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Boston Lichen Group Species Checklists Now Online

By Scott LaGreca, Collections Manager, Lichens, Duke University Herbarium
Research Associate, Farlow Herbarium, scott.lagreca@duke.edu

From the early 1990s through the early 2000s, the “Boston Lichen Group” busily inventoried the lichen species at a number of places across Massachusetts. On any given day during those years, anyone working at the Farlow couldn’t help but encounter at least one of the Lichen Group members, identifying specimens in the herbarium, or perhaps performing thin-layer chromatography in the basement lab. I vividly recall a bryologist visitor who—referring to how lichenologists vastly outnumbered bryologists at the Farlow at the time—quipped, “It’s like a Lichen Mafia!”

Though its membership was loose and changed frequently over the years, the core members of the Boston Lichen Group were Elizabeth Kneiper, Elisabeth Lay and Phil May. Other long-time members included Linda Berard, Doug Greene, Marty Maxfield, and Hal Schaefer. Even a few bryologists joined in the fun—namely Ray Abair, Mary Lincoln and Benito Tan. Sadly, some of these members have passed away. But happily, some remain active to this day—such as Elizabeth and Hal, who volunteer with the New England Botanical Society Herbarium. Both Elizabeth and Elisabeth tell me that the work of the Boston Lichen Group wouldn’t have been possible without the generosity and encouragement of Farlow Herbarium Curator Don Pfister, and the support of lichenologists who took time to share their knowledge—among them Ernie Brodo, Sam Hammer, Dick Harris and Steve Selva. They’ve also reminded me that the Boston Lichen Group (together with Jim and Pat Hinds) were responsible for encouraging Richard Harris and Bill Buck to start the Tuckerman Lichen Workshops.



On a boat to survey one of the Boston Harbor Islands National Recreation Area's 34 islands, August 2001. From left: Doug Greene, Ray Abair, Elizabeth Kneiper, Elisabeth Lay, the author. Photo by the author.

The Lichen Group hosted the second Tuckerman Workshop in the Berkshires in western Massachusetts in May, 1995 (Buck 2016). All of these relationships were critical because much of the Lichen Group’s work took place before Eagle Hill (Humboldt) Biological Station classes, Brodo et al.’s groundbreaking *Lichens of North America* book (Brodo et al. 2001), and online search engines.

I count myself as a member of the Boston Lichen Group, if only for a short time. When I first began work as a curatorial/research associate at the Farlow in 1998, I was under the delusion that I was going to be a “Big-Time Molecular Systematist.” So, I initially declined the Lichen Group’s invitations to participate in their projects—missing, most notably and most regretfully, the first-ever BioBlitz, organized by E.O. Wilson in 1998. By 2001, I had wised up to the value of field work, and took the lead on a two-year project surveying the lichens and bryophytes of the Boston Harbor Islands National Recreation Area (LaGreca et al. 2005). I remember those years fondly: they were both

extremely fun as well as extremely productive.

Except for the Boston Harbor Islands work, all the other species checklists compiled by the Group were unpublished reports sent to property supervisors (I've wondered what these supervisors did with them: did they heed the included conservation/species management advice? Or, were they just unceremoniously filed away?)

As manager of the Massachusetts lichen species checklists on the Consortium of North American Lichen Herbaria website (CNALH 2022), I've been keen to put these unpublished checklists on CNALH for some time. I'd assumed, however, they were lost in the sands of time. Then, one day last year, while keying out a specimen using *The Macrolichens of New England* (Hinds and Hinds 2007), I saw all the old Boston Lichen Group species checklists cited in the Literature Cited section. It then dawned on me that Jim Hinds must have copies of them. I emailed Jim, and he generously photocopied and mailed them to me.



Elizabeth Kneiper and Elisabeth Lay collecting on the beach on Rainsford Island, August, 2001. Photo by the author.

After six months of on-and-off data entry work, I can now proudly announce that the Boston Lichen Group's work of many years—in places spanning the Commonwealth, from the Berkshires to Cape Cod—is finally available online.

Here are their checklists, in alphabetical order:

- Boston Harbor Islands National Recreation Area
- Cape Cod Canal
- Devens Reserve Forces Training Area
- Katama Plains, Martha's Vineyard
- Minute Man National Historic Park and Walden Woods (1998, 2009, 2019 BioBlitzes)
- Mount Everett
- Mount Wachusett
- Westover Air Reserve Base (former radio tower site), Granby
- Westover Air Reserve Base, Chicopee

To access the checklists, go to: <https://lichen-portal.org/cnalh/projects/index.php?pid=511>

This URL points you to all the Massachusetts lichen checklists currently online, including my Berkshire County checklist, which includes all species recorded during the second Tuckerman Workshop. These checklists are more than just lists of names: whenever possible, each species has at least one voucher specimen linked to it. Unfortunately, I couldn't locate vouchers for some species on CNALH; perhaps they will turn up over time as more of the Farlow collections are databased. In addition, I added the report abstract, as well as all notes regarding frequency/abundance and substrate.

