Bulletin of the California Lichen Society

Volume 19 No. 1 Summer 2012

The California Lichen Society seeks to promote the appreciation, conservation, and study of lichens. The interests of the Society include the entire western part of the continent, although the focus is on California. Dues categories are (in $US per year): Student and fixed income (eBulletin only) - $10, Regular - $20 ($25 for foreign members, or $20 foreign student memberships), Family - $25, Sponsor and Libraries - $35, Donor - $50, Benefactor - $100, and Life Members - $500 (one time) payable to the California Lichen Society, PO Box 472, Fairfax, California 94978. Members receive the Bulletin and notices of meetings, field trips, lectures and workshops.

The Bulletin of the California Lichen Society (ISSN 1093-9148) is edited by John Villella (johnvillella@yahoo.com) and is produced by Erin P. Martin (shastalichens@gmail.com). The Bulletin welcomes manuscripts on technical topics in lichenology relating to western North America and on conservation of the lichens, as well as news of lichenologists and their activities. The best way to submit manuscripts is by e-mail attachments in the format of a major word processor (DOC or RTF preferred). Do include italics for scientific names. Please submit figures in electronic formats with a resolution of 300 pixels per inch (600 minimum for line drawings). Email submissions are limited to 10MB per email, but large files may be split across several emails or other arrangements can be made. Contact the Production Editor: Erin P. Martin, at shastalichens@gmail.com, for details of submitting illustrations or other large files. A review process is followed. Nomenclature follows Esslingers cumulative checklist online at http://www.ndsu.nodak.edu/instruct/essinge/chchlist/chcklist7.htm. The editors may substitute abbreviations of authors names, as appropriate from R.K. Brummitt and C.E. Powell, Authors of Plant Names, Royal Botanic Gardens, Kew, 1992. Style follows this issue. Electronic reprints in PDF format will be emailed to the lead author at no cost.

The deadline for submitting material for the Winter 2012 CALS Bulletin is 1 October 2012.

The California Lichen Society is online at: http://californialichens.org/ and has email discussions through http://tech.groups.yahoo.com/group/CaliforniaLichens/.

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Front Cover: *Lecanora dispersa* growing on serpentine rock. See article by Benson, Carlberg & Doell page 31. Photo by Tom Carlberg.

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VOLUME 19 NO. 1 Summer 2012

Leptogium insigne P. M. Jørg. & Tønsberg, New to California

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Leptogium insigne P. M. Jørg. & Tønsberg is a new species described as part of a reassessment of *L. brebissonii* Mont., which is now considered to be a subtropical species that does not occur in the Pacific Northwest (Jørgensen & Tønsberg 2010; Figure 1). *Leptogium insigne* was first reported (as *L. brebissonii*) for North America north of Mexico by Goward et al. (1994), growing on *Rhamnus purshiana* in British Columbia. It is a widely distributed lichen known from New South Wales, Australia; Algarve, Portugal; British Columbia, Canada; Isla de Tenerife in the Canary Islands; Spain; Brazil; France; Montenegro; in the United States it has been reported from Oregon, Washington and Alaska.

Leptogium insigne is a unique lichen in the Pacific Northwest, having a strongly ridged upper surface, the ridges bearing isidia that look like coarse soredia (Figure 2). The detached isidia leave behind patches of exposed medulla that resemble soralia; overall the lichen appears as though it is sorediate. The species is typically found in *Picea sitchensis* and *Tsuga heterophylla* forests within 18 km of the coast, and is most abundant in the coolest wettest northern parts of its range, i.e. central Oregon and further north

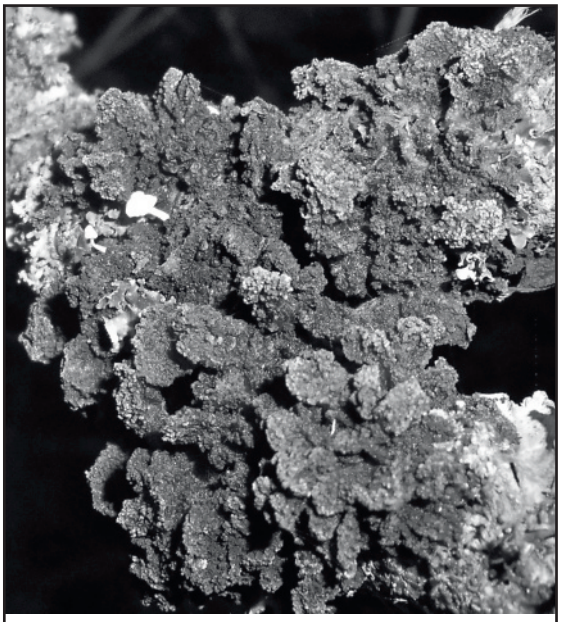

Figure 1. *Leptogium insigne* (partially wet) at Tolowa Dunes S.P. Photo by John Villella.

(Glavich et al. 2005, USFS National Lichens & Air Quality Database), areas with a high number of rainy days per year. It is found on twigs and bark of diverse coastal woody substrates, with or without the presence of moss: *Vaccinium ovatum, Picea sitchensis, Alnus rubra, Tsuga heterophylla, Acer circinatum, Pseudotsuga menziesii, Salix hookeriana, Arctostaphylos uva-ursi, Rhododendron macrophyllum, Lonicera involucrata, Frangula purshiana* (Glavich et al. 2005, Jørgensen & Tønsberg 2010, Consortium

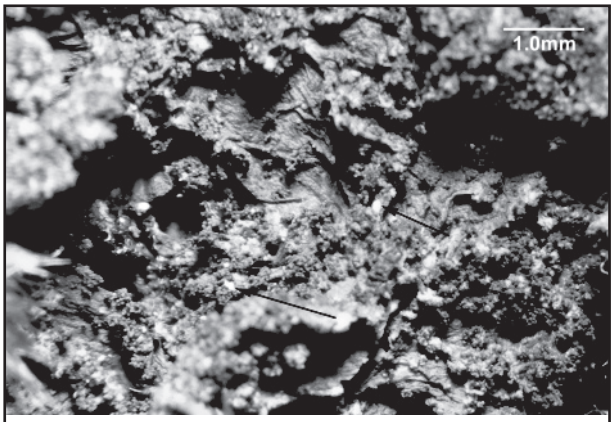

Figure 2. Detail of *L. insigne* thallus, showing granular isidia and patches of medulla where isidia have broken off (arrows). Photo by Tom Carlberg.

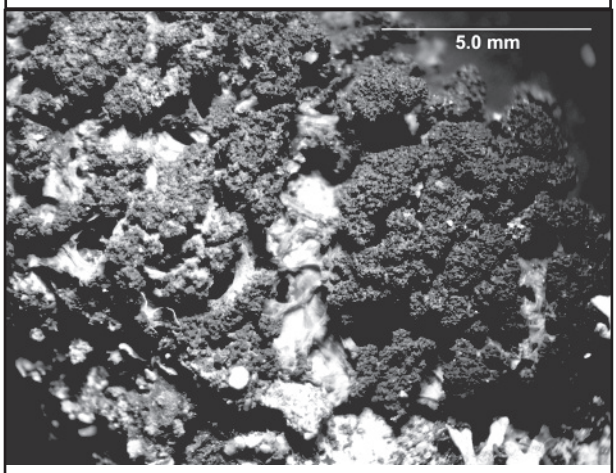

Figure 3. *Leptogium millegranum*, from Butte County, California (Fischer L0271, hb. Carlberg). Photo by Tom Carlberg.

of North American Lichen Herbaria (CNALH) 2012).

It was reported from California in Tucker 2009, presumably based on a 1989 Bruce Ryan collection from San Benito County (*Ryan #26655*; ASU), but this collection is apparently a misidentification, possibly of *L. millegranum* (Figure 3), a closely-related species known from hotter, drier habitats. More likely it is the jelly fungus *Exidia glandulosa*, since sections of the Ryan specimen show neither cyanobacteria nor a cellular cortex. The described location is an area of warm, dry, heavily-grazed low-elevation hills due north of the town of Hollister, California and is not suitable habitat for *L. insigne*. A query of CNALH returned no other California records for this species.

The current report of *Leptogium insigne* in California is based on the author's collection (*Carlberg s.n.*) made in the course of pursuing epiphyllous lichens in Del Norte County, at Tolowa Dunes State Park near Crescent City California, with John Villella and Greg Carey. It was growing on *Picea sitchensis* (Sitka spruce) and *Garrya elliptica* (wavyleaf silktassel) in a Sitka spruce/shore pine/evergreen huckleberry forest adjacent to a trail running between the parking area and the ocean. Associated lichen species were *Fuscopannaria leucostictoides, Ramalina pollinaria, R. roesleri, Heterodermia leucomela, Menegazzia subsimilis, Parmelia sulcata*, and *Parmotrema perlatum*. The occurrence on *Garrya elliptica* adds a new substrate to the possibilities for *L. insigne*. There is abundant potential habitat for this species on California's northwest coast in the forests of Sitka spruce and huckleberry that extend discontinuously as far south as the Mendocino/Fort Bragg area. However, maps of the rainfall patterns for the entire range of *L. insigne* show that the southwest Oregon and northwest California portions of that range are the driest; it seems that any occurrences of *L. insigne* here will be outliers from the more central parts of its range.

Although this is a new state record for California, it extends the range of *L.*

insigne only 37 miles from its previous southern extent at Cape Sebastian State Park in Oregon.

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Aerial photo of Lake Earl at Tolowa Dunes State Park. Photo curtosy of Tolowa Dunes Stewards www.tolowacoasttrails.org. Photo by F.L. Hiser Jr.

Notes on the California Lichen Flora # 4

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Lecanora utahensis is recognized as distinct from L. peltastictoides. Ochrolechia mahluensis is reported new for California and North America. Verrucaria melas is made a synonym of Wahlenbergiella striatula. A lectotype is selected for V. melas.

1. *Lecanora utahensis* H. Magn., Acta. Horti Gotob. 19(2): 39 (1952). TYPE: U.S.A. UTAH. Wayne Co.: Ekker's Ranch, 6000 feet, on exposed red sandstone, *Dr. Seville Flowers 359* (UPS, holotype, not seen; MIN, isotype!).

In 2006, I made *Lecanora utahensis* a synonym of *Lecanora peltastictoides* Hasse (Knudsen & Lendemer 2006). During our recent research at Joshua Tree National Park, Jana Kocourková and I collected several specimens of *L. peltastictoides* and we realized it was significantly different from *L. utahensis* and I had made a mistake. We will revise *L. peltastictoides* in a future paper on the Mojave lichen flora. But I now recognize *L. utahensis* as a distinct species. And I look forward to Lucyna Śliwa of Poland eventually publishing a paper on this interesting species.

Lecanora utahensis is a small but conspicuous species which grows on sandstone, limestone, soft granite, and possibly in biological soil crusts. The picture in Sonoran lichen flora (Ryan et al. 2004) accurately shows the apothecia. The margins are white and the disc is a dull red. At first in the field it looks a little like *Acarospora strigata* (Nyl.) Jatta. It has large ascospores, (10-)13-16 x (5-)6-8 um. It keys out easily in the Sonoran flora. It contains isousnic acid (Śliwa 2007) though one does not need thin-layer chromatography to determine it. It appears to be rare. Śliwa (2007) only mentions three collections (Arizona, Utah, South Dakota). In the Sonoran flora *Lecanora utahensis* is reported as growing in California based on two collections by Cherie Bratt (SBBG). One of her collections was from the Santa Ynez Mountains in Santa Barbara County. The other was from Jakoby Canyon in the San Bernardino Mountains, type locality of *Rhizocarpon dimelaenae* Timdal. I have collected *L. utahensis* on limestone in the San Bernardino Mountains with the bryologist and belly dancer Chris Wagner. We currently have no real idea of its distribution. You can say that about a lot of lichens.

Selected Specimen – U.S.A. CALIFORNIA. San Bernardino Co. San Bernardino Mountains. South Peak (White Mountain), 7587 feet, on limestone, *Knudsen 3448 & Wagner* (UCR).

2. *Ochrolechia mahluensis* Räsänen, Ann. Bot. Soc. Zool.-Bot. Fenn. "Vanamo" 21: 1 (1947). TYPE: Fennia: Tavastia

borealis, Saarijärvi, Mahlu, on *Pinus sylvestris*, 1944, *A. Koskiken s.n.* (Holotype, not seen).

Notes – Polish lichenologist Martin Kukwa recently revised the genus *Ochrolechia* in Europe (Kukwa 2009). In his excellent treatment, the sorediate *O. androgyne* (Hoffm.) Arnold is treated as 5 species, distinguished by chemistry and morphology. These differences are subtle and for the chemistry thin-layer chromatography is necessary. *Ochrolechia mahluensis* is an old name recently resurrected for *Ochrolechia androgyne sensu* chemotype A Tønsberg. *Ochrolechia mahluensis* contains only gyrophoric acid as a diagnostic substance, while the other 4 species contain different substances, including fatty acids like murolic acid combined with gyrophoric acid. It grows primarily on the bark and wood of conifers and in Europe is also common on the white bark of birches. For a description and picture of *O. mahluensis* see Kukwa 2011. *Ochrolechia androgyne* has been widely reported from California (Tucker & Ryan 2006) but lichenologists did not classify their specimens using Tønsberg's chemotypes so it is unclear what species occur in California based on a perusal of online databases.

James C. Lendemer and I have collected *Ochrolechia androgyne sensu* chemotype A Tønsberg in the Palomar and San Jacinto Mountains in southern California. Morphologically they fit the description in Kukwa (2009). Kukwa reports one specimen from California that "resembles" *O. mahluensis* from Tuolumne County collected by Tom Nash but did not report *O. mahluensis* for North America. I discussed this problem with Kukwa recently. He confided that he thinks *O. mahluensis* may contain more than one species, but it needs molecular analysis and so he was hesitant about applying the name outside Europe. But he agreed that is correct to apply *O. mahluensis* to our southern California specimens. *Ochrolechia mahluensis* is reported new for California and North America.

Kukwa (2009) does report *Ochrolechia androgyne* as well as two of the other related species from North America. In the Pacific Northwest as many as 4 similar sorediate species could occur. Lichenologists will have to figure out the distribution of the new species in North America with thin-layer chromatography. It is expected, based on the Nash specimen examined by Kukwa, that *O. mahluensis* is probably the common species at least from Sierra Nevada Mountains south. It is also possible the population on Palomar Mountain is at the southern limit of its range.

Selected Specimens examined – U.S.A. CALIFORNICA. RIVERSIDE CO. San Jacinto Mountains, north fork of San Jacinto River, on wood, *Lendemer 4218 & Knudsen* (UCR). SAN DIEGO CO.: Palomar Mountain, 5508 feet, on bark of *Quercus kelloggii*, *Knudsen 2738 & Glacy* (UCR).

3. *Wahlenbergiella striatula* (Wahlenb.) Gueidan & Thüs, Taxon 58(1):2009.

Basionym. *Verrucaria striatula*, Wahlenb. in Acharius, Methodus, Suppl.: 21. 1803. Taxon 58(1):200 (2009). TYPE: Norway, 'Finnmark: Finmarkiae Norvegicae, peninsula juxta Påsekop, in rupe littores maris,' 25 April 1802 and 20 May 1802. *G. Wahlenberg s.n.* (UPS *n.v.*),

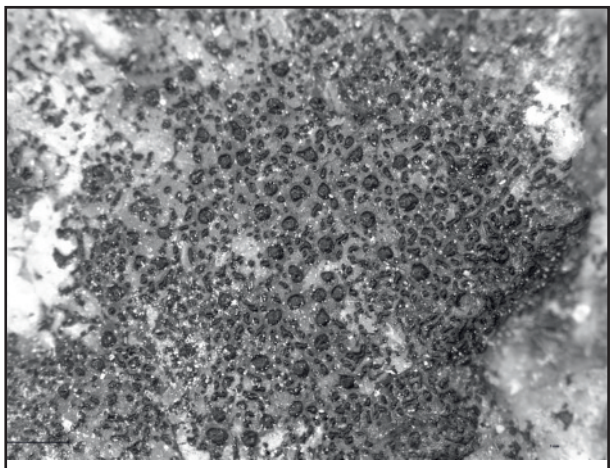
lectotype designated by Gueidan et al. 2009.)

Syn. nov. *Verrucaria melas* Herre, Proc. Washingt. Ac. Sc. 12(2): 41 (1910). U.S.A. CALIFORNIA. San Francisco Co. Point Lobos, 25-50 feet above the sea (changed to "a few feet above sea" in description in Herre 1910), 19 July 1906, *A. W. C. T. Herre 887* (F 1274148, lectotype! designated here).

Notes – A.W.C.T. Herre, in his flora of Santa Cruz, described a *Verrucaria* from the intertidal zone growing "on rocks a few feet above the sea at Point Lobos, San Francisco, associated with" *Collemopsidium halodytes* (Nyl.) Grube & B. D. Ryan, a tide pool cyanolichen frequent in California (Herre 1910). Because the thin thallus looked black when dry, he called it *Verrucaria melas* from the Greek word for black. He described the simple hyaline ascospores as being 10.5-27 x 8.5-12.5 microns. Nobody has ever collected *Verrucaria melas* since Herre first collected it in 1906. Why? Is it a rare lichen like *Wahlenbergiella tavaresiae* (R. Moe) Gueidan & Thüs, syn. *Verrucaria tavaresiae*, which is only known from the California coast? (Moe 1997; Gueidan et al. 2011). I hoped to discover it collecting lichens in the surf of central California but I never found it. Everything I collected had smaller ascospores.

Finally I examined one of the types of *Verrucaria melas* from the Field Museum, which bought Herre's herbarium in the 1940s. As Herre said, it did look like *Hydropunctaria maura*. Dry anyway. The thallus was black. But *Verrucaria melas* is very thin, much thinner than *H. maura*, and it lacks the "dots" that cover the thallus of *H. maura*. The thallus looked areolate, but when I wetted the thallus, it was immediately apparent that it was not areolate and was covered with ridges radiating outward at the edges. Several intertidal *Verrucaria* species and *Collemopsidium elegans* (R. Sant.) Grube & B. D. Ryan are known to have a ridged thallus, but none have ascospores up to 27 microns long. I examined a section of one of the biggest perithecia. The asci were relatively small with 8 ascospores, too small to have 8 ascospores 20+ microns long. I examined six mature ascospores in water. They were non-septate, 10-13 x 5-6 microns, a normal size for a small ascus. A second section of another perithecia gave the same result. But Herre does not describe the asci. He may not have seen them. I do not know how Herre thought he saw such large ascospores. I suspected he measured immature asci with no ascospores which he released in a squash preparation. But he definitely described the wrong size. There are no intertidal lichens in California with ascospores that large. And Herre did not understand the morphology of the ridged thallus of intertidal *Verrucaria*.

