

Bulletin
of the
California Lichen Society



Volume 24 No. 2 Winter 2017

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Cover image: Rare lichen, *Hypogymnia schizidiata*, pictured among other lichens. Montara Mountain, California. Photo by Julene Johnson.

Status of the globally rare lichen *Hypogymnia schizidiata* in the United States

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Hypogymnia schizidiata

ABSTRACT

The globally rare lichen *Hypogymnia schizidiata* was found on Montara Mountain during the course of baseline lichen inventory work for the Rancho Corral de Tierra unit of the Golden Gate National Recreation Area in 2015. This discovery represented a range extension of approximately 460 kilometers north from historical locations in the Channel Islands in Santa Barbara County, California. Incidental detections in 2016 and 2017 have extended the range of this rare lichen another 180 kilometers to the north. Habitat, substrate preferences, and the relationship between the conservation status of rare lichens and the rate of new discoveries are discussed.

INTRODUCTION

For many years, *Hypogymnia schizidiata* McCune in the United States was represented by only two occurrences from the Channel Islands in Santa Barbara County, based on herbarium vouchers from 1981, 1983, and 1994, from Santa Cruz and Santa Rosa Islands (Figure 1; CNALH 2016, McCune

2006), despite extensive recent work in the Channel Islands National Park (CINP) and on the Channel Islands in general (Bratt 1993, 1999, 2000; Knudsen 2008, 2009; Knudsen & Kocourková 2012; Knudsen & Wheeler 2015). Other locations for this globally rare species are on Cedros and Guadalupe Islands off the west central coast of Baja California. The only publications addressing the rarity, range and distribution of *H. schizidiata* have recommended that existing populations receive intensive, focused surveys to determine their presence, and if still extant, their abundance. As noted by McCune (2006), "At present, no one has made a focused search [in the United States] for the species, the existing records merely being incidental collections before the species was described." A few years following this statement, Knudsen and Kocourková (2012) performed extensive inventory work in the CINP and did not relocate any of the existing populations of *H. schizidiata*, "Both populations were not rediscovered during recent inventory work and more fieldwork is needed to establish that they have not

been extirpated.” Additional work subsequent to the CINP checklist resulted in *H. schizidiata* being relocated at the historic Cristi Pines location on Santa Cruz Island, where it appears to be extremely rare. It is considered extirpated on Santa Rosa Island (K. Knudsen, personal communication, 2016).

Its limited range (central Baja California to Santa Barbara County), limited distribution (hyper-maritime habitats), and rarity resulted in a conservation sponsorship by the Conservation Committee of the California Lichen Society (McCune 2006), which assigned it global and state ranks of G1 and S1 and a California Native Plant Society (CNPS) California Rare Plant Rank (CRPR) of 1B.3 (CNPS 2017).

RECENT FINDINGS

San Mateo County

In mid-2015, lichen inventory work in the Rancho Corral de Tierra unit of the Golden Gate National Recreation Area (GGNRA) included surveys on Montara Mountain, a group of coastal granitic peaks covered in maritime chaparral. A collection of a rugose, apparently sorediate species of *Hypogymnia* was made near North Peak, on old-growth *Baccharis pilularis*, but was not identified in the field. The specimen was sent to Bruce McCune at Oregon State University, who determined it to be *H. schizidiata*.

A small group of lichenologists and land managers returned to Montara Mountain in the fall of 2016 to gauge the extent of the occurrence, and if possible to discover any new populations that might exist in the general area. The 2016 surveys adjacent to the 2015 location near the peak expanded the size of that occurrence to the east and west of the original point. Thalli in this area number more than 800 and occur more abundantly on live and dead branches of older shrubs, especially old-growth *Garrya elliptica*, but are also found on *Baccharis pilularis* and *Mimulus aurantiacus*. Individual thalli vary from smooth and almost nonschizidiate to thalli that are extremely rugose to individuals that show a very flaky cortex (Figure 2). No fertile thalli were noted. Vegetation at this location is maritime chaparral. Elevation is approximately 550 meters, soils are decomposed granite with few outcrops, and aspect is generally north.



Figure 1. *Hypogymnia schizidiata* in California. Yellow circles are known extant locations; red triangle is the presumed extirpated location on Santa Rosa Island. Numbers are the year(s) observed.

Additional surveys in adjacent Montara State Beach led to the discovery of more *H. schizidiata* growing primarily on old-growth *Arctostaphylos montaraensis*, a rare G1S1 species with a CRPR of 1B.2 (CNPS 2017). Numerous individuals are also present on other substrates at this location: *Baccharis pilularis*, *Mimulus aurantiacus*, *Garrya elliptica*, *Eriodictyon* sp., *Chrysolepis chrysophylla*, and rarely on moss over granite. It is estimated that thousands of thalli are present. As with the Rancho Corral de Tierra location, thalli occur in all stages of development, and older shrubs harbor more thalli. Two fertile thalli were observed on a small solitary exposed *Baccharis pilularis* (Figure 3). Vegetation is similar to that at Rancho Corral, but old-growth *Arctostaphylos montaraensis* dominates. Soils are granitic, outcrops of bedrock are far more common, and have a concomitantly greater flora of terrestrial lichens. Overall aspect is north to northeast.

The dense chaparral in this area has few openings, and as such is nearly impenetrable without cutting a path; however, one attempt was made to assess the presence of *H. schizidiata* at a location away from the road edge, achieving a transect of approximately 12 meters from the road. Thalli of *H. schizidiata* were still abundant in this four-meter-tall shrub forest, although there were fewer thalli at ground level, in part because many of the lower branches of the manzanita have died and fallen from the trunks, and possibly also because there is less light at ground level compared to the light available at the road cut.

Marin County

In a similar time frame to the 2016 Montara revisit, two *H. schizidiata* populations of indeterminate size were detected in Marin County. One is in the Marin Headlands unit of the GGNRA, where it is growing on mostly vertical north- to north-east faces of an exposed low chert outcrop in a young even-age *Baccharis pilularis* scrub community on coastal bluffs. On the rock outcrop, *H. schizidiata* is growing with several other lichen species that are typically found on bark substrates: *Bryoria furcellata*, *Flavoparmelia caperata*, *Parmotrema* sp., *Tuckermannopsis chlorophylla*, and *Usnea* sp. The population estimate for *H. schizidiata* on the single outcrop that was searched is between 100-500 thalli (S. Benson, personal communication, 2017). The other population is within the Point Reyes

National Seashore in the vicinity of Mt. Vision, an area described by Darrell Wright as a lichenological “hot spot” (Wright 1998), but without a report of any anomalous species of *Hypogymnia* (his article was published before the species was formally described by McCune [2002]). Thalli are abundant on conifer bark (J. Johnson, personal communication, 2017).

