



NORTHWEST LICHENOLOGISTS



2015 Newsletter

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Visit our new and improved website [here!](#)

Upcoming Events

NWL Annual General Meeting

Our annual general meeting is generally held in conjunction with the [Northwest Scientific Association](#).

The 86th conference of the Northwest Scientific Association (NWSA) in Pasco, Washington from April 1-4, 2015 will explore the *Past, Present, and Future Challenges to Natural and Managed Ecosystems: Sagebrush, Salmon, and Syrah in a non-stationary environment*. Special symposia include:

The NWSA will be teaming with the USFS Pacific Northwest Research Station & The Mount St. Helens Institute, US Geological Survey, Pacific Northwest National Laboratory, U.S. Fish & Wildlife Service, MCBONES Center for Research Foundation, Ice Age Floods Institute, and Northwest Lichenologists to host general technical and special symposiums, which include:

- Volcanism as a Force Shaping Northwest Ecosystems: Lessons Learned from 35 Years of Research at Mount Saint Helens
- Water Resources in a Changing Environment
- Fish Passage Through Managed River Systems
- Management, Restoration, and Preservation of Sagebrush Lands
- Bryology & Lichenology
- Salmon Recovery in the Columbia Basin*
- Northwest Geology & Paleontology*
- Pollinator Ecology in Managed and Natural Systems*

** Potential Special Technical Sessions*

The Northwest Lichenologists will host a technical session, workshop, and field trip.

Early registration ends March 20, 2015. Register at the NWSA website:
<http://northwestscience.org/>

NWL WORKSHOP: PHOTOSYNTHETIC SYMBIONTS IN THE LANDSCAPE, BOTH LICHENIZED AND FREE-LIVING, BY JOHN VILLELLA

This workshop will explore the life of the photosynthetic partner in a lichen. Lichens are named by their fungal symbiont because the fungus is often the more outwardly and conspicuous partner.

While the fungus partner gets more attention, the photobiont partner is very important. In fact, without the photobiont we wouldn't call the organism a lichen!

This workshop will explore the lichen from the perspective of the photobiont. John will teach us the identification and ecology of algae and cyanobacteria in the lichenized and the free-living states. The class will explore the biodiversity of photobionts and the morphological changes brought on by lichenization. We will also discuss the exciting new insights into photobiont ecology illuminated by genetics.

Please join us to explore lichens from a different perspective.



NWL FIELD TRIP: LICHENS OF THE SADDLE MOUNTAINS

Day/Time:

Saturday, April 4, 2015;
8:30 am to 4:30 pm

Pick-Up Location:

Columbia Basin College (CBC),
North Parking lot

Cost:

Free, though participants will need
to carpool and share gas costs.



Leader:

Jenny von Reis

The group may visit two different areas within the Saddle Mountains about 35 miles north of Pasco. Options may depend on availability of 4-wheel drive vehicles for carpooling. If 4WD vehicles are available, we will visit Wahatis Peak (elevation 2696 feet) and the northern end of the Saddle Mountains overlooking the Columbia River. Depending on vehicles, the trip may also visit the north side of the Saddle Mountains by traveling west on Crab Creek Road with multiple stops to look at undisturbed biological soil crusts, rocky outcroppings, or to higher elevations via a hike. Hiking boots are advisable. This trip may coincide with the emergence of rattlesnakes from their hibernacula – and we will teach safe techniques to avoid them. Travel time from CBC is approximately 1 hour and 35 minutes to the crest of the ridge, and a little over an hour to reach the north side of Saddle Mountain via Crab Creek.

Recent Events

Priest Point Lichen Bioblitz, Olympia, WA

The City of Olympia Stream Team (<http://www.streamteam.info/>) organized a one-day lichen bio-blitz event that took place on February 23, 2015. The event was held at Priest Point Park, located just north of Olympia on Budd Inlet of Puget Sound and comprised of old-growth coniferous forest.

Approximately eighty people participated, including folks from across western Washington and beyond. Northwest Lichenologists Lalita Calabria, Scot Loring, Charity Glade, Greg Eide, and Carmen Tomas each led a group of people to various locations around the park, which has a network of maintained trails throughout to facilitate travel. The weather was sunny and there was a great mix of people, all enthusiastic learners. Though an inventory list was a primary goal of the bioblitz, folks spent much of their time learning about lichen features and ecology. Fifty-four confirmed species were found, plus many other collections of *Usnea*, *Peltigera*, *Cladonia*, crusts, and others remaining to be identified. One as-of-yet unidentified *Chaenotheca* collection does not appear to match any species known from the PNW.