Verrucaria melas is well-known to lichenologists as *Wahlenbergiella striatula* (Wahlenb.) Gueidan & Thüs. That is the oldest and the correct name for the taxon. It has a ridged thallus and simple, hyaline ascospores mostly 10-13 x 5.0-6.0 microns. For a full description see Orange et al. 2009. *Wahlenbergiella striatula* has an interesting thallus structure. Between the dark ridges is a thin basal area connecting the ridges which is usually green and becomes translucent when moist. The specimen Herre collected was



Wahlenbergiella striatula. Photo by Cecile Gueidan.

growing in full sun because this basal thallus area is blackened. It is cracked too from being in a herbarium cabinet for over a hundred years. *Wahlenbergiella striatula* is known from the shores of every continent. In Europe, it is very common. It may prove to be common along the northern California coast. It is apparently rare in southern California. We recently reported it new for California from West Anacapa Island (Knudsen et al. 2011).

Verrucaria melas is a synonym of *W. striatula*. Because there were two types of *Verrucaria melas* at the Field Museum and Herre did not designate one of them as the holotype, a lectotype is designated above, which is the specimen I studied. The lectotype says it was collected at 25-50 feet "on rocks above the sea" but the description by Herre corrects the mislabeling of the type (Herre 1010) stating the type was collected "a few feet above the sea" in the intertidal zone. This is zone where *Wahlenbergiella striatula* and *Collemopsidium halodytes* usually occur on rocks.

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Northwest Lichenologists Calicioid Lichen and Fungi Workshop with Steve Selva

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This March calicioid expert Dr. Steven B. Selva came from the University of Maine to Ashland, Oregon to teach 25 enthusiastic lichenologists about calicioid lichens and fungi. Dr. Selva, a native Californian, earned Bachelor degrees in Biology and Botany from Humboldt State University. Before heading east for graduate school, Steve spent some time traveling the mountains of southern Oregon and Northern California. Steve Jessup, from Southern Oregon University, hosted the workshop at the Cryptogam Biodiversity Observatory on campus, and Daphne Stone and John Villella from Northwest Lichenologists organized the technical details.

We began the workshop with a field trip to two sites in the foothills outside Ashland. Snow in the mountains kept us from getting up into higher elevations. It was cold and wet outside but our eager participants were not deterred from a day of calicioid exploration.

Our first stop was in the Cascade-Siskiyou National Monument off Emigrant Creek road (42° 06' 33.90"N, 122° 33' 12.18" W, 963 m). Dominant vegetation at this site included *Quercus garryana*, scattered *Pinus ponderosa* and *Calocedrus decurrens*, *Arctostaphylos viscida, Cercocarpus montanus*, and *Toxicodendron diversilobum*. We investigated oak branches and boles of snags, ponderosa snags, and bark of incense cedar. Robust individuals of non-descript black pins, including *Chaenothecopsis* and *Mycocalicium* species were frequent on the wood of *Quercus* boles. *Mycocalicium subtile* was found on a Ponderosa snag (Figure 1). We quickly realized the need for microscopic examination of this cryptic and indistinct group. On conifers we found more distinctive species including the bright yellow thallus of *Calicium viride*, and the white pruina-dusted excipilum of *Calicium glaucellum*. One participant

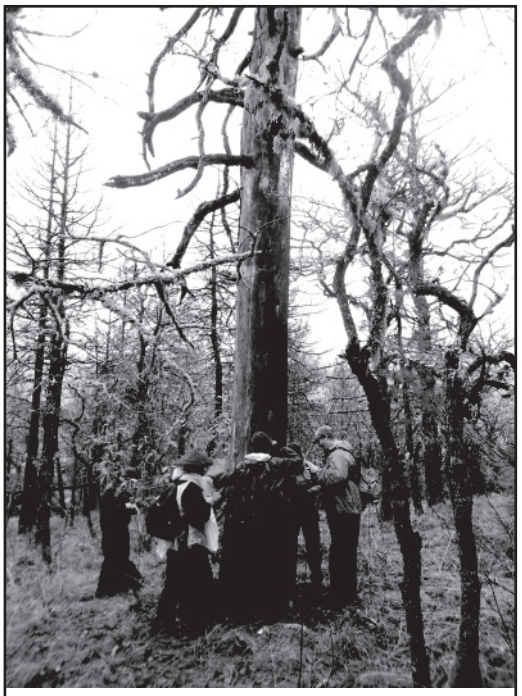

Figure 1. Exploring the calicioid fungi on a Ponderosa pine snag in the Cascade-Siskiyou National Monument. Photo by John Villella.

likened the pruina of *C. glaucellum* to the salt on a margarita glass. After a few hours our lunches and shelter from the rain beckoned us back to the cars. On our return to the parking lot the sun came out and we were met by our own local calicioid expert Eric Peterson.

After lunch we headed to the second site, the Wagner Creek trail, in the Siskiyou Mountains on land managed by the Medford District BLM (42° 10' 28.19"N, 122° 46' 56.64" W, 829m). This forest is dominated by mature *Calocedrus decurrens, Pseudotsuga menziesii, Arbutus menziesii, Acer macrophyllum, Chrysolepis chrysophylla, Corylus cornuta, Paxistima myrsinites, Polystichum munitum* and *Mahonia aquifolium*. As we crossed the footbridge from the road over Wagner Creek we were immediately greeted by large yellow patches of *Chaenotheca furfuracea* on conifers. Further inspection on large, old conifers revealed frequent cover of *C. chrysocephala* (Figure 2). We also quickly found *C. ferruginea*. Later *C. subroscida* was located. *Microcalicium disseminatum* was identified in the field by its dark green spore mass that can be seen with a hand lens.

With the help of our expert leaders, we gained new perspective on where to find calicioid species. Many of us know to look on dead boles, wood scars and bark of mature living conifers, suspended logs, dry stumps, and hardwood twigs. And some of us have discovered that the genus *Chaenothecopsis* often grows on other pin species. But resin, rotten wood within a hollowed tree, beetle tunnels in wood, wood pecker holes, the back side of bark, polypores, *Pinus* twigs, *Pertusaria*, and

Figure 2. *Chaenotheca chrysocephela* on Douglas fir bark from Wagner creek. Photo by John Villella.

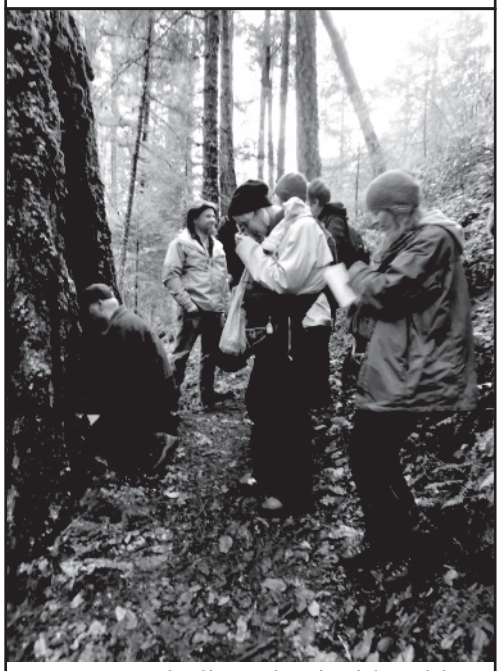

Figure 3. Finding pins inside a big fire scarred snag at Wagner Creek. Photo by John Villella.

even *Cladonia* squamules can also host calicioid species! Keep in mind that root wads can have one of our rarest species, *Microcalicium arenaria*. On our field trip Dr. Selva found *Mycocalicium subtile* growing on rotting wood on the inside of a Douglas fir that some of us thought was too rotten to host pins (Figure 3). Dr.

Peterson found a tiny, tiny species he is currently calling *"Cryptocalicium"* on the backside of bark on the opposite side of that same Doug fir. We collected pins from Douglas fir resin but they turned out to be a common conidial fungus, *Pycnostysanus resinae*, which is not considered a calicioid species. Apparently resin from *Tsuga heterophylla, Abies* spp., and *Picea sitchensis* make better calicioid substrates than resin from *Pseudotsuga*. Another non-calicioid ascomycete worth knowing, *Rhynchostoma minutum*, was found on an *Arbutus* snag growing next to *Mycocalicium albonigrum* (Figure 4). *Rhynchostoma* is unique in that it has a bulbous base where the spores are formed. When ready the spores travel up the stalk and are released out the top.

The last two days of the workshop were spent in the lab at SOU. We were able to get help with our own collections. Dr. Selva also provided a wonderful set of teaching specimens for us to work through. This was a great workshop and hopefully the Cryptogam Biodiversity Observatory will host many more.

Looking for and finding pin lichens and fungi can add greatly to our understanding of the forest community and the many life forms found there. As Dr. Selva points out, the age or continuity of a forest can be indicated by the number of calicioid species growing within that forest. Older, undisturbed forests have more structural diversity and therefore more microhabitats to support a higher number of species. So grab your headlamp, a good hand lens and seek out the nooks and crannies of your local forest. There could very well be some as yet unknown calicioid species residing in your favorite stand.

Species List for Site 1 Emigrant Creek, White oak woodland:

Calicium viride Pers. Conifer bark
Calicium glaucellum Ach.
Cheanothecopsis pusilla (Ach) A.F.W. Schmidt
Mycocalicium subtile (Pers.) Szatala
Mycocalicium albonigrum (Nyl.) Fink.

Species List for Site 2 Wagner Creek, conifer forest:

Calicium adaequatum Nyl.
Calicium glaucellum Ach.
Calicium viride Pers.
Chaenotheca chrysocephala (Turner ex Ach.) Th. Fr.
Chaenotheca ferruginea (Turner ex Ach.) Mig.
Chaenotheca furfuracea (L.) Tibell
Chaenotheca subroscida (Eitner) Zahlbr.
Chaenothecopsis ussuriensis Titov.
Chaenothecopsis "viridipes" (name in progress E. Peterson)
"Cryptocalicium" E. Peterson
Cyphelium inquinans (Sm.) Trevisan
Microcalicium disseminatum (Ach.) Vainio
Mycocalicium albonigrum (Nyl.) Fink.

Figure 4. *Mycocalicium albonigrum* growing with *Rhynchostoma minutum* on a Madrone snag at Wagner Creek. Photo by John Villella.

Lichen Species with Type localities in California Described Between 2008-2011

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The lichen flora of California is diverse and complex with several different floristic elements contributing to the overall species diversity encountered in the state (Brodo 2001). The difference between the lichens one encounters in different areas of the state is striking; for example, there is very little overlap in species composition between the northwest coastal strip and southern California. This difference in species composition reflects the vastly different habitats that exist for lichens in various regions of this large state. For a hint at the lichen biogeography of the state the reader is referred to the CALS county-by-county species lists (CALS website 2012).

The most up to date checklist of lichens and lichenicolous fungi for the state has been produced by Tucker and Ryan (2006) and continues to be maintained electronically by Tucker. With almost 1,600 species, over a third of the lichen species reported for the United States (Esslinger 2011) can be found in California. Not only does the number of known species for the state continue to increase annually, but also there are many new species that have been recently discovered within the borders of the state, including several macrolichens and many that are thought to be endemic. The purpose of this paper is to inform the community of California lichenologists about these new species with type localities in California with the goal of alerting those working on lichens in the state and surrounding areas to their presence.

In the following synopsis of these newly described species I have attempted to highlight the features of the new species that distinguish them from known species. I do not include technical descriptions but merely highlight the features that most easily distinguish the new species from similar species. For full descriptions the reader is referred to the primary literature on the given lichens. The majority of the descriptions for the species described below can be accessed free of charge on open access journals such as Opuscula Philolichenum and North American Fungi.

Lichens with type localities in California described between 2008 and 2011

Acorospora orcuttii K. Knudsen - This lichen was described based on specimens deposited at the Farlow Herbarium at Harvard University from material collected by C. R. Orcutt in San Diego County in the late 1800's (Knudsen 2010). This is one of a number of southern California lichens that have not been collected since the type specimen. This species along with other rare soil dwelling species may be extinct in the wild due to heavy anthropogenic disturbance that has taken place since the original collection

was made. Soil crust communities are now a rare occurrence in southern California and undoubtedly warrant protection in areas where they still persist.

This species is most similar to *A. fuscescens* but differs in several ways. *Acorospora fuscescens* produces gyrophoric acid while *A. orcuttii* does not. The lack of gyrophoric acid also distinguishes this species from the superficially similar *A. obpallens*. *Acorospora orcuttii* is further differenciated from *A. fuscescens* by its wider exciple and paraphyses along with distinctly paraplectenchymatous cortex.

Calicium sequoiae C. Williams & L. Tibell - Apparently an obligate on coastal redwoods, this unique pin lichen has a distribution mirroring that of its host tree. This species joins *Mycocalicium sequoiae* as a calicioid that occurs exclusively on redwood, *M. sequoiae* inhabiting the pitch while *C. sequoiae* is restricted to roughened bark of old trees. At this point it is the only *Calicium* considered endemic to the Pacific Northwest. The following combination of features distinguishes it from other *Calicium*: the I+ blue stalk, spirally ornamented spores, and the white pruina produced on its apothecia.

Caloplaca lecanoroides Lendemer - As the name of the species suggests, this lichen is very interesting in that it combines features of both *Caloplaca* and *Lecanora*. In outward appearance the apothecia of this lichen resemble that of the *Lecanora subfusca* group but microscopic examination reveals that it has polarilocular spores of a type that place the species squarely in *Caloplaca*. Although the majority of *Caloplaca* species have a distinctive orange color that many lichenologists are familiar with, this is one of the species in the genus that lacks the orange pigmentation, making it appear in the field as possibly a *Lecanora*.

The type locality for this species is at the base of Bridal Veil Falls in Yosemite National Park. This is one of several new species that was discovered during a recent bioblitz conducted in the park that gathered preeminent lichenologists from around the world to focus on the lichen flora of Yosemite. At present the species is only known from the type locality but it should be searched for in similar locations near waterfalls in central California.

Caloplaca obamae K. Knudsen - This species is the first and only species of lichen to date to be named after President Barack Obama. Its naming was noted in the press (Scientific American article, etc.) and no doubt has helped to bring attention to the under appreciated world of sterile soil crusts. This species along with *Acarospora orcuttii* (described above) and several others are part of a guild of soil dwellers that were most likely more widely distributed in southern California before grazing and coastal development modified the fragile soil habitat that they have adapted to.

Caloplaca obamae is usually a sterile species. It differs from the other two species of usually sterile *Caloplaca* known from western North America, *C. citrina* and *C. tominii*. It can be distinguished from them most easily by its exclusive occurrence on soil and its geographic distribution. *Caloplaca tominii* does not occur on the Channel Islands. *Caloplaca*

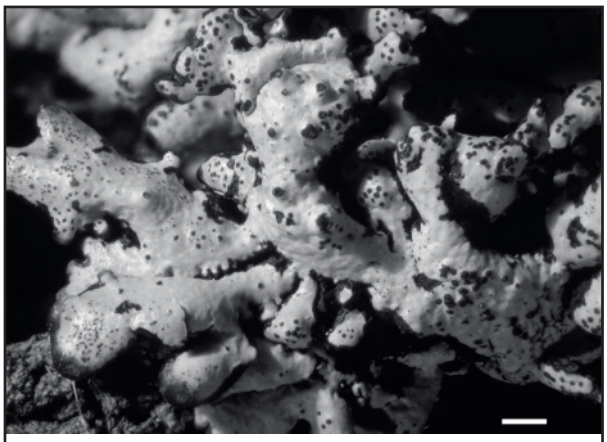
citrina occurs on Santa Cruz and Santa Rosa Island on shale and wood. This rare species has yet to be found on mainland California and it has thus far only been found on the north side of Santa Rosa Island.

Cladonia maritima K. Knudsen & Lendemer - This species is a member of the *Cladonia cervicornis* group that occurs in maritime influenced areas of southern California. With the recent work on *C. cervicornis* group in western North America (Ahti 2007) (Knudsen and Lendemer 2009) it was determined that California has four members of the group. Species of this group in California include: *C. macrophylloides, C. concinna, C. firma* and *C. maritima*. Among these *C. maritima* is distinguished by its maritime habitat, two to three tiered podetia and its persistent primary squamules.

Hypogymnia minilobata McCune & Schoch - A dwarf *Hypogymnia* most similar to *H. occidentalis*, this species is founds in coastal chaparral and woodlands in southern California including the Channel Islands. Although it has the shared characters of perforate lobe tips and a brown interior *H. minilobata* is distinguished from *H. occidentalis* by its consistently small stature, adpressed growth habit, smaller more elongate spores and distinct genetic profile. A good place to observe this species is Los Osos Oaks State Reserve in San Luis Obispo County.

Lecanographa insolita Lendemer & K. Knudsen - This is a normally infertile greenish leprose rock dwelling species with a coccoid photobiont. It can easily be confused with *Lepraria*, but the presence of immature apothecia on a single specimen led to the description as a *Lecanographa*. The type locality is Lobo Canyon on the north side of Santa Rosa Island, a rich area for rare and Channel Islands endemic lichen species.

Lecanora austrocalifornica Lendemer & K. Knudsen - This is an usnic acid containing species in the *Lecanora varia* group that closely resembles four other members of the group, *L. conizaeoides, L. varia, L. densa* and *L. laxa*. Outwardly very similar to *L. varia* and *L. densa, L austrocalifornica* differs chemically from these species, it is P+ red/orange compared to P+ yellow in the other species. This spot test reaction is similar to *L. conizaeoides* but it differs morphologically having smaller ascospores and longer conidia. This species has been found on Jeffery Pine and White Fir in the San Jacinto and Laguna Mountains of southern California.



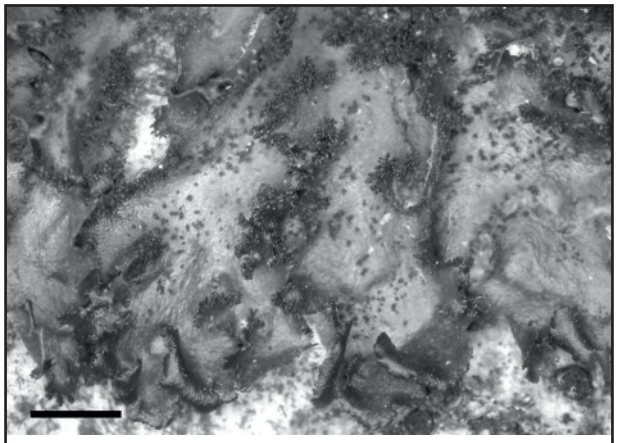
Hypogymnia minilobata from near Bayfield, California. Scale bar = 1 mm. Photo by Bruce McCune.

Lecanora munzii K. Knudsen & Lendemer - This species appears as a *L. strobalina* group but differs in containing gyrophoric acid. This species is apparently rare and is found in old growth chaparral in southwestern California in a distinct elevational band. It seems to be found only in areas with low fire frequency in the last hundred years. It may have been more common when fire return intervals in these habitats were lower. It inhabits the dead wood of senescent old growth shrubs, a habitat that is diminished with frequent fire.

