

NORTHWEST LICHENOLOGISTS



2011 Newsletter

Events:

Upcoming:

NWSA Meeting (not taking place this year).....	X
Soda Mountain Wilderness.....	2

Recent:

2011 Board of Directors Meeting.....	5
2010 NWSA Meeting	6

2011 Certification Program	7
---	-------------------

Workshops / Courses:

Upcoming:

Intermediate Lichens – Siskiyou Field Institute.....	8
Old-Growth Forest Ecology	8
Certification Prep.....	9

News and Projects from NW Lichenologists at Home and Abroad:

US Forest Service Air Program News.....	11
Heather Root.....	13
Jesse Miller.....	13
Roger Rosentreter.....	14
A Request for Information from Diane Haughland.....	14

Lichen Apparel and Publications	16
--	--------------------

Miscellaneous:

Lichen Blitz.....	20
Biannual Newsletter?.....	21
The Essential Lichen Companion.....	21
Errata.....	21

April 2011

© Northwest Lichenologists, Inc., 1840 NE Seavy Ave., Corvallis OR 97330

www.nwlichens.org

Editor: Scot Loring

Upcoming Events

Northwest Lichenologists Field Trip 2011 Soda Mountain Wilderness, Jackson County, Oregon September 9 to 11, 2011

Northwest Lichenologists has been granted a unique access opportunity for a lichen foray into Soda Mountain Wilderness. The Medford BLM, in coordination with private landowners, has given us permission to drive into a small sliver of land excluded from the wilderness but located centrally within it. This drive is in through California, where the BLM previously had little to no vehicular access. This arrangement will likely not be available in the future. Only a few roads come close to the wilderness through California, all of them through private land or otherwise off-limits to the public for vehicles. Reaching the wilderness through California is normally done on foot via long hikes each direction just to reach the boundary. Collection permits have already been obtained. Permission for vehicular camping has also been granted, which normally would not be possible in this particular area.

Soda Mountain Wilderness is located in southwestern Oregon east of Ashland, between highway 66 and the California state line. Found within an area often referred to as the Klamath Knot, the wilderness displays convergence of several eco-regions. There is a wide diversity of plant communities including meadows, oak woodlands, juniper savannas, riparian areas, shrub communities, mixed hardwood/conifer forests, etc.

Itinerary:

- September 9: meet in Ashland, Oregon at 1:00pm; carpool into the wilderness area; set up camp; conduct short collection hikes nearby.
- September 10: hike to Cathedral Cliffs. This is not a short hike (several miles each direction) but due to our access point, is done almost entirely along an easily walked road (closed to all vehicles) with very little elevation change -- access points from the north in Oregon involve much more elevation change. The hike takes us through the many plant communities of the wilderness area, offering numerous collection opportunities. The cliffs themselves are quite extensive and have a calcareous component.
- September 11: collection opportunities nearby; break camp; depart.

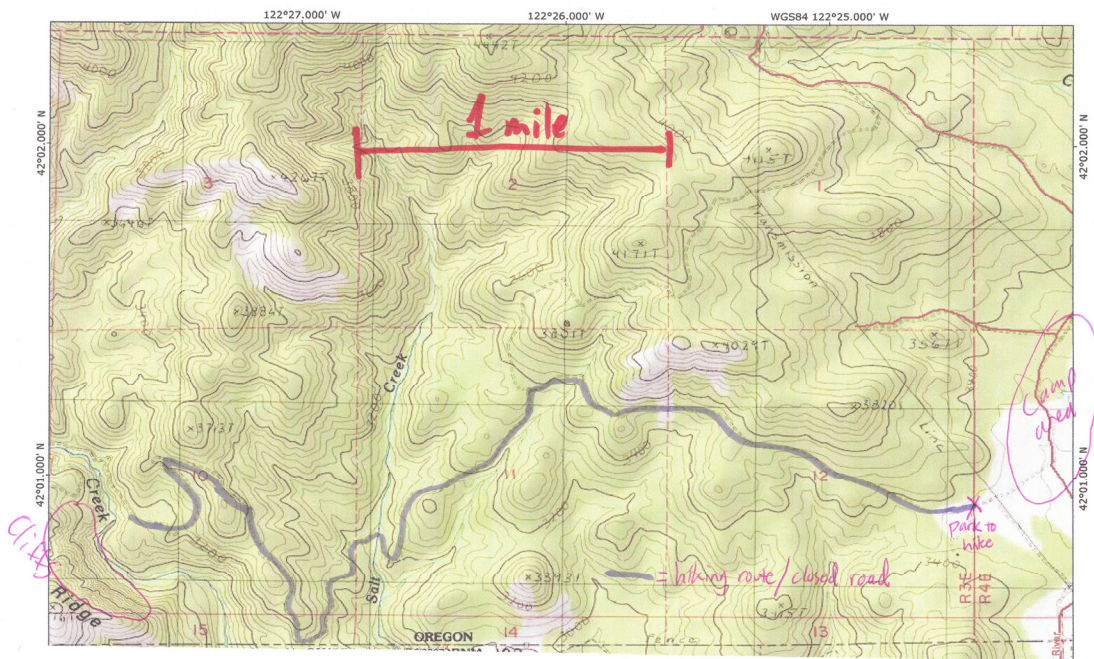
Other details:

