptoformosa Marr & D.E. Stuntz		X
R. fasciculata var sparsiramosa Marr & D.E. Stuntz		X
R. sandaracina var euosma Marr & D. E. Stuntz	X	
Rozites caperata (Pers. ex Fr.) Karst.		X
Russula brevipes Pk.		X
R. occidentalis Singer	X	X
R. silvicola Shaeffer	X	X
R. xerampelina Fr.	X	X
Suillus brevipes (Pk.) Kuntze	X	
S. lakei (Murr.) Smith & Thiers	X	
Tricholoma flavovirens (Pers. ex Fr.) Lund.	X	X
T. magnivelare		X
T. pardinum Quelet		X
T. saponaceum (Fr.) Kummer	X	X
T. zelleri (D.E. Stuntz & A.H. Sm.) Ovrebo & Tylutki		X
Tricholomopsis rutilans (Schaeff. ex Fr.) Sing.	X	
TOTAL	**20**	**30**

LAKE GEORGE		
Species	**DISTURBED**	**UNDISTURBED**
Boletus edulis Bull. ex Fr.	X	X
B. mirabilis Murr.	X	X
Craterellus tubaeformis (Fr.) Quel.	X	X
Dermocybe semisanguineus (Fr.) Guillett	X	
Elaphomyces granulatus Fr.		X
Gomphidius oregonensis Pk.	X	
Hydnum repandum L. ex Fr.		X
Hygrophorus camarophyllus (Fr.) Dumee,Grandj. & Maire		X
H. eburneus (Bull ex Fr.) Fr.		X
Laccaria bicolor (Maire) Oroton	X	
L. laccata (Scope ex Fr.) Cke.	X	X
Lactarius rubrilacteus Smith & Hesler		X
Rozites caperata (Pers. ex Fr.) Karst	X	
Russula atrata Shaffer	X	
R. mariae Pk.		X
R. occidentalis Singer	X	
R. vinosobrunnea (Bres) Romagnesi		X
Suillus caerulescens Smith & Thiers	X	
Thaxterogaster pingue (Zeller) Smith & Singer	X	
Tricholoma flavovirens (Pers. ex Fr.) Lund.	X	
T. fulvum (DC. ex Fr.) Sacc.	X	
TOTAL	**14**	**11**

NICKEL CREEK		
Species	**DISTURBED**	**UNDISTURBED**
Amanita muscaria (L. ex Fr.) Pk	X	
Boletus edulis Bull ex Fr.	X	X
B. mirabilis Murr.	X	X
B. smithii Thiers		X
B. zelleri Murr.		X
Craterellus tubaeformis (Fr.) Quel.	X	X
Dermocybe semisanguineus (Fr.) Guillett	X	X
Gomphidius oregonensis Pk.	X	
Gomphus floccosus (Schw.) Singer	X	X
Helvella lacunosa Afzelius ex Fr.	X	
Hygrophorus eburneus (Bull. ex Fr.) Fr.		X
Laccaria laccata (Scop. ex Fr.) Cke.	X	X
Lactarius rubrilacteus A.H. Smith & Hesler	X	
L. submucidus A.H. Smith & Hesler		X
L. uvidus (Fr.) Fr.		X
Polyzellus multiplex (Underwood) Murrill		X
Ramaria flavigelatinosa var carnisalmonea Marr & D.E. Stuntz		X
R. flavigelatinosa var. megalospora Marr & D.E. Stuntz	X	
R. stuntzii Marr & D.E. Stuntz		X
R. acrisiccescens Marr & D.E. Stuntz		X
Rozites caperata (Pers. ex Fr.) Karst.		X
Russula occidentalis Singer	X	X
R. silvicola Shaffer	X	X
R. variata Ban. apud Pk.		X
R. xerampelina Fr.	X	
Suillus brevipes (Pk.) Kuntze	X	
S. luteus (Fr.) S.F. Gray	X	
Thaxterogaster pingue (Zeller) Singer & A.H. Sm.	X	X
Tricholoma flavovirens (Pers. ex Fr.) Lund.	X	X
T. pardinum Quelet	X	X
T. saponaceum (Fr.) Kummer	X	
T. virgatum (Fr. ex Fr.) Kummer	X	X
T. zelleri Stuntz & Smith	X	
Tricholomopsis rutilans (Schaeff. ex Fr.) Singer	X	X
TOTAL	**23**	**24**

OHANAPECOSH		
Species	**DISTURBED**	**UNDISTURBED**
Amanita pantherina (DC. ex Fr.) Secr.	X	
A. silvicola Kauffman	X	
Boletus mirabilis Murr.	x	X
B. piperatus Bull. ex Fr.		X
Cantharellus formosus Corner		X
Chroogomphus tomentosus (Murr.) Miller	X	
Craterellus tubaeformis (Fr.) Quelet	X	X
Gomphidius oregonensis Pk.	X	
G. subroseus Kauffman		X
Gomphus clavatus (Fr.) S.F. Gray		X
Helvella lacunosa Afzelius ex Fr.	X	X
Hygrophorus camarophyllus (Fr.) Dumee,Grandj. & Maire		X
H. chrysodon (Fr.) Fr.		X
H. eburneus (Bull. ex Fr.) Fr.	X	X
Inocybe subcarpta Kunher & Boursier	X	X
Laccaria bicolor (Maire) Oroton	X	X
L. laccata (Scop. ex Fr.) Cke.	X	X
Lactarius candidus	X	
L. deliciosus (L. ex. Fr.) S.F. Gray		X
L. fallax var. concolor Smith & Hesler	X	X
L. pseudomucidus A.H. Smith & Hesler	X	X
L. rubrilacteus A.H. Smith & Hesler	X	X
Ramaria flavobrunnescens var. aromatica Marr & D.E. Stuntz		X
R. celerivirescens Marr & D.E. Stuntz		X
R. synaptopoda Marr & D.E. Stuntz		X
R. leptoformosa Marr & D.E. Stuntz		X
Rhizopogon parksii A.H. Smith	X	
R. vinicolor A.H. Smith	X	
Russula aeruginea Fr.	X	
R. brevipes Pk.	X	
R. occidentalis Singer	X	
R. xerampelina Fr.	X	
R. mariae Pk.	X	X
Suillus caerulescens Smith & Thiers	X	X
S. lakei (Murr.) Smith & Thiers		X
Tricholoma flavovirens (Pers. ex Fr.) Lund		X
T. imbricatum (Fr. ex Fr.) Kummer	X	
T. saponaceum (Fr.) Kummer		X
T. terreum (Schaeff.ex Fr.) Kummer		X
T. zelleri (D.E. Stuntz & A.H. Sm.) Ovrebo & Tylutki		X
TOTAL	**24**	**28**


Mycorrhizal fungi in Mt. Rainier campsite areas
No. of species
35
30
25
20
15
10
5
0
30
20
28
24
24
23
11
14
Undisturbed
Disturbed
Cougar Rock (Car)
Ohanapecosh (Car)
Nickel Creek (Backcountry)
Lake George (Backcountry)
Campsites