NORTHWEST LICHENOLOGISTS

2012 Newsletter

Upcoming Events

NWL Annual General Meeting

Our annual general meeting is generally held in conjunction with the Northwest Scientific Association.

Schedule for Annual Meeting, March 28-31, 2012 - (Revised Feb. 6, 2012) With Northwest Scientific Association, Boise, March 28-31, 2012

Wednesday, March 28 (1:30-7 pm Registration available)

☐ 2-4 pm Sagebrush identification workshop at BSU biology building near the herbarium
☐ 6-8:30 pm NWSA Social at Owyhee Plaza, snacks and an open bar

Thursday, March 29 (Registration continues from 8 am-6 pm)

☐ 8:30-10 am Welcome/Plenary speaker Address
☐ 10-10:30 am Break
☐ 10:30 am-12 pm Lichens and Bryophytes contributed papers (Soil Crust Theme)
☐ Begin with invited Speaker: Heather Root
☐ 12-1:30 pm Lunch
☐ 1:30-3 pm General Sessions (Sage Ecosystems)
☐ 3-3:30 pm Break
☐ 3:30-6 pm Poster Session
☐ 6-9 pm Lichen group dinner at Table Rock Brew Pub, between the Hotel and the University or 6-9 pm NWSA Banquet

Friday, March 30 (Registration continues 8 am-11 am)

☐ 8-10 am General Session (Citizen Science)
☐ 10-10:30 am Break
☐ 10:30 am-12 pm Lichens and Bryophytes contributed papers
☐ 12-1:30 pm Lunch/NWSA Business lunch
☐ 1:30-4 pm Lichen and Bryophyte Soil Crust Workshop (Heather Root and Rob Smith)
☐ 6- 8 pm: Lichen group dinner (Location TBA)

Saturday, March 31 Field trip - Soil crusts around Boise: Organizer Barrys Kaminsky/Roger Rosentretter 9 am Meet at the Owyhee Plaza (where the meetings are being held). Vans are provided by BLM. Bring your own lunch.

Click here for more information on NWL meetings in general.

Field Trip to Mount Saint Helens

Background: Charlie Crisafulli, ecologist, USFS, Olympia Forestry Sciences Laboratory, invited us to conduct lichen community surveys in areas disturbed by the 1980 eruption of Mount St. Helens. Charlie has been studying ecological responses to the eruption from 1980 to present. Katie Glew has already made some collections on the Pumice Plain in years past so we'd build off her work, too.

Who: Maximum number of people = 18

What: Collect in different volcanic disturbance zones, including the 2000 yr old lava flows on the SE side of the mountain, the debris avalanche deposit on the west side, the , the pyroclastic flow zone (Pumice Plain) immediately north of crater, and in a few locations within the tree blowdown zone, located NE of the volcano. This would establish a 32 yr benchmark for lichens in each disturbance type.

There is existing transect and plot infrastructure in place for birds, mammals, plants, and other organisms that could be used as a template for our lichen surveys. For those interested, we could use these for more systematic surveys. For those who want more of a foray, they could simply forgo participating in the plots. This might be a nice two pronged approach: finer scale, spatially constrained lichen data that would give us some idea of the relative abundances of species and a broader scale list of the species pool available to colonize the plots.

When: September (exact dates TBA), Tentative schedule as follows:

Thurs: folks arrive at tent camp on NE side of the volcano (USFS 99 rd)

Fri: Collect in nearby disturbance zones (eg. Pumice Plain, Blowdown zone)

Sat: Hike 5 miles to Johnson Ridge, get in vans staged by Charlie, drive to debris avalanche deposit, collect for several hours, get dropped off back at trailhead and hike 5 miles back

Sun: Collect in on lava flows and possibly the Pumice Plain.

Where: Charlie has a field camp between Randle and Cougar, WA that we could use as a base. In this camp, he has wall tents that would serve as a common space, including wood-burning heating stoves, cooking equipment (gas grill, propane stoves, pots, pans, etc). There are no cabins or the like so we'd have to bring tents. All areas that we intend to survey can be accessed by a relatively short driving time with the exception of the debris avalanche deposit. The debris flow could be accessed either by a 5 mile hike (10 mile round trip) or 4-5 hr drive (one way).

Contact Peter Nelson to sign up: nelsopet@science.oregonstate.edu

Pumice Plain. Photo by Charlie Crisafulli

Recent Events

Soda Mountain Wilderness Field Trip

In September we had a small group on our trip to Cathedral Cliffs and Soda Mountain Wilderness on the Oregon/California border, led by Scot Loring. Access by vehicle is very restricted – thanks go to the Medford District BLM for granting it. The lichens were great, and in the late summer heat in the oak savanna we felt like we were camped on the African veld. We saw lots of interesting lichens including abundant *Parmelia barrenoae* and *Platismatia wheeleri*. The cliffs are andesite with a calcareous component. To see more photos, follow this link: View Album.

Bruce McCune
Sec.-Treas., NW Lichenologists

Soda Mountain Wilderness
Top to bottom: camping, safari-style; vagrant *Dermatocarpon* and *Umbilicaria phaea var. coccinea*; Cathedral Cliffs

2011 NWL Certification Test (Westside Macrolichens)

The certification in 2011 was held at Drift Creek Camp in the Coast Range of Oregon. The Camp -- actually a collection of beautiful wood buildings with steep metal roofs -- is nestled in a valley bottom filled with old-growth conifers and a meandering creek.