Please contact Scot Loring if you wish to attend (gniroltoes@hotmail.com)

Due to road conditions, 4x4 vehicles with high clearance are strongly recommended if not required. If you have such a vehicle that you are willing to use for carpooling, please let Scot know. We do not currently have a limit on the number of vehicles, but fewer would be better to minimize impacts to the roads. Due to passage through multiple locked gates, we must enter and leave as a single group.

Some photos of the area: 1-2) parts of Cathedral Cliffs; 3) typical habitats in Soda Mt Wilderness; 4) map of proposed hike to cliffs.....





Recent Events

Northwest Lichenologists Board of Directors— highlights from the 2011 meeting Bruce McCune

We had a record attendance at the January board meeting (19 people) this year at our usual spot in Corvallis, Oregon. Led by Daphne Stone, we zipped, crawled, and slithered through a long agenda. Some of the highlights are reported below.

Our bank account is not bursting, but still we have enough to proceed with further monograph projects. We discussed at length the pros and cons of accepting credit cards for sales and ended with a decision to facilitate internet sales by setting up a PayPal account.

We plan to have a certification exam this year, probably in September. We hope to arrive at a date and place soon. This year Bruce McCune will be the examiner, to give our current examiner (Daphne) a chance to recertify. A committee will be making recommendations on a revised list of rare, threatened, and endangered species to be considered for the exam. A Google group led by Jeanne Ponzetti has been established to discuss Washington contributions to the list.

A new Board was elected. This year the Board consists of Scot Loring, Heather Root, Linda Geiser, and Peter Nelson; alternates: Dave Kofranek and John Villella.

We normally meet with the NW Scientific Association, but it is not meeting this spring. We discussed doing our own meeting, but since then it appears that interest was not sufficient to make this happen. NWSA plans to resume annual meeting in 2012, perhaps in Boise. Note that Katie Glew is “president elect” of NW Science so we’ll have a lichenologist leading NWSA.

Scot Loring volunteered to lead a field trip to the Soda Mountain area in Siskiyou National Monument. This could be a backpack trip or, if permitted, vehicle access and car camping. The date is not yet set, but tentatively it will be held the first week after Labor Day. Check the website for updates on this.

Other topics that we discussed were producing a NWL brochure, NWL business cards to distribute at our display tables at meetings and mushroom shows, the possibility of a NWL Conservation Strategy, and the possibility of a white paper on riparian buffers and buffers around rare species occurrences.

If you haven't made it to one of these meetings you should. Besides the business we have a nice social time, consume some pizza for lunch, talk lichens around the edges, and Sarah usually brings some funny food item from Portland.

2010 NWSA Meeting

A few follow-up items from our meeting in Centralia, Washington:

Group photo

<http://home.comcast.net/~nwlichens/Centralia2010.htm>

Link to a news story in the Centralia Chronicle on our field trip to Mima Prairie:

http://www.chronline.com/news/article_c85af082-3b57-11df-8005-001cc4c002e0.html

We are now taking orders for a new batch of t-shirts, caps, and sweatshirts, using our same *Letharia* design:

<http://home.comcast.net/~nwlichens/tshirts.htm>

Rules for Usnoku are now posted on the website. People seemed to enjoy this first round at our meeting last week:

<http://home.comcast.net/~nwlichens/Usnoku.htm>

Jim Riley provided his color-coded ID aids for Hypogymnia and Cladonia in the Pacific Northwest. On the website "Resource Center" page, see the "Literature" section.