Photos by Steve Boessow, Biologist for Washington Department of Fish & Wildlife



Participants examining *Cladonia* and *Peltigera* species on a rotting log



Lalita Calabria (above) and Scot Loring (below) teaching about epiphytic lichens



2015 NWL Certification Test (Westside Macrolichens)

The 2015 NW Lichenologists West-Side Certification Exam will take place at H. J. Andrews Forest 10-11 October, 2015. Examiners are Daphne Stone and Amanda Hardman.

The cost will be \$25 per bed per night plus the classroom for \$55 per day. That translates into \$61 (for room) per examinee if 10 people come. The exam itself costs \$100 which pays for the examiners to review the written exam and check the specimens collected on the exam plot.

Andrews will be flexible for everyone's eating - everyone can cook their own food in the apartment kitchens, and eat when they like. There is camping nearby at Andrews if the beds are too expensive for some.

We also offer the use of the exam as a training. For those who feel they aren't ready to take the exam, you can participate in the field collection and identification with help in the field and in the lab from the examiners. The cost is the same as for the exam.

Registration for this exam closes July 31. Please register as soon as possible so we can reserve enough beds.

Visit [here](#) for more information on the Certification Exam



Upcoming Workshops / Courses:

Siskiyou Field Institute

The Siskiyou Field Institute is located in the Illinois Valley of southwest Oregon and offers a wide variety of courses relating to the natural history of the Klamath-Siskiyou Mountains. A full list of courses is available at: <http://www.thesfi.org/Index.asp>

Lichens and their Photobionts

Instructor: Daphne Stone, PhD

Dates: Saturday-Sunday, October 17-18, 2015

Location: Selma

Tuition: \$150

Students will get a look at photobionts that are part of a lichen's symbiosis of fungus, algae and/or cyanobacteria. Photobionts supply food to the fungal partner through photosynthesis. We'll learn about the relationship of lichen fungal bodies to their associated groups of photobiont species. Then we'll section a lichen and examine its photobiont using compound microscopes. We'll note the various placements of photobionts, then step back to see the effects different algae and cyanobacteria have on lichen coloration. An integral part of this class will be learning to make thin sections of the lichen thallus, a skill often essential for solid species identification.

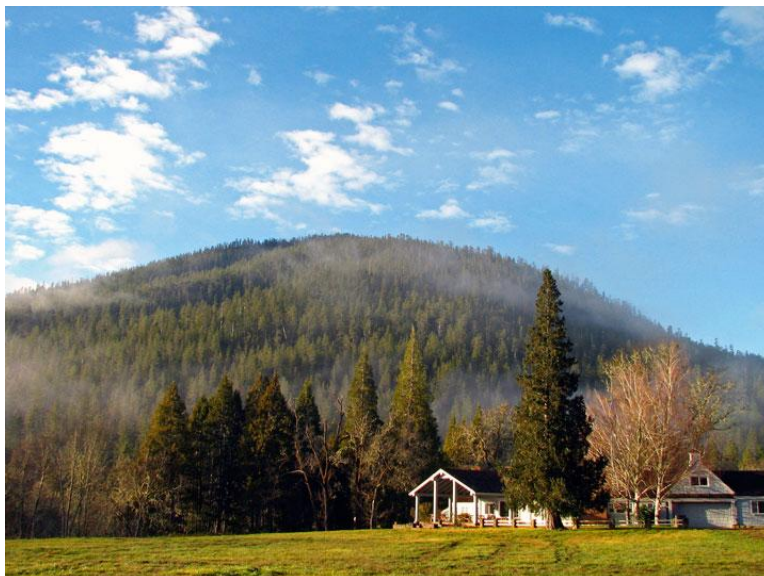
Instructor: Scot Loring

Dates: Monday-Wednesday, Sept. 28-30, 2015

Location: Deer Creek Center, Selma

Tuition: \$225

Red Buttes Wilderness, nestled deep in the Siskiyou along the Oregon/California border, features a great diversity of bryophytes, fungi, and lichens. It will become your personal laboratory as we explore a wide array of habitats within this amazing area, including high-elevation serpentine, old-growth forests, sphagnum wetlands, rivers, and more, searching for these overlooked organisms. Learn to find, identify, and create your own collections, while contributing to the scientific knowledge of a unique and biologically underexplored area.