We had 9 applicants for certification, of whom 5 were certified (Andrea Pipp, Jim Riley, Martin Hutten, Daphne Stone, Chiska Derr; see http://home.comcast.net/~nwlichens/certified.htm). Actually all of these had been previously certified; certifications expire after 10 years.

The exam is challenging! Everyone learned a lot, but particularly for those doing this as a practice plot, this chance to do the real thing was rewarding.

Altogether we found 62 macrolichen species in the two 0.4 hectare plots. Plot A had 54 more species – a nice total – and 5 more than Plot B. I attribute the difference to the cyanolichen hotspot. The plots were 80% similar in their combined species lists.

One of the most surprising finds was Erioderma sorediatum (one person, one tiny thallus) – surprising because I am not aware of other records in Oregon this far from the ocean. I verified the P+R reaction and the appearance was typical. This was associated with a cluster of other cyanolichens on a single spruce on one plot, including a number of other tiny species, such as Polychidium contortum, Leptogium insigne (formerly L. brebissonii), Fuscopannaria leucostictoides, and Parmeliella parvula. Actually, the P. parvula was fairly frequent in the area, present in both plots, but very inconspicuous and in small patches.

I thought it was interesting that Platismatia norvegica turned up in both plots. In the Oregon Cascades you wouldn't usually find it at this low elevation, but as you get closer to the coast, it seems to increase, even though it isn't really a coastal species.

There were a number of near-coastal species that spiced up the plot: Cavernularia (now Hypogymnia) lophyrea, Erioderma sorediatum, Ramalina roesleri, and Usnea silesiaca. The latter was in almost everyone's collections, sometimes more than once, but hardly anyone recognized it for what it was. This is a good one to learn – you can even field ID it by the abundant fibrils, very thin medulla, thick cortex, and lots of annular cracks. I think the radiating "arms" of are reminiscent of the brittle stars that you sometimes see on the coast. Numerous people misidentified this as U. filipendula, which is a more penduluous species that doesn't tend to develop the annular cracks.

But many common near-coastal species didn't turn up, such as Parmelia squarrosa, Parmotrema crinitum, Usnea chaetophora, U. schadenbergiana (= U. hesperina). As usual, one of the hardest tasks was detecting very sparse instances of species that are in the same genus as something common, for example: Parmotrema perlatum hiding in the P. arnoldii, Parmelia pseudosulcata and P. saxatilis (epiphytic morph) hiding in the P. hygrophila, and Hypogymnia apinnata hiding in the H. enteromorpha.

As usual, the most difficult genus was Usnea. Ten species were found across the two plots, but any one person found at most six species.

Come join is in a future year! The next certification is planned for 2013.

Bruce McCune
Sec-Treas, NWL

Top two photos: Lichenologists hard at work!
Bottom two photos: Andrea Pipp and Martin Hutton emerging from the UV "room"
Click here to see more photos: View Album

Upcoming Workshops / Courses:

Siskiyou Field Institute

Dates: April 14th and 15th, 2012
Course: Introduction to Lichens with Daphne Stone, PhD

Description: Discover the wonderful and complex world of lichens! We'll collect lichens from the meadows and forests around Deer Creek Center and then return to the classroom to identify and preserve specimens; examining their structures and learning terminology needed to discuss the basics of lichen identification. Students will learn to key lichens using *Macrolichens of the Pacific Northwest*. You'll complete this class with a small personal lichen reference collection to further your lichen studies. Tuition for this class is $150, advance registration is required. Information: Phone (541) 597-8530, or visit www.thesfi.org.

Dates: March 28th and 29th, 2012
Course: Survey and Manage: Bryophytes and Lichens with Scot Loring

Description: The Northwest Forest Plan includes protocols requiring agencies to survey for certain rare and sensitive species on federally managed lands. This course, which is geared toward agency employees and contractors, focuses on bryophyte and lichen species targeted as "Survey and Manage" species. Participants will learn about their ranges of these plants; their habitats and distinguishing characteristics; and common look-alike species. Course time will include lectures alternating with lab time to examine specimens. Tuition for this class is $150, advance registration is required. Information: Phone (541) 597-8530, or visit www.thesfi.org.

Dates: March 24th and 25th, 2012
Course: Introduction to Bryophytes with Scot Loring

Description: Bryophytes (mosses, liverworts, and hornworts) are tiny but important components of Pacific Northwest ecosystems. The Klamath/Siskiyou bioregion supports an amazing diversity of these fascinating non-vascular plants. In this class, students will learn about the basic biology and ecology of bryophytes, and will also learn to identify common species in the field. Class time will be divided between lectures, lab, and field trips. Tuition for this class is $100, advance registration is required. Information: Phone (541) 597-8530, or visit www.thesfi.org.

Northwest Botanical Institute

Dear Friends,

This spring I will be offering a three-day, beginning-to-intermediate moss class during Spring Break on the University of Oregon campus. The class will meet Monday-Wednesday, March 26-27-28. This workshop is designed to help folks with a little general introduction to bryophytes to kick their level of competence up a notch or two. I invite participants with a good botany background and a general knowledge of the basics of moss structure and life cycles.