<http://home.comcast.net/~nwlichens/center.htm>

Thanks to all participants for making a great meeting.

-Bruce McCune

Sec., NW Lichenologists

2011 NWL Certification Test

We have scheduled a certification for west-side macrolichens on Sat, Sept 17 - Sun Sept 18, 2011 at [Drift Creek Camp](#), Oregon, near Lincoln City. This is a bit of a landmark for us, since the first two rounds of certification (2000 and 2001) expire this year, according to the 10-year limit on certification set by the NWL Board. So, if you were one of the dozen or so people certified in 2000 or 2001, please come join us and become recertified! Besides being a good lichen experience, we are hoping for a nice reunion of many of the founders of NWL.

As a byproduct of our certification, we will be assisting the Drift Creek Nature Center in their [inventory of local biodiversity](#).

Our most recent certification was in October, 2009 at the [Siskiyou Field Institute, Deer Creek Center](#). In 2008 the NWL Board decided that Certification exams will be offered only every other year.

Participants may want to arrive Friday night, Sept. 16. Please let us know if you will be arriving Friday or Saturday. The field part of the exam will take place near Drift Creek Camp.

This is a great opportunity to test your knowledge of our lichen flora and our rare species. Even if you are not ready to be certified, this can be a great learning experience, getting feedback on how well you can do the field work and learning your weak spots and your strong spots.

The exam is our effort to provide lichenologists a standardized way of demonstrating competency in the Pacific Northwest. It consists of two parts. Part one is a written exam covering knowledge of local species and distribution and habitat of listed species. Please see www.nwlichens.org for more information. Part two is collection on a sample plot, then identification of that collection.

Reserve your spot by mailing your registration form and a check to: Bruce McCune, NWL Secretary, 1840 NE Seavy Ave, Corvallis, 97330. Checks should be made out to Northwest Lichenologists.

Cost:

\$100 application fee (must accompany application, does not include accommodations or food)

Facilities fee to be determined by the venue

Feel free to contact me with questions.

Bruce McCune
Sec-Treas, NWL
bruce@salal.us

Upcoming Workshops / Courses:

Intermediate Lichens

Date: October 15th - 16th, 2011

Location: Deer Creek Center, Selma, OR

Instructor: Daphne Stone, PhD

Tuition: \$100

This class offers an in-depth look into some of the more challenging local lichen genera, including *Usnea*, *Peltigera*, *Melanelia* (*s.l.*) and *Bryoria*. Course will include short field trips. Daphne will bring her collections for study – bring some of yours as well! Not recommended for beginning lichenologists - you must be familiar with keying lichens with the McCune book and have worked some independently on these genera. But if your curiosity about lichens has been whetted by one of SFI's *Introduction to Lichens* classes, this is the class for you!

Click [here](#) to sign up for this class.

See <http://www.thesfi.org/> for information on The Siskiyou Field Institute

Old-growth Forest Ecology -- ESM 445/545 -- (4cr)

Location: Portland State University

Instructors: John Villella, Dr. Trygve Steen

Dates: Summer 2011

Exploration of the ecological characteristics of west-side old-growth forests, including their outstanding biodiversity. Landscape level aspects of forest ecosystems, including the role of fire; plus the use of basic forestry measurements to contrast old-growth, second-growth, and plantation stands of trees. Emphasizing field study, this eight-day course is based at an off-campus location for easy access to forest ecosystems. Field site costs in addition to tuition. Recommended prerequisite: upper-division or graduate standing required and an undergraduate sequence in biology. This course has a heavy focus on lichens and bryophytes among other topics. A great chance for students to encounter many of the listed lichens found in older Northwest forests.

Certification Prep

Location: TBD (either Ashland, Oregon, or vicinity of actual exam)

Date: TBD (around early September sometime)

Cost: none

Description: A number of people planning on taking the exam have inquired about training / preparation. I envision a three day workshop, perhaps longer, at least two days of which would cover the written exam (listed species, lookalikes, diagnostic characteristics, habitats, etc), and at least one day covering the field exam (including a trial plot). I also created a study guide for the 2009 exam, a sample page of which is included below if anyone is interested – one page per listed species – 125 pp total including comparison tables. Though free, some of the photos are not mine, however, and I am currently unsure of the legality of their distribution. Dates and location to be determined based on who may attend and what works for everyone.