Lecanora simeonensis K. Knudsen & Lendemer - An usnic *Lecanora* found dwelling on dead wood such as fence posts along the central California coast, this distinctive species has a warted areolate thallus and capitate soralia. It is a member of the *L. strobilina* group. Currently this species is known only from Marin and San Luis Obispo counties and may be yet another recently recognized California endemic.

Lecanora peninsularis K. Knudsen, Lendemer & Elix - Currently known only from the type locality in the San Jacinto mountains in southern California this species is distinguished among members of the *L. varia* group by the unique characteristic of having a unique chemistry, containing isousnic, gyrophoric and 7-0-methylnorascomatic acids. This species is found to occupy weathered wood of Jeffery pine, and is common at the type locality.

Leptogium siskiyouensis Stone & Ruchty - This is a small epiphytic species



Leptogium siskiyouensis, scale bar = 1 mm. Photo by Daphne Stone.

of *Leptogium* that is distinguished from other members of the genus by a combination of features that make it unique. *Leptogium siskiyouensis* is similar to other small epiphytic species that occur in similar habitats including *L. pseudofurfuraceum, L tacomae* and *L. subaridum*. The unique combination of features that distinguish this species include: the adnate nature of the central portion of the thallus, the sparse hairs on the underside, the up turned margins that bear non-dimpled simple to coralloid isidia that look like little hands sticking up, and the medullary structure.

Although the type locality of this species is in Oregon the densest populations are known to be in California and so it is mentioned here. At the present time *Leptogium siskiyouensis* is known from a small number of occurrences scattered from Jackson and Josephine Counties in Southwest Oregon in the north to Monterey County in the south, with the most robust populations occurring in the central Coast Ranges of Trinity County. This lichen is thought to be endemic to this small range in Oregon and California.

Most collections come from Black oak but it also occurs on Madrone.

Letharia gracilis Kroken ex McCune & Altermann - This is one of a number of cryptic species that has recently been distinguished within the *Letharia columbiana* group. It is distinguished by subtle morphological differences and a unique DNA sequence. *Letharia gracilis* is distinct within the *L. columbiana* group by having sparse branching, and slender rather smooth drooping branches, making it possible to distinguish this species in the field. This species is reported from the Siskiyou mountains in California and Oregon and from the northern and central (McCune pers. com. 2012) Sierra Nevada mountains in California.

Melanelixia californica A. Crespo & Divakar - A segregate from the widespread *Melinilixia glabra* group this species was discovered through molecular work, it was found to differ morphologically from *M. glabra* sen str. by it's slightly larger spores and its slightly smaller conidia. So far the known distribution is in southern California and its type locality is in San Diego County. Specimens identified as *Melinelixia glabra* from that region are most likely this taxon.

Naetrocymbe herrei K. Knudsen & Lendemer - This is an inconspicuous peritheciate species that is a lichen in an otherwise unlichenized genus. It inhabits volcanic maritime rocks in the ocean spray zone. It is currently only known from two sites on the central California coast in San Francisco and San Luis Obispo counties and is thought to be endemic to this region. This species is distinct enough that it could not be confused with any other maritime lichen. It can be recognized in the field by its prominent perithecia over a thin brown areolate thallus.

Ramonia extensa Lendemer, K. Knudsen & Coppins - This *Ramonia* is the only member of this rare genus to be found in Northern California and unlike the other members of the genus from southern California this species is found on serpentine substrate rather than weakly calcareous substrates. It is most similar morphologically to *R. gyalectiformis* from which it differs in the more elongate spores.

Ramonia vermispora Lendemer & K. Knudsen - This is one of three saxicolous *Ramonia* species that occur in southern California all of which are rare species. This species is in fact only known from the type locality in the San Jacinto mountains where it occurs on a decomposing granite outcrop. This is the montane representative of the genus, the only *Ramonia* in the region with vermiform spores.

Acknowledgements

Thanks to Kerry Knudsen and Cameron Williams for reviewing the manuscript. This paper is dedicated to all authors that choose to publish in open access journals, making it much easier for would be lichenologists to access their work.

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Current Biogeographic Knowledge of *Peltigera gowardii* in California

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Peltigera gowardii, previously known as Hydrothyria venosa and Peltigera hydrothyria, is an aquatic lichen that occurs in California and is particularly known from the Sierra Nevada mountains. The lichen has attracted considerable conservation attention. This paper was adapted from a previously completed conservation assessment that I performed as an employee of the California Native Plant Society, funded by the U.S. Forest Service (Peterson 2010). The full report and mapping data are available on the CALS website at http://californialichens.org/?p=590 . In this paper, I focus on the state of knowledge for the biogeography of P. gowardii in California. Two maps are presented, showing the density of known occurrences and a habitat suitability model. The two maps are quite different, suggesting that much remains to be learned about the species.

Introduction

If you are wondering what "*Peltigera gowardii*" is, never fear, you probably already know it. Its story begins as *Hydrothyria venosa*, described into a montypic genus in 1856 by J. L. Russell. A phylogenetic study transferred it to *Peltigera*, which makes sense given the veined lobes and apothecial morphology, and gave it the name *Peltigera hydrothyria* (Miadlikowska and Lutzoni 2000). At that time, three geographically distinct population segments were recognized: western ranges (mainly Cascades and Sierra-Nevada), northern Rocky Mountain, and Appalachian. A recent study looking further into phylogenetics (Lendemer and O'Brien 2011) found genetic differentiation between these three populations. The study split western and eastern populations into two species, with western populations becoming *Peltigera gowardii*. It did not split the Rocky Mountain and Cascade/Sierra-Nevada populations, so the phylogenetic story may not be over yet. However, the subject of this paper is not phylogeny, but ecology and biogeography.

Peltigera gowardii (Figures 1 and 2), and its eastern cousin *P. hydrothyria*, are atypical lichens in that they are aquatic. *Peltigera gowardii* occurs on rock, typically submerged for much of the year in perennial streams. These tend to be spring fed, first or second order streams in upper watersheds, with relatively stable flows and not heavily scoured during high water. It can tolerate air exposure and is often present at locations above the seasonal low-water mark (Glavich 2009), though close enough to the water level that the thallus remains wet most of the time. One California occurrence includes colonies within a waterfall mist zone which are never submerged (Carlberg 2008). Most known occurrences in California, Oregon, and Washington are partially shaded and at mid-elevations. With one high-altitude exception, the

known elevation range in California is 840 m (2756 ft) to 2460 m (8071 ft). *Peltigera gowardii* is associated with older forests (> 80 years) in the Pacific Northwest (Glavich 2009) although the cause of this relationship is unknown.

In the early 20th century, the range of (then) *Hydrothyria venosa* was known as "New England to North Carolina, and recurring in California" (Fink 1935). *Peltigera gowardii* is now known to span latitudes from Portage Bay, Alaska (Geiser et al. 1998) southward to the Sequoia National Forest in California. Starting about 2000, there has been a rapid increase in the number of known occurrences in California, particularly on the Plumas, Sierra, and Stanislaus National Forests. By 2005, a total of 43 locations were known (Poulsen and Carlberg 2007) and with additional data from the U.S. Forest Service, a total of 99 reports of *Peltigera gowardii* observations in California through 2008 were gathered in the course of producing this report. Of these, 94 were reasonably mapped. It would be difficult to estimate what number of occurrences actually exist in California, as the curve of discoveries over time is still steeply inclined (Figure 3). If survey efforts continue, the number of occurrences will probably be well over 100 by the time of this publication and there is no way to anticipate when the curve will level off.

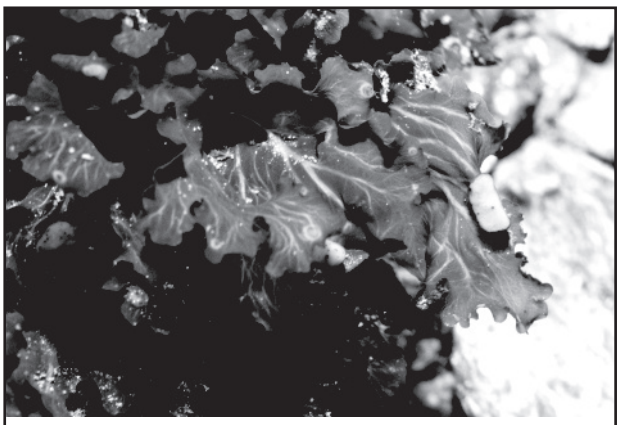

Figure 1. *Peltigera gowardii* forming dense colonies over rock under water, on South Fork Mountain, Trinity County, California. Veins and apothecia are clearly visible when growth is luxuriant. Photo by E.B. Peterson and T. Carlberg.

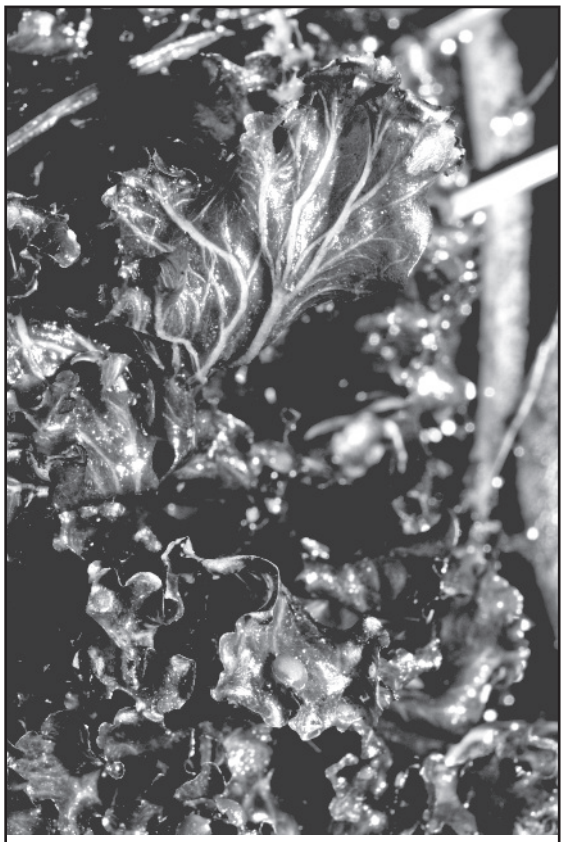

Figure 2. *Peltigera gowardii* forming dense colonies over rock just above the water surface, on South Fork Mountain, Trinity County, California. Note prominent veins on lower surface of lobe in the upper portion of the photo and the orange-brown apothecia on upper surfaces of lobes near the bottom of the photo. Photo by E.B. Peterson and Tom Carlberg.

Prior to splitting, the global status of *P. hydrothyria* was G4, "apparently secure" (NatureServe 2009), though it appears to not have been reassessed yet as *P. gowardii*. The California Lichen Society has not finalized a recommendation, but appears to be leaning toward a recommending a rank of S3.2 to the California Natural Diversity Database (CDFG 2012) and placement on list 4, the "watch list" (Poulsen & Carlberg 2007). In California, it has been considered a Sensitive species for all National Forests it is known to exist on: the Shasta-Trinity, Lassen, Plumas, Eldorado, Stanislaus, Sierra, and Sequoia National Forests plus the Tahoe Basin Management Unit. Furthermore, occurrences are known in close proximity to the Klamath and Mendocino National Forests. To clarify conservation needs on National Forest lands in California (U.S. Forest Service, region 5), the U.S. Forest Service contracted the California Native Plant Society (CNPS) to conduct a conservation assessment. I worked for CNPS at that time and was enthused to develop the assessment including the following biogeographic analysis.

Methods

Two maps were developed. One, a map of known occurrence density; the other, an ecologically-based model of suitable habitat. The contrast between these maps has the potential to emphasize where further surveys are most needed.

Known Occurrence Density Map

The density map was calculated using one point for each of the 80 occurrences as defined by CNDDB (a single "occurrence" was used where multiple locations were known from within 0.25 miles). In some cases of older specimens where precise geographic coordinates were not available, points were plotted from location descriptions with the aid of the U.S. Geological Survey's Geographic Names Information Service database, the U.S. Environmental Protection Agency's National Hydrography Dataset (version

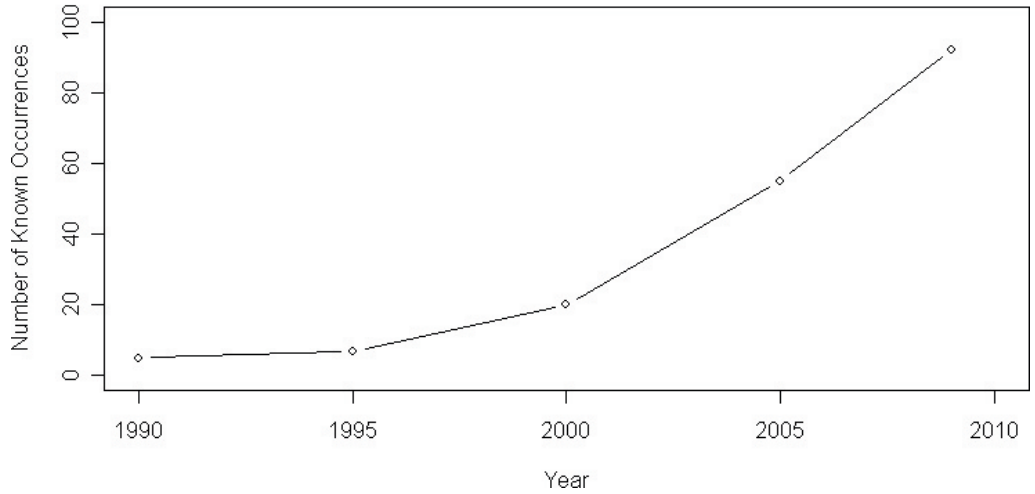

Figure 3. Number of known occurrences in California over time. Total number of occurrences at any point in time is approximate, as a thorough herbarium search has not been conducted.

2+), and Google Earth. The density calculation was performed in ArcGIS 9.2, with the Density function in Spatial Analyst using a search area of 50 km radius.

Habitat Suitability Model and Map

Mapped occurrences often spanned lengths of streams, which were geographically digitized. Occurrences received as polygons were first converted to lines by manually drawing the lines through the center of occurrence polygons. These lines, and occurrences known only as point locations, were then buffered by 15 meters, resulting in polygons of uniform width. Those polygons were further converted to a raster of resolution and dimensions matching a 30 m Digital Elevation Model (DEM; USGS 2009), which was multiplied against the DEM and raster climate data, providing tables of habitat information. Since all occurrences had been converted to polygons, data for long occurrences were retained from end to end. Additionally, longer occurrences contribute more data than shorter occurrences or occurrences known only as a point location; data from a total of 991 raster pixels were acquired.

Climate data (PRISM 2007) included average annual precipitation, and average minimum temperature for December, and average maximum temperature for July. The month of December was used for minimum temperatures because that variable was found to be a significant correlate of *P. gowardii* habitat by Glavich (2009); July was used for the average maximum temperature to represent the warm side of the temperature gradient because it is typically the hottest month of the year.

Initially, the National Hydrography Dataset (NHD; USEPA 2009) was to be used to additionally supply a variable for stream gradient, and to constrict final results specifically to stream channels. However, the NHD data remain incomplete and numerous occurrences in California are in small streams that are not represented at all in the NHD. Therefore continued use of the NHD would have been problematic and erroneous for estimating *P. gowardii* habitat. Elevation is included in tables for general reference, however it was dropped from the suitable habitat model as there is no apparent ecological reason for it to control *P. gowardii* distribution other than through its correlation with the climate gradients already included.

Climate data from the 991 raster pixels were analyzed using percentile summary statistics and frequency histograms. A habitat suitability model was then constructed by bounding portions of the pixel data: the lowest suitability used the most outward minimum and maximum bounds, the medium suitability bounds were set to contain the central 95% of the pixels (bounds set at 2.5 and 97.5 percentiles), the high suitability bounds were set to contain 75% of the pixels (bounds set at 12.5 and 87.5 percentiles).

The habitat suitability model was then mapped using calculations in ArcGIS Spatial Analyst to create rasters that showed where all climate gradients were within bounds for each level of habitat suitability.

Results & Discussion

Known Occurrence Density Map

The highest occurrence densities are in the Plumas and Sierra National Forests (Figure 5a). The Stanislaus has a lesser concentration of occurrences, but still relatively high compared to other parts of California. The gap in occurrences through the Tahoe National Forest is puzzling; perhaps appropriate stream conditions are not widely present or perhaps the gap simply reflects less survey opportunity.

Habitat Suitability Model and Map

The habitat suitability model is described in Table 1 and shown graphically in Figure 4. Given that the data used to produce the model are simply what was available with no proper sampling design, it should be noted that this is not a scientifically and statistically rigorous model.

The distribution of *P. gowardii* across both the minimum and maximum temperature gradients roughly fits a bell-shaped, normal curve, consistent with simple niche concepts. Furthermore, the minimum temperature pattern is very similar to the one seen by Glavich (2009): a peak in *P. gowardii* occurrence around -2° C, with few occurrences found above 0° C and a scattering of occurrences at lower temperatures.

The distribution across the annual precipitation gradient is roughly bimodal. Possible explanations for this pattern may include some unknown factor that is most common in the same areas as the mid-range quantities of precipitation, yet is detrimental to *P. gowardii*. Or the two modes may be an artifact of some geographic pattern of precipitation in California, perhaps driven by the two most dense clusters of known occurrences in the northern and southern Sierra Nevada. Also, the relationship between precipitation and the occurrences of *P. gowardii* may be indirect because rather than directly intercepting rainfall, *P. gowardii* inhabits streams that collect watershed runoff. The simplistic habitat suitability model constructed here does reflect the outward bounds of this bimodal distribution but not the low frequency of occurrences toward the middle of the precipitation gradient.

The modeled habitat suitability map is displayed at low resolution in Figure 5b. The digital data provide much greater resolution, but caution should be used to not over interpret this simple model. That said, even a simple model such as this may correspond to expected patterns, spotlight

Table 1. Percentile summary statistics from 991 occurrence pixels. * = not actually used to model the habitat suitability map.