The objective of this workshop will be a fairly intensive practice using the contemporary keys pertinent to our area. Focus will be on navigating the California Moss keys by Dan Norris and Jim Shevock, and the first volume of the Bryophyte Flora of North America (it is possible that the second volume will be out by the time of the workshop). I will also give strong attention to Elva Lawton's moss keys. As usual, I will provide participants with the most current draft of my "Guide to the Liverworts of Oregon." However, we will mostly emphasize the mosses in this class. Participants will receive, as well, a goodly selection of helpful, mostly unpublished material. We will do a thorough review of online resources and the most useful current literature from other parts of the world, too. I will send study guide based on the class texts ahead of class. Participants with a sparse background should follow recommendations in the study guide before the time of the workshop.

I will instruct participants in the lab techniques needed to observe the features used in keying and supervise practice of these techniques. We will have the use of a classroom with microscopes for all students. Most of our time will be spent in the teaching lab, with an afternoon excursion on the first day for field experience.

This will be an intensive three day course. Class size limited to 12. Tuition is $300.

Send check or money order, made out to Northwest Botanical Institute, to

Northwest Botanical Institute
P.O. Box 30064
Eugene, OR 97403-1064

Credit card transactions possible only through PayPal; submit to davidwagner@mac.com.

If you or anybody you know might be interested in this beginning to intermediate class, or have any questions, please contact me directly.

David H. Wagner, Ph.D.
davidwagner@mac.com
541-344-3327

News and Projects from NW Lichenologists at Home and Abroad

(Generally in order received)

From Trevor Goward:

New Lichen Species Put to Work for Their Own Conservation:
$22,000 earned for British Columbia's Wild Places!

SUMMARY: Public auctions for the naming rights to two undescribed lichens came to a close on December 15. The lichens were discovered in British Columbia's rainforests by Trevor Goward, curator of lichens at the Beaty Biodiversity Museum. Earlier this year Trevor decided to "loan" his new species as fundraisers for the Ancient Forest Alliance (AFA) and The Land Conservancy (TLC), both based in Victoria, British Columbia. The AFA's lichen, a *Bryoria*, festoons the branches of trees in elegant black tresses. Wildlife artist Anne Hansen bid $4000 for the right to name this species *B. kockiana* in memory of her husband, University of Guelph horticulturist Henry Kock, who passed away in 2005. The money will be used by AFA in their efforts to halt the liquidation of B.C.'s remaining oldgrowth forests. The other lichen, a *Parmelia*, also a branch-dweller, sparked a bidding war that raised $17,900 for TLC and resulted in the name *P. sulymae,* in memory of B.C. biologist Randy Sulyma who died tragically in early 2011. The money will help TLC create a wildlife corridor for southern Wells Gray Provincial Park. Trevor notes that approximately 18,000 species are described as new to science every year. He hopes the success of these auctions will encourage taxonomists around the world to put new species to work on behalf of the ecosystems that support them – an initiative he refers to as "taxonomic tithing".

Efforts to preserve the lush conifer forests of western North America from industrial logging have attracted media attention ever since the early 1970s. Now, some of the species that inhabit these forests are being put to work for their own conservation. The right to name two recently discovered forest lichens was recently auctioned off as fundraisers for two environmental groups: The Land Conservancy (TLC) of British Columbia (www.conservancy.bc.ca), working to set aside critical private land for conservation, and the Ancient Forest Alliance (AFA) (www.ancientforestalliance.org) working to protect British Columbia's oldgrowth forests primarily on public lands.

The two lichens were discovered in British Columbia in recent years by veteran researcher Trevor Goward, curator of the lichen collection at the Beaty Biodiversity Museum of the University of British Columbia. The effort to confirm these lichens as new species for science involved an international team of researchers including molecular biologists working in Finland and Spain. The Finnish team includes Saara Velmala and Leena Myllys (leena.myllys@helsinki.fi), both of the University of Helsinki, whereas the Spanish team consists of Ana Crespo (acrespo@farm.ucm.es) and Pradeep Divakar (Complutense University, Madrid) and Maria Carmen Molina and Ana Millanes (Rey Juan Carlos University, Madrid).

According to scientific protocol, the right to give a new species its scientific name goes to the person who describes it. However, the online auctions run by these organizations through the summer and fall gave conservationists and others a rare chance to name two undescribed species – after themselves, loved ones, or whomever or whatever they chose.

"Having your name linked to a living species is a legacy that lasts," says botanist and taxonomist Goward. "It has been almost three centuries since the modern system of biological classification was developed by Carolus Linnaeus; and even now the names of people after whom he christened various plants and animals are still with us. The names of these lichens are likely to endure as long as our civilization does. Not even Shakespeare could hope for more than that."

Lichens come in many shapes and sizes. The lichen put up for auction with the Ancient Forest Alliance is a *Bryoria* or "Horsehair Lichen", forming elegant black tresses on the branches of trees, especially in old-growth forests. The highest bid for this lichen was $4000, made by B.C. wildlife artist Anne Hansen, who christened it *Bryoria kockiana*, in memory of her late husband Henry Kock, a horticulturist and author at the University of Guelph. After long exposure to pesticides during his young working life, Kock dedicated himself to organic gardening and became an advocate for biodiversity. He died of brain cancer in 2005. "I salute Anne Hansen for her efforts to make a positive difference in this world through her beautiful art work and now, in addition, through her contribution to the Ancient Forest Alliance," said Goward. The funds will be used to map and report on the remaining oldgrowth forests of Vancouver Island.