Mendocino County

In 2017 another population of *H. schizidiata* was discovered in the vicinity of Point Arena, California in Mendocino County, on private property (J. Johnson, personal communication, 2017). The habitat is generally described as pygmy forest, which apart from well-documented examples on State Park lands in Mendocino County is also known to occur sporadically throughout the area. The substrate species is *Arctostaphylos nummularia* ssp. *mendocinoensis*, a critically imperiled shrub with a CRPR of 1B.2, and global and state ranks of G3?T1 and S1 (the rank of G3? indicates a rank closer to G3 than a rank of, for example, G3G4).

All three of the locations in the vicinity of the greater San Francisco Bay Area are in federally- or state-reserved land allocations (State Parks, National Recreation Areas, National Seashores). The Point Arena location is on private property. All occurrences are within 6 km of the ocean.



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Figure 2. Thalli of *Hypogymnia schizidiata*, showing smooth and rugose cortex.

DISCUSSION

The first collections of *H. schizidiata* in the United States were based on incidental Bratt vouchers from 1981 and 1983 on Santa Cruz Island (#1469, #3160a, at SBBG; CNALH 2016) determined by B. McCune in 2000. Two collections from 1994 (Nash 33051-a, Ryan 31429-a, at ASU; det. McCune) are documented from Santa Rosa Island (CNALH 2016), less than 30 kilometers west. While several of the four new mainland locations have received little or no lichenological attention, at least two are in areas of interest; the Marin Headlands and Mt. Vision. Why was *H. schizidiata* not found on the California mainland until more than 34 years after the first United States collection? One possibility is that despite the contributions of many accomplished lichenologists, focused field work for baseline data in California is still in its infancy, with an astonishingly small number of individuals actively exploring the range and distribution of lichens in the state, particularly in more remote areas (e.g. Carlberg et al. 2017). Another explanation might be the relatively recent conservation status for *H. schizidiata* (McCune 2006); as was the case with *Usnea longissima* and the Pacific Lumber Company in 2004, when a purportedly rare species becomes the target of focused surveys, the likelihood of finding it increases manifold.

The Montara Mountain detection of *H. schizidiata* in 2015 was the result of baseline inventory work, and increased its range by 460 kilometers. Between 2015 and 2017, the known range of *H. schizidiata* was moved a total of 640 kilometers northward. It was found on at least 10 different substrates: *Arctostaphylos montaraensis*, *Baccharis pilularis*, chert, *Chrysolepis chrysophylla*, *Eriodictyon* sp., *Garrya elliptica*, *Mimulus aurantiacus*, moss over granite, *Pinus contorta* ssp. *contorta*, and *Pinus muricata*. On the Channel Islands, it has grown on *Quercus* sp., *Pinus muricata* and *P. remorata*; in Baja California on *Pachycormus* sp., *Simmondsia* sp., *Pinus muricata*, *Juniperus* sp., and *Cupressus* sp. It seems safe to say that aside from a preference for corticolous substrates it does not have strong substrate preferences across its range. While thalli of *H. schizidiata* in the United States were found on both young and old substrates, the bulk of all populations is found on mature or old-growth shrubs. At Montara

Mountain and Montara State Beach, young even-age stands of coastal shrubs (especially *Baccharis pilularis*) adjacent to populations of *H. schizidiata* were inspected, but no thalli were found except on or immediately adjacent to occupied older substrates. These younger stands may result from stand-replacing fires and *B. pilularis* is the early successional species, possibly replaced later with other shrubs. But experiences in these young stands seems to indicate that *H. schizidiata* is present only in stands that include a majority of older shrubs. The Resources Management Plan for Rancho Corral de Tierra (NPS 1999) identifies fire suppression as a threat to *Arctostaphylos montaraensis*, and calls for annual monitoring, but no management action is underway. If fire suppression activities were to stop, what would be the effects of any resulting fires on *H. schizidiata*? According to J.E.D. Miller (personal communication,



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Figure 3. Fertile *Hypogymnia schizidiata*.

2017), lichens can survive low-intensity fire, but shrublands are usually subject to high-intensity fires, in which case lichens are destroyed. Seemingly the most important variable would be whether nearby refuges of propagules survive the fire.

It is probable that there is more *H. schizidiata* at some of these locations; none were searched exhaustively, in part because of the inaccessible nature of older chaparral, and in part because of the incidental nature of some of the detections. The State Park lands to the north of Montara Mountain have a generally north aspect; if any of these areas are composed of old-growth chaparral, it would increase the possibility of additional detections, but that possibility should not be taken for granted, and it should be borne in mind that old-growth chaparral on the California coast is an endangered habitat (Knudsen & Kocourková 2011). Additional sites in the vicinity of the Marin Headlands location are possible, although due to the somewhat anomalous substrate (chert), it is difficult to say whether these should be sought on chert outcrops or among the coastal scrub. If the latter, then areas of older scrub should be prioritized. It seems likely that the area around Mt. Vision would support other sites with *H. schizidiata*; the habitat here seems more in keeping with most of the other known locations, and Mt. Vision is known for lichen species richness and abundance (Wright 1998). It is more difficult to assess the situation in Mendocino County, due to the amount of private property near the population, but a good strategy would include revisits to the known pygmy forests on public lands in the county. Despite previous lichen surveys in pygmy forests (Malachowski 1975, Robertson 2002), they were performed before *H. schizidiata* was described, and while it may have been overlooked or be absent from these areas, it may also have not been reported because it did not fit known species concepts of the time.

In southern California, old-growth chaparral is known for having a rich lichen flora, but *H. schizidiata* has not been reported despite numerous lichen floristic surveys in coastal areas, from the Palos Verdes Peninsula (Hollinger 2012), Cabrillo National Monument (Knudsen et al. 2006), UC Dawson Preserve and the Santa Monica Mountains (Knudsen 2006, 2008; Knudsen & Kocourková 2012), Montana

de Oro State Park (Carlberg & Knudsen 2007), or at any of the Elfin Forest locations around Morro Bay in southern California (Knudsen & Lendemer 2007). It is also not known from Point Lobos in Monterey County (Bratt 1983 unpublished data; Wheeler 1938). Along the central California coast south of San Mateo County, *H. schizidiata* was not found during lichen surveys in old-growth chaparral on University of California Santa Cruz lands along the coast (Tucker et al. 2004).

Specimens examined (precise locations withheld; all elevations are less than 600 meters): USA, California: Marin County, Marin Headlands, on low chert outcrops, 2016, Benson 1002, det. B. McCune, hb. McCune; Point Reyes National Seashore, Mt. Vision, on conifer trunk bark, 2017, Johnson s.n., det. B. McCune, hb. McCune. Mendocino County, near Point Arena, CA, 2017, on *Arctostaphylos nummularia* ssp. *mendocinoensis* in pygmy forest, Johnson 7500082, det. T. Carlberg, hb. McCune. San Mateo County, Montara State Beach, on old-growth chaparral, 2016, Carlberg 05324A (O), Carlberg 05324B (UCR), Carlberg 05324C (US), Carlberg 05324D (NY), Reese Naesborg 1940 (UC); Montara Mountain, on old-growth chaparral, 2015, Carlberg 04694A (UC), det. B. McCune, Carlberg 04694B, det. B. McCune, hb. McCune.