	Percentile						
	0 (min)	2.5	12.5	50	87.5	97.5	100 (max)
Percent Data Contained	100.00%	95.00%	75.00%	NA	75.00%	95.00%	100.00%
Habitat Suitability	low	medium	high	NA	high	medium	low
Elevation (meters)*	840	874.75	995.5	1425	1765.75	2152.5	3969
Annual Precipitation (mm)	836.91	996.67	1072.44	1398.69	1944.07	2035.73	2491.34
Ave. Dec. Min. Temp. (C)	-12.35	-5.56	-3.23	-1.59	0.46	1.69	2.27
Ave. July Max. Temp. (C)	13.76	23.75	26.56	28.69	30.3	30.91	32.54

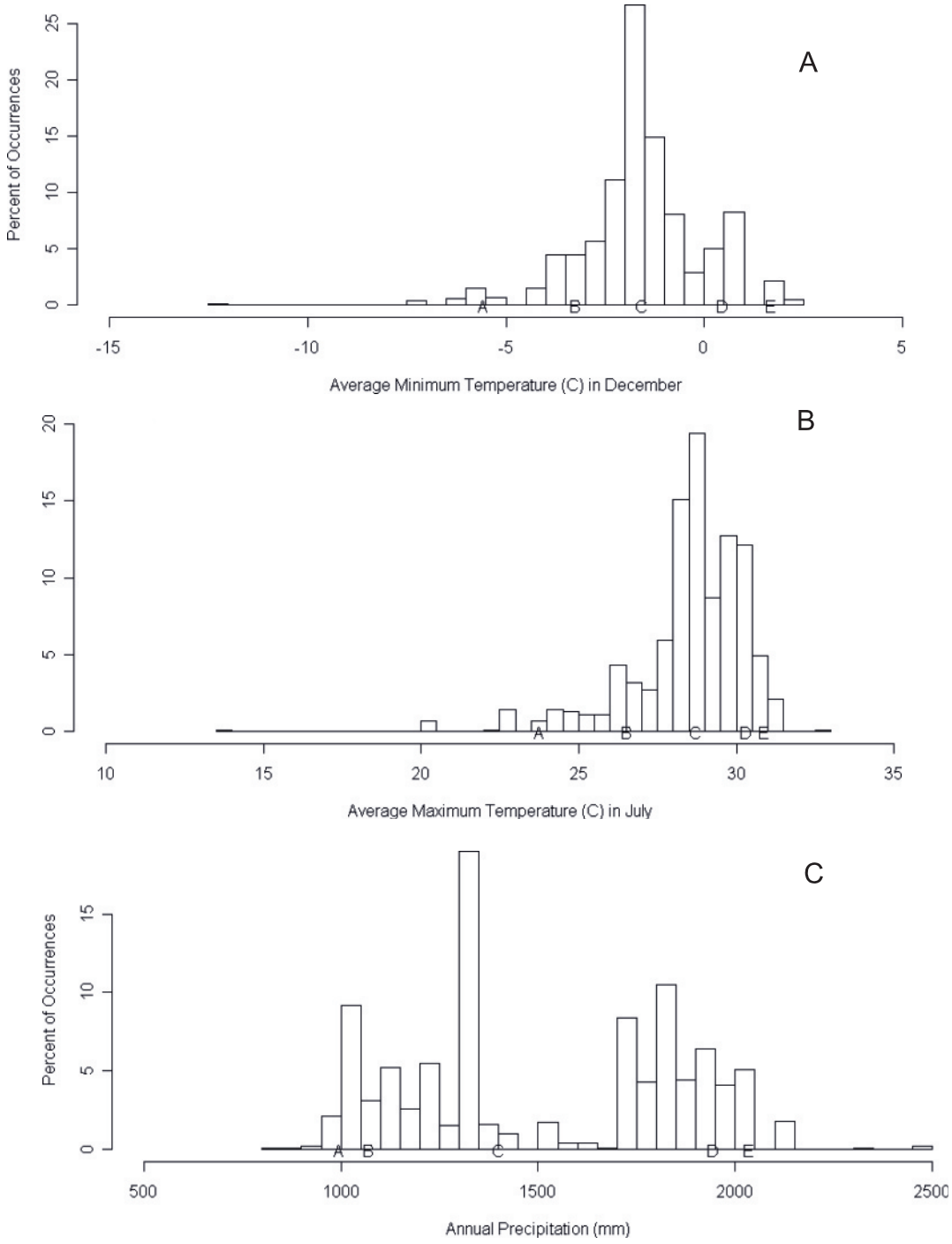

Figure 4. Histograms of *Peltigera gowardii* frequency over (A) average minimum air temperature in December, (B)average maximum air temperature in July, and (C) average annual precipitation (millimeters)for known occurrences. For each histogram, A marks the 2.5 percentile, B marks the 12.5 percentile, C marks the 50th percentile (median), D marks the 87.5 percentile, and E marks the 97.5 percentile.

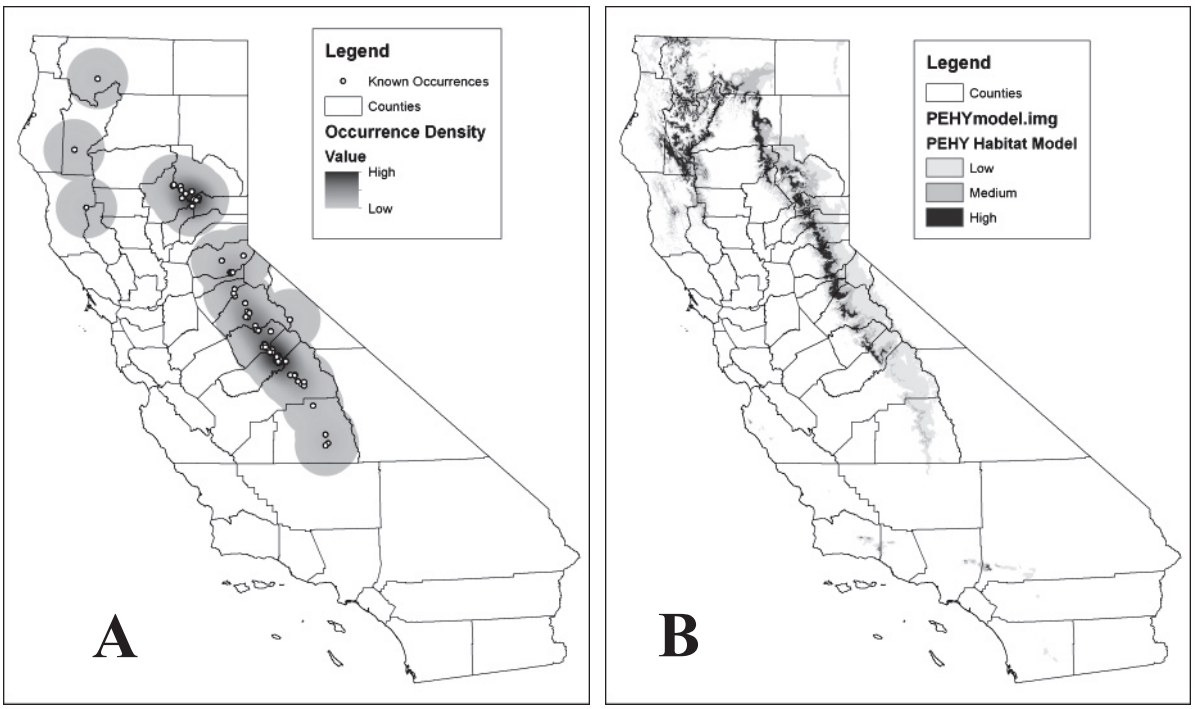

Figure 5A and 5B. *Peltigera gowardii*, known and modeled biogeography: (A) density of known occurrences in California, using a 50 km search radius; and (B) habitat suitability model calculated from minimum and maximum air temperatures plus precipitation.

gaps in knowledge, and provide perspective for conservation efforts.

Questions for Further Work

The known occurrence density map and the habitat suitability model map have many remarkable differences. Among the most notable are that the two highest density points correspond to relatively narrow and sparse reaches of the highest suitability, while large expanses of high suitability in the central Sierra and far-northern California have rather low densities of known occurrences. Having spent some time working on these maps, I have developed quite a number of questions.The model does not take into account the availability of small, perennial streams with sufficiently cold water. How would the habitat suitability model distribution change if adequate stream data were available for use in biogeographic modeling?

Medium and High suitability was modeled as widespread in the ranges of northwestern California, yet very few occurrences are known from the region. Is the model wrong? Are there habitat requirements that were not utilized in the model and that are poor for *P. gowardii* in the region? Ultramafic geologies might result in inhospitable water characteristics; but ultramafics are not ubiquitous in the region, so this could be no more than a partial explanation. Topography of the region does differ from the Sierra, so perhaps most small streams have steeper gradients, faster water velocities, and more scour? Or is the model right? Do numerous occurrences exist in the area

that remain undiscovered due to lack of survey opportunities?

Medium and High habitat suitability areas become a very narrow band in the southern Sierra Nevada, eventually dissipating to just Low suitability despite the large number of occurrences known in the Sierra and Stanislaus National Forests. Is suitable habitat really so confined in this area? Historically, this area has been explored by lichenologists better than much of the remainder of California (at least within the known extent of *P. gowardii*), so one might expect a relatively large number of sites compared to the available suitable habitat. But wouldn't survey efforts from the U.S. Forest Service throughout the Sierra Nevada have swamped out any bias from those prior explorers by now. Furthermore, this area of apparent abundance for *P. gowardii* being near the southernmost extent of modeled highly suitable habitat, may indicate that the populations are quite vulnerable to environmental changes including both climate change and direct alterations to the landscape.

The model suggests ample suitable habitat through the Tahoe Forest where there seems to be a gap in known occurrences. Is this a situation similar to that of northwestern California?

Large patches of potential habitat, some even classified as High, exist to the south of the Sierra Nevada in southern California ranges. These have been relatively well explored by lichenologists, so these areas probably do not harbor undiscovered populations. However, why wouldn't there be any populations in these mountains? Again, habitat requirements not utilized in the model may be responsible. Alternatively, these areas would be disjunctive, so could dispersal barriers or past climates be responsible for a lack of *P. gowardii*?

The contrast between these two maps demonstrate that much remains unknown about the distribution of *P. gowardii* in California.

Acknowledgements

Numerous employees of the U.S. Forest Service contributed to the conservation assessment, for which this work was completed, by sending occurrence data, providing ideas on threats and other concerns, and by commenting on drafts of this report. Particularly, I would like to thank Tom Carlberg (Six Rivers NF) and Cheryl Beyer (Tahoe Basin Management Unit); Tom also guided me to a site on South Fork Mountain and helped provide high-quality photos for this report. Comments were also provided by Doug Glavich. Occurrence data was also provided by Martin Hutten (Yosemite National Park) and James Shevock (California Academy of Sciences). This project would not have been possible without the interest and support of Diane Ikeda, Region 5 Botanist. I wish to thank the California Native Plant Society for allowing me to take on this project as part of my work through the organization and their flexibility in finding ways for me to complete it when I changed my primary employment.

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A New Book on California Lichens!

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Near our home in Prague is an old cemetery, Olšanské hřbitovy, which you can google to see yourself. I like to walk there among the old trees and tombs, crucifixes and Baroque angels. Sometimes I cross the big boulevard Želivského and visit the old Jewish cemetery, Židovské hřbitovy, where Franz Kafka is buried.

I never see any lichens, not even the ubiquitous chewing gum lichen, *Lecanora muralis* (Schreber) Rabenh., which in central Europe grows on sidewalks and rooftops. Algae paint the labyrinth of the dead with the green of life and mosses are everywhere. But I do not go to graveyards to look at lichens. I go to meet death. She is always there, in the silence.

Stephen Sharnoff is well known for the lichen photography he did with his first wife Sylvia Sharnoff in *Lichens of North America*. After she died of cancer, Steve went to Paris where he photographed French cemeteries. He published them in *Restless Peace: Images from the Cemeteries of Paris* which you can buy at Amazon. I love the book. I highly recommend it. Steve really captures the experience of old European cemeteries. For instance, he has great pictures of the oval black-and-white cameos on tombstones which were particularly popular in the early 20th century in Prague and are frequent in Parisian cemeteries. Often they are rather formal portraits, a little too stiff for my taste, like yearbook pictures, folks all serious in their best duds. But occasionally there are some truly touching cameos like the one I saw this afternoon. There was a portrait of a beautiful young woman with thick Art Nouveau hair, smiling, her face full of the future. Opposite her was a rather sad looking man in middle age with a thin delicate nose. She died at 22. They were never married. He died 30 years after his milacek, his beloved. You could see how much he missed her in his pale face. They are together now. These are the kinds of cemetery secrets Steve's images reveal.

And like all cemetery visits, when you close Steve's book, death whispers in your ear. She whispers your name.

A friend of mine thought the book was morbid. But he is young. After a stroll through Olšanské hřbitovy, or when you close Steve's book, you know you are going die. It is inevitable. But every time I walk out of a cemetery, I feel more alive. Life is precious. Every day and every night. After his visit to Paris, Steve remarried and is now working on the pictures for a book of Sierra Nevada wildflowers and one on California lichens.

Recently Steve and I shared oatmeal stout in my living room and we followed it up with dinner and drinks at TGF. Steve is trim and healthy, in his sixties. He was on a road trip. He came down the coast from

San Francisco, photographing lichens at Point Lobos, San Simeon and Los Osos. I directed him to locations in Joshua Tree National Park and San Jacinto Mountains where he was most likely to get photographs of some of the species on his want list. We talked about lichens and lichenology and as we loosened up and took a liking to each other, we talked about our families and our lives. I was excited by his plans for a new California lichen book. Steve and Mariette Cole had originally planned a revision of *Lichens of California* by Hale and Cole. This never worked out. But recently Peter Raven encouraged Steve to do a new book on California lichens. The book will be an introduction with no keys or technical descriptions. It will present as many different species of lichen as pages allow, hopefully about 500 of the over 1500 species that occur in the state. This is the kind of book we need in California.

For the California book, I worked for Steve doing over 150 identifications of specimens from Marin to Joshua Tree National Park. The book will have a good mixture of northern and southern California species. Steve collects beautiful specimens documenting his pictures. This is very important. The specimens, for the pictures in *Lichens of North America*, identified by Ernie Brodo and other experts, are in the herbarium of Canadian Museum of Nature. Lichen taxonomy and systematics is evolving quickly, with many changes in species concepts, genera and families, as well as a continuous flow of taxa new to science. Several names in *Lichens of North America* are no longer correct but a taxonomist can order the specimens in the photographs and revise the identifications. Unfortunately there will not be a second revised edition of *Lichens of North America*. The new specimens for his California book are deposited in the UCR Herbarium, with any duplicates deposited at New York Botanical Garden.

While Steve concentrated on trying to photograph species that are relatively common, he did photograph some interesting rare species. Two of these discoveries I would like to discuss and I am thankful Steve donated pictures of them to the *Bulletin*.

Years ago, James C. Lendemer and I visited the CALS annual meeting and we went out with the Robertsons and other CALS members to collect in Marin County on Mt. Tamalpais and Bolinas Ridge. James was running up and down the steep slopes. On an oak he collected a vivid yellow sorediate lichen called *Rinodina falvosoralifera* Tønsberg. It was new to California and the third collection for North America (the other two were from the Alaskan panhandle near the ocean). Recently Steve photographed it in the

James Lendemer collecting lichens at Bolinas Ridge. Photo by Bill Hill.

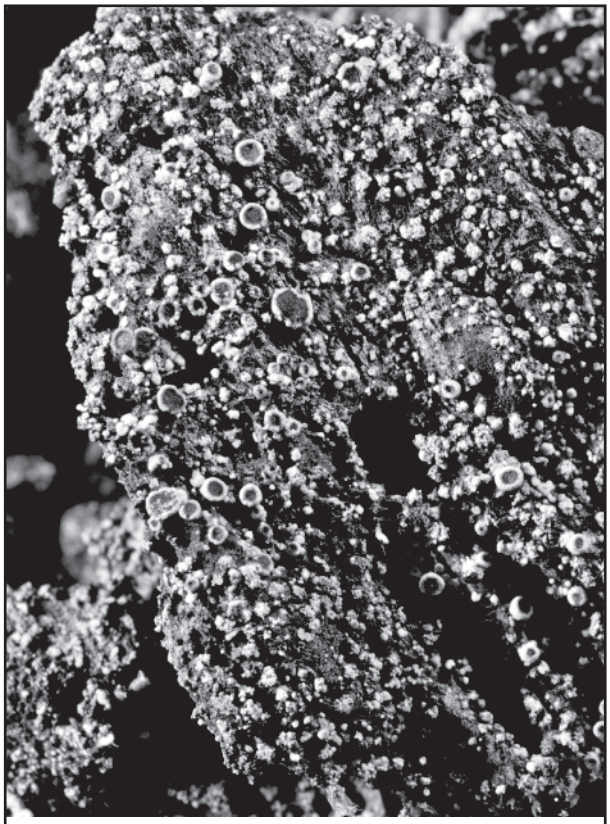

Figure 1. *Rinodina falvosoralifera.* Photo by Stephen Sharnoff.

same area in Marin County and made the fourth known collection in North America. As you can see from Steve's picture it is a distinctive species, conspicuously yellow. The ascospores are large, brown and 1-septate, equally distinctive (Sheard 2010) and Steve's specimen was fertile.

Rinodina falvosoralifera has an interesting distribution. It is occurs in the coastal lowlands of southwestern Sweden where it is apparently frequent (Tønsberg 1992) but it is apparently rare in North America. In Sweden apothecia are infrequent and possibly it is usually sterile in North America too and has been ignored, like most sterile crusts, because there is no easy way to identify them. One theory is that species like *R. falvosoralifera* are ancient species which once had a continuous distribution in boreal forests when Europe and North America were split apart by tectonic processes. Then, during long cycle of the ice age, when much of Canada was under ice as well as most of Europe, these old species were often extirpated from much of their range. They now are relics with scattered distributions in the northern hemisphere. Maybe. We don't know.