The Land Conservancy's lichen is a *Parmelia* or "Crottle Lichen", consisting of strap-like lobes pale greyish above and black below, and sometimes used by Rufous Hummingbirds to camouflage their nests. It too inhabits the branches of trees. The winning bid of $17,900 was made by the Sulyma family, of Vancouver and Fort St. James, who have named their lichen *Parmelia sulymae* in honour of the late Randy Sulyma, a British Columbia forester and caribou biologist whose life ended tragically earlier this year. "It's a comfort," said Goward, "knowing that Henry and Randy will be remembered in two Canadian lichens that, for their part, will certainly benefit from the touching human interest stories now embedded in their names". The money raised through this initiative will help the Land Conservancy create a permanent wildlife corridor for Wells Gray Park in south-central British Columbia: waysofenlichenment.net/wells/corridor project. "Effectively this will put the finishing touches on one of Canada's hallmark wilderness preserves – a project very close to my heart," said Goward.

Goward is an acclaimed lichenologist who has described about two dozen species and genera of lichens, mostly from western Canada. He is curator of lichens at the University of British Columbia and author of more than 100 scientific papers and several books. "I whole-heartedly support efforts to set aside biologically critical portions of British Columbia's forestlands," says Goward. "With luck, other taxonomists may now be persuaded to put some of their new species up for auction. That would be a wonderful gift for wildland conservation". He refers to this initiative as "taxonomic tithing": http://waysofenlichenment.net/tithe/introduction.

"We're excited about this first run of taxonomic tithing," stated Ken Wu, Ancient Forest Alliance co-founder, "not only because it has helped fund our campaign to protect endangered old-growth forests, but also because it holds great potential as a creative conservation fundraiser: it connects species to efforts to protect the ecosystems in which they were discovered; it focuses media and public attention on the need to protect these ecosystems; and it's a creative way to raise greatly needed funds for conservation groups across the planet as new species are discovered."

"In economically stressed times like the one we're in, even conservation efforts tend to get forgotten," said Barry Booth, northern manager for The Land Conservancy. "Having a novel fund-raising initiative like taxonomic tithing is a real boon to conservation organizations like TLC".

"$17,900.00! Has a lichen ever been more coveted? I doubt it", said Goward. "I believe that future auctions of this kind will garner even more support as Canadians – and others – awaken to the honour of being linked, if only in name, to other species that share this planet with us".

For more information, please contact:

Trevor Goward, Lichenologist, 250-674-2553, trevor.goward@botany.ubc.ca
Barry Booth, TLC Northern Regional Manager, 250-564-2064, bbooth@conservancy.bc.ca
Ken Wu, Ancient Forest Alliance Executive Director, 250-514-9910, kenwukenwu@gmail.com

From Jim Riley:

I just got through adding over 500 lichen photographs to the e-flora web site at:
http://www.geog.ubc.ca/biodiversity/eflora/

From Roger Rosentreter:

Roger Rosentreter is working on data-basing his lichen collection and is incorporating the data into the North American Lichen Consortium.

Roger also has Barry Kaminsky, a Florida lichenologist, working in the herbarium as a Chicago Botanical Garden intern.

See also Roger's "Lebanon Lichen Specialist for Forests" report later in this newsletter.

From Steve Sheehy:

On April 5 2011, I found Umbilicaria hirsuta about half a mile west of the Summit Trailhead off HWY 140 in Jackson County, Oregon. Several are on a large vertical sided boulder in a lava flow in the open. The lichens are on a sunlit but sheltered crevasse facing southwest at 5116 feet in elevation.

A sample was sent to Bruce McCune to confirm the identification. He also wanted to put it in the OSU Herbarium, as it is only the second population known in Oregon.

Pictures of this *U. hirsuta* are now on the Consortium of North American Lichen Herbaria.

From Chiska Derr:

2010 Bioblitz Lichen Taxa Lead: Darci Rivers Pankratz (BLM & FS Regional Office ISSSP and S&M Data Steward) assisted with Juneau's first BioBlitz. Our public information station and tours were among the most poplular of the taxa groups. We documented about 65 species in the Fish Creek Watershed, Douglas Island.

Derr, C.C. 2010. Air Quality Biomonitoring on the Chugach National Forest: 1993 & 1994 Baselines Using Lichens. USDA Forest Service Alaska Region TP-R10-147, May 2010. Anchorage, Alaska. 250pp. This work includes a lichen inventory and lichen community data. A hard copy is available in Bruce McCune's lab. The report is slated for posting at http://gis.nacse.org/lichenair/?page=reports#R10. Over 380 species and varieties in over 100 genera (mostly macrolichens) were collected and curated; many additional species will be "discovered" when the vouchers are updated to reflect advances in lichen taxonomy and species concepts. Crusts were verified by Bruce McCune in the mid 1990's and *Cladonia* were verified by Ted Ahti in the mid 2000's. There are a number of unidentified vouchers, mainly crusts. Vouchers are housed at University of Alaska, Fairbanks. Contact: alanbatten@acsalaska.net

Derr, C.C. and R.H. Armstrong. 2010. Lichens around Mendenhall Glacier. This 48 page guide, intended for the general public, features beautiful color photographs by famous Alaska naturalist Robert H. (Bob) Armstrong. Following a short "Lichens 101" section species are presented using a key to growth forms; common names and genera are included. Many species are old growth associated taxa in the PNW, and the guide is very useful for coastal Alaska rainforests. A hard copy is available in Bruce McCune's lab, and copies are also available from me or at http://www.naturebob.com/
See: http://juneauempire.com/stories/070210/out_664414464.shtml
and http://www.naturebob.com/

2011 BioBlitz Lichen Taxa Lead: Daphne Stone joined me for Juneau's second BioBlitz; we documented about 95 species in the Auke Lake Watershed. Judy Harpel was the Bryophyte Taxa Lead and documented 116 species. Daphne & Judy were in (soggy) heaven!