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Many thanks are due to Susie Bennett and Joanne Kerbavaz, land managers for Rancho Corral de Tierra and California State Parks, not only for having the interest, but also providing vehicles that saved us from a long weary walk. Thanks also to my fellow lichenologists who volunteered their time (and their skin) to search the unforgiving old-growth chaparral: Julene Johnson, who also provided excellent photographs, Rikke Reese Naesborg, and Miko Nadel. Thanks also to Shelly Benson for sharing the Marin Headlands location and habitat, and Julene Johnson for the Point Reyes National Seashore and the Mendocino County reports and habitat. The Montara Mountain population assessments were performed under permits from the National Park Service (GOGA-2015-SC1-0016) and the California Department of Parks and Recreation (s.n. 23 September 2016).

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***Lecidoma demissum* in the Trinity Alps Wilderness**

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ERIC PETERSON

Granite outcrops with patches of decomposed granite soils comprising *Lecidoma demissum* habitat at Canyon Creek Lakes, Trinity County, California.

In the summer of 2013 I took an opportunity to hike in the Trinity Alps Wilderness (far northern California) with California lichenologist Tom Carlberg. He was doing some preliminary work on the lichen flora of the wilderness for the U.S. Forest Service and was interested in the cooler, drier portion toward the NE boundary where the Pacific Crest Trail crosses a corner of the Trinity Alps. We spent four days lichenizing, mostly on the northerly slopes going into Siskiyou County, from the Boulder Lakes area to Fox Creek Lake (Figure 1).

On our third day we traversed a low ridge between

Mavis and Fox Creek lakes. The ridge was like many others in the Trinity Alps with sparse, mostly shrubby vegetation among outcrops of granite and pockets of sandy decomposed granite soils (Figure 2). We paused in one section where biological soil crusts were fairly frequent on the sandy pockets. One fairly common biocrust caught my interest as appearing in the field somewhat like *Psora*, but the squamules seemed indistinct and adnate (Figure 3).

Back in the lab, I grabbed my go-to book for soil crusts: *Biotic Soil Crust Lichens of the Columbia Basin* (McCune & Rosentreter 2007) - usually good

for a quick soil crust ID even though the climate here is very different from the Columbia Basin. But it was clear that this specimen wasn't covered. The *Lichen Flora of the Greater Sonoran Desert Region's* Key to the Genera in Volume 1 (Nash et al. 2001) keyed it to the monotypic genus *Lecidoma* (*demissum*), but then it turned out that *Lecidoma* is not covered in any of the 3 volumes beyond that line in the Key to the Genera. *Lecidoma demissum* is included in the *Lichens of North America* (Brodo et al. 2001) and I verified that it keyed properly within that work. However, the distribution is shown as continuing west of the Rocky Mountains only in Canada and the north slope of Alaska. Apparently, this would be an interesting find!

The following year I was on another hike in the Trinity Alps, in the center of the wilderness up Canyon Creek to Thompson Peak (Trinity County). We set up camp between the upper and lower Canyon Creek lakes among more granite outcrops with patches of decomposed granite soils (facing page; a

spherical panoramic image can be viewed at <http://www.360cities.net/image/canyon-creek-lakes-at-twilight>). Although the site is heavily impacted by hikers, it took me only about 20 minutes to find a patch of soil crust that looked similar to my prior specimens of *L. demissum*.

Specimens from both sites were confirmed by Einar Timdal, University of Oslo. *Lecidoma demissum* (Rutstr.) Gotth. Schneider & Hertel is a dark brown to gray-brown chlorolichen with dense, continuous squamule-like areoles, thus resembling the genera *Psora* and *Toninia*. Brodo et al. (2001) describe it as crustose but with a slightly lobed margin and a black lower surface attached by black hyphae. The reddish-brown apothecia are broad and somewhat flat, following the contours of the thallus (unlike *Psora* and *Toninia*). See Brodo et al. (2001) for further details; Timdal (personal communication, April 13, 2015) also notes that "the hypothecium reaches the hypothallus" - simply put, medulla is lacking beneath the apothecia such that the hypothecium is in contact

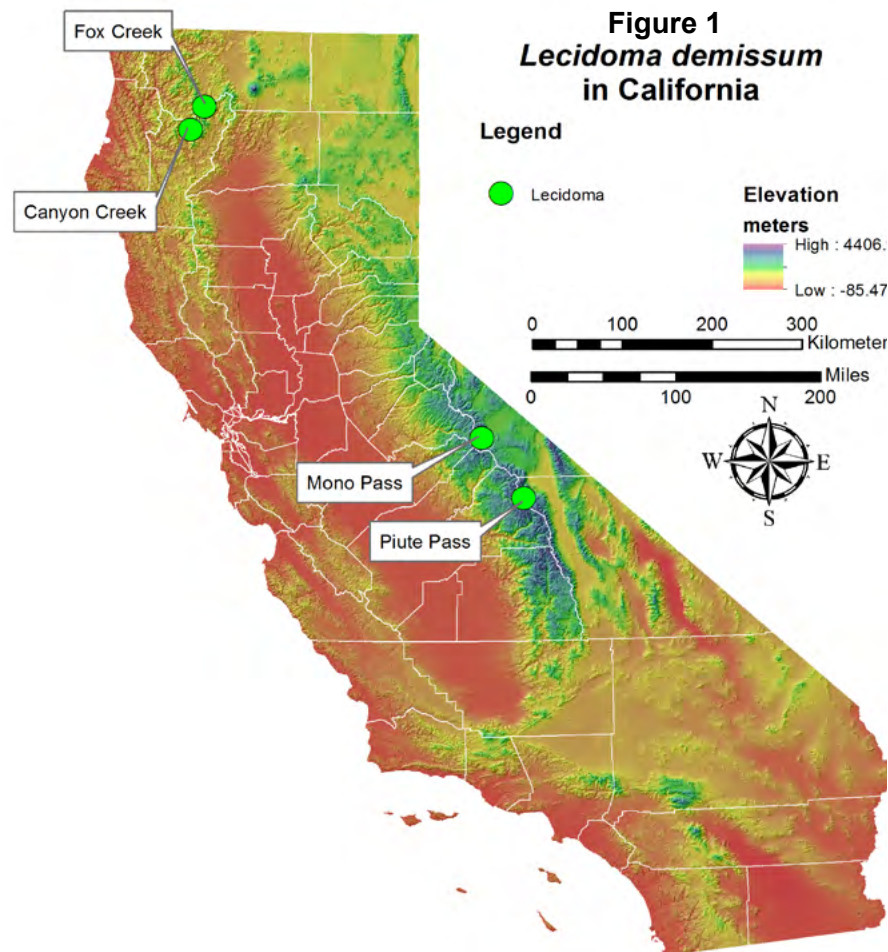




Figure 2. Granitic ridge between Mavis and Fox Creek Lakes, Trinity Alps Wilderness, Siskiyou County, California, as viewed in Google Earth.