News and Projects from NW Lichenologists at Home and Abroad
(Generally in the order received)

From Dave Kofranek:

Rare Moss and Lichen Surveys of BLM Vale District, North Umatilla Co., OR,
Aloina bifrons, *Bryoerythrophyllum columbianum*, and *Texosporium sancti-jacobi*.
By David Kofranek, davekofranek@gmail.com

In 2013, I was to survey for two Oregon State listed mosses, *Aloina bifrons* and *Bryoerythrophyllum columbianum*, near the Columbia River in Umatilla County. Before fieldwork began the regionally rare lichen, *Texosporium sancti-jacobi*, was requested to be added to the short list of target species.

"Sure. Anything else?"
"A species list."

So, what began as a specific search for a couple of mosses instantaneously expanded into a comprehensive non-vascular plant survey including biological soil crust lichens.

Funny how that happens.

Of course, that's how other things are found as well. Results are summarized in the abstract below. The report is available via the link at the bottom of the page.

Abstract

The rare mosses, *Aloina bifrons*, *Bryoerythrophyllum columbianum* and the rare lichen, *Texosporium sancti-jacobi* were searched for on seven parcels in the Columbia Basin of Oregon managed by the Bureau of Land Management. Surveys using intuitive-controlled meander found *B. columbianum* on all parcels, *Aloina bifrons* on three parcels, and *Texosporium sancti-jacobi* was not found. Umatilla Butte has the best habitat for biological soil crusts and the site most likely to harbor *T. sancti-jacobi* because of patches of pristine habitat and the presence of the late successional soil crust *Acarospora schleicheri*. Two moss species new to Oregon, *Tortula inermis* and *T. protobryoides*, were found in Juniper Canyon. The rare mosses *Didymodon norrisii* and *D. eckeliae* were found on five parcels. Thin, fine-grain soil and rock support the best diversity of bryophytes and lichens, however the trampling of cattle and invasive cheatgrass, *Bromus tectorum*, significantly compromise most areas.

Other noteworthy finds include *Phaeophyscia constipata* and *Acarospora schleicheri*. On subsequent surveys (not yet posted at ISSSSP website), *Placidium pilosellum* was found and the presence of moss balls (*Grimmia trichophylla*) confirmed.

Updates and corrections to the report:

Didymodon eckeliae, *Tortula protobryoides*, and a cauducous specimen of *Didymodon brachyphyllus* were verified by Zander. *Tortula inermis* and *Didymodon norrisii* were verified by Toren. *Rosulabryum elegans* was identified as *Gemmabryum "vinosum"* by Spence and *Imbriobryum cf. gemmiparum* was verified as *Gemmabryum barnesii* by him.

The report is available by following the link below.

<http://www.fs.fed.us/r6/sfpnw/issssp/documents3/inv-rpt-br-li-vale-blm-201404.pdf>

From Sharon Birzer: [note from editor: the size and resolution here does not do Sharon's artwork justice!]

Sharon Birzer

North Cascades Institute Residency @ North Cascades Learning Center, Diablo Lake, July 11-18, 2014

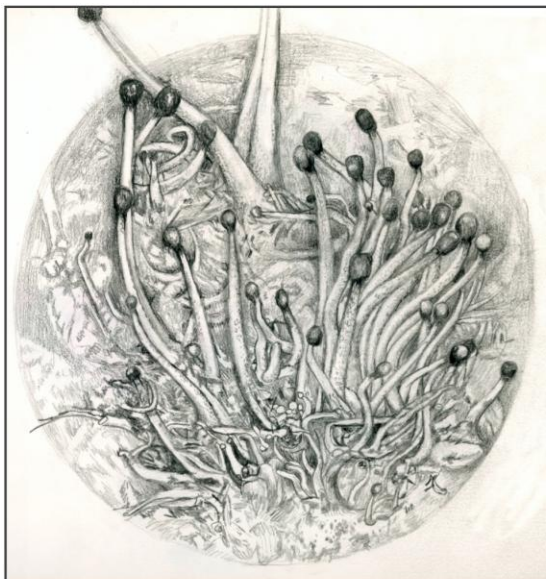
July 11-13

"Frog's Pelt, Pixie Cup and Old Man's Beard:
Lichens of the North Cascades"

This summer I had the pleasure of interacting with a class held at the NCI learning Center on lichens, "Frog's Pelt, Pixie Cup and Old Man's Beard: Lichens of the North Cascades" taught by Daphne Stone. We had a super productive, interesting and fun 3 days filled with lectures, hikes and lichen identification. Katie Roloson provided amazing practical support for the class, driving the bus and just always being there when you needed her. Daphne is a talented teacher and can identify most lichens by sight and everywhere we went we encountered lichen. The class hiked to Rainy Lake, as well as visiting Washington Pass which is stunning.