The coast of western North America from British Columbia to Baja is the home to many rare lichens. One group of these coastal lichens, which are well covered in the Sonoran lichen flora and *Lichens of North America*, are especially common in Baja and on the Channel Islands and reach their northern distribution limit usually in central California, from Los Osos to Point Reyes. We have been studying a rare lichen which we currently believe is part of this biogeographical unit, *Cyphelium brachysporum* Nádv. (Lendemer et al. 2008; Knudsen & Kocourková 2011). We call it Pechanga Cyphelium, after the Native American tribe that lived where the type was discovered. It was described by the Czech lichenologist Nádvorník during World War 2 from a single specimen collected by H.E. Hasse in Murrieta Hot Springs, California, in the early 1905. How that specimen got to the National Museum in Prague we will probably never know. You won't find Pechanga Cyphelium in the Sonoran flora, though Bruce Ryan identified at least two specimens as *C. brachysporum*, one from the Santa Rosa Island (which has no apothecia anymore) and one which is apparently lost. It's a yellow species which grows on wood and dead shrubs. It

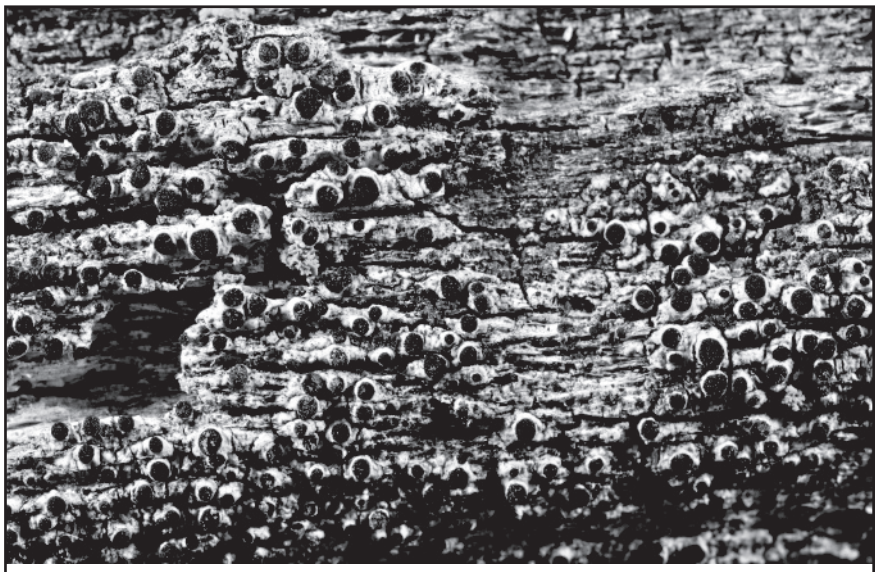

Figure 2. *Cyphelium brachysporum*. Photo by Stephen Sharnoff.

looks like *C. tigillare* (Ach.) Ach. or *C. pinicola* Tibell, but differs in having broadly ellipsoid ascospores ([13.5] –14.1– [14.7] × [10.0] –10.6-[11.3] µm; n=40, average +/– 1.96SE), which are 1-septate to submuriform, and are ornamented with a rough minutely punctate surface. Specimens of *C. tigillare* are easily misidentified as *C. brachysporum* when there is predominance of smaller immature ascospores, but usually one can find at least some larger ascospores (average size is 17-21 microns) and all ascospores will have smooth walls without any ornamentation. The ascospores of Pechanga Cyphelium are also smaller than the montane *C. pinicola*, which also has a different ornamentation of small fissures which can give mature ascospores a rimose areolate look.

The type locality of Pechanga Cyphelium is actually near my California home in Wildomar, but I have not found it yet in southern California or the Channel Islands. Steve discovered only the third known living population of Pechanga Cyphelium. All three populations occur in San Luis Obispo County in coastal habitat. In San Simeon it grows with *Lecanora simeonensis* on a historic Hearst ranch fence a short walk from the beach. In Los Osos I collected it on a dead Morro manzanita deep in an oak reserve.

We do not know if Pechanga Cyphelium is really rare. There is not enough data because the state is poorly collected overall. But it is apparently extremely rare or extirpated on the Channel Islands, the most collected area of California, but we do not know for sure if it ever occurred there. Species like Pechanga Cyphelium that grow on the old wood of senescent chaparral and dead trees can easily become extirpated by frequent fires as well as brush clearance and controlled burns (which usually never assess their impact on corticolous lichens). It is not surprising this species is now

being found in San Luis Obispo County. This area naturally has very few fires caused by lightning. The Morro Manzanita, which I collected it on, does not sprout after fires like some species that grow in areas prone to lightning. Take a good look at Steve's picture and check out the spores carefully and I will personally be glad to verify your ID. Maybe you will be the one to discover a fourth population. But be careful it is not the common *C. tigillare.*

Steve plans to exclude some species from the book because they are not frequent in California though common in other regions. For instance, he photographed *Lecidea confluens* (Weber) Ach. on the Mendocino coast. This is a common species in the Alps and in the mountains of central Europe. It was only the second collection I had seen from California and by far the best of the two with a well-developed thallus and the characteristic position of the apothecia rising above the thallus surface. This species is similar looking to the common *Lecidea tessellata*, which has a pale hypothecium while the hypothecium of *L. confluens* is black. In that species the apothecia occur between the areoles and do not usually raise above the thallus surface. Steve's collection only had confluentic acid, a chemotype that occurs in central Europe (Schwab 1986). I was happy to include his specimen in the UCR Herbarium for future study as well as place a duplicate in New York.

While we were talking, Steve said he thought Sylvia usually took better photographs than he did. I don't know about that. But the new pictures I examined were great, among the best field photographs of lichens I have ever seen. Steve's an artist. I am looking forward to buying a copy one day and getting Steve to autograph it.

Prague, March, 2012

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Lichens of the Presidio of San Francisco

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Four independent surveys for lichens have taken place at the Presidio of San Francisco since 1997. Our recent inventory (2010-2011) captured 109 species, 78 of which are new additions to the park's list. There are now 138 species known from the Presidio. Several of our collections are new reports for California and others are range extensions within the state.

Introduction

The Presidio of San Francisco (the Presidio) is a former army post that is currently part of the Golden Gate National Recreation Area and is managed by the National Park Service (NPS) and the Presidio Trust. The US Army had control of the land from 1846 until 1994 when it was passed over to the NPS. The Presidio is an expanse of urban parkland located at the northern tip of San Francisco near the southern end of the Golden Gate Bridge. The park houses numerous historical structures from the US Army's 148-year presence at the site. Other developed features in the park include a national cemetery, residential areas, and a golf course. The Presidio's 300-acre forest of eucalyptus (*Eucalyptus globulus*), Monterey cypress (*Cupressus macrocarpa*), and Monterey pine (*Pinus radiata*) is the result of a large-scale landscape architecture plan implemented by the US Army in the 1880s. The forest was planted to block strong coastal winds and distinguish the post from the city that was growing up around it, with the additional benefit of making the post seem more imposing (Presidio Trust 2012). Natural areas within the park consist of riparian areas, serpentine grasslands, coastal bluffs, beaches, and restored coastal dune communities.

The lichen flora of the Presidio has been explored in several studies (Table 1). In 1997, California Lichen Society (CALS) members Doris Baltzo and Janet Doell reported 34 species for the park (Baltzo & Doell 1997). In 2009, Michael Rotter, an intern at the Presidio Native Plant Nursery, conducted an inventory that added 19 species to the park's list (Rotter 2010). In January 2010, CALS led a field trip to the Presidio and identified seven more species for the park. In total, 60 species were reported for the Presidio as of January 2010. Based on the types of habitats present in the park and the sparse representation of crustose species in the studies, it was estimated that the inventory was approximately 50% complete. Tania Pollak, natural resource planner in 2010 for the Presidio Trust, attended the January 2010 field trip and expressed an interest in having CALS continue the inventory effort. That field trip sparked our interest and we initiated this inventory in May 2010.

The main contributions resulting from

the current inventory include: 1) providing park managers and interpretive staff with a more complete list of the lichen species present in the Presidio, thus enabling more effective management of their lichen resources; 2) establishing a baseline dataset, which will prove useful for future surveys conducted in the park; and 3) documenting lichen occurrences in California, which will help hone our knowledge of species' ranges and distributions throughout the state.

Methods

The inventory effort focused on areas where high lichen diversity was expected. This included areas with remnant stands of native vegetation, coastal bluffs, rock outcrops, riparian areas and seeps. Additionally, we spent a portion of our time searching for lichens in developed areas in order to capture those species that thrive in urban habitats and to sample the different types of substrates found there. Two reconnaissance and four collecting trips were made to the Presidio between May and July 2010, with the goal of visiting as many lichen-rich habitats as time allowed. We visited eight different locations in the park (Baker Beach, Battery Godfrey, an alkaline seep, Pershing Square, Lobos Creek, Fort Scott, San Francisco National Cemetery, and Marshall Beach) and collected specimens at one to three sites in each location (Figure 1).

Due to limited resources, we did not consistently collect duplicate specimens of species already collected during this project. This kept the workload for the project manageable; however, it limited our ability to detect trends in rarity and distribution of species. We did not attempt to identify pycnidial crusts because the technical material available for working with these specimens is very limited. The collections are the property of the NPS and were deposited at the California Academy of Science (CAS) herbarium in San Francisco, CA.

Sampling Locations

Baker Beach - Three sites were surveyed in the general Baker Beach area. The first was at the picnic area, where we collected from Monterey pine, pittosporum (*Pittosporum tobira*), and eucalyptus within a Monterey pine stand less than 100 meters from the beach. Most species collected here were found on pittosporum bark and were fairly typical for the region: *Chrysothrix xanthina, Flavoparmelia caperata, Flavopunctelia flaventior, Lepraria pacifica, Niebla cephalota, Opegrapha atra, Opegrapha herbarum, Parmotrema perlatum, Physcia adscendens, Pyrrhospora quernea, Ramalina farinacea, Ramalina subleptocarpha, Sigridea californica* (Figure 2), and *Xanthoria parietina*. In addition to the ordinary flora, this site also yielded the only collection of *Thelenella modesta*, a pyrenolichen infrequently reported from California, and the beautiful and easily identified *Gyalecta herrei* (Figures 3 & 4).

The second site was at the corner of the fence leading into Battery Chamberlin, where both natural and artificial substrates were sampled. Collections were made on ornamental shrubs at the edge of a Monterey pine stand and on the concrete bunker itself. *Caloplaca luteominia* var. *luteominia* is an abundant saxicolous

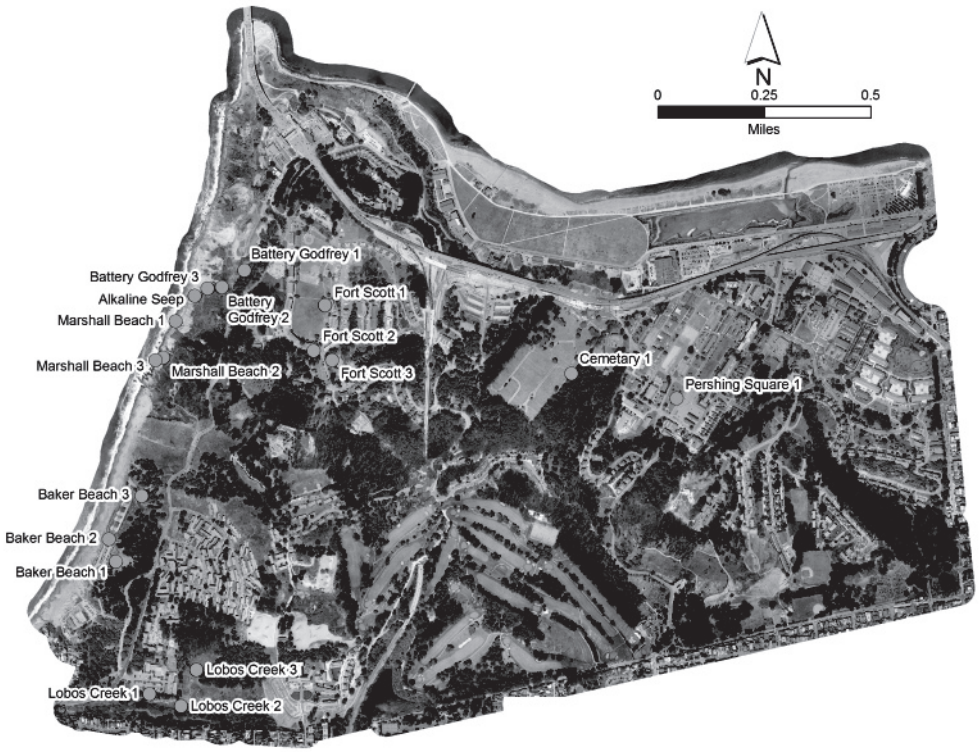

Figure 1. Collection sites at the Presidio.

species throughout the coastal edge of the Presidio; this was the first place we found it. The third collection site was a Monterey cypress stand upslope from Battery Chamberlin.

Battery Godfrey - In the area around Battery Godfrey, we collected from toyon (*Heteromeles arbutifolia*) at the trailhead leading to Marshall Beach and Baker Beach, and from serpentine rock outcrops surrounded by coastal scrub on the bluff above the beach. The serpentine rocks had a moderately high diversity of species; although, due to the easily-fragmented nature of this rock, most specimens were small and found growing in the minute crevices and corners formed by the fracture planes of the substrate (Figure 5). The most interesting species found here was *Lecania pacifica*, a slight range

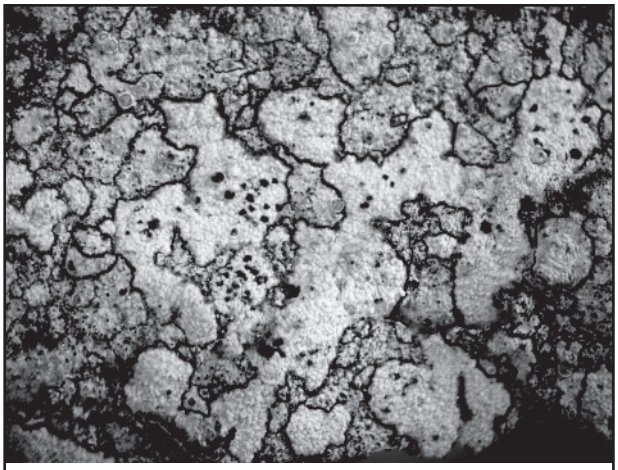

Figure 2. *Sigridea californica* was one of the most common lichens collected in the inventory. Note the "battle lines" even though it is all the same species. Photo by Tom Carlberg.

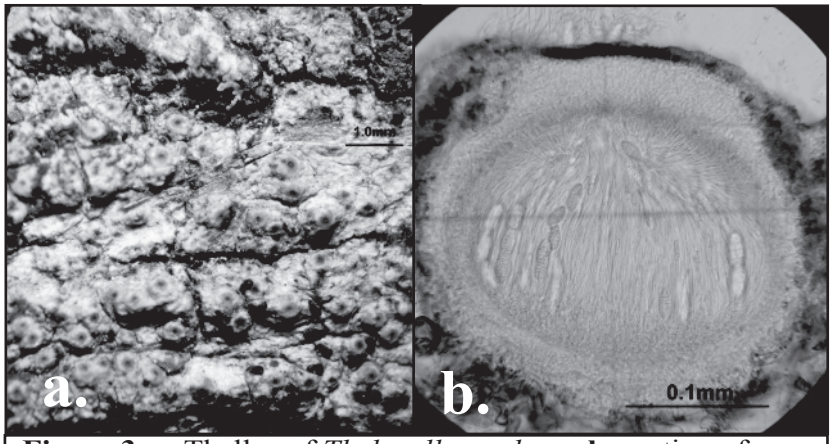

Figure 3. a. Thallus of *Thelenella modesta*. **b.** section of perithecium. The involucrellum is reduced to a delicate black cap at the top of the perithecium. Photos by Tom Carlberg.

extension from Monterey County.

Alkaline Seep - We discovered an alkaline seep on the coastal bluff between Marshall Beach and Baker Beach. The alkali salts in the water had precipitated into a very soft rock with a basic pH. This chemically distinctive substrate was uncommon within the Presidio as were the lichen species we documented here. We collected *Verrucaria calciseda*, an endolithic lichen that creates small pits in the rock where the fruiting structures (perithecia) develop (Figure 6). *Thelidium minutulum*, a new report for California, was also found on the alkali accretions (Figure 7).

Pershing Square - At Pershing Square, a heavily-landscaped part of the Presidio, we collected from the north end of the square, on palms and other exotic trees. All of the trees showed obvious nitrogen enrichment from fertilizer, based on the line of *Xanthoria* spp. growing within the fertilizer spray zone. The lichens collected here show a certain degree of "urbanization" and species of *Physcia, Phaeophyscia* and *Xanthoria* predominate.

Lobos Creek - At Lobos Creek, we surveyed three general areas: an open stand of Monterey pine adjacent to the parking lot at the Lobos Dunes restoration site, and two very similar locations several

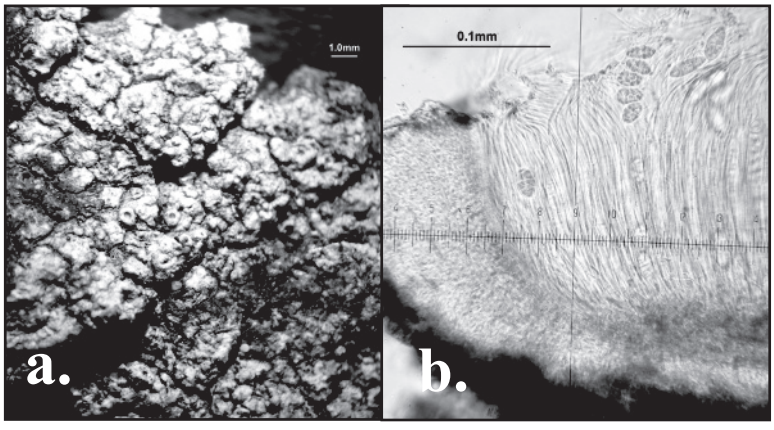

Figure 4. a. Habit of *Gyalecta herrei*. **b.** Section through apothecium. Photos by Tom Carlberg.

hundred meters to the east, both within the Lobos Dunes restoration site. Lobos Creek had high species diversity due to a combination of natural and man-made substrates including coyote bush (*Baccharis pilularis*), a boardwalk made of recycled plastic, and weathered interpretive signboards. The only occurrence of the non-lichenized fungus *Sarea resinae* came from the resin of a Monterey pine in this area.

Fort Scott - At Fort Scott, an area dominated by older buildings and mature landscaping, we sampled urban parkland habitats: a small group of Bishop pine (*Pinus muricata*) and ornamental shrubs in landscaped areas near old military buildings, palm trees, yucca (*Yucca filamentosa*), Monterey cypress trees in a landscaped area lining the roadway, a gravel path bordered by small cobbles, and painted concrete porches and rock walls. Many of the "usual suspects" were collected here: *Chrysothrix xanthina, Cliostomum griffithii, Flavoparmelia caperata, Lecanora expallens, Lecanora polytropa, Micarea prasina, Niebla cephalota, Opegrapha atra, Parmotrema perlatum, Physcia dimidiata, Physcia tribacia, Punctelia jeckeri, Pyrrhospora quernea, Ramalina farinacea, Ramalina menziesii, Ramalina subleptocarpha, Sigridea californica, Usnea cornuta*, and *Xanthoria parietina*. Some distinctive species were also found here: *Lecanora crenulata* and a lichen identified as *Arthonia* cf. *fuliginosa*, which if verified would represent a new record for California. *Xanthoria candelaria* is an attractive, brightly-colored, minute lichen with strongly ascending lobes that was found growing on the thickly layered paint

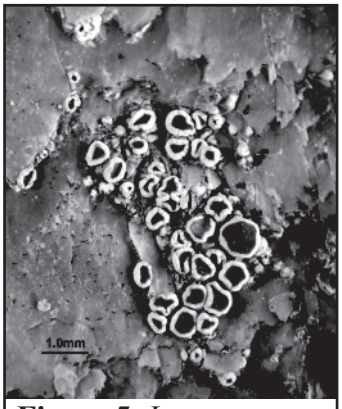

Figure 5. *Lecanora dispersa* growing on serpentine rock. Photo by Tom Carlberg.