Figure 3. *Lecidoma demissum*. EBP#4764 part 3. Scale = 10 mm.

with the dark hyphae of the lower surface.

Lecidoma demissum is a common soil crust in the Rocky Mountains and the Consortium of North American Lichen Herbaria (CNALH 2016) has nearly 800 records of the species from Europe, the Rocky Mountains, a number of states east of the Rocky Mountains, and a few locations in western North America. Records within the U.S.A., but west of the Rocky Mountains, are primarily in northern Washington, though two records are available from Oregon. *Lecidoma demissum* was previously reported from California (Hale & Cole 1988; Tucker 2014), and the consortium database reveals four records. All were collected by Henry Imshaug over two days in July of 1955, on Mono and Piute Passes in the southern Sierra Nevada Mountains. Those passes are similar to the sites in the Trinity Alps with granite outcrops and rather sparse vegetation, albeit 475 km or more to the southeast.

Finding *L. demissum* in the Trinity Alps should not be a surprise. I would not regard this as a range extension, so much as filling-in a northern California gap in our knowledge of its range. Given the ease of finding the second site in a relatively high-impact area, it is likely to be quite common within the Trinity Alps. The species may require the climate found at high elevations (both sites are over 1,700 m elevation) as I have not encountered it in similar decomposed granite pockets at lower elevations outside of the wilderness.

Throughout California there are numerous granitic mountains with high elevations and sparse vegetation, so although this species apparently avoided collection for over half a century, it may someday be regarded as widespread and locally abundant within California.

SPECIMENS

California, Siskiyou County, on decomposed granite among granite outcrops and boulders with xeric terraces of decomposed granite, slopes just west of Fox Creek Lake, -122.85199, 41.21024, 2033 m (EBP#4764 parts 1 [CAS], 2 [O], and 3). California, Trinity County, on soil, rock shelf with decomposed granite, area heavily trodden by people and deer, not much soil crust present, between Upper and Lower Canyon Creek Lakes, -123.0237, 40.9743, 1745 m (EBP#4812 [O]).

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**A review of
Microlichens of the Pacific Northwest: Volumes I & II by Bruce McCune**

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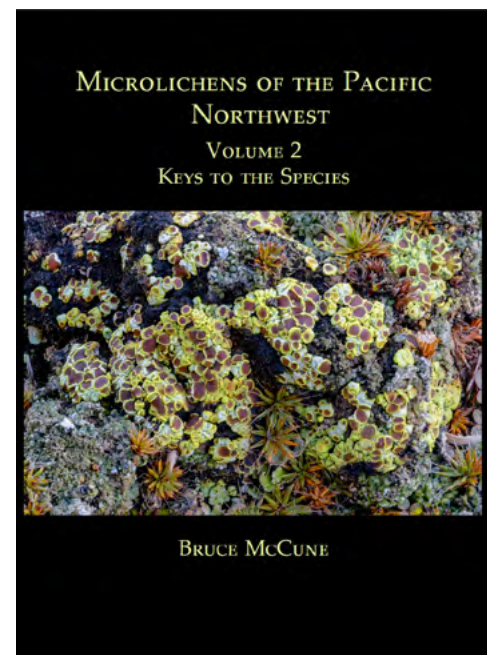
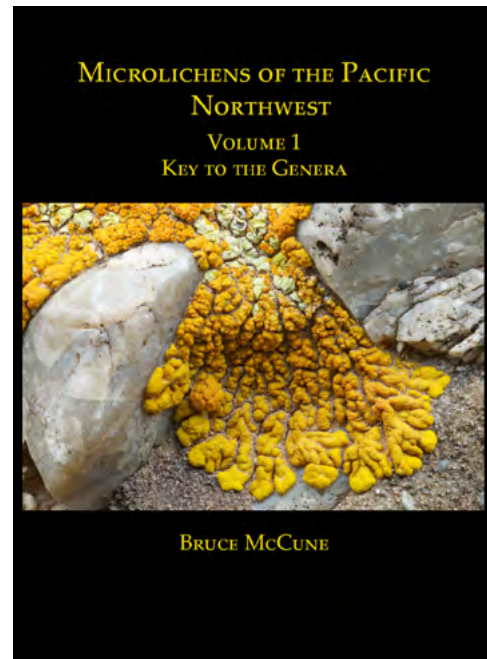
Books Reviewed:

McCune, Bruce. 2017. *Microlichens of the Pacific Northwest. Volume 1: Key to the Genera*. Wild Blueberry Media, Corvallis, Oregon, U.S.A. iv + 218 pages, \$54.00, ISBN: 9-780998-710808

McCune, Bruce. 2017. *Microlichens of the Pacific Northwest. Volume 2: Key to the Species*. Wild Blueberry Media, Corvallis, Oregon, U.S.A. iv + 755 pages, \$66.00, ISBN: 9-780998-710815

It is not news to the readers of the *Bulletin* that studying microlichens (crustose lichens, or “crusts” for short) presents many difficult obstacles to someone who lacks access to a formal learning environment. Among those obstacles are learning how to manipulate and dissect lichen structures you cannot even see without a lens; becoming familiar with yet another new scientific language; the absolute need for good dissection and compound microscopes; learning to determine the chemistry of the lichen; and last but far from least, the absence of a good flora for the area where you live. Dr. McCune’s aim in writing these books is to remove this final hurdle.

When the editor of the *Bulletin* asked me to review this work, my first response was to clarify that I had been studying lichens for only one year. I felt that I had no business evaluating the work of a dedicated and famous lichenologist who has been devoted to this science for over 40 years. Upon reflection though, perhaps it is appropriate for me to write this review. As a bryologist, I am used to dissecting very tiny plants and I already own the microscopes that are such a difficult financial challenge for most to overcome. What’s more, I am trying (perhaps naively) to catalog the lichens of Santa Cruz County and have already started tackling the crusts in my area. This makes me one of the main targets of these books. But as you read this review, please keep my limitations in mind. I can’t say whether Dr. McCune’s treatment



of *Caloplaca* compares favorably to another expert's opinion, or whether or not a particular instruction or statement is technically accurate. I would also remind readers that one never knows the strengths and weaknesses of good technical books until one uses them for a year or two, and these two volumes have not even been available for that length of time.