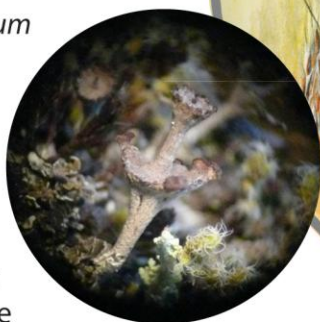
Top: working in classroom, Buster Brown, *Usnea longissima*, Daphne teaching, Lower rt, everyone at Washington Pass. Below, *Pilophorus acicularis*, Devils Matchstick Lichen, © S. Birzer



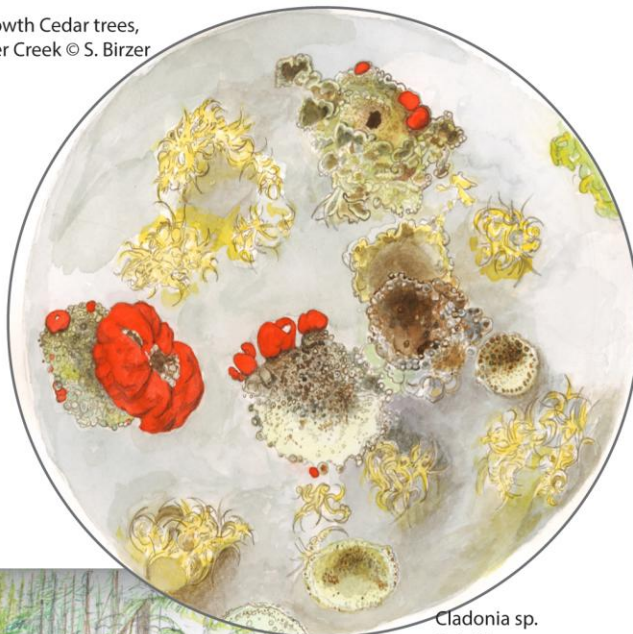
We also took a short hike up a service road to Buster Brown, a rocky out cropping covered in lichens. It was led by Katie who walked in front often facing backwards toward us, carrying a ball jar full of water to sip from, which somehow made the walk seem easy. It was actually a pretty steep climb, and well worth it. There were so many lichens up there. This is a group that I brought back to look at under the dissecting scope and draw (illustration at right). This group has two lichens- *Cladonia cervicornus* with the double cup and *Cladonia bellidiflora*, and 2 mosses--*Racomitrium elongatum* and *Polytrichum piliferum*.

July 14 Thunder Creek

Today is hot, in the 90's. The Learning Center and my quarters are situated within a 2 minute walk of Diablo Lake, a cold mountain lake that has a light blue-green colored water due to the many glaciers that feed into it carrying glacial silt. Its fun to jump in. I hiked up Thunder Creek and spent time in the cool shade of an old cedar and Douglas fir forest. A cool breeze wafts down from the mountains and everywhere are ferns, lichens, fungus, and life. Thanks to Daphne and NCI, I now have more to go on when looking at lichens. Also, thanks to Daphne for helping me identify the lichens in this document.



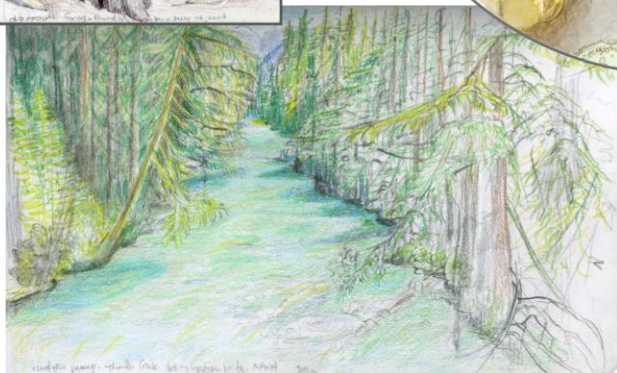
Old Growth Cedar trees,
Thunder Creek © S. Birzer