Anyone interested can contact me (Scot Loring) at gniroltocs@hotmail.com

Sample page from study guide:

Lobaria linita

Description:

Large, foliose; upper surface green to brown or brown-grey, with network of ridges; isidia, soredia, lobules lacking; primary photobiont green with b/g in cephalodia; spot tests neg

Substrate/Habitat/Range:

Two distinct habitats/substrates: 1) montane to alpine east-side where found on rock and alpine sod 2) coastal AK (common) to west-side OR where found as an epiphyte

Range: arctic to NW OR and east to Montana

Note: Jackson Co. site (saxicolous at Timbered Rock) extends this range

Similar Species: (all of which have vegetative propagules)

-*L. pulmonaria* has soredia and/or isidia; multiple positive medulla spot tests

-*L. oregana* has lobules; multiple positive cortex/medulla spot tests

-*L. hallii* and *L. scrobiculata* have a b/g primary photobiont; positive spot tests; soredia

-*L. retigera* has a b/g photobiont; black tomentum below; dark brown above; isidia



S. Loring (above: dry thallus, below: wet)

News and Projects from NW Lichenologists at Home and Abroad

US Forest Service Air Program news from Linda Geiser, Doug Glavich and Larissa Lasselle. Contributed 3/1/2011.

- Sarah Jovan and Linda Geiser were featured in OPB's Oregon Field Guide on February 17. Go to <http://www.opb.org/programs/ofg/segments/view/1778> to see the 8 minute video featuring lichens and air quality from the Gifford Pinchot NF canopy crane, the Columbia River Gorge NSA, and downtown Portland.
- **Regional nitrogen critical loads.** Linda Geiser, Sarah Jovan, Doug Glavich and Matt Porter published lichen-community based critical loads for atmospheric deposition of nutrient nitrogen in western Oregon and Washington (Environmental Pollution 158 (2010) 2412-2421). The predictive model accounts for precipitation and predicts lower critical loads in drier portions of the study area. Best, it appears to be robust; it replicated published critical loads in the California Sierras, Mediterranean California, and temperate oak rainforests of Scotland.
- **National Watershed Assessment.** Exceedance of lichen-based critical loads estimates was one of the variables used to evaluate the condition of FS watersheds across the nation this year. The PNW model played a key role in this assessment See **Figure 1**.
- **National N critical loads assessment.** Several documents assessing the available information regarding lichen response to nitrogen deposition in a national scale are in preparation. They are part of a multi-disciplinary effort to assess empirical critical loads of nutrient nitrogen in the United States. Long term goals are to provide tools for federal land managers, state regulators and the EPA to set pollution control goals for depositional nutrient nitrogen and acidity, and to promote US participation in the UNECE program for critical loads.
- **Planning for the future of FS air quality and climate monitoring.** By law, Wilderness Areas have the most stringently protected air quality in the United States. By the end of this summer we will have installed at least two lichen-monitoring sites in each of the 65 wildernesses of Oregon and Washington managed by the Forest Service. Ten-year re-measurements were completed in 2010 for 21 of those areas. Monitoring consists of FIA/FHM style lichen community surveys and elemental analysis of 27 elements including nitrogen, sulfur, mercury, lead, other nutrients, and other toxic metals (**Figure 2**). We are looking forward to increased cooperation with FIA as they begin their first bi-state re-surveys this summer.
- **Initial western OR and WA lichen community trends analyses** indicate that climate change is shaping up to be a far more important determinant of lichen community composition in the Pacific Northwest than air quality. Mean 2008 minimum winter temperatures at lichen biomonitoring plots in the high Cascades were several degrees C warmer than 1988.



Figure 1. Status of national forest watersheds with regard to atmospheric deposition of nutrient nitrogen modeled by CMAQ in 2002. Nitrogen deposition in ‘Good areas’ does not exceed lichen critical loads. Fair areas are within 1 kg/ha/yr of the estimated critical load. ‘Poor’ areas exceed the critical load by > 1 kg N/ha/yr. Lichen response thresholds were based on eutroph:oligotroph ratios, adjusted for regional differences in precipitation, temperature, and forest type.



Figure 2. Larissa Lasselle collects *Letharia vulpina* for elemental analysis from lodgepole pine on the Winema National Forest in eastern Oregon for a 10-yr trends analysis. The Forest Service PNW Air Program actively monitors more than 800 lichen monitoring sites across Oregon and Washington national forests. Lichen survey and elemental data is used to assess status and trends in air quality and climate.