This endeavor was a real trip down memory lane, as I recalled so many happy memories with good friends. I hope these checklists will be of use to future catalogers of biodiversity in Massachusetts, New England, and beyond.

Literature Cited

Brodo, I.M., S. Duran Sharnoff and S. Sharnoff. 2001. *Lichens of North America*. New Haven: Yale University Press. 795 pp

Buck, W.R. 2016. The Tuckerman Lichen Workshop and the Crum Bryophyte Workshop: a brief history. *Evansia* 33(1): 46-49.

Literature Cited Continued

Consortium of North American Lichen Herbaria (CNALH). 2022. Species Checklists: Massachusetts. <https://lichenportal.org/cnalh/projects/index.php?pid=511>. Last accessed August, 2022.

Hinds, J.W. and P.L. Hinds. 2007. The Macrolichens of New England. Memoirs of the New York Botanical Garden, Volume 96. Bronx, NY: New York Botanical Garden Press. 584 pp.

LaGreca, S., Lay, E., Kneiper, E., Greene, D. and M. Lincoln. 2005. The lichens and bryophytes of the Boston Harbor Islands. *North-eastern Naturalist* 12 (Special Issue 3): 77-98.

Annual Lecture November 5, 2022
See page 9 for details

Farlow News

We are very excited to have visitors back in the collections!

Jason Karakehian, University of Illinois, Urbana-Champaign (Propoloid fungi).
 March 28- April 8, 2022

Patrick Kociolek, University of Colorado - Boulder (Algae collections, *A. M. Scott, Actinella guianensis*). May 19-20, 2022

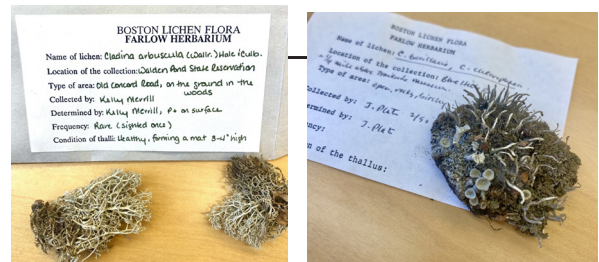
Mahajabeen Padamsee, New Zealand Fungarium (Fungi). July 6-7, 2022

Mereia Tabua, South Pacific Regional Herbarium (Bryophytes). September 5-23, 2022



Image courtesy of Genevieve Tocci

In June, **Genevieve Tocci**, Senior Curatorial Technician, attended the annual meeting of the Society for the Preservation of Natural History Collections (SPNHC) in Edinburgh, UK. She presented the talk “Herbarium Life: Shipping Cryptogamic Specimens” as part of the symposium “Back to Basics: Museum Techniques Skillshare.” Genevieve co-hosted this symposium session in her role as the co-chair of the SPNCH Best Practices committee. The slides from this session are available on the SPNC Wiki https://spnhc.biowikifarm.net/wiki/Museum_Techniques_Skillshare



Images courtesy of Mae Rusconi

High school student **Mae Rusconi** helped with curatorial work at the Farlow this summer. Mae sorted through and repackaged a series of lichen specimens collected by students in the 1970s through 1990s. There are 15 boxes with up to 100 specimens each, all from the Greater Boston Area, including an especially large array of *Cladonia* lichens. Once the original envelopes have been replaced with archival packets and organized with the lichen labels and annotations, this collection will be put into the Fungarium. Mae is a rising senior at the Middlesex School in Concord, MA.

Michael Bradshaw and **Luis Quijada** attended and presented papers and posters at the annual Mycological Society of America meeting held at the University of Florida in Gainesville in July. **Don Pfister** also attended and all participated in the half day foray that was organized for the group. At the meeting Don worked with **Meredith Blackwell** on video interviews of members of the Society. These will soon be available online. The meeting was organized by former Farlow Fellow **Matthew E. Smith**. Don appreciated seeing **Rosanne Healy**, a former Farlow post-doc now research scientist at the University of Florida, along with Matt and his students for discussions on the Pezizomycetes.