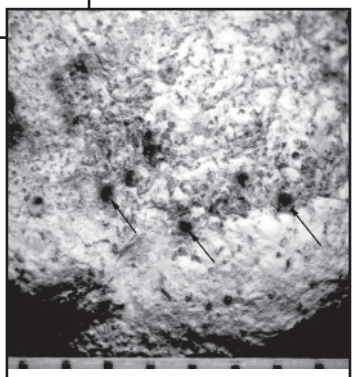

Figure 6. Perithecia of *Verrucaria calciseda* (arrows) immersed in soft alkali substrate. Scale = 1.0mm. Photo by Tom Carlberg.

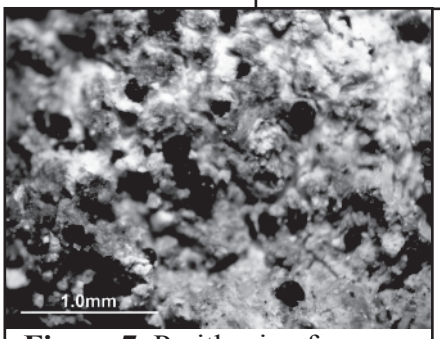

Figure 7. Perithecia of *Thelidium minutulum* superficial on loosely-aggregated alkali substrate. Photo by Tom Carlberg.

on the concrete porches of some of the buildings at Fort Scott (Figure 8). *Amandinea punctata* and *Opegrapha atra* were growing as epiphylls on the leaves of an unidentified palm tree (Figure 9).

San Francisco National Cemetery - We expected to find interesting lichens on the old marble and granite headstones of the San Francisco National Cemetery; however, due to the immaculate care and maintenance of the grounds, we found nothing growing on these substrates. It is common practice in well-maintained cemeteries to apply chemical compounds to the headstones to prevent lichen growth. Our only collections came from the sandstone wall separating the cemetery grounds from the adjacent parklands.

Marshall Beach - We collected from three sites in the Marshall Beach area. All of the sites were within the supralittoral zone or lower, areas strongly influenced by marine elements. The geology at Marshall Beach was highly variable with a number of different rock types found next to each other, all within a relatively small area. At the first collection site we sampled from serpentine outcrops and an adjacent rock outcrop composed of a darker material. Both substrates were within the splash zone and received nitrogen input form bird droppings. We collected *Caloplaca coralloides* from the tops of the rocks, at the upper limit of the intertidal zone, and *Wahlenbergiella mucosa* on rocks near the water's edge.

Figure 8. Lobes of *Xanthoria candelaria*. Photo by Tom Carlberg.

Continuing a short distance south along Marshall beach, there was a ridge of Franciscan chert protruding into the ocean. Collections at this second site were made from both protected and exposed

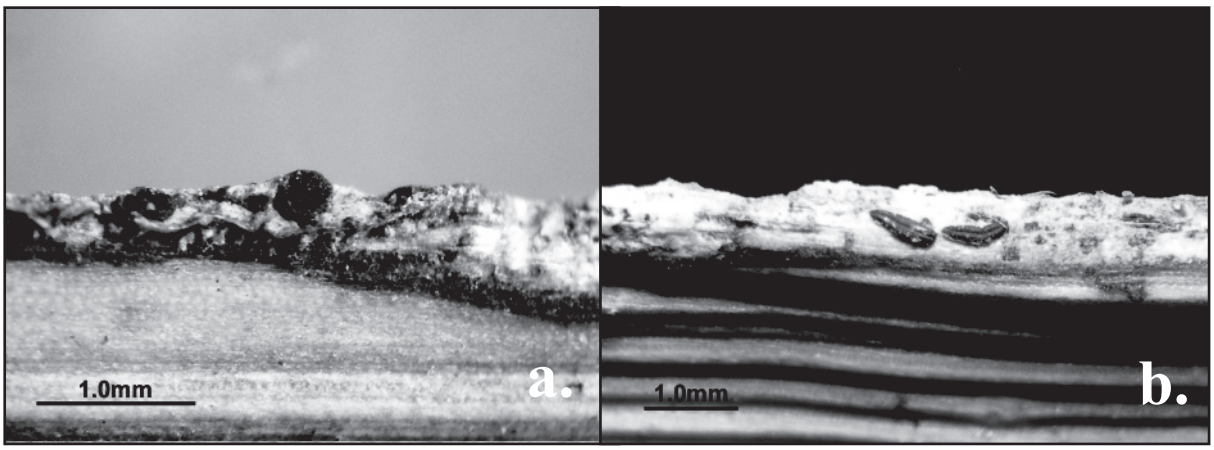

Figure 9. a. Apothecia of *Amandinea punctata*. **b.** Lirellae of *Opegrapha atra*. Both lichens are growing on palm leaves. Photos by Tom Carlberg.

microhabitats. The inland portion of the ridge was highly degraded with crumbling rock fragments and areas of soil accumulation that supported Dudleya (*Dudleya farinosa*) and lizard tail (*Eriophyllum stoechadifolium*). Patches of exposed soil in sheltered locations hosted a prolific growth of soil crusts. Interesting collections from this area included *Lepraria pacifica*, recently distinguished in western North America from the European species *L. incana*; *Leptogium intermedium*; and *Porina chlorotica*. The nose of the ridge at the water's edge was composed of more solid Franciscan chert and was exposed to the wind and spray of the ocean. This portion of the ridge was not vegetated. Here we found the tiny, fruticose *Lecania fructigena*, and from within the splash zone we collected *Hydropunctaria maura* (Figure 10). This is the first time *H. maura* and *L. intermedium* have been documented in California.

Just south of the ridge of Franciscan chert was a ridge of sandstone, essentially the last barrier between Marshall Beach and Baker Beach to the south. This third collection site clearly receives salt spray input from the ocean based on the honeycomb weathering patterns observed on the rocks. Collections here were similar to the previous location; *Lecania fructigena* was particularly abundant.

Results

This inventory captured 109 lichen species, 78 of which are new additions to the park's list. Four species are new to California (*Caloplaca approximata, Hydropunctaria maura, Leptogium intermedium*, and *Thelidium minutulum*) and the range for two species has been extended by 100 miles or more (*Lecania pacifica* and *Usnea mutabilis*). The new total for lichens reported from the Presidio is 138 species. There were 29 species documented in the previous three inventories that we did not detect, representing 21% of the current Presidio lichen flora. The majority of these species are regionally common and we expect they are present in the park. The purpose of this inventory was to detect unreported species and it is likely that we overlooked several species already known for the park. Species reported as occurring in the

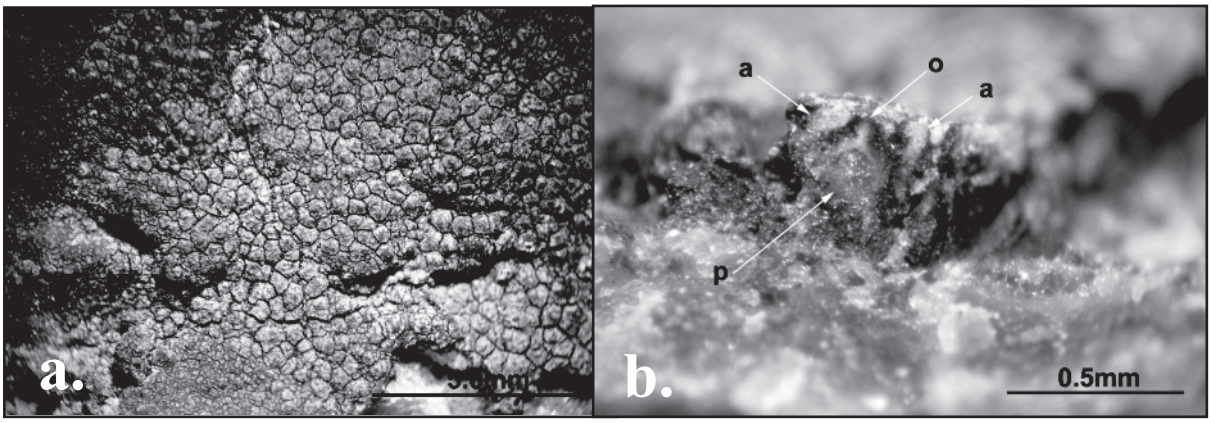

Figure 10. a. Habit of *Hydropunctaria maura*. **b.** Thallus section showing perithecium (p) with ostiole (o) and pockets of algae (a), separated by black bands of medulla. Photos by Tom Carlberg.

Table 1. Summary of lichen species reported for the Presidio of San Francisco. **Bold** type indicates a species represented by an accessioned voucher. Species listed under Rotter 2010 include determinations made by Benson and Carlberg in December 2011.

		Previous Inventories		
Scientific Name	**Benson, Carlberg, Doell 2010-2011**	**CALS 2010**	**Rotter 2010**	**Baltzo & Doell 1997**
Acarospora socialis H. Magn.	**X**			
Amandinea punctata (Hoffm.) Coppins & Scheid.	**X**			
Anisomeridium biforme (Borrer) R.C. Harris	**X**			
Arthonia cf. *fuliginosa* (Schaerer) Flotow	**X**			
Arthonia pruinata (Pers.) Steud. ex A. L. Sm.	**X**			
Bacidia circumspecta (Nyl. *ex* Vain.) Malme	**X**			
Bacidia heterochroa (Müll. Arg.) Zahlbr.	**X**			
Bacidina ramea S. Ekman	**X**			
Biatora globulosa (Flörke) Fr.	**X**			
Bilimbia cf. *sabuletorum* (Schreb.)	**X**			
Buellia badia (Fr.) A. Massal.	**X**			
Buellia dispersa A. Massal.	**X**			
Buellia oidalea (Nyl.) Tuck.	**X**			
Buellia sequax (Nyl.) Zahlbr.	**X**			
Buellia stellulata (Taylor) Mudd.	**X**			
Buellia tesserata Körber	**X**			
Caloplaca approximata (Lynge) H. Magn.	**X**			
Caloplaca bolacina (Tuck.) Herre	**X**			X
Caloplaca citrina (Hoffm.) Th. Fr.	**X**			
Caloplaca coralloides (Tuck.) Hulting	**X**			
Caloplaca inconspecta Arup	**X**			
Caloplaca ludificans Arup	**X**			
Caloplaca luteominia var. *luteominia* (Tuck.) Zahlbr.	**X**			
Caloplaca phlogina (Ach.) Flagey	**X**			
Caloplaca pyracea (Ach.) Th. Fr.	**X**			
Caloplaca saxicola (Hoffm.) Nordin				X
Catillaria cf. *nigroclavata* (Nyl.) Schuler	**X**			
Chrysothrix xanthina (Vain.) Kalb	**X**	X	**X**	X
Cladonia cf. *asahinae* J. W. Thomson			**X**	
Cladonia cf. *fimbriata* (L.) Fr.				X
Cladonia chlorophaea (Flörke ex Sommerf.) Sprengel	**X**			X
Cladonia furcata (Hudson) Schrader			**X**	X
Cladonia macilenta Hoffm.	**X**		**X**	
Cladonia pyxidata (L.) Hoffm.	**X**		**X**	
Cladonia subulata (L.) F. H. Wigg.	**X**		**X**	
Cladonia transcendens (Vainio) Vainio			**X**	
Cliostomum griffithii (Sm.) Coppins	**X**			
Dimelaena radiata (Tuck.) Müll. Arg.				X
Diploschistes scruposus (Schreber) Norman				X
Diplotomma alboatrum (Hoffm.) Flotow	**X**			
Evernia prunastri (L.) Ach.	**X**	X	**X**	X
Flavoparmelia caperata (L.) Hale	**X**	X	**X**	X
Flavopunctelia flaventior (Stirton) Hale	**X**		**X**	X
Graphis scripta (L.) Ach.		X		
Gyalecta herrei Vězda	**X**			

Table 1. (Continued)

		Previous Inventories		
Scientific Name	**Benson, Carlberg, Doell 2010-2011**	**CALS 2010**	**Rotter 2010**	**Baltzo & Doell 1997**
Heterodermia leucomela (L.) Poelt	**X**			X
Hydropunctaria maura (Wahlenb.) Keller, Gueidan & Thüs	**X**			
Hyperphyscia adglutinata (Flörke) H. Mayrhofer & Poelt	**X**			
Hypogymnia inactiva (Krog) Ohlsson			**X**	
Hypogymnia enteromorpha (Ach.) Nyl.		X		X
Hypogymnia imshaugii Krog	**X**	X		
Hypotrachyna revoluta (Flörke) Hale	**X**			
Kaernefeltia californica (Tuck.) Thell & Goward	**X**			
Lecanactis californica Tuck.	**X**			
Lecania fructigena Zahlbr.	**X**			
Lecania inundata (Hepp *ex* Körber) M. Mayrhofer	**X**			
Lecania pacifica Zahlbr. ex B. D. Ryan & van den Boom	**X**			
Lecanora caesiorubella Ach.	**X**			X
Lecanora cf. *conizaeoides* Nyl. ex Crombie				**X**
Lecanora confusa Almb.	**X**			
Lecanora crenulata Hooker	**X**			
Lecanora dispersa (Pers.) Sommerf.	**X**	X		
Lecanora expallens Ach.	**X**			
Lecanora gangaleoides Nyl.	**X**			
Lecanora hagenii (Ach.) Ach.	**X**			
Lecanora polytropa (Hoffm.) Rabenh.	**X**			
Lecanora symmicta (Ach.) Ach.	**X**			
Lecidea atrobrunnea (Lam. & DC.) Schaerer	**X**			
Lecidea erythrophaea Flörke ex Sommerf.	**X**			
Lepraria lobificans Nyl.		X		
Lepraria membranacea (Dickson) Vainio		X		X
Lepraria pacifica Lendemer	**X**			
Lepraria xerophila Tønsberg	**X**			
Leptogium intermedium (Arnold) Arnold	**X**			
Megalaria columbiana (G. Merr.) Ekman	**X**			
Melanelixia fuliginosa (Fr. ex Duby) O. Blanco et al.			**X**	
Micarea prasina Fr.	**X**			
Niebla cephalota (Tuck.) Rundel & Bowler	**X**	X	**X**	X
Ochrolechia arborea (Kreyer) Almb.	**X**			
Opegrapha atra Pers.	**X**			
Opegrapha herbarum Mont.	**X**			
Parmelia hygrophila Goward & Ahti	**X**			
Parmelia sulcata Taylor	**X**	X	**X**	
Parmotrema arnoldii (Du Rietz) Hale				X
Parmotrema perlatum (Hudson) M. Choisy	**X**	X	**X**	
Parmotrema stuppeum (Taylor) Hale	**X**		**X**	X
Pertusaria amara (Ach.) Nyl.	**X**			X
Phaeophyscia hirsuta (Mereschk.) Essl.	**X**			
Physcia adscendens (Fr.) H. Olivier	**X**		**X**	X
Physcia caesia (Hoffm.) Fürnr.			**X**	
Physcia dimidiata (Arnold) Nyl.	**X**			
Physcia tribacia (Ach.) Nyl.	**X**			X

Table 1. (Continued)

		Previous Inventories		
Scientific Name	**Benson, Carlberg, Doell 2010-2011**	**CALS 2010**	**Rotter 2010**	**Baltzo & Doell 1997**
Platismatia glauca (L.) W. L. Culb. & C. F. Culb.				**X**
Porina chlorotica (Ach.) Müll. Arg.	**X**			
Punctelia perreticulata (Räsänen) G. Wilh. & Ladd	**X**			
Pyrrhospora quernea (Dickson) Körber	**X**			**X**
Ramalina canariensis J. Steiner	**X**		**X**	
Ramalina farinacea (L.) Ach.	**X**	X	**X**	X
Ramalina leptocarpha Tuck.			**X**	
Ramalina menziesii Taylor	**X**	X	**X**	X
Ramalina pollinaria (Westr.) Ach.	**X**			
Ramalina roesleri (Hochst. ex Schaerer) Hue		X		
Ramalina subleptocarpha Rundel & Bowler	**X**	X	**X**	**X**
Rinodina bolanderi H. Magn.	**X**			
Rinodina herrei H. Magn.	**X**			
Sarea resinae (Fr.:Fr.) Kuntz	**X**			
Schismatomma decolorans (Turner & Borrer ex Sm.) Clauz. & Vězda		X		X
Sigridea californica (Tuck.) Tehler	**X**			
Staurothele polygonia B. de Lesd.	**X**			
Teloschistes flavicans (Sw.) Norman	**X**			
Thelenella modesta (Nyl.) Nyl.	**X**			
Thelidium minutulum Körber	**X**			
Toninia cinereovirens (Schaerer) A. Massal.	**X**			
Toninia ruginosa ssp. *pacifica* Timdal	**X**			
Toninia tristis (Th. Fr.) Th. Fr.	**X**			
Trapeliopsis flexuosa (Fr.) Coppins & P. James		X		
Tuckermannopsis orbata (Nyl.) M. J. Lai	**X**			
Tuckermannopsis chlorophylla (Willd.) Hale		X	**X**	
Usnea californica Herre				X
Usnea cf. *fragilescens* Hav. ex Lynge			**X**	X
Usnea cf. *lapponica* Vainio			**X**	
Usnea cf. *subfloridana* Stirton			**X**	
Usnea cornuta Körber	**X**		**X**	
Usnea flavocardia Räsänen	**X**	X		X
Usnea mutabilis Stirton	**X**			
Usnea rubicunda Stirton	**X**	X	**X**	X
Verrucaria americana (B. de Lesd.) Breuss	**X**			
Verrucaria calciseda DC.	**X**			
Verrucaria cf. *nigrescens* Pers.				**X**
Verrucaria mimicrans Servít	**X**			
Wahlenbergiella mucosa (Wahlenb.) Gueidan & Thüs	**X**			
Xanthomendoza fulva (Hoffm.) Søchting, Kärnefelt & S. Kondr.	**X**		**X**	
Xanthomendoza hasseana (Räsänen) Søchting, Kärnefelt & S. Kondr.			**X**	
Xanthoparmelia novomexicana (Gyelnik) Hale	**X**			
Xanthoparmelia verruculifera (Nyl.) Crespo, O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch		X		
Xanthoria candelaria (L.) Th. Fr.	**X**			
Xanthoria parietina (L.) Th. Fr.	**X**		**X**	X
Xanthoria polycarpa (Hoffm.) Th. Fr.	**X**		**X**	

Presidio are summarized in Table 1. This table includes all species published in previous reports, including those with no voucher specimens. Lichens that were not identified beyond the level of genus were excluded from this list.

Noteworthy Species

Several species encountered in the course of this project are unusual for the area or are unique and deserve some additional comment:

Caloplaca approximata (Lynge) H. Magn.

This is the first report of this taxon for California.