2011: Northwest Lichenologists recertification in Field Lichenology, Macrolichens of the Pacific Northwest.

From Dave Wagner:

HORNWORTS OF OREGON

I have just published a guide to hornworts of our state, "Hornworts of Oregon." It is an HTML document designed to be used by reading with an internet browser on a computer. I will distribute it on CD and soon have it posted on the web. I have converted the text, with thumbnail illustrations, to a MS Word document that can be downloaded and printed out at the user's desired quality. For anybody who would rather have a pdf file, I have saved the document in this format, also, but it is a somewhat larger file.

Link for HornwortsOfOregon Word document:

http://dl.dropbox.com/u/46975054/HornwortsOfOregon.doc

Link for HornwortsOfOregon PDF document:

http://dl.dropbox.com/u/46975054/HornwortsOfOregon.pdf

These are free downloads from Dropbox, a useful site for sharing files. Many will find printing out one of these downloads will be all that's needed to work with hornworts.

I have prepared an archival version on cotton content paper, with the CD in a back pocket, for libraries and people wanting the "official" publication with hardcopy. It costs US $25, postpaid anywhere in the world. I ask $10 for the CD that has both the primary HTML version as well as the .pdf file, also postpaid worldwide. Send check or money order (payable to Northwest Botanical Institute) to:

Northwest Botanical Institute
P.O. Box 30064
Eugene, OR 97403-1064

I can accept PayPal payment; submit the proper amount to davidwagner@mac.com.

I hope that having a decent guide with key to the hornworts of Oregon will encourage more attention to these plants. Three of the six species native to Oregon have so few records that they qualify for listing as rare in the state. Maybe with further attention they will be found to be more widespread even if not common.

Note from editor: readers are encouraged to visit Dave's website:
http://web.mac.com/davidwagner/Site/FernZenMosses.html

It has many items of bryological interest, including a beautiful collection of rare liverwort photographs taken under contract through the Salem BLM. Some examples:

Top: *Scapania obscura* – shoot
Bottom: *Peltolepis quadarata* – capsule wall

From Linda Geiser:

On-going activities of **Linda Geiser**, **Doug Glavich** and the US Forest Service air program. This year and last year we have been adding more permanent air quality biomonitoring plots to our OR and WA monitoring network. Our goal is to have at least 1 survey-site per 20,000 acres in each of the 65 Wilderness Areas in the two states, in addition to our original national forest sites in western OR and WA. We are hiring a four person crew this summer and hope to meet our goal by the end of September.

Sarah Jovan and **Marilyn Erway** have been working with us to update and merge the National Forest system lichen biomonitoring data and the Forest Inventory & Analysis program lichen indicator surveys to achieve a comprehensive national-scale database of FS sponsored surveys. Our current joined database is posted on http://gis.nacse.org/lichenair.

We continue to use lichen data to analyze and assess trends in air quality and climate, to develop response thresholds, and to calculate critical loads of nitrogen. A multi-authored USFS report led by **Linda Pardo**, http://www.treesearch.fs.fed.us/pubs/38109 and an accompanying summary article in Ecological Applications http://www.esajournals.org/doi/full/10.1890/10-2341.1 were published in 2011 which include estimates for lichen based critical loads in the major ecoregions of the US.

Our project of the moment is wrapping up a study of cruise ship emissions, deposition, and lichen responses in Southeast Alaska with **Karen Dillman**, **Mark Fenn**, **Dave Schirokauer**, **Andrzej Bytnerowicz**, and **Heather Root**. Nice correlations among the different types of measurements (gas & vapor, deposition, lichen N & S, and lichen community responses) were observed though pollution was not high enough to warrant concerns for human health or vegetation from N- and S- containing pollutants.

Another interesting project nearing completion is **Jill Grenon**'s study of gas-drilling emissions near Bridger Wilderness in NW Wyoming. Jill is also working on climate and air pollution gradient models for the northern Rockies FIA lichen indicator dataset under the tutelage of **Dave Robertson** at Montana State University in Bozeman, Mt with help from **Sarah Jovan** and Linda. Her work is funded by the USFS and Jill will shortly join the permanent staff of the Forest Service Air Program in Montana.

On a fun note, **Jim Riley** and Linda have been developing a NWL calendar for 2013 featuring Jim's spectacular photos of 13 regional lichens.

From Toby Spiribille (toby.spribille@mso.umt.edu)

Lichenology at the University of Montana

I am back in the Northwest and have joined the lab for Microbial Genomics and Symbiosis (John McCutcheon) at the University of Montana in Missoula. In keeping with the theme of my work while in Germany and Austria, I will meld lichen floristics, chemistry, genetics, taxonomy and ecology into what will hopefully be a productive research program over the next few years, while spending weekends exploring with fresh eyes my old stomping grounds in western Montana and northern Idaho.

One of the main themes of my current research is the exploration of lichen diversity along the glacial chronosequence of Glacier Bay, Alaska. Together with one of my project collaborators, Alan Fryday from Michigan State University, I conducted a short reconnaissance trip along the length of the bay last September and collected about a thousand specimens. We have already outlined a candidate list of 18 new species for science! This summer promises to bring more new finds as we will welcome back lichenicolous fungus expert Sergio Pérez-Ortega from Madrid, Spain, who collaborated on the Klondike project, and a new collaborator, Måns Svensson from Uppsala, Sweden, who will work with us for the first time focusing on epiphytic crusts. You can read some about my current work and download some recent results here [http://www.geobotanik.org/spribille/index_english.html]. I have also added a "resources" tab for quick links to some of my favorite lichenological sites.