2022 Alpine and Subalpine Zone Ascomycota Workshop

By James Mitchell

I recently attended [Ascomycete.org](https://www.ascomycete.org/)'s 2022 Alpine and Subalpine Zone Ascomycota Workshop. The locations in the past have been in France (and once in Switzerland), but this year's was held at the Hotel Torinetto in Sampeyre, Italy from September 4-10. The attendees were mostly from Italy and France, but some were from the Netherlands, Germany, and Switzerland. Each full day of the conference included driving to nearby beautiful collecting sites each morning, where the group forayed for several hours, returning to the hotel for lunch, and spending the afternoon in the microscope room identifying collections with expert help. After dinner a talk was usually given by one of the attending experts. The atmosphere was unique for me. All attendees were primarily interested in discomycetes (inoperculate and operculate), and most had access to (mostly) unpublished, but freely shared, identification keys. The relatively free sharing of information, fairly well characterized alpine fungi, and the ready availability of expert help

offered a unique opportunity for one seeking to start or progress in examining and identifying discomycetes, particularly using "vital taxonomy" (examining living material and noting characters that disappear when the fungus dies).



Image courtesy of James Mitchell

Dues are 15€ for [Ascomycete.org](https://www.ascomycete.org/). The annual membership and allow immediate access to the organization's excellent journal and digital library. For this excursion registration, hotel room, and three hot meals a day cost just 400€. As a note to any one attending in the future, bringing your own dissecting microscope and compound microscope. Some attendees may be willing to share theirs, but you will have much more opportunity to practice if you bring your own. Familiarity with spoken French is also a bonus as that seems to be the lingua franca of the group; several attendees spoke English so the lack of French did not significantly impact the experience. Overall, I highly recommend attending. Becoming a member of the organization offers many advantages.

Oral History with Don Pfister

By Danielle Castronovo, Archivist, Harvard University Herbaria and Libraries

This spring, the Botany Libraries conducted an oral history with Donald H. Pfister, the Asa Gray Research Professor of Systematic Botany and Curator of the Farlow Library and Herbarium, Emeritus. Oral histories give us an opportunity to document institutional history and the trajectory of the subject's career, while getting personal insights into the interviewee that can be missed in published literature or even someone's archive. The Botany Libraries and Herbaria previously recorded oral histories with Peter Ashton, Richard Schultes, and Richard Howard, and we are excited to add Don's to our collections.

For this project, we were fortunate to hire oral historian Joan Ilacqua to work with us. Oral histories are their own discipline, and Joan is an experienced professional who brought years of experience to help make the project a success.



Don and Joan Ilacqua preparing to record an oral history session in the Hauser Studio

While we had done some initial research into Don's career, Joan jump-started the process by formulating interview questions and conducting pre-interview sessions with Don and the Director of Collections, Michaela Schull, to make sure the important topics were covered.

Joan then interviewed Don in seven sessions at Harvard's Rita E. and Gustave M. Hauser Studio in Widener Library. The sessions are just under seven and a half hours total. We were again fortunate to be able to record the sessions in a professional recording studio with expert help.

The interviews covered a wide range of topics including Don's early life and the beginnings of his career; his research; his varied roles at Harvard as professor, herbaria director, and other administrative roles; a discussion of the Farlow Herbaria collections; and his recollections of the institutional history and staff from the Farlow Herbarium and Harvard University Herbaria. We are very excited to make use of Don's superb memory and love of history to capture the feel and history of the institution and the people who worked here. Don's remarkable facility for dates and his tremendous store of anecdotes make this oral history a treasure.

The oral histories have been transcribed and captioned for accessibility. We still need to do some cataloging work and deposit the preservation and access video files in Harvard's Digital Repository System, but we look forward to making these oral histories available to the public later this year. This project has had a lot of contributors, and I want to thank everyone who helped make this project possible, especially Don who took time out of his busy schedule to share his experience for future scholars.

2022 Clara Cummings Walk at Turkey Hill

By Elizabeth Kneiper, Curator of Cryptogams, New England Botanical Society

The temperature in Cohasset, MA, on May 14, 2022, reached 84° F, foreshadowing this year's hot and dry field season. The ten participants on the walk met at the Turkey Hill trail head leading up to the summit of Turkey Hill, elevation 187 ft, aiming to see views of the Boston Skyline, the South Shore and what remains of the NIKE anti-missile radar control station that was on the property during the Cold War. The Turkey Hill property is 63 acres nestled between the Whitney & Thayer Woods and the Weir River Farm. Co-owned by the towns of Cohasset and Hingham, Turkey Hill's conservation is managed by the Trustees of the Reservations, which was thrilled that the Friends of the Farlow offered to generate lists of fungi and lichens (no bryologist could attend) from field observations and limited collecting.