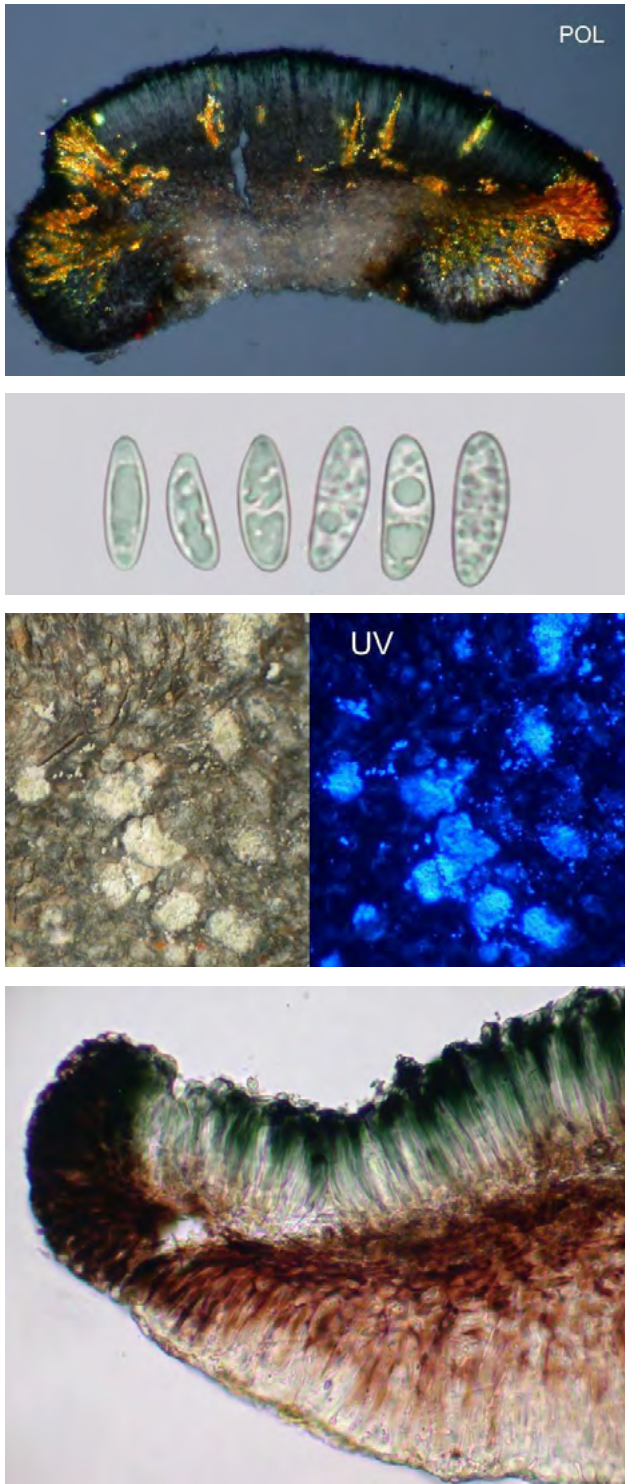
Some notes about the physical books themselves before I delve more deeply. The books are hardbound, and seem to be built to last. They lay flat when opened, an especially important feature when designing a flora. The paper is high quality and glossy, necessary for good reproduction of photographs. The first volume has a large number of color photographs, the second contains only black and white ones. These books are intended to be used with an online library of color photographs of the species (<https://oregondigital.org/sets/lichens-pnw>). This is an excellent solution to the high cost of printing color plates, keeping the cost to a very reasonable \$98 when purchased as a two-volume set. A quick perusal of this library shows that most species have macro photographs of the lichen as well as pictures to illustrate characters needed to differentiate between species, such as apothecial and thallic sections, stained asci, spores and conidia. Dr. McCune states that this photographic library will be available in perpetuity, making it an extremely valuable resource.

This work is broken into two parts. The vast majority of Volume I is a key to the genera. It also includes an introduction to the techniques necessary to begin learning microlichens anywhere. This includes an introduction to the chemical spot tests and to thin layer chromatography (TLC). Of particular value to me is a flow chart that uses only spot test reagents, without TLC, to determine many lichen substances. Conspicuous in their absence, however, are instructions on how to section and stain microlichens to reveal the structures that the key couplets discuss. Since these techniques are unique to crusts they would have been helpful. Another useful addition would be illustrations of how Dr. McCune measures particular structures mentioned in the keys. Every worker has slightly different methods of measurement, and not applying those specific methods can result in confusion and error.

At the end of Volume I there is an excellent illustrated glossary. The photographs are large and include arrows where necessary to make sure the student knows what to observe. Abbreviations used in the text are also included, alleviating the annoyance of searching for that one page in the forward that explains abbreviations.

The keys to the genera start with an introductory key to microlichen groups such as perithecial, lecideine apothecia, and lecanorine apothecia with septate spores. Even getting to the level of group involves specific language and knowledge of fruiting structures, so the key is accompanied by illustrative photographs. This is true of all of the keys throughout Volume I, and is one of the best features of this book. These photographs are not tiny thumbnails, but are enlarged to the point where you can see what the key couplet is discussing.

I have one very minor complaint about the structure of the keys in these two volumes. In dichotomous keys, there are always two choices. The first half of the pair might be thallus blue, and the second half might say thallus red. When working with keys, it is very important to read both halves because neither couplet might apply to your lichen, which gives you a hint that you have made an incorrect choice somewhere higher up the decision tree. There are two ways of constructing these keys. The first is to keep both couplet halves together. This allows the user to quickly and easily assess both choices. The second, and the structure employed in these books, is to put all of the couplets that follow from "thallus blue" below that choice and then start over with "thallus red". In this structure, the two halves of a couplet may be separated by several pages. The advantage to this system is that it's harder to get lost in the key because once you decide which half of the couplet applies, you simply go directly below that half and continue work. But it is difficult to read and compare both halves of the couplet. In situations where the couplet halves are widely separated, my solution is to write the page where the second half is found right near the first couplet and use different color highlighters to make it easy to find them. I realize this is horrifying to used book dealers, but I am a firm believer that books are tools and sometimes they need to be modified to



A sampling of images from the online Lichens of the Pacific Northwest Image Collection (Oregon Digital, Oregon State University). From top: Apothecial section of *Adelolecia pilati* under polarized light; spores of *Lecania naegelii*; habit UV collage of *Mycoblastus caesius*; apothecial section of *Bacidia bagliettoana*. All images by Bruce McCune.

make them more useful. Hopefully it is a long time before my library gets into their hands.

The ultimate couplet half that ends in each bolded genus name also functions as a short description of that genus in the Pacific Northwest. A more formal description of each genus begins its treatment in Volume II. That volume is by far the larger of the two. It is all business, and it includes the generic treatments, keys to species, and an index. Each genus treatment has a formal description, with sections to highlight chemistry, photobiont, substrate, relationships and ID tips. The latter two sections are where we most benefit from 40 years of Dr. McCune's experience. They discuss separating confusing taxa pairs, notes on taxonomy, and warnings of easily mistaken lookalikes. Following the genus treatment is the key to species. The specific keys are richly annotated and discuss taxonomic issues, differences in expert opinions, and gestalt descriptions not present in the couplets. There is no separate treatment or illustration of each species; although, there are line drawings and black and white photographs of spores scattered throughout. Again, the ultimate couplet half serves as the only species description, and the reader is referred to the online photographic library meant to supplement this volume.