Here's the update of the Heather:

Heather Root is finishing up her PhD in lichen ecology at Oregon State and packing up to move South! She's finishing up projects on central Oregon's biotic soil crust lichens and southern Alaska's epiphytes in relation to climate and air quality gradients. She found lots of exciting things in central Oregon; keep your eyes peeled for forthcoming papers about community composition, crusts of conservation concern, and weird *Placidiums*. Her defense is scheduled for June 9 2011 at OSU in Corvallis - lichen people should come! After that, she plans a southward migration to work for the Bakersfield, CA BLM. She is grateful to the Northwest Lichen community for all the support in the past years and hopes to remain an active lichen nerd with frequent northward forays.

Department of Botany and Plant Pathology
Oregon State University
2082 Cordley Hall
Corvallis, OR 97331
541-737-1742 lab
www.science.oregonstate.edu/~rooth

Jesse Miller

Jesse Miller completed an effort to publish the results of several decades' worth of lichen research from the Lawrence Memorial Grassland Preserve in north central Oregon this winter, in collaboration with Amy Rossman, Roger Rosentreter and Jeanne Ponzetti (*Miller et al. 2011. North American Fungi 6(2): 1-14*). He continued studying biological soil crust lichens with Heather Root in central Oregon in the spring and went back to the vascular plant world this summer, working on a study of serpentine plant communities for U.C. Davis. He is heading off to grad school in Madison, WI in August to work on a second phase the serpentine project that will study edaphic plant communities in the Ozarks. Jesse is hoping to do a side project studying soil crust lichens in Ozark glades while he's there. He looks forward to staying in touch with Northwest Lichenologists from the mid-continent until he returns to the west coast in a couple years or so.

Jesse Miller
541.482.4923
kawriver@gmail.com

Roger Rosentreter sent the following:

Roger Rosentreter is still working on data basing his collection that is now incorporated into the Boise State University herbarium.

The Boise State Lichen herbarium is now on-line at the: Lichen Consortium web page.

<http://symbiota.org/nalichens/collections/index.php>

This web page allows one to search one or many herbaria for records of one or more lichen species documented by voucher specimens. This site can also map those records on a Google earth map. This is very nice way to explore species distributions. Individuals with a private herbarium can join this consortium if you data base your specimens.

Jesse Miller and others have published:

Lichen ecology and Diversity of a sagebrush steppe in Oregon. 1977 to the present.

http://pnwfungi.org/pdf_files/manuscripts_volume_6/naf20112.pdf

(paper cannot be duplicated in this newsletter due to copyright infringements)

The ABLS is having a summer field oriented meeting in Roan Mt., TN. Check the ABLS web site if you are interested. June 20-24, 2011.

Ann DeBolt has completed another biological soil crust inventory and biodiversity survey. This project is from extreme Eastern Oregon, sagebrush steppe and ash badlands, Coal Mine Basin ACEC, and the report will be available to the public soon from the Bureau of Land Management, Oregon.

A Request for Information from Diane Haughland

Looking for information on lichen curation, electronic keys, and safe work protocols

If you're involved in identification and/or curation of lichens, I'm interested in your opinion. We're in the early stages of curating what will be a large special collection at the PMAE, Royal Alberta Museum, Edmonton, Alberta. The specimens I'm dealing with are the macrolichens collected as part of a province-wide, systematic biodiversity monitoring program conducted by the Alberta Biodiversity Monitoring Institute (www.abmi.ca).

I'm interested in your opinion or in any literature you know of regarding **the storage of specimens in herbaria**. In Alberta, two herbaria (including the PMAE) use the genus sheet method (packets attached to genus sheets in folders), while one stores 'loose' packets in boxes. For lichens, is there a consensus on the preferred method, i.e., minimizes damage to specimens such as *Peltigera* and *Cladonia*?

We're also developing **safe work protocols for storage, use and disposal of chemicals used for spot tests** and eventually TLC. If anyone has already developed these and

would be willing to share their protocols or experience (or if you'd like a copy of what we've developed), I'd love to talk to you.

Finally, if anyone is working on **electronic keys for western North America**, I'd be interested in talking to you. I think I've found what's available on-line, particularly through www.lias.net. And if you're just curious about the project, feel free to contact me. It's always nice to talk to fellow lichenophiles.