Don Pfister headed up the remarkable fungal team of Michael Bradshaw, Luis Quijada, James Mitchell, Emily Quig and Lawrence Millman, the group's scribe documenting the 37 fungal species observed. The fungal group followed the trail through the mixed hardwoods and along the edges of the Great Swamp in the Whitney and Thayer Woods, to the American Holly Grove and up to Turkey Hill to generate their checklist. The timing of the walk was early for fleshy fungi which may account for the low number of species documented.

The lichen group included Michaela Schnull, Hal Schaefer, Judy Jacob, and Elizabeth Kneiper. The lichens on the bark of oaks, maples, hickory, white pine, cherry, lignicolous stumps, boulders and the remains of the cemen NIKE radar station were studied. The highest rock lichen diversity and cover was found on the boulders outlining the parking lot at the summit of Turkey Hill and a short section of an

old rock wall. *Usnea* is the only fruticose bark lichen genus noted. In all, 56 lichen species in 32 genera were seen and documented. Shorter than expected, the lichen list reflects the fact that there is thick leaf litter in the wooded areas which prevents soil lichen growth. The former NIKE anti-missile site is now a thick meadow from which hay is harvested. Thick grass prevents the growth of the soil lichens such as *Cladonia* of which only three species were documented.



Image courtesy of Judy Jacob

The heat notwithstanding, the walk was a success. It feels great to offer the Farlow cryptogamic expertise to organizations such as the Trustees of the Reservations, in exchange to being granted permission to document the cryptogams on their sites. Contact Elizabeth Kneiper (ekneiper@aol.com) with suggestions for sites for the 2023 Clara Cummings Walk and to help with developing the Friends of the Farlow species lists. The fungi and lichen species lists are available on the Friends of the Farlow website: https://fof.huh.harvard.edu/news/2022_CC_species_lists

Farlow Roof Project

For a number of years the Farlow building has been having serious water infiltration through the roof and brick walls. This summer an extensive repair project was underway to find the cause and fix the leaks. This was a major undertaking involving rebuilding walls and chimneys, replacing flashings, and repointing. Next the extensive interior damage caused by the leaks will be addressed. This is good news for our historic building. Construction, which took place during the summer of 2022, included: repairing and repointing masonry throughout, chimney repair, replacing flashing, resetting coping stones, sealing joints, replacing and resetting slate, repair and/or replacing gutters, downspout connections, and downspouts.



Examples of sections in need of repair
Images courtesy of Foster Architecture



The large crane used during the construction
Image Courtesy of Genevive Tocci



Construction in process
Image Courtesy of Genevive Tocci



Construction completed
Image Courtesy of Genevive Tocci

Annual Lecture Saturday November 5, 2022

"Adventures with Psilocybin-Producing Mushrooms: New Insights on Their Evolution and Diversity."

Bryn Dentinger, University of Utah

We are offering a hybrid annual lecture on November 5, 2022, at 4:00pm at the Harvard Herbaria in Room 125. Our speaker will be Bryn Dentinger. Please register at https://fof.huh.harvard.edu/2022_lecture to attend remotely. We invite you to join us in person as well. We will offer tours of the Farlow collections at 3:00 pm, as well as after the lecture. Watch for further notices on the FoF website.



Image courtesy of the Dentinger Lab

Bryn Dentinger is an associate professor in the School of Biological Sciences at the University of Utah, and curator of mycology at the Natural History Museum of Utah. He received his PhD in plant biology at the University of Minnesota in 2007. After two postdocs, one at the Royal Ontario Museum in Toronto, Canada, and one at the University of Oregon, he was a senior researcher from 2010-2016, and later head of mycology at the Royal Botanic Gardens, Kew in London, UK. Dentinger's research combines fieldwork and genomic tools to understand the global diversity, distribution, and evolutionary history of fungi.

Selected Farlow Publications

Bradshaw, M.J., et al., 2022. More Than Just Plants: Botanical Gardens Are an Untapped Source of Fungal Diversity. *HortScience*, 57 (10) , pp. 1289-1293.

Bradshaw, M.J., et al., 2022. Secondary DNA Barcodes (CAM, GAPDH, GS, and Rpb2) to Characterize Species Complexes and Strengthen the Powdery Mildew Phylogeny. *Frontiers in Ecology and Evolution*.