I celebrate the fact that the keys do not emphasize lichen chemistry. Many of the keys in the excellent *Lichen Flora of the Greater Sonoran Desert Region* (Vols. I, II, III, Nash et al. eds. 2002, 2004, 2007. Lichens Unlimited, Arizona State University, Tempe, AR) begin with phrases like "gyrophoric acid present in the medulla" or "fumarprotocetraric acid absent." For a student who does not have access to a laboratory with fume hoods and controlled temperature and humidity, TLC is almost impossible, and when the plates are completed, interpreting the results is not straightforward. To me, the current taxonomic reliance on lichen chemistry is an insurmountable hurdle for the amateur lichenologist. That Dr. McCune does not make it necessary in the higher levels of his keys makes these books much more accessible to the amateur.

For California lichenologists pondering entering the crustal world, perhaps the most important question

about these volumes is “Can these books be used for California?” The stated range for the books includes only far northern California, and a wedge running down the coast to near Mendocino County. But if *Macrolichens of the Pacific Northwest* (McCune & Geiser, 1997. Oregon State University Press, Corvallis, OR) is any guide, then many of the lichens found in central coastal California should be treated in *Microlichens of the Pacific Northwest*. It also seems logical that lichens found at high elevations in the Sierra Nevada are likely to be treated in these books. On the other hand, these volumes may not help southern California lichenologists very much. (I would suggest that they can use the Sonoran Desert books very profitably.) Ultimately though, these books are an extremely important addition to the compendium of knowledge about lichens in California, and until California has a flora of its own, they are the only stand in for a northern California crustose lichen flora.

Finally, I would like to thank Dr. McCune for producing what is clearly a labor of love. It is impossible to overstate how much effort goes into producing a work like this. It is also impossible to overstate how difficult it is to write good keys to any group of organisms. Since these are the only books shown in the catalog of Wild Blueberry Media, they also appear to be essentially self-published. When you compare this amount of work and dedication to the \$98 price tag, it is obvious that financial remuneration was never the goal. I hope that the very minor criticisms in this review are not received without my appreciation for the work and the passion these books represent.

A review of *Lichen Study Guide for Oklahoma and Surrounding States* by Sheila A. Strawn

Shirley C. Tucker

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tucker@lifesci.ucsb.edu

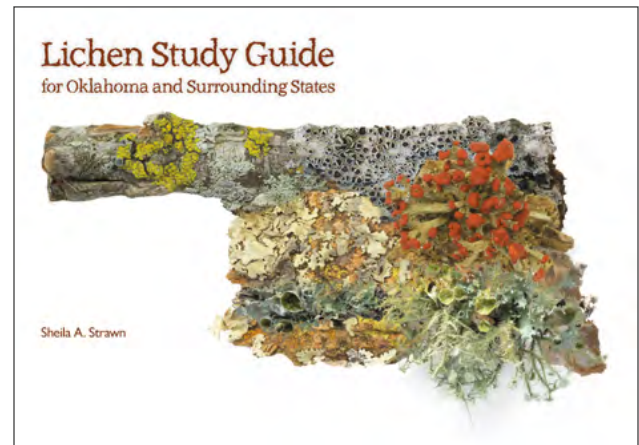
Book Reviewed:

Strawn, Sheila A. 2017. *Lichen Study Guide for Oklahoma and Surrounding States*. Botanical Research Institute of Texas Press (BRIT), Fort Worth, Texas, 76107-3400, USA. 79 pages, \$25.00, ISSN 0833-1475

This new book fills a gap not previously covered, specifically, how to collect lichens. Although it is aimed at collectors in Oklahoma and the Southern Plains Region, it is applicable anywhere as a useful introduction into where to look, how to collect and preserve, and how to identify and learn about lichens.

The author is an adjunct biology professor at the University of Central Oklahoma, and is an authority on grassland ecology. She has collected and studied lichens for 15 years, and has taught lichen classes and workshops. This book shows her understanding of the problems encountered by beginners in the field. She lists and describes places that need collecting in her own state of Oklahoma, such as gypsum and granite outcrops and mineral springs at various state parks or preserves. Approximately 60 color photographs of the region's common lichens are included. Technical terms such as soredia, pycnidia, medulla and cortex are explained and illustrated in color photographs. Different types of ascospores are also pictured. Collecting tools are shown, as well as methods of lichen preparation and storage. Examples of labels show the type of information to record. The necessities for keeping a field notebook and numbering specimens are stressed. The color reactions of K, P, and C reagents are shown in color, as well as reactions of some lichens under UV light.

The book is clearly aimed at beginners. Additional identification references would be a necessary accompaniment, as this book does not attempt to



include all the lichens of the region. The book includes a few simple dichotomous keys, to illustrate how to negotiate a key. The keys apply to the common lichens of Oklahoma pictured in the book. Tables by color, growth form, substrate, and other features provide a “quick identification guide”, although the suggested identifications should be treated with caution. They generally lead to a likely genus that can be consulted in another reference providing several choices of species.

Many well-known lichenologists have collected occasionally in Oklahoma: Roger Anderson, M. E. Barr, W. R. Buck, William and Chicita Culberson, Martin Dibben, T. Esslinger, Mason Hale, Richard Harris, Douglas Ladd, G. T. Johnson, C. T. Mohr, Bruce Ryan, Sam Shushan, H. A. Sierk, John Thomson, W. A. Weber, and C. Wetmore. Steve and Sylvia Sharnoff collected there as part of their photography project with I. Brodo for *Lichens of North America*. Buck, Harris, and Ladd had a major project studying lichens of the Ozark Mountains that includes part of eastern Oklahoma. Recently, Caleb Morse (Kansas State University, Lawrence) and his colleague M. K. Advaita have been collecting extensively in Oklahoma and other Great Plains states, finding many new species and range extensions.

Upcoming Events

SAVE THE DATE!

California Lichen Society Annual Meeting

January 26-28, 2018

Blue Oak Ranch Reserve, Mt Hamilton, CA

The California Lichen Society (CALs) annual meeting and 24th birthday celebration will be held at the Blue Oak Ranch Reserve near San Jose, CA during the last weekend in January 2018.

UC Berkeley's Blue Oak Ranch Reserve is in the heart of California's Diablo Range, which extends from the Carquinez Straits south 170 miles to Coalinga. Situated on the west-facing slope of Mount Hamilton (with a summit at 4,200 feet), the reserve includes 3,280 acres of land with elevations ranging from 1,400 feet where the Arroyo Aguague exits the reserve to 2,855 feet at the top of Poverty Ridge. The vegetation features valley oak and blue oak woodlands, mixed oak woodlands (blue, black, valley, coast live), chamise chaparral, Diablan sage scrub, native and non-native grasslands, numerous stock ponds, and seasonal and perennial streams with riparian vegetation.

The reserve has a history of livestock ranching dating back to the mid-nineteenth century when Jose de Jesus Bernal, a Mexican citizen, became the grantee of a portion of a former Mexican land grant called "Rancho Canada de Pala" in 1839 (prior to California statehood). He and his family inhabited the land for many years raising cattle and horses. The land changed hands several times over the course of a century and

eventually was entered into a conservation agreement in 2000 and ultimately transferred in 2007 to the University of California Natural Reserve System.