Cladonia sp.
© S. Birzer



Myxomycete, a Slime mold,
Thunder Creek



Lt, Looking up Thunder
Creek © S. Birzer



Rt, Nidulariaceae, bird's nest
fungus, Thunder Creek

From Rebecca Durham:

At a conference last spring, retired ecologist Wayne Tyson shared his salient successes and failures in restoration. In southern California, he would scoop up the soil crust in soon-to-be disturbed areas, put it in a burlap sack, and shake it out at restoration sites. This simple crust restoration method worked for him. It inspired me to pursue similar methods where I work as a botanist at MPG Ranch in western Montana.

In restoration ecology, much of the work is focused on vascular plants. Though some research on reestablishing soil biota exists, it is not a common practice for ecologists. Could it be as simple as shaking out a burlap sack over barren dirt? I teamed up with University of Montana graduate student Mandy Slate and established an experiment at MPG. In a barren enclosure, we inoculated moss and crust material. Macrolichen genera included *Peltigera* and *Cladonia*. Although a long-term study, we've already noted moss establishment and tiny *Cladonia* thalli. This project led to a new collaboration with biocrust researchers at Northern Arizona University. Building on their research, we will continue to look at ways to reestablish a healthy soil crust in degraded systems. More details on the enclosure experiment and lichens at MPG Ranch can be found on our website.

<http://mpgranch.com/research/latest-research/mpg-ranch-lichen-survey.aspx>

<http://mpgranch.com/research/latest-research/moss-and-biocrust-project-update.aspx>

Note from editor: Rebecca creates art and pairs it with poetry for her blog at MPG Ranch. Many of her wonderful works can be found at: <http://mpgranch.com/staff-blogs/ranch-reverie-poetry-and-musings.aspx>. One example is found on the following page...

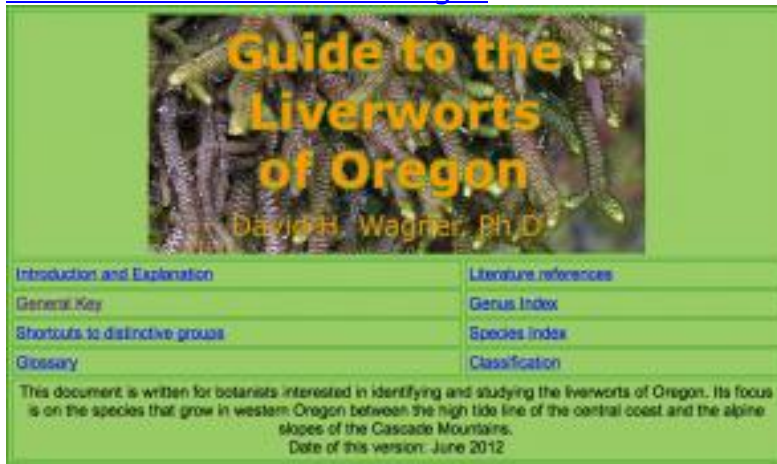


Start with what the forest knows. Look closer until you can see
 how signals sort creation. The tilled tide is curling, the cups sip rain. Apothecia ring
 the moon and needles knit, not wool this time, not neatly or in order, not anything
 we've touched before. See how green holds hope. Here in the forest, answers lie
 with questions. I see how the body is green and you see how the body is a frog's pelt
 slain and splayed. Stand here like a lichen eying sky. When time decants drought,
 sight blooms new. Begin with this.
Peltigera venosa

Rebecca Durham 2015

From David Wagner:

[Guide to the Liverworts of Oregon](#)



Wagner, David H. 2014. *Guide to the Liverworts of Oregon*. Northwest Botanical Institute, Eugene, Oregon, U.S.A. (fernzenmosses.com). E-book, HTML document, 593.8 megabytes on disk, 860+ illustrations, mostly color photomicrographs. ISBN 978-0-9906193-0-7. \$50 for initial purchase, \$10 for upgrade at any time. Introduction with instructions for navigating using web browser, illustrated dichotomous keys to 170 species, shortcuts to distinctive species, individual species pages, illustrated glossary, literature references, genus index, species index, classification overview with illustrated exemplars.