Thanks for your time,
Diane Haughland, MSc, PhD Candidate
Royal Alberta Museum
diane.haughland@gov.ab.ca

Lichen Apparel and Publications

Letharia columbiana apparel



Mar 2010 Shirt Order NW Lichenologists: Please put the number desired in a GREY box

This is a pre-order form. Once the shirts are printed, I will contact you for payment.

Shipping will be \$4/shirt up to 4 shirts. Above 4, I will let you know.

Shipping will be \$3 per hat (up to 2, then as above) or \$0 if with a shirt order.

Your email:

Your address:

please send this order form to Daphne Stone at: stone_daphne@hotmail.com

products are 100% cotton unless noted otherwise

style	Unisex sizes					
	S	M	L	XL	XXL	XXXL
T shirt \$20						
black						
blue						
mock turtleneck \$25						
men's black						
pullover hooded sweatshirt \$35						
black						
zip front hooded sweatshirt \$35						
(design on back)						
unisex black						

Ladies sizes and style	XS	S	M	L	XL	XXL	XXXL
Ladies are somewhat smaller than unisex size!							
Scoop neck T							
ladies black \$20							
ladies blue-60 cot/40modal \$25							
long sleeve T \$25							
(women's)							
black							

turtleneck \$25

ladies black mostly cotton

Letharia design embroidered

cap (adjustable) \$18

black

medium to light blue

**one size fits
most**

Monographs in North American Lichenology

A new series sponsored by NW Lichenologists

Northwest Lichenologists aim to produce a series of reasonably-priced, peer-reviewed, paperback academic books on lichens, with a focus on topics of regional interest, such as generic monographs, annotated state lists, ecological works, local floras, and symposium proceedings. Our purpose is to provide an outlet for very long papers and books of wide interest but that are too long for regular scientific journals. Volumes will be produced sporadically. We expect 0-2 volumes per year. Works on any aspect of lichenology will be considered.

Vol.1

McCune, B. and R. Rosentreter. 2007. Biotic Soil Crust Lichens of the Columbia Basin. Monographs in North American Lichenology 1: 1-105. Pbk. \$30. Fully illustrated in color. [[See sample pages.](#)] ISBN-10: 0-9790737-0-7 ISBN-13: 978-0-9790737-0-0

[ORDER FORM AS PDF](#)

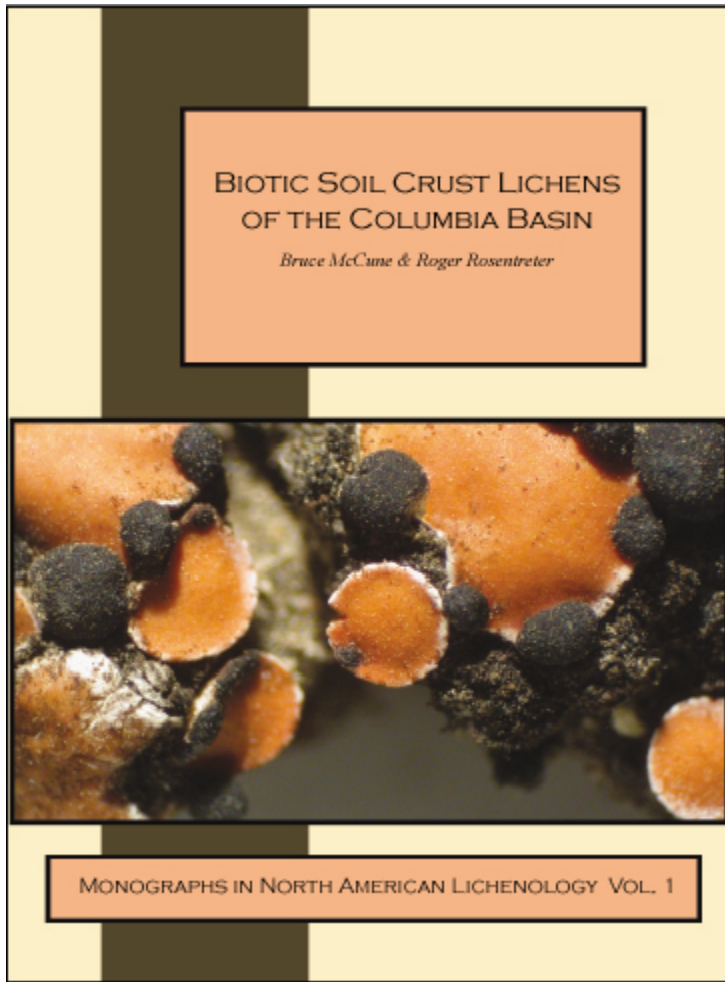
[ORDER FORM](#) (HTML)

Why write a book for identifying soil crust lichens? We have three reasons: (1) they are ecologically important, (2) they can be difficult to identify with existing sources, or they are omitted altogether, and (3) they should be more widely recognized for what they are.