As always, the annual meeting activities are open to both CALs members and members of the public. Because of the limited access to the reserve, anyone interested in attending must RSVP to secretary@californialichens.org. Those who choose to attend must also sign a liability waiver, which will be provided during the RSVP process. Maps and geographic coordinates will be distributed to those who RSVP, and the passcode to the gate will be distributed shortly before the day.

Advance reservations for lodging at Blue Oak Ranch Reserve are necessary at the time of RSVP. Camping, cabin, or bunkhouse accommodations will be available for \$10-\$20 per night on a first come, first serve basis. Let us know if you are interested when you RSVP, and we will provide additional details regarding availability and rates.

This year we are adding an additional activity to the meeting schedule. On Friday, January 26 we will have a full-day hike somewhere in the vicinity of Blue Oak Ranch Reserve. Please express your interest when you RSVP.

Bring microscopes and chemicals if you have them; we have a good space for setting up in the 1,000-square foot field lab. Extension cords would be good!



UC REGENTS: BLUEOAKRANCHRESERVE.NET

2018 ANNUAL MEETING SCHEDULE**Friday, January 26, 2018**

Local lichen hike (outside Reserve) – time and location to be determined.

Check-in at Blue Oak Ranch Reserve – time to be determined

Saturday, January 27, 2018

10:00 am – 4:00 pm Lichen hike; meet at the Blue Oak Ranch Reserve at the Cedar Barn Community Center; we will pass out trail maps and head out at 10:30. Bring a picnic lunch to eat on the trail, and dress for the weather.

4:00 – 6:00 pm Time for socializing, working with microscopes in the field lab, iNaturalist postings, etc.

4:30 – 5:30 pm Open meeting of the California Lichen Society's Board of Directors. The Board will have an agenda, but we will be happy to set it aside to hear from members of the society.

6:00 – 7:00 pm Potluck dinner

7:00 – 8:00 pm Jesse Miller, PhD will be the speaker for the evening. His current interests include assessing the impact of fire on lichens. His prior work has focused on studying soil crust diversity, lichen ecology in sagebrush steppes, pin lichen diversity as influenced by substrate age, survey detectability of rare canopy lichens, the potential for wind farms in prime soil crust habitat, and in our own *Bulletin*, a paper on the *Usnea rigida* group in California and the Northwest. Jesse is currently a postdoctoral researcher at UC Davis.

Sunday, January 28, 2018

Casual lichenizing and use of the field lab (with a few microscopes)

4:00 pm Check-out

Calling all Lichen Enthusiasts!**BIOLITZ: Lichen BioBlitz at the University of California Botanic Garden, Berkeley (UCBG)**

Date: Saturday, January 20th, 9:00am-12:00pm (with optional afternoon identification activities)

Location: UCBG, Berkeley, CA

Event Fee: Free but participants are asked to pre-register and attend an orientation session the morning of the event.

Registration: Contact Vanessa Handley, vhandley@berkeley.edu

Lichens are intriguing composite organisms formed through symbiosis between fungi and cyanobacteria/algae. Like plants, lichens photosynthesize and - also like plants - they flourish here at the Garden! While lichens can be found throughout the year, they are particularly striking during winter months. As days grow dark and damp, lichens illuminate bare branches, weathered fences and wet boulders. These living ornaments are worth pausing to appreciate as you explore the Garden.

To date, this fascinating component of the Garden's diversity has not been surveyed. On Saturday, January 20th, we will inaugurate this effort with the UCBG Lichen BioBlitz. We invite you to join lichen experts, UCBG faculty, Garden staff and citizen scientists for a lichen "treasure hunt". During this one day event, participants will work in teams to document the lichen diversity at the Garden. Even if you have no specific lichen expertise, your participation is welcome. A keen eye and willingness to work collaboratively will help insure a thorough survey.

**WORKSHOP: Lichen Dyes**

Date: Sunday, January 21, 2018, 10:00am-3:00pm

Location: University of California Botanic Garden, Berkeley, CA

Instructors: Sarah Minnick and Shelly Benson

Course Fee: \$75

Registration: UC Botanic Garden, <https://41780.blackbaudhosting.com/41780/Lichen-Dye-Workshop>

This class and workshop will provide an overview and history of lichen dyes followed by information on the methodologies of creating lichen dye baths. We will heat up some dyes and add fiber samples (provided). While the dye lichens are doing their work, Shelly will lead class participants on a walk in the surrounding area to look for lichens in the Garden. We will learn some common lichen species and the characteristics that help identify those good for dyeing. After the walk we'll see what colors have developed in the dye pots!

Participants will take home instructions for dyeing with lichens as well as the samples they dyed. If you have a hand lens, please bring it on the foray so you can truly appreciate the fine details of the lichens. Please bring a lunch to enjoy in the Gardens.

Instructor bios:

Shelly Benson is the former president of the California Lichen Society and has been studying lichens from British Columbia, Canada to California for the past 18 years. She finds lichens incredibly fascinating and diverse. She started teaching in order to spread the word about these amazing organisms. Her current interest is in using lichens as indicators of air quality and climate change.

Sarah Minnick has been experimenting with natural dyes for a number of years and has a special interest in using found lichens as a dye source. She presented her work at an annual meeting of the California Lichen Society and has collaborated with the Society to develop sustainable collection practices for dye lichens. Sarah is currently a restoration ecologist working to protect and restore natural systems in Marin County.



CONFERENCE: California Native Plant Society (CNPS) 2018

Conservation Conference

The coming year's conference will be in Los Angeles from February 1st - 3rd. CALS will have a table at the event highlighting lichen conservation and biology. There will be lots to learn and many interesting people to meet. If you are planning to attend the conference, pop by the CALS table in the exhibitor hall. If you are interested in helping at the CALS table, email Hanna at vicepresident@californialichens.org



For more information on the conference, check out the website : <https://conference.cnps.org>

WORKSHOP: Introduction to California Lichens

Date: Friday-Sunday, February 23-25, 2018

Location: Jepson Herbarium, Berkeley, CA (and nearby field sites)

Instructor: Dr. Jesse Miller, certified lichenologist, kawriver@gmail.com

Course Fee: \$375 (\$305 for members of the Friends of the Jepson Herbarium)

Registration: Opens December 1st, 2017 for members, December 8th for non-members; contact Allyson Ayalon, alayalon@berkeley.edu, 510-643-7008 or visit ucjeps.berkeley.edu/workshops

Lichens are all around us and they have fascinating stories to tell to those who listen. This 2 ½ day workshop will focus on developing skills for identifying common Bay Area macrolichens (foliose and fruticose lichens) to genus. We will begin with an introductory classroom session, where we will cover basic lichen anatomy and terminology, and discuss the roles lichens play in ecosystems such as supporting wildlife. We'll then divide the rest of the class time between field trips to nearby natural areas and lab time, so that students can observe lichens in their natural habitats and then bring collections back to the lab for study. Students will learn to recognize and distinguish between pollution-tolerant lichen communities that we often see in cities and the more pristine communities that occur in places with high

air quality. After taking this course you will be sure to observe lichens, big or small, almost everywhere you go!