The primary aim of the Guide is to provide dichotomous keys for identifying the species of liverworts growing naturally in the state of Oregon, U.S.A. The signal feature of the Guide is the use of photographic images which illustrate the critical features defining the contrasting characters delineated in the leads of each couplet. Photomicrographs have been emphasized over habit photos.

The keys are based on earlier text manuscripts which were revised and formatted into a web document. The general key to genera was first published in Evansia (Wagner 1984) and an illustrated key to genera appeared in the *Guide for the Identification of Rare, Threatened or Sensitive Bryophytes in the Range of the Northern Spotted Owl, Western Washington, Western Oregon, and Northwestern California* (Christy and Wagner 1996). Conversion to digital format began around 2000, making it possible to replace the line drawings with color photomicrographs. Accurate depiction of oil body data was the main motivation for this conversion.

Retaining the traditional algorithm of dichotomous keys was a conscious decision. Anybody who has used dichotomous keys will find these keys easy to use. The web format reduces errors that are common when following a thread—making a series of choices—through long keys.

An electronic, HTML version of a dichotomous key has significant advantages over a printed key. The web format assures that a user is always taken to the proper destination based on the choice of lead in a couplet. There is only one couplet per page. It allows step by step back tracking through the key, instant return to the beginning, thumbnail hot links to images, and rapid navigation to indices, shortcuts, and glossary. The structure of the work makes it an excellent learning tool as well as a way to identify liverworts.

The Guide also includes species pages with synonyms and a summary of the distribution and abundance of each species, usually with recognition hints and several additional illustrations. Western Oregon is covered much more thoroughly than the eastern part of the state. With over 860 images, mostly color photomicrographs illustrating 170 species, the Guide will be useful throughout the Pacific Northwest bioregion.

The style of this work has been developed with the intermediate to advanced student in mind. It is assumed that the user of this work has prior training in general botany but perhaps is not well versed in bryological lore. All technical terms used in the key are defined in the illustrated glossary.

Neither a textbook nor a manual, the Guide is intended to work as a companion to the California liverwort keys by Doyle and Stotler (2006), *Field Guide to Liverwort Genera of Pacific North America* (Schofield 2002), and the upcoming volume on liverworts in the Flora of North America (Vol. 29, scheduled to come out in 2017). Further morphological, phylogenetic, ecological, or biological details of the species covered here can be found in other literature. Recently published books which may be particularly useful are those by Paton (1999), Damsholt (2002), Schumacker and Vana (2005), and Atherton et al. (2010). Northwest Botanical Institute maintains a web site, fernzenmosses.com, where additional resources and updates may be found. Alerts will be posted on this web site when significant updates to the Guide are ready.

Literature Cited

- Atherton, I., S. Bosanquet, and M. Lawley (eds). 2010.
Mosses and Liverworts of Britain and Ireland - a field guide. British Bryological Society, United Kingdom.
- Christy, J.A. and D.H. Wagner. 1996.
Guide for the Identification of Rare, Threatened or Sensitive Bryophytes in the Range of the Northern Spotted Owl, Western Washington, Western Oregon, and Northwestern California. USDI Bureau of Land Management, USDA Forest Service, The Nature Conservancy, and Northwest Botanical Institute, Portland, Oregon, U.S.A.
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Illustrated Flora of Nordic Liverworts and Hornworts. Nordic Bryological Society, Lund, Sweden.
- Doyle, W.T. and R.E. Stotler. 2006.
Contributions toward a bryoflora of California III. Keys and annotated species catalogue for liverworts and hornworts. Madroño 53: 89-197.
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The Liverwort Flora of the British Isles. Harley Books, Colchester, England.
- Schofield, W.B. 2002.
Field Guide to Liverwort Genera of Pacific North America. University of Washington Press, Seattle, Washington, U.S.A.
- Schumacker, R. and J. Vana. 2005.
Identification Keys to the Liverworts and Hornworts of Europe and Macaronesia. 2nd Edition. Sorus Publishing and Printing House, Poznan, Poland.