Come by Missoula for a visit! We now have a TLC lab set-up and no fewer than five breweries… (the latter not associated directly with our lab, however)

Recent post-glacial landscape in Muir Inlet, Glacier Bay. This area was under ice until 1976! For scale, note our research boat bottom right.

From Adrienne Simmons:

My name is Adrienne Simmons and I am currently living on the Spanish island of Mallorca in the middle of the Mediterranean Sea. I am working here teaching English in a primary school. When I return to the States, I have one semester left at Humboldt State University to finish up a B.S. in botany with a Spanish minor. I plan to graduate this fall semester, 2012.

While I am here on Mallorca I am working on my senior project, Macrolichens of Mallorca. In addition to that paper, I am keeping a blog where I post about my botanical experiences, including many pictures of the lichens I have been documenting. My husband moonlights as a photographer so the pictures are quite nice.

I have always had a love for plants and the great outdoors and would love to find a way to put both my language and botany skills to use once I graduate!

Here is the link to my blog:
http://adriennelikestobotanize.blogspot.com/
(Keep in mind that I am an amateur botanist so there is a chance that not all of the scientific names are correct!)

From Barry Kaminsky:

Barry Kaminsky is a recent resident of the Pacific Northwest. A transplant from Florida, Barry is working with Roger Rosentreter in Boise, Idaho on Roger's lichen database and will be working in Boise for the next 6-8 months. His current project is organizing Roger's collection of Florida lichens and shipping them to Florida herbaria. He first discovered lichens volunteering at Everglades National Park. Following this introduction, he wrote a senior thesis on how lichen diversity changes with height in *Quercus* in a Florida state park. He hopes to study lichens and ecology for graduate school and is looking forward to meeting other members of Northwest Lichenologists in the near future.

Barry Kaminsky
305-807-6028
Barryk39@yahoo.com

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 ($8 for sweatshirts). 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

		Unisex sizes					
style		**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

one sizs fits most

cap (adjustable) $18
black
medium to light blue

A note regarding the NWL website: we recently added the ability to accept credit card payments via PayPal for our monograph series, as well as certifications. This should make it easier for non-U.S. residents to buy the monographs or other promotional items from NWL.

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

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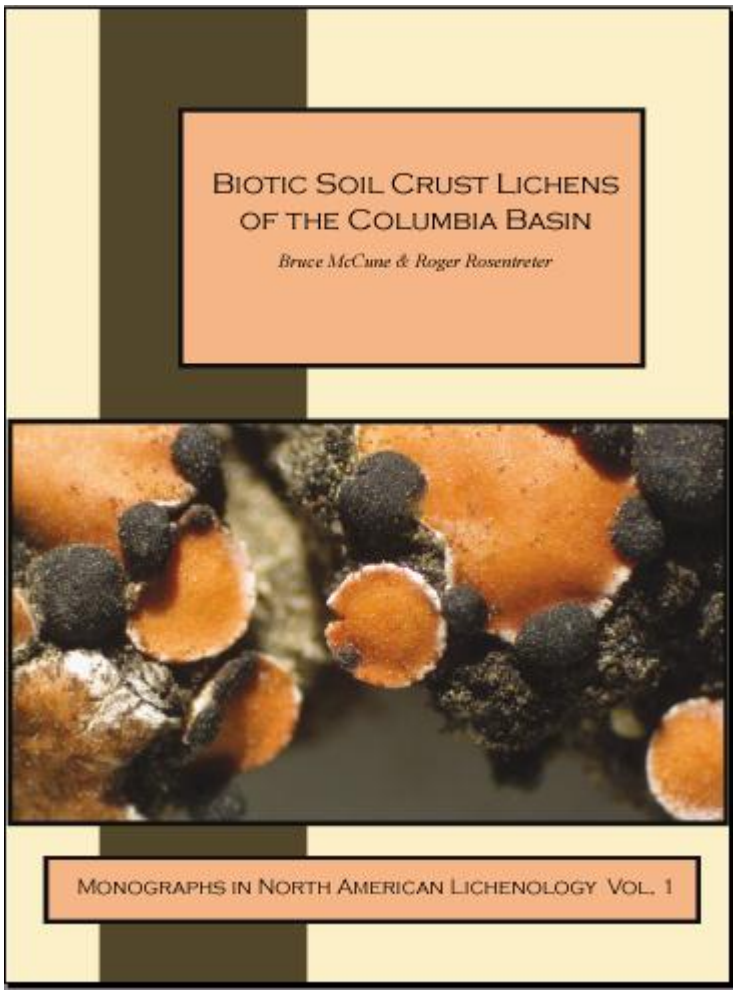
ORDER FORM (HTML)

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 ï 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: ñlichenize.ò 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