Hydropunctaria maura (Wahlenb.) Keller, Gueidan & Thüs

This is the first report of this taxon for California. The anatomy of this maritime saxicolous lichen is extremely interesting. The fruiting structures are perithecia, the algae are arranged in vertical columns, and the "medulla" is a black basal layer which forms columns ("jugae" or "punctae") to the upper surface and isolates the algae into pockets near the upper surface (Figure 10).

Lecania pacifica Zahlbr. ex B. D. Ryan & van den Boom

Reported from Monterey County and points further south, this species has somewhat dispersed brown minutely incised squamules, bearing a slight resemblance to *Lecania fructigena* Zahlbr. when that species is not well developed.

Lepraria pacifica Lendemer

Described by Lendemer in 2011, where he states that it is the dominant *Lepraria* species in the coastal redwood forests, it is also reported by Williams & Sillett in 2007 (as *L. incana*), occurring on all vertical strata of numerous *Sequoia sempervirens* trees. In the Presidio we found it growing on soil and on the bark of *Pinus radiata*.

Leptogium intermedium (Arnold) Arnold

This is the first report of this taxon for California. A small gelatinous cyanolichen growing on sand and soil, it is easily overlooked. Identification requires examination of the arrangement of the medulla in a thin section of the thallus.

Porina chlorotica (Ach.) Müll. Arg.

Recent revisions have placed this taxon in other genera (*Trichothelium*, *Pseudosagedia*), all of which report larger spore sizes than found in this specimen. The spore sizes in Brodo (2004) and Smith et al. (2009), where the name *P. chlorotica* is retained, match much more closely, as do the conidia; hence we are retaining this (possibly taxonomically mistaken) name. In any case, an interesting collection of a species seldom reported for California.

Thelenella modesta (Nyl.) Nyl. (Figure 3)

This specimen has generally smaller spores than the descriptions of European material, with a range of 17.8-31.7 x 10.1-14.1um as opposed to 25-42 x 11-17. The reactions of microsections to K and I also differ; Smith et al. (2009) state that the hymenial gel and asci are K/I-, but this specimen is repeatedly K/I+ blue for both of these parts of the perithecium. Material from Oregon referred to *T.* cf. *modesta* by McCune (2010) has larger spores than European reports, a K/I+ blue hymenium (as does this specimen), and differs in several other characters.

Thelidium minutulum Körber (Figure 7)

This is the first report of this taxon for California. Characterized by the lack of an

involucrellum, the carbonized upper and non-carbonized lower wall of the perithecium, 2-celled ascospores, and a hymenial gelatin that is I+ red and K/I+ blue.

Usnea mutabilis Stirton

This represents a new northern limit for the species within California, with the next nearest collection reported from Seal Point, approximately 35 miles south of Monterey, California.

Acknowledgements

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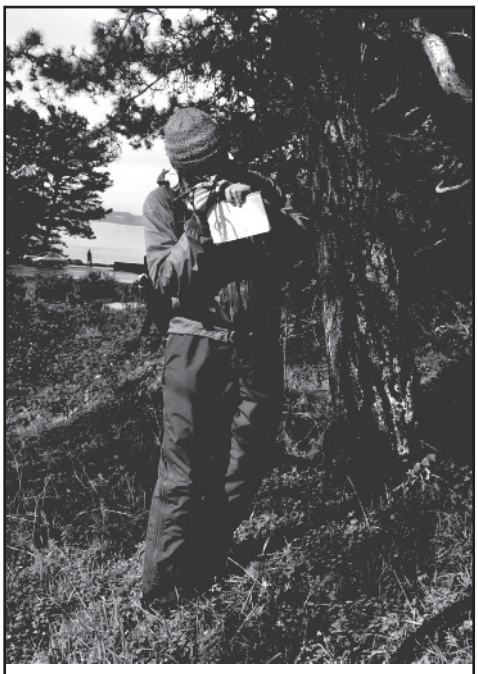
Field trip to the Presidio during the CALS Annual meeting in 2010. Judy Robertson with several other CALS members. Photo by Erin P. Martin.



Shelly Benson at the Presidio. Photo by Erin P. Martin.

Tom Carlberg with Lee Gallagher at the Presidio. Photo by Erin P. Martin.

News and Notes

San Bruno Mountain Field Trip and Identification Session at San Francisco State University

The October 22, 2011 field trip to Lichen Rock on San Bruno Mountain, San Mateo County, CA, was co-sponsored by the Mycological Society of San Francisco. This was a great opportunity for CALS members to hang out with mycological brethren and expound on the virtues of the mycobiont-photobiont relationship of lichens. Mikki McGee spearheaded this trip, which consisted of a morning field trip to collect lichen specimens followed by an identification session at San Francisco State University (SFSU). A big 'thank you' goes out to Dennis Desjardin of the biology department at SFSU for providing lab space and microscopes, and to Kathy Faircloth for handling logistics for the event.

Near the summit of San Bruno Mountain we started out on a trail that passed through a mature stand of coastal scrub. The coyote brush-dominated scrub supported a rich lichen community including the showy *Teloschistes flavicans* and several cyanolichen species: *Collema furfuraceum, Nephroma laevigatum*, and *Sticta limbata*. The trail turned and continued down the mountain and we veered onto a side trial that ended at Lichen Rock. Lichen Rock is composed of greywacke and is covered in rock-loving lichens. In addition to the numerous crustose species, *Niebla homalea* was present and *Xanthoria candelaria* blooms highlighted where birds perch on the rock.

A small group of the morning's participants were keen on learning how to identify lichens and look at their collections under the microscope. At the lab at SFSU, Mikki demonstrated microscope techniques and helped participants navigate lichen keys. Many of the CALS members who attended the trip did more expounding on lichen virtues than collecting lichen specimens. So, the following species list for this trip only scratches the surface of the diversity of lichens at Lichen Rock.

Lichen identification session at San Francisco State University after the San Bruno Mtn. field trip. From left to right in the photo: Shelly Benson, Hanna Mesraty, Dan Norris, Nancy Hillyard.

<u>San Bruno Mountain species list from October 22, 2011, contributed by Nancy Hillyard and Shelly Benson:</u>

Aspicilia cf. *pacifica*
Buellia dispersa
Buellia tyrolensis
Cladonia furcata
Cladonia pyxidata
Collema furfuraceum
Flavopunctelia soredica

Gyalecta herrei
Nephroma laevigatum
Niebla homalea
Ramalina farinacea
Rhizocarpon cf. *pusillum*
Stereocaulon cf. *rivulorum*
Sticta limbata
Teloschistes flavicans
Tephromela atra
Usnea cornuta
Usnea hirta
Usnea rubicunda
Vermilacinia laevigata
Xanthoparmelia californica
Xanthoria candelaria

By Shelly Benson

John Villella setting out on the loop trial at Huckleberry Botanic Regional Preserve.

Huckleberry Botanic Regional Preserve

On the morning of January 28, 2012, as part of the CALS annual meeting festivities, a group of lichen enthusiasts met for a stroll through Huckleberry Botanic Regional Preserve. The 241 acre preserve is located in the hills east of Oakland, CA. We started out on the 1.7 mile loop trail that traverses the east-facing slope of a wooded drainage. Vegetation communities along the trail include coast live oak-California bay laurel forest with pockets of remnant manzanita.

Cruising along the upper fork of the trail at the typical lichenologist pace, we made it approximately half a mile in about three hours. CALS members Bill Hill, Shelly Benson, Tom Carlberg, and John Villella were on hand to point out interesting lichens and field general lichen questions. Tom and John had a good eye for spotting foliicolous lichens (lichens growing on foliage). The leaves of the evergreen huckleberry, the preserve's namesake, were a great substrate for *Fellhanera bouteillei* (see previous Bulletin for photos of this species, Vol. 18 No. 2). Some of the lichen species observed on the walk are listed below. Other participants on the walk included Christine Walker, Ted Robertson, Glen Keator, Brian Weissbuch, Carol Guze, Barbara Layton, Joseph Waxman, Irene Winston, Kathy Faircloth, Kathryn Strachota, Pat Brown, Deborah Brusco and Hanna Mesraty.

<u>Huckleberry Botanic Regional Preserve species from January 28, 2012:</u>

Cladonia chlorophaea
Cladonia furcata
Cladonia squamosa
Collema sp.
Evernia prunastri
Fellhanera bouteillei
Flavoparmelia caperata
Flavopunctelia flaventior
Heterodermia leucomela
Hyperphyscia adglutinata
Hypocenomyce castaneocinerea
Hypogymnia physodes
Hypogymnia tubulosa

Hypotrachyna sp.
Lecanora symmicta group
Lepraria sp.
Parmelia sp.
Parmotrema perlatum
Pertusaria amara
Physcia sp.
Punctelia perreticulata
Ramalina farinacea
Trapeliopsis flexuosa
Tuckermannopsis chlorophylla
Tuckermannopsis orbata
Usnea flavocardia
Usnea sp.

By Shelly Benson

Marin Municipal Water District's Centennial Celebration Lichen Walk

The Marin Municipal Water District celebrates its centennial this year and CALS participated in the celebration by leading a lichen walk at Lake Lagunitas in Marin County, CA. On St. Patrick's Day 2012, Marin Municipal Water District staff Andrea Williams and Suzanne Whelan joined CALS members Shelly Benson and Bill Hill to lead the walk. In addition to the general public, an ecology class from College of Marin attended the event.

The trail around the lake passes through a redwood stand, mixed hardwood-conifer forest, grassland, and coyote brush scrubland. The week leading up to the event was rainy and windy; so we were treated to an abundance of robust *Usnea* clumps that had fallen out of the trees including: *U. cornuta, U. esperantiana, U. filipendula*, and *U. intermedia*. We found a good diversity of cyanolichens on the trunk of a black oak located on the north side of the lake. The cyanolichen species included: *Collema nigrescens, Dendriscocaulon, Leptogium pseudofurfuraceum, Pannaria rubiginosa, Pseudocyphellaria anomala, Pseudocyphellaria anthrapsis*, and *Sticta fuliginosa*. *Normandina pulchella* was also spotted growing among these cyanolichens. We passed a fence made of vertical timbers that was blanketed in *Evernia prunastri*. The exposed soil of the trial cut supported diverse *Cladonia* communities and a shaded, north-facing, rocky slope along the lake's southern shoreline was rich with *Leptogium* species, *Peltigera membranacea*, and a clump or two of *Peltigera ponojensis*.

By Shelly Benson

Lichen Volunteers Needed at UC Berkley

The University Herbarium at the University of California, Berkeley needs dedicated volunteers to help curate its large lichen collection. Due to the merging of the Los Angeles County Museum collections, the filing of the Thomas Elliot Weier collections, and recent acquisitions of Ron and Judy Robertson and Barbara Lachelt, the unaccessioned holdings are now over 25 full herbarium cases! Help accessioning, curating and filing is therefore critical in making the collections accessible to lichenologists both in state and beyond. For information on volunteering and times please contact Administrative Curator Andrew Doran: andrewdoran@berkeley.edu

Northwest Science Association Annual Conference in Boise, Idaho

Lichen and soil crust enthusiasts gathered for the 83rd annual Northwest Science Association meeting in Boise,

Idaho. From March 28-31, the Owyhee Plaza Hotel in downtown Boise was bustling with a diverse range of scientists gathering to share research around the event theme: Networking Science: Communication, Collaboration, and Conservation in a Time of Change.

The cryptogamic highlights this year were many with eight educational lichen lectures in a varying range of topics, a hands-on lichen and bryophyte soil crust workshop, and a field trip to a site hosting common soil crust communities within a sagebrush habitat.

The lectures ranged in topic and presentation style. An overall pattern observed from the lectures was the diligence put forth by each presenter having curated their research into an accessible 20-minute package. The lectures generated interesting discussions and exposed more than the lichen community to more intrinsic topics within the field. The lectures were divided into two-sessions spread over a two-day period.

Session-one:

• Soil Crust Lichens of Oregon's Steppe. Dr. Heather T. Root

• Land Use Changes Have Eliminated Much Suitable Habitat for Rare Biotic Soil Crusts in Oregon. Dr. Bruce McCune

• Mapping Lichens Using Satellite Imagery. Peter T. Nelson

• Using Epiphytic Lichens as Early Indicators of Whitebark Pine Stand Mortality in the Eastern Central Cascades, Washington. Katherine Fitch

Session-two:

• Lichen Responses to Different Forms of Nitrogen in the Los Angeles Basin: Implications for Critical Levels and Loads. Dr. Sarah Jovan

• Rare Inland Reindeer Lichens at Mima Mounds in Southwest Washington State. Robert J. Smith

• Notes on Hypermaritime Foliicolous Lichen Communities of Northern California. John Villella

• Lichen Diversity in a South Florida Forest Canopy. Barry Kaminsky

Heather Root and Robert Smith moderated the lichen and bryophyte soil crust workshop. They led a hearty and informative hands-on identification workshop emphasizing community learning through interaction. The workshop began with an accessible educational overview on biotic crust ecology, ecosystem function, development, and threats to communities. Utilizing the variety of experienced participants, skills were shared and exchanged in microscopy techniques, characteristic terminology, and functional group identification. With a focus on habitat sensitivity, the workshop highlighted conservation through awareness.

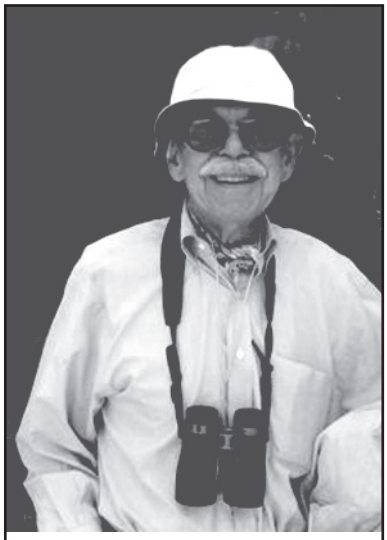
The soil crust field trip was located in the Birds of Prey Natural Conservation Area in Ada County, ID. Having close to 30 participants, Barry Kaminsky did a great job wrangling the kittens within the Wyoming Sagebrush habitat that was moderately to heavily populated with soil crust communities. Common lichen species observed here were *Acarospora schleicheri, Diploschistes muscorum, Leptochidium albociliatum, Ochrolechia upsaliensis, Psora cerebriformis*, and *Psora montana* to name a few.

Among the scientific data filled conference, a few other highlights were celebrating Bruce McCune's 60th birthday through an adventurous slideshow of lichenological highlights, a guided tour of Roger Rosentreter and Ann DeBoldt's endemic plant garden, and a chance to interact with a large group of lichen enthusiasts over several meals in local brew pubs.

The significance of this event from my perspective as a "new-growth" within the lichenological community was the realization of the accessibility within the field. Science in general is a highly competitive web of brilliantly minded puzzle solvers. The members of the lichenological community present at this event were all varied in experience within the field from student, professional, academic, to enthusiast. My "new-growth" curiosity was welcomed with sincere exchanges from experiences past, stimulating dialogs, a variety of suggestions, and group brainstorms.
By Hanna Mesraty

New Photo Gallery of Lichens, Ways of Enlichenment

A new resource is available to lichenologists in the form of an on-line photo gallery of western North American lichens. This wonderful resource has thousands of photographs by numerous lichenologists including Jason Hollinger, Curtis Bjork, Richard Droker and Chris Parrish among others. You can browse the pictures alphabetically, by phylogenetic position or by morphotype, making the data accessible in a number of ways. The website can be accessed at http://www.waysofenlichenment.net/lichens/



Ken Howard. Photo by Daniel Kushner.

In Memory of Ken Howard

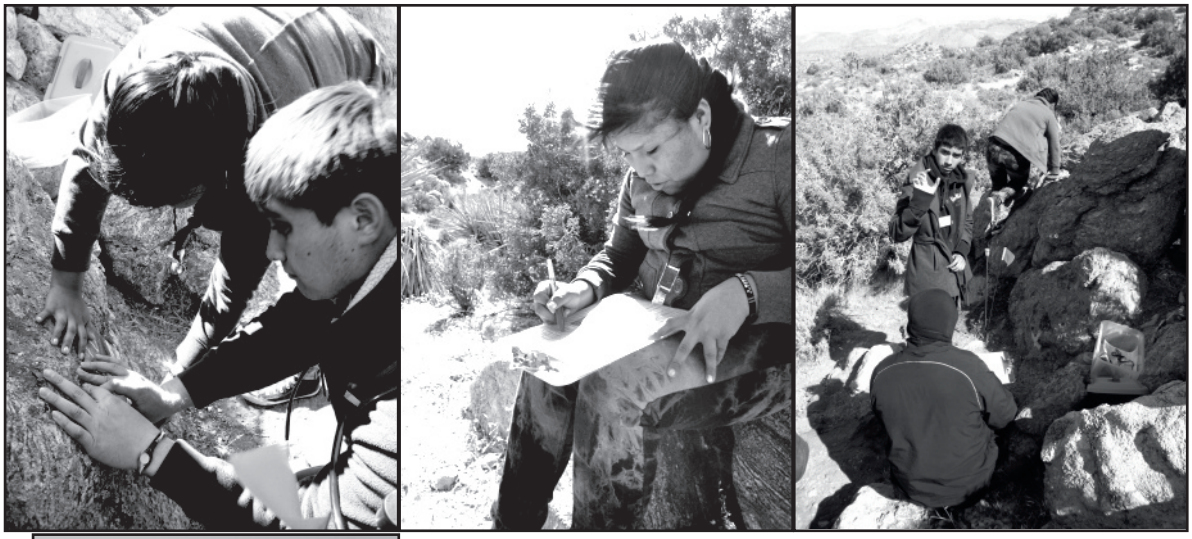
Ken Howard who was an avid lichen enthusiast and regular paticipant at our College of Marin lichen workshops with his 'lichen buddy' Daniel Kushner, passed away September 4, 2011 at the Redwoods retirement facility. He was inqusitive in all aspects of nature, and with Daniel Kushner and some other friends regularly went on hikes on Fridays. Ken's naturalist interests began with birds and the Audubon Society, but then expanded through wild flowers via the Native Plant Society and on to lichens. Janet and Richard Doell's Lichen Miniguide encouraged them to look at lichens, which they then brought to identify at the Friday evening workshops. We have missed Ken's quiet enthusiasm and friendly nature when he no longer came to the Friday evening workshops.

By Daniel Kushner

Errata - Corrections for the last *Bulletin*

The date on the last *Bulletin* should have been Winter 2011 instead of Winter 2012.

Our apologies for any confusion with issue numbers/dates as a result of this error. Pg 27 - The preliminary list of lichens provided by Nancy Hillyard under Notes on the CALS Mt Diablo Field Trip, November 5, 2011 is not a species list for Mt Diablo, rather it is a list from the San Bruno Mtn field trip on October 22, 2011 that is described in this *Bulletin*, Summer 2012, Vol. 19(1).