Read a review of the Guide to Oregon Liverworts:
<http://www.ou.edu/cas/botany-micro/ben/ben488.html>
(third article down)

Molecular Analysis Fails to Help Field Botanist

David Wagner
Northwest Botanical Institute

Reading the recent paper by Miadlikowska et al. (2014), I note that the three species of *Peltigera* discussed here are not distinguishable on morphological grounds. We could use geography to rule out *Peltigera hydrothyria* in the strict sense (*s.s.*). This is not a great character because lichens, like mosses and liverworts, often have strange and disjunct distributions. *Peltigera hydrothyria s.s.* could show up in the West eventually. However, only the cryptic *P. aquatica* has been verified from Oregon and California, with many other records undetermined because no molecular analysis has been done on them. *Peltigera gowardii* has been verified only from British Columbia.

My take on this, as a field botanist, is to call all of these *Peltigera hydrothyria s.l.* (*sensu lato* = in the broad sense) when no molecular analysis has been done. This is the only taxonomically justifiable solution I can think of to deal with otherwise unidentifiable specimens.

Compare this with the case of the liverwort *Conocephalum*, for example. In Europe *Conocephalum salebrosum* has been recently separated from *Conocephalum conicum* and is recognizable morphologically. It was originally distinguished by isozyme studies. In the original publication of *Conocephalum salebrosum*, a distribution map showed many localities from North America, too.

However, when a team of molecular phylogenists looked at *Conocephalum* on a worldwide basis, using isozyme analysis, they identified only one record of *C. salebrosum* from North America (from Colorado) but uncovered numerous other cryptic species in North America. Each one of these genotypes is about as distinct from European *C. conicum* as *C. salebrosum*. A third species, *C. japonicum*, is a distinct genotype recognized from Japan and China.

When they studied the chloroplast genome of these various allozyme types, they found three major groups came out. The two most distinct correspond to *C. salebrosum* and *C. japonicum*. The last group of seven genotypes, which they treat as *C. conicum*, is very interesting. Type L, the one on which the type of *C. conicum* is (presumably) based is found only in Europe and is the only genotype in Europe. Type A is restricted to eastern North America and Type C in the West.

I had some good conversations with Miwa, the lead author in the more recent study, and he said he was not at all interested in giving names to these cryptic species. I agree. Even if I could separate type C as a good morphological species distinct from *C. salebrosum* and *C. conicum*, there seems little chance to distinguish it from the other genotypes in the *C. conicum* clade. We'll call these all *Conocephalum conicum* and if we want to distinguish genotypes we'll use the appellations the molecular biologists have coined. Maybe someday someone will develop molecular bar code readers that will work in the field but I'll be long gone by then.

So, I'm going to have to continue to call these aquatic pelts *Peltigera hydrothyria s.l.* unless DNA analysis has been done to place a particular specimen into its genotypically defined species. Otherwise, you might be right or you might be wrong if you want to call an Oregon or California collection *Peltigera gowardii* or *Peltigera aquatica*.

Literature cited:

Miadlikowska, J., D. Richardson, N. Magain, B. Ball, Anderson, R. Cameron, J. Lendemer, C. Truong, and F. Lutzoni. 2014. Phylogenetic placement, species delimitation, and cyanobiont identity of endangered aquatic *Peltigera* species (lichen-forming Ascomycota, Lecanoromycetes). *American Journal of Botany* 101: 1141-1156.

From Amanda Hardman:

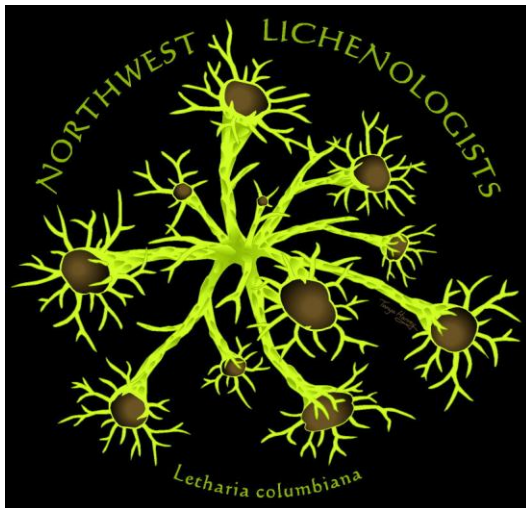
The Forest Service will again be trekking the slopes of Oregon and Washington in search of lichens that can indicate air quality. If you are looking for a little adventure this year, feel at home camping 5-10 nights at a time, have a zest for long hikes on steep slopes, and some experience with lichenology and botany, then please consider a biological technician position on the Siuslaw Forest. Short volunteer stints may also be available. Application through USA Jobs, apply soon. For more information send Amanda Hardman a note at lichenhunt@yahoo.com