Report from Lebanon Lichen Specialist for Forests

By Dr. Roger Rosentreter and Steve Popovich

- **Title**: Lebanon Lichen Specialist for Forests

- **Brief Summary of Assignment:**

Horsh Ehden Nature Reserve (Horsh means forest) is the most diverse forest in Lebanon and the Near East Region. The forest is a mixture of coniferous and broadleaf and forms the southern limit of the geographic distribution of *Abies cilicica*. Tannourine Cedar Forest is the largest natural cedar forest (*Cedrus libani)* of Lebanon; in the last two decades the forest witnessed an outbreak of insects that threatened the survival of the cedar trees. The problem was contained by an immediate aerial spraying. Both reserves are declared by law and constitute the principal destinations of more than 30,000 tourists per year. During the last four to five years, symptoms of dieback were showing on the trees in Horsh Ehden and Tannourine with a massive growth of lichens. Different factors have been addressed, however, due to the lack of lichen specialists in the country, it was impossible to study the effect or the interaction of lichens with the trees and its correlation with the dieback. Identification of the lichens growing on the trees becomes a necessity and the definition of their interaction with the host trees is essential before developing recommendations.
The host organization, "Tannourine Cedar Forest Nature Reserve," requested a lichen specialist with extensive experience in forest ecosystems, to make a case study and determine the cause of the dieback.

2. Objective of the assignment:

The specific objectives are:

- Preliminary assessment of the lichens in the Reserves
- Identification of the lichens
- The role of lichens in the forest ecosystem
- The interaction and effect of lichens on the trees and their host preferences
- Hands on training with local stakeholders of the lichens in the reserves.

  - Preliminary assessment of the problem caused by lichens
  - Recommendations taking into consideration the ecological and environmental aspects
  - What possible precaution or control measures should be taken to prevent the dieback

Results from the Field Work:

Background:

The protected *Cedrus libani* reserves in Lebanon are each very different ecologically. All of the *Cedrus* stands have a similar canopy structure that creates "table top" layers of branches that are distinctive and can capture snow in the winter. These table tops capture snow and drip moisture slowly in the winter and spring promoting epiphytic lichen cover. In Horsh Ehden Nature Reserve, the cedars at mid-mountain occupy a mixed forest community with *Acer* and *Quercus* dominating. The Ehden Reserve also experiences more days and hours of fog (high humidity) then the other cedar reserves that we visited. This fog promotes lichen growth. The Tannourine Nature Reserve has less fog and generally has drier environmental conditions for lichens than the Ehden Reserve, as did the Cedar of the Gods Reserve.

Identification of the lichens found in the cedars forest

Lichens present at the Ehden and Tannourine Cedar Reserves, their substrates and indicator value are listed in **Table 1**. (Purvis et al. 1992; Volker et al. 2004; Wirth 1995) The most abundant lichen is *Tornabea scutellifera*, Raggedy fog lichen, common in semi-arid climates that have frequent periods of high air humidity (Nimis and Tretiach 1997), (Fig. 27-29 from the Nimis and Tretiach 1997 article). This lichen grows well in areas with humidity but does not derive any nutrients from its substrate. This lichen can grow on tree branches or on rock. If the tree branches are dead and stable it is an ideal habitat for this lichen, or if the branches are growing very slowly due to some sort of stress, then they are also ideal habitat for this species. The Ehden Cedar Reserve receives more fog than the Tannourine Cedar Reserve and this appears to be one of the reasons why this common lichen, Raggedy fog lichen, is so common at the Ehden Cedar Reserve.

Assessment of the problem caused by lichens:

Do they harm the trees? There is no evidence that lichens and bryophytes as epiphytes substantially harm their supporting trees and shrubs. These epiphytes derive no nutrients or water directly from the host plant.

Some of the individual cedar trees in the Ehden Reserve are not growing well. Their impaired health and slow growth is limited to specific sites and to young cedars growing in the shade of large deciduous trees. The abundant lichen cover on trees in the Reserve is an indication of unhealthy trees and are viewed as a symptom and not the causal agent of the tree's problem. We believe that the presence of lichens themselves is not harming or killing the cedar trees. Rather, lichens are a symptom or indicator of other underlying stressors upon the cedars. Lichen cover is a good indicator of forest interactions and ecological processes (Rogers et al. 2011).

Ecological factors promoting this lichen's growth:

1. Climate change,-warming winters favor deciduous trees;
2. Fog;
3. Tree competition, -deciduous trees are more competitive than conifers in some sites;
4. Insect stress and defoliation of the cedar needles;
5. Shading by deciduous trees hinders cedars and favor lichens;
6. Air pollutant, limestone dust;
7. Cedar canopy structure "table top" layers.

Details of how each of the above ecological factors affects lichen growth, ecology and the entire forest is discussed below:

1. The climate change (warming winters) favors deciduous trees over conifers and creates good growing conditions for lichens in the winter as the snow melts periodically and there is more light coming thru the adjacent deciduous trees in the winter.
2. The fog encourages the growth of specific lichen species such as, *Tornabea scutellifera*, the Raggedy Fog Lichen, and can cause some heavy lichen cover in certain ecological sites.
3. Deciduous trees are more competitive than the cedar trees in a warmer climate and in areas of deeper soils; at mid- to lower elevations the deciduous trees are putting on more new growth than the cedar trees.
4. The cedar web-spinning sawfly and other insects that defoliate cedar needles stress these trees, they then grow slower, making them more stable, substrates for lichens. Slow growing trees, such as suppressed understory trees, are often the trees with the most abundant lichen cover in forests worldwide.
5. Deciduous trees, namely, *Acer syriacum*, *A. tauricolum*, *Quercus calliprinos*, *Q. infectoria*, and *Sorbus* spp., shade the cedar trees.
6. Dust from limestone quarries and other sources are fertilizing and encouraging the growth of some lichen species in the forests.
7. The 'table top' layering of the cedar tree limbs creates ideal conditions for the retention of moisture, especially snow, in the tree canopy, which latter melts and irrigates the lichens in the tree limbs below.