Macrolichens are much better known in North America than crustose lichens, but most of the lichens found in biotic crusts are crustose lichens. Keys and line drawings for macrolichens from the Pacific Northwest and northern Rocky Mountains are provided by Goward et al (1994), McCune and Goward (1995), and Goward (1999). Brodo et al. (2001) and McCune and Geiser (1997) provided color photos for selected species. Despite these resources, almost none of the lichen species growing in biotic crusts in the Pacific Northwest have been illustrated with color photos in sufficient magnification and detail for confident identification. We hope that this book will help to relieve that problem.

Lichens in soil crusts are often difficult to identify. Currently available books for identifying lichens do not illustrate the critical features needed for identification. We try

to fill this need by providing photographs of all of the species at the necessary scale – ranging from what you can see with a hand lens to what you can see through a compound microscope. Wherever possible, we emphasize macroscopic features, but in many cases microscopic characters make the task much easier and help to confirm the identification. This book is aimed at both technical and naturalist audiences. We hope that the use of color photographs will help someone without much experience, while we strive to provide the technical details needed for more certain identification.



Bruce and Linda's new 2nd edition of *Macrolichens of the Pacific Northwest*

This revised and expanded edition includes 116 new species and 176 additional illustrations and incorporates an understanding of macrolichens that has advanced tremendously in the past decade.

Macrolichens of the Pacific Northwest includes keys to 113 genera and 586 species of Oregon and Washington macrolichens—all the macrolichens known or expected to occur in the two states. The keys also provide reasonable coverage for lichens of Idaho and Montana, inland to the Continental Divide. Color photographs and detailed descriptions are provided for 246 species, emphasizing lichens prevalent in forested ecosystems.

Online order form: <https://www.uapress.arizona.edu/scripts/secure/orderosu.pl>

Miscellaneous

Lichen Blitz



Are you interested in hosting a NW Lichenologists lichen-blitz?

Once or twice a year NWL members come together for a multi-day fieldtrip to a lichen-rich area in the Pacific Northwest of North America. The purpose is to get to know each other, and learn from each other while doing what we love to do: “lichenize.” These gatherings bring together much expertise and typically a species list results from our collaborative efforts.

If you manage a natural area, and are interested in hosting a lichen-blitz, please contact us. We are a low-maintenance group that usually camps or bunkhouses in remote locations. Formal permission to collect lichens is naturally needed. NWL will periodically review its blitz requests and optional associated donation, and schedule a foray to the most interesting area.

Donations will be used to support the educational, nonprofit purposes of NW Lichenologists.

[Contact the secretary of NW Lichenologists](#)

Biannual Newsletter?

The idea of a biannual newsletter has been floating around. So far, a little over half of those who have expressed an opinion are in favor, the others are not. At this time there does not appear to be a need for two per year, as annual contributions do not seem to be in sufficient quantity. Much of this 2011 newsletter is actually repeated from 2010, such as the apparel, monographs, and lichen-blitz sections. For now it seems best to stay with one per year. If you wish to see two, then contribute! Or if you are already contributing, then contribute more! (Sorry, not trying to be pushy!)

The Essential Lichen Companion

I think we all know that lichens are truly awesome. But did you know they are useful for passing over into the Light? Thanks to whoever posted this on the lichens-l server!

<http://www.ausflowers.com.au/shop/scditem.asp?prodid=67&catid=2>

Errata

Yep, this section is always needed when you have *me* for an editor!

*In 2010 I noted in “Where in the World is the Lipstick Lichen?” that there was a student at UW studying this variety. That “student” turned out to be our very own Katie Glew. After much confusion on my part about where the “student” comment came from, I realized it was from me. My bad! Apologies to Katie and also John Villella (who I originally thought had been the one to include that in the article).

*In 2010 I also noted that Dave Wagner was teaching a course that he actually was not teaching. My bad! Apologies to Dave.

-Scot Loring