Lichen Apparel and Publications

Northwest
"Lycanologists"

Letharia columbiana apparel



NW Lichenologists Shirts and Caps

email this form to Daphne Stone at daphstone@gmail.com
once I confirm we have your items, then mail
a check **made out to Northwest Lichenologists** to:

Daphne Stone
30567 Le Bleu Rd.
Eugene, OR 97405

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zip hoodie sweatshirt	black					n/a	\$35.00
shirts: LYCAN (werewolf)							
ladies V-neck	black						\$20.00
ladies deep scoop	black						\$20.00
ladies T	black						\$20.00
regular T	black						\$20.00
cap w/ embroidered logo	black						\$18.00
Shipping	\$25 or less: \$25-\$50 over \$50				shipping cost:		
TOTAL							

Monographs in North American Lichenology

A series sponsored by Northwest 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.

****New!*: Monograph in North American Lichenology, Vol. 2***

We are pleased to announce that we now have in hand volume 2 of *Monographs in North American Lichenology*, entitled **Montana Lichens: An Annotated List**.

Why would a non-Montanian lichenologist want one? This is the first comprehensive summary of the occurrence, literature references, and ecological context for lichens in any state or province in the Pacific Northwest or northern Rocky Mountains. Because we also include reports from adjoining states and provinces, the book should be useful in a broad area. The monograph will be an invaluable reference for people delving into either crustose lichens or macrolichens.

So far, a total of 1074 species are documented from Montana. Of these, 283 species are new for the state and 19 are new to North America. We discuss the rare, threatened, and endangered lichens of Montana. Priorities for surveys and monitoring are evaluated by placing species in one of eight categories, based on all combinations of global rarity, ease of detection, and habitat vulnerability.

You will also find new names for a number of old friends. Do you recognize *Lobaria anomala*? *Scytinium palmatum*? *Circinaria rogeri*? Dig in and find out.

For ordering information, please use the "Store" tab at the new NW Lichenologists website. Sample pages are posted.

[Order by credit card using PayPal](http://www.nwlichens.org) from www.nwlichens.org

McCune, B., R. Rosentreter, T. Spribille, O. Breuss and T. Wheeler. 2014. ***Montana Lichens: An Annotated List***. Monographs in North American Lichenology 2: 1-183. Pbk. \$30. ISBN-13: 978-0-9790737-1-7

Montana Lichens: An Annotated List

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Toby Spribille
Othmar Breuss
Tim Wheeler



Monographs in North American Lichenology Vol. 2

Monograph in North American Lichenology, 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

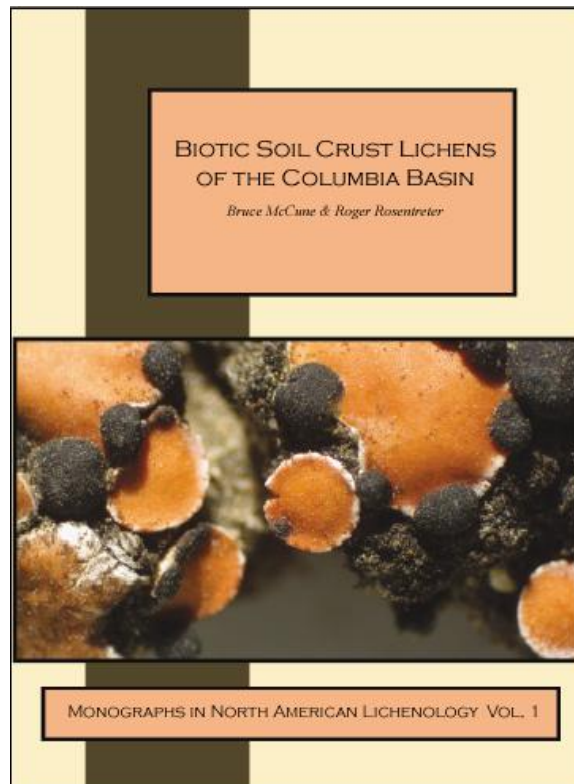
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Why write a book for identifying soil crust lichens? We have three reasons: (1) they are ecologically important, (2) they can be difficult to identify with existing sources, or they are omitted altogether, and (3) they should be more widely recognized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



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](#)