Recommendations:

1. Inventory the lichen flora on trees in all the Cedar Reserves in Lebanon. This effort should include the collection of voucher specimens, making formal scientific collections, photos of each species, and creation of a checklist by Reserve.
2. Establish lichen photo monitoring plots within each Cedar Reserve. This project could be a good baseline study for a Lebanese graduate student.
3. Establish lichen biomass plots within each Cedar Reserve. This would be a good study for a Lebanese graduate student.
4. Implement a public awareness campaign that lichens are not killing cedars and are one natural component of forest diversity that can be used to indicate individual tree health and vigor.
5. Evaluate or derive a forest management plan for each Cedar Reserve by a forest ecologist (silviculturalist) that will define and manage for the desired future condition of the cedar forests.
6. Measure the frequency of humidity in each cedar reserve. By installing weather stations in each Reserve to evaluate the role fog and other weather factors have in the ecosystem.
7. Train a Lebanese graduate student to identify lichens and understand their ecology.
8. Measure cedar recruitment in each Reserve as a measure of the Cedar Reserve's health.

Below is a list of management actions that may be considered, but need local discussions, before being recommended to prevent cedar dieback.

1. Control selected deciduous trees by thinning the stand of trees to favor cedar trees.
2. Skylight cutting around some cedar trees.
3. Prune the lower tree limbs of selected cedars to open and dry the canopy.
4. If and when selective tree thinning occurs measure the reaction that lichens have to this management action.

List # 1. A Preliminary listing of the Genus, Species, authorities, substrates, and indicator values of the lichens found in Cedar Reserves in Lebanon.

Genus	Species	Authority	Substrate	Indicator
Amandinea	punctata	(Hoffm.) Coppins & Scheid.	bark	stable substrate
Anaptychia	ciliaris	(L.) Körb. ex A. Massal.	bark	fog/dust
Aspicilia	desertorum	(Kremp.) Mereschk.	rock	
Caloplaca	haematites	(Chaub. ex St.-Amans) Zwackh	bark	
Candelariella	xanthostigma	(Ach.) Lettau	bark	dust
Collema	furfuraceum	(Arnold) Du Rietz	moss	N-fixer
Collema	polycarpon	Hoffm.	limestone	N-fixer
Collema	tenax	(Sw.) Ach.	soil	N-fixer
Collema	latzelii	Zahlbr.	soil	N-fixer
Evernia	prunastri	(L.) Ach.	bark	
Lecanora		white apothecia	bark	
Lecanora		yellow apothecia	bark	
Lecanora		green apothecia	bark	
Lecanora		grey apothecia	bark	
Lepraria	nivalis	J. R. Laundon	bark	
Leptogium	lichenoides	(L.) Zahlbr.	soil	N-fixer
Megaspora	verrucosa	(Ach.) Hafellner & V. Wirth	bark	
Melanelia			bark	
Melanelia			limestone	
Ochrolechia	pallescens	(L.) A. Massal.	bark	
Peltigera	rufescens	(Weiss) Humb.	soil	N-fixer
Physcia	adscendens	(Fr.) H. Oliver	bark	dust
Physcia	magnussonii	Frey	bark	
Physcia	tenella	(Scop.) DC.	bark	dust
Physcia			bark	
Physconia	distorta	(With.) J.R. Laundon	bark	
Placidium	squamulosum	(Ach.) Breuss	soil	
Placidium		(Neck.) Elix & Lumbsch	soil	
Pleurosticta	acetabulum	syn=Parmelia	bark	
Pseudevernia	furfuracea	(L.) Zopf.	bark	
Ramalina	fastigiata	(Pers.) Ach.	bark	
Squamarina	lentigera	(Weber) Poelt	soil	HCL+
Toninia	sedifolia	(Scop.) Timdal	soil	HCL+
Tornabea	scutellifera	(With.) J.R. Laundon	bark	fog/dust
Xanthomendoza	fallax	Søchting, Kärnefelt & S. Kondr.	bark	dust
Xanthoria	candelaria	(L.) Th. Fr.	bark	dust
Xanthoria	parietina	(L.) Th. Fr. S	bark	oceanic

Literature Cited:

John, V., M.R.D. Seaward, H.J.M. Sipman, and L. Zedda. 2004. "Lichens and lichenicolous fungi of Syria, including a first checklist." *Herzogia* 17: 157-177.

Nimis, P. L. and M. Tretiach. 1997. "A revision of Tornabea, a genus of fruticose lichens new to North America." *The Bryologist* 100 (2): 217-225.

Purvis, O.W., B.J. Coppins, D.L Hawksworth, P.W. James, and D.M. Moore. *The Lichen Flora of Great Britain and Ireland*. London: Natural History Museum Publications in association with The British Lichen Society, 1992.

Rogers, P.C., D.L. Barots, and R.J. Ryel. 2011. "Historical patterns in lichen communities of montane quaking aspen forests." *Advances in Environmental Research* 15: 33-64.

Wirth, V. *Die Flechten Baden-Württembergs*. Auflage 2. Stuttgart: Eugen Ulmer GmbH & Co., 1995.

Lichen Haiku
By Linda Geiser

Yellow wolf lichen:

Beacon in the wilderness,

Second life for trees

Monument Rock Wilderness

Hypogymnia **Siskiyou Wilderness**

Finds a heavenly hideout

In highland habitat