Mitchell, J.K., et al., 2022. Species of the common discomycete genus *Bisporella* reassigned to at least four genera. *Mycologia*.

Pfister, D.H., et al., 2022. A reexamination and realignment of *Peziza* sensu lato (Pezizomycetes) species in southern South America/Un reexamen y revisión de las especies de *Peziza* sensu lato (Pezizomycetes) en el cono sur de Sudamérica. *Darwiniana*, 10 (1) , pp. 148-177.

Nokes, L.F., Haelewaters, D. & D.H. Pfister. 2022. Exploration of Marine Lichenized Fungi as Bioindicators of Coastal Ocean Pollution in the Boston Harbor Islands National Recreation Area. *Rhodora*, 122 (992) , pp. 251-273.

Bradshaw, M., Braun, U. & D.H. Pfister. 2022. Powdery mildews on *Quercus*: A worldwide distribution and rediscovered holotype provide insights into the spread of these ecologically important pathogens. *Forest Pathology*.

Quijada, L., et al., 2022. Apothecial Ancestry, Evolution, and Re-Evolution in Thelebolales (Leotiomyces, Fungi). *Biology*, 11 (583) , pp. 1-28.

Braun, U., Bradshaw, M. & D.H. Pfister. 2022. (2863) Proposal to conserve the name *Golovinomyces* against *Euoidium* (Ascomycota: Erysiphaceae). *Taxon* , 71 (2), pp. 459. Publisher's Version

Braun, U., Bradshaw, M. & D.H. Pfister. 2022. (2864) Proposal to conserve the name *Microsphaera alphitoides* (*Erysiphe alphitoides*) (Ascomycota: Erysiphaceae) with a conserved type. *Taxon*.

Healy, R.A., et al., 2021. Endophytism and endolichenism in Pezizomycetes: the exception or the rule? *New Phytologist*.

Dear Friends,

Lichens seem to be a theme in this newsletter edition. Adding to this theme I will include a few additional notes. In the lead article Scott LaGreca has discussed the work of the Boston Lichen Group and our summer curatorial helper, Mae Rusconi, has mentioned the work she did with a Farlow lichen collection. This all has reminded me of several things. First, I draw your attention to the FoF newsletter of October 1982 (all the previous newsletters are available on the FoF webpage, <https://fof.huh.harvard.edu/newsletters>). In that issue Elizabeth Kneiper reviewed her work on the Boston lichens and that collaboratively done with the late Martha Sherwood, then a postdoctoral fellow at the Farlow. This was undertaken in part to document the decline in lichen diversity due to air pollution and urbanization in the greater Boston area. Elizabeth pointed out the importance of historical collections in documenting the changes that occur under altered environmental conditions. Through review of the literature, the collections housed in the Farlow lichen herbarium and field work, Kneiper and Sherwood reported that the historical flora consisted of 225 species but of these about 147 were missing in their survey work. The historical record went back to the 1830s when Edward Tuckerman began his study of lichens by collecting and identifying lichens from Cambridge. These collections are still with us. Elizabeth also contributed an article to the newsletter number 54, fall 2009 on cemetery lichens.

For several years I taught a course on lichens in the Harvard University Extension program. This focused on lichen identification. Collecting was encouraged and students used their collections from the greater Boston area (the region within I-95/128) to analyze possible correlations of specific lichens with the environment of the area collected. Each student was required to make a collection from within this region, identify their finds and then write a general summary regarding their findings in relation to air pollution factors. These are the collections that Mae Rusconi worked on this past summer. Her curatorial work prepared the specimens for accession and databasing. There are 1,227 specimens in this collection with an additional 91 extralimital specimens. In reviewing these collections it was heartening to see the involvement of several of the people mentioned by Scott in his introductory piece. Some were students in the course; several also wrote master's theses based on their work with lichens.

Those interested in more about the Farlow lichen collection are referred to an article from the very early days of the FoF newsletter, volume 2 number 1, 1983. Here the Farlow lichen collection is reviewed in light of its growth and development. Since that writing many collections have been added of which the C. W. Dodge lichen herbarium was the largest.

I recommend browsing the past newsletters. One can even find Scott LaGreca's report on his work on the lichens and bryophytes of the Boston Harbor Islands (newsletter number 40, fall 2002).

Best wishes,
Don Pfister

Join us!

Receive the FoF Newsletter, notification of the annual book sale, discounts on Farlow publications and services, invitations to the annual meeting and other events, and a special welcome when visiting the Farlow. Dues notices will be issued in December.

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