The Joshua Tree National Park Student Climate Change Summit.

This Spring, High School students from the Morongo Valley and Coachella Valley learned about climate change at Joshua Tree National Park through a series of lectures and activities. In the afternoon, the students were divided into small groups and led to lichen panels in the Black Rock Canyon Area of Joshua Tree National Park. The students spent the day determining the aspect of the lichen panel, drawing the lichens on a grid to estimate percent cover, photographing them, and developing standardized language to describe them. CALS provided funding for the purchase of handlens through an educational grant to Seth Shteir.

Above: Students measuring percent cover of lichens on rock panels. **Left**: Kerry Knudsen examining a picture of a plot from previous year with one of the biology teachers. Botanist Mitz Harding of the National Parks Service supervised the plots. Photos by Caryn Davidson of the National Parks Service.

CALS Research/Educational Grants Program

CALS offers small grants to support research or education pertaining to lichens in California. No geographical constraints are placed on grantees or their associated institutions. The Research/Educational Grants committee administers the grants program, with grants awarded to an individual only once during the duration of a project.

Grant Applicants should submit a proposal containing the following information:

1. Title of the project, applicant's name, address, phone number, email address, and date submitted.
2. Estimated time frame for project
3. Description of the project: outline the objectives, hypotheses where appropriate, and methods of data collection and analysis. Highlight aspects of the work that you believe are particularly important and creative. Discuss how the project will advance knowledge of California lichens.
4. Description of the final product: We ask you to submit an article to the CALS Bulletin, based on dissertation, thesis, or other work.
5. Budget: summarize intended use of funds. If you received or expect to receive grants or other material support, show how these fit into the overall budget.

The following list gives examples of the kinds of things for which grant funds may be used if appropriate to the objectives of the project: expendable supplies, transportation, equipment rental or purchase of inexpensive equipment, laboratory services, salaries, living expenses, and supplies. CALS does not approve grants for outright purchase of high-end items such as computers, software, machinery, or for clothing.

6. Academic status: state whether you are a graduate student or an undergraduate student. CALS grants are available to non-students conducting research in areas related to California lichens. CALS grants are available to individuals only and will not be issued to institutions.
7. Support: one letter of support from a sponsor, such as an academic supervisor, major professor, or colleague should accompany your application. The letter can be emailed to the chairperson of the education committee, enclosed with the application, or mailed separately to the CALS Grants Committee Chair.
8. Your signature, as the person performing the project and the one responsible for dispersing the funds.

The proposal should be brief and concise.The research/education grants committee brings its recommendations for funding to the CALS Board of Directors, and will notify applicants as soon as possible of approval or denial. Members of the education committee review grant proposals once or twice a year based on: completeness, technical quality, consistency with CALS goals, intended use of funds, and likelihood of completion. Grant proposals received by October 1, 2012, will be considered for the current grant cycle. CALS typically offers 2 grants in the amounts of $500 and $750 each year.

Obligations of Recipients

1. Acknowledge the California Lichen Society in any reports, publications, or other products resulting from the work supported by CALS.
2. Submit a short article to the CALS Bulletin.
3. Submit any relevant rare lichen data to California Natural Diversity Data Base using NDDB's field survey forms.
4. Periodically update the research/education committee of progress on the project.

How to submit an application: Please email submissions or questions to the committee chairperson by Oct. 1, 2012.This year the committee chairperson is Erin Martin. Her email is shastalichens@gmail.com.

Upcoming Events

On-going Workshops

Lichen Workshop, Tilden

Lichen workshops occur at the Regional Parks Botanic Garden, Tilden Regional Park, Berkeley, the second Saturday of each month, from 1:30pm or 2pm to 4:30pm. Meet at Regional Parks Botanic Garden, Tilden Regional Park, Berkeley. RSVP to Irene Winston irenewinston@comcast.net or 510-548-6734.

Lichen Workshop, Marin

We encourage you to attend these enjoyable every other Wednesday evening workshops at the College of Marin, Science Center Room 191, 835 College Avenue, Kentfield. Dr. Paul DiSilva has graciously allowed us to use the classroom and scopes. Please RSVP to Bill Hill, who organizes the logistics. Contact Bill at 415-686-6146 or email aropoika@earthlink.net. We bring our own lichens and work with each other to identify them. There are usually snacks. Parking at the college is $3 or free on Kent Ave. behind the science center.

Upcoming Events

The California Lichen Working Group has organized a series of lichen walks to take place around California in 2012 designed to familiarize local Forest Service employees and the general pubic to the rich lichen flora of the state. The following is a list of upcoming walks, please join one in your area.

San Mateo Wilderness: June 23, 2012

Join lichenologist Kerry Knudsen and Forest Service botanist Kate Kramer for an informal lichen walk down Tenaja Trail in the San Mateo Wilderness on June 23 2012. We will meet at the Tenaja Trailhead at 9AM. Directions: From Interstate 15, take Clinton Keith Road south to Tenaja Road. Follow Tenaja Road southwest to Cleveland National Forest road (FS road 7S01, watch carefully for this turnoff). Turn right and follow this road about 1 mile to the Tenaja Trailhead. We will leave from the trailhead and go as far as the group wishes towards Fisherman's Camp. This is the first of four Forest Service lichen walks in southern California.

The "lichen rock" at Russian Ridge Open Space Preserve. Photo by Jack Owicki.

Russian Ridge Lichen Rock: June 23, 2012 with the Midpeninsula Lichen Study Group

Join us for the second event of the newly forming Midpeninsula Lichen Study Group. On 23 June, 10am to 1pm,

Jack Owicki, docent for the MROSD (Midpeninsula Regional Open Space District) will lead us to a 'lichen rock' in the Russian Ridge OSP (Open Space Preserve). Park at the CalTrans vista point opposite gate RR01 (get the pdf map for Russian Ridge in the list at http://www.openspace.org/preserves/). Besides the boulders, there are lots of lichens on trees, and a couple of trail loops through grassland and mixed hardwood forest – in the unlikely event that we run out of lichens to check out on the rocks(!) Bring your lunch and water (it may be a hot day). Please RSVP to Jack Owicki <jack@owicki.com> or call him at 650-855-9918 so we know how many may show up.

Inyo National Forest: July 14, 2012

Join lichenologist Kerry Knudsen, lichen curator at the UC Riverside Herbarium, Czech lichenologist Jana Kocourková of the University of Life Sciences in Prague, and Forest Service botanists Sue Weis and Kate Kramer for an informal lichen expedition along Tioga Pass in the Inyo National Forest on July 14, 2012. We will meet at the Mono Basin Visitor Center at 9AM. It is just north of the town of Lee Vining on Highway 395. There is good signage for the Visitor Center from Lee Vining. From the Visitor Center, we will carpool to several stops along Tioga Pass (Highway 120) and spend the morning and early afternoon looking at the lichen flora of this area. Bring lunch, water, a hand lens and wear good hiking shoes. For more information, please contact Sue Weis sweis@fs.fed.us, Kerry Knudsen kerryknudsen999@gmail.com or Kate Kramer kakramer@fs.fed.us

NW Lichenologists – Fall Field Trip to Mt. St. Helens

When: September 15, 2012 (Thursday evening through Sunday late afternoon)

What: There are two goals of the trip; one ecological and the other about biodiversity. Charlie Crisafull (USFS), our contact at Mt. St. Helens, has been studying the effects of the eruption on vegetation and fauna for the last 20 years and would like us to fill in the lichen portion a bit more. He has asked us to collect lichens along the disturbance gradient created by the eruption and second, find species not know to occur in the monument. Charlie has graciously offered to host us at his base camp outside Randal. He has a couple hikes planned that will allow us to see a lot of the area and get some exercise! Charlie will also have vans staged for us so we can visit many types of volcanic disturbance.

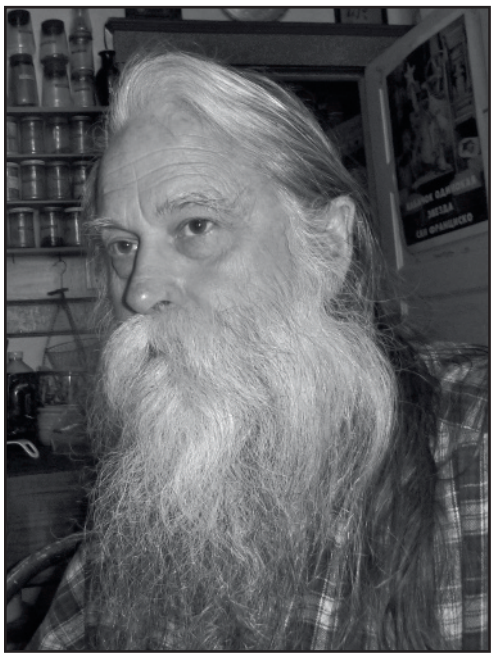
Accommodations: The camp where we could stay is tent camping only but there is a communal cook tent with a large propane grill and pans etc... You'd need to bring your own tent, sleeping bag, etc.. but no kitchen stuff except something to eat from. The camp is vehicle accessible. Please come and collect lichens, enjoy company of fellow lichenologists and contribute to long term ecological monitoring post-eruption. Space is limited to 18 people. To sign up, please contact Peter Nelson at nelsopet@science.oregonstate.edu. Let him know how likely it is you will attend (50/50, 75% or for sure).

Lichens of the Rock Creek Area - A Walk with Cheryl Beyer
When: Saturday September 29, 2012
Time: 10:00 am - 12:00 pm
Meet at teh Rock Creek Nature Trail, off HWY 20 to carpool. Bring lunch, water insect repellent, sunscreen and wear suitable footwear. No dogs please. For more information please call: Kathy Van Zuuk, Plant Ecologist Tahoe National Forest (530) 578-6243.

Forest Service Lichen Walk - Cleveland National Forest, San Diego County Laguna Mountains - October 2012
Join lichenologist Kerry Knudsen, CALS member Andy Pigniolo, and
Forest Service botanist Kate Kramer for an informal lichen walk in
the Laguna Mountains in October 2012. A date will be set in June and
announced on CALS website. For further information contact Kerry
Knudsen at kerryknudsen999@gmail.com

College of Marin Ecology students on the trail to Lake Lagunitas during the CALS feild trip to the Marin Municipal Water District. Photo by Bill Hill.

PRESIDENT'S MESSAGE



Greetings CALS members! I hope you are having a good lichenizing year. There is so much to do that it often stretches us to get to all that we have on our 'do list'. We are still reeling from the loss of key members, such as Judy Robertson, who did so much to keep us organized. I have said for a long time "an organization does not do anything; it is REAL PEOPLE that do things, and an organization only holds us together." You don't realize how indispensable someone was, until they are gone. We are still working on replacing the myriad functions that Judy performed for us. I also miss members like Ken Howard who so regularly used to attend the College of Marin workshops with his quiet enthusiasm.

Over the years of our Society, I have come to realize almost painfully how_things_really_work. Although the Board is the essential action body that runs CALS as a nonprofit corporation, there are several other folks who actually do a lot of the work. With the Board we have formulated a CALS ADVISORY COUNCIL (committee?) to bring into closer communications many of these more active members. This Council consists of: members of the Board, including Bulletin Editor(s), and Chairs of the various Committees, plus various active members who in reality are doing so much of the work. Hopefully this will help the Board in the administration of our Society, coordination of our activities, and inspire us to implement what has so far been only on our 'wish list'. Stay tuned to see how it is working.

Another new development, already alluded to in this year's (2012) membership renewal form which you received with the last Bulletin ('winter 2012' = December 2011, delivered in March 2012!) is that we now have the Bulletin available online to ALL PAID MEMBERS as an 'E-BULLETIN'. Several of you had requested in the past couple years to get only an e-bulletin, so now we are debuting a 'members only' section to our californialichens.org website where you can access it. Be assured that anyone (paying a membership greater than the $10 student/low income rate) wanting the Bulletin on paper will still get it mailed to them. Unfortunately we could not extend this to the $10/year membership rate, as it costs us more than that to print and mail the Bulletin. No doubt there will be wrinkles to smooth out before everything is working right, so if something seems amiss let us know <cals-board@yahoogroups.com> ... If you only knew how we struggle with all the nuances of our membership records! With a new online *members only* section to our CaliforniaLichens.org website, we may also be developing more 'communication tools' for members as well (updated Roster?, perhaps lichen interest 'forums'?). This members-only section would allow us also to avoid spammers on CaliforniaLichens.org more easily. Otherwise, CaliforniaLichens.org will be the same as always, still accessible to everyone,

paid member or not. And we still have our [cals] yahoogroup. We are hoping that these Members Only Perks would encourage paid memberships - remember that CALS is funded entirely by donations and paid memberships, and it is a completely voluntary organization where no one is a paid employee.

In other developments, our founding member Janet Doell again pushed the California State Legislature to decree that *Ramalina menziesii* be the California State Lichen. This time it got to the point of a drafted bill, but alas the hopper was already so full of other bills, that the resolution never got the legislature floor for a vote. We even collected some names and email addresses on a petition that we circulated at our exhibit at the annual Fungus Fair in December. This is one of those things that you have to keep plugging away, and finally it will come to pass. Thank you Janet for all of your diligent work!

I want to thank again Irene Winston for her unswerving efforts at making our lichen workshops at Tilden Botanic Garden successful - every time we investigate specimens people bring, plan events, and often introduce new folks to lichens. The College of Marin (COM) workshops have also been going fine. To note how interlinked events are, recently the Marin County Water District staged a lichen field trip at one of the reservoirs Lake Lagunitas and the ecology class at COM participated in the group that I led 'around the lake' (well we got about a couple hundred feet down the trail before we ran out of time, noticing and talking about all the lichens we saw!) This inspired the class instructor so much about lichens, that now our CALS workshop on the 1st and 3rd Wednesday evening has been invited to talk with the ecology class, and they even want us to help them make a photo brochure of the lichens on the COM campus. Also we may be getting closer to having 'MidPenninsula Lichen Study Group', after a wonderful field trip and workshop at the Stanford University Jasper Ridge Nature Preserve. Many docents from nearby parks and others also attended, and now we will have a second event for that group with Jack Owicki bringing us to the Russian Ridge Open Space Preserve on 23 June; stay tuned for more developments there. And thank you Kerry Knudsen for your workshop outreach work in Southern California. I truly believe that people interested in lichens, with a little help from others more expert than themselves, can pull themselves up by the bootstraps and become more knowledgeable by working together through workshops and field trips. Volunteering at herbaria such as UC Berkeley is another way.

Finally, I want to thank our Secretary Erin Martin for all of her energy in keeping up with a multitude of tasks that keep us rolling - not just as secretary dealing with membership records and board activity, but also as production editor of our Bulletin. Alas she will be moving to Florida and not be able to *do all of it*, so if you know of someone who may serve well as the CALS secretary, please let us know. Perhaps our newly forming CALS Council will be helpful in this regard; we shall see.

Happy enlichenment to all -- but tell us what lichenizing you are up to with an email to <californialichens@yahoogroups.com>!

-- Bill Hill, your CALS servant and President

The Bulletin of the California Lichen Society

Vol. 19, No. 1 **Summer 2012**

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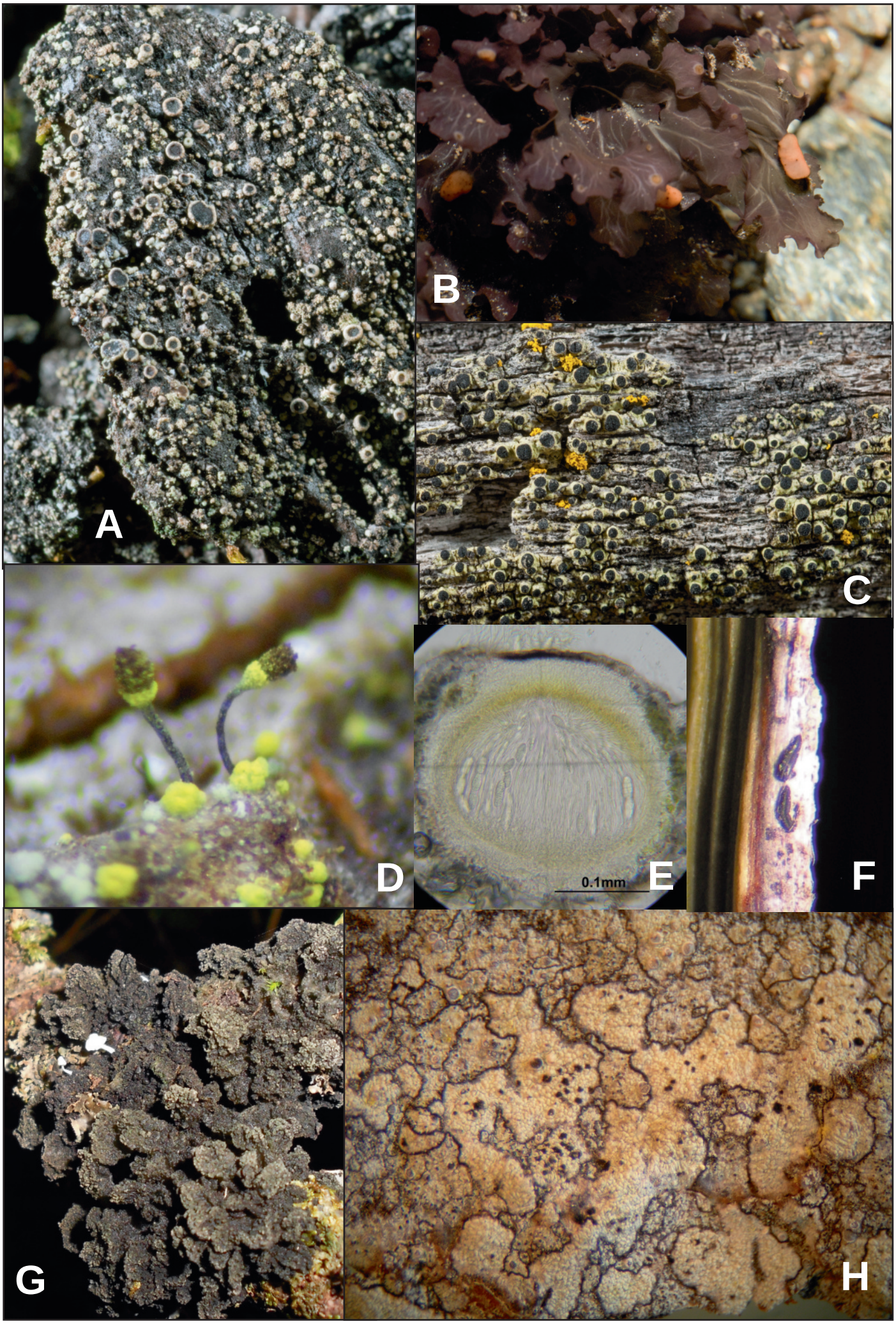
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