Instructor bio: Jesse Miller has spent many years working as a botanist and lichenologist across California and Oregon. After a few years working on a Ph.D. studying grassland communities in the Ozarks he is happy to be back in California where he currently works as a postdoctoral researcher at UC Davis. Jesse loves sharing his passion for lichens with others as much as he enjoys disentangling the mysteries of species distributions and conservation biology. He enjoys contributing to northern California's growing lichenological community and is working to improve the representation of the northern California lichen flora in regional herbarium collections.

WORKSHOP: Identifying Lichens to Genus

Date/Time: Saturday, April 14, 2018, 9:00am-4:00pm

Location: California State University Chico Herbarium

Instructor: Tom Carlberg

Course Fee: please refer to Friends of the Chico State Herbarium, www.friendsofthechicostateherbarium.com/eventsviewcalendar/

Registration: via Friends of the Chico State Herbarium, www.friendsofthechicostateherbarium.com/eventsviewcalendar/

There are reported to be 5,241 species of lichens in 733 genera in North America and more than 1,800 species in California, yet few people are able to place names on even the most common lichens, which means that an essential component of most natural resource inventories is lacking. Opportunities to learn about identifying lichens are infrequent, although the basic characters used in identification can easily be learned in a day.

This one-day workshop will focus on identifying the lichens of the lower Sierra Nevada foothills to genus. The morning will be spent covering lichen basics – anatomy, morphology, and reproduction of lichens. Lunch will be spent in the field, with lichens, and possibly some hands-on collecting. Afternoon

will be back in the lab for guided exploration, using dissecting 'scopes, reference materials, chemical spot tests, and vouchers and a key provided by the instructor. Please bring dissecting tools, a hand lens, a thumb drive, and lunch. Participants will benefit more from the workshop if they are experienced with using dichotomous keys.

Instructor bio: Tom Carlberg has a degree in Botany from Humboldt State University. He has been a cryptogamic botanist for 19 years, working for governmental agencies, private contractors, and non-profit organizations. His current special interest is ageing lichens that grow on the leaves of evergreen vascular plants. He is the president of the California Lichen Society (CALs), past editor of the *Bulletin of the California Lichen Society*, and chair of the Society's grants committee. In addition to CALs, he also belongs to the American Bryological and Lichenological Society and the British Lichen Society.

For questions, please contact: tcarlberg7@yahoo.com.

WORKSHOP: Introduction to Lichens and Lichen Identification

Date: Saturday, May 5, 2018

Location: Pepperwood Preserve, Santa Rosa, CA

Instructor: Shelly Benson

Course Fee: \$35 (\$30 for members of Pepperwood Preserve)

Registration: via Pepperwood Preserve, www.pepperwoodpreserve.org/get-involved/classes-events/

In this introductory class you will learn the basics of lichen biology and ecology. We will focus on recognizing the various lichen structures that are used in identification. We will use dichotomous keys, chemical spot tests, and dissecting microscopes to identify lichens to the genus-level. The workshop structure includes a classroom lecture, a short field trip, and lab time to identify lichens. Bring a hand lens, bring a lunch, and if you have any unidentified lichens—bring them too!

Instructor bio: Shelly Benson is the former president of the California Lichen Society and has been studying

lichens from British Columbia, Canada to California for the past 18 years. She finds lichens incredibly fascinating and diverse. She started teaching in order to spread the word about these amazing organisms. Her current interest is in using lichens as indicators of air quality and climate change.

LECTURE: Lichen Diversity in the Southern California Mountains

Date/Time: Thursday, May 10, 2018, 2:00pm

Location: Huntington Library in Los Angeles County, for directions see <http://www.huntington.org/>

Speaker: Kerry Knudsen

Event Fee: Free

Kerry Knudsen has studied the lichens in the mountains of southern California for many years. Don't miss this opportunity to see him in person and hear what he has learned, as this will be his last lecture in the United States. He currently lives in Prague in the Czech Republic, where he has become a permanent resident and will eventually become a citizen.



CONFERENCE: 9th International Symbiosis Society (ISS) Congress

Dates: July 15-20, 2018

Location: Oregon State University, Corvallis, Oregon

Registration: Opens February 15, 2018, <https://symbiosissociety2018.org/> (Some travel awards will be available to students.)

The ISS Congress is the sanctioned meeting of the International Symbiosis Society and is held every three years. It is the primary international meeting focusing on symbioses, including complex interactions between hosts and their microbiomes. The Congress is anticipated to bring together 400

symbiosis scientists from up to 20 nations to present the latest research in symbioses, their ubiquity in nature and their impact on all environments on the planet.

ISS abstract submission: January 1 – March 1.

The ISS Congress will be organized around a series of cross-cutting themes:

- Susceptibility and resilience of symbioses in the Anthropocene
- Ecology of symbioses
- Mechanisms of host-microbiome interactions
- The host-microbe interface: signaling, recognition and regulation
- Tinkering with symbiosis: experimental insights into host-symbiont systems
- Rise and fall of symbiosis: evolutionary transitions
- New tools and approaches for studying symbiosis

Keynote speaker:

Ed Yong, science writer and author of the book on symbiosis: *I Contain Multitudes*

Plenary speakers:

- Betsy Arnold, U. of Arizona, USA
- Ruth Gates, University of Hawaii, USA
- Margaret McFall-Ngai, University of Hawaii, USA
- Joel Sachs, University of California at Riverside, USA
- Toby Spribille, University of Alberta, Canada
- Liping Zhao, Rutgers University, USA, Shanghai Jiao Tong University, China

RECURRING WORKSHOP

Tilden Regional Parks Botanic Garden Lichen Identification Workshop

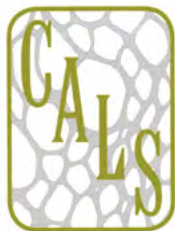
Instructors: Irene Winston and Bill Hill

Date: 2nd Saturday of each month, 1:30 PM - 4:30 PM

Location: Junction of Wildcat Canyon Rd. and S. Park Dr., Berkeley, CA

Registration: Please RSVP to Irene Winston if you are planning to attend: irene@californialichens.org or 510-548-6734

Description: We often check some lichens in the garden and then do some keying and discuss lichen topics of interest. If you would like to have a particular topic covered, please let us know.



California Lichen Society Grants Program

The California Lichen Society (CAL S) offers small grants to support research pertaining to the lichens of California. No geographical constraints are placed on grantees or their associated institutions, but grantees must be members in good standing of the California Lichen Society. The CAL S Grants Committee administers the grants program, with grants awarded to an individual only once during the duration of a project. Grant proposals should be brief and concise.

Grant applicants should submit a proposal containing the following information:

- Title of the project, applicant's name, address, phone number, email address, and the date submitted.
- Estimated time frame for project.
- Description of the project. Outline the purposes, 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.
- Description of the final product. We ask you to submit an article to the *Bulletin of the California Lichen Society*, based on the results of your work.
- Budget. Summarize intended use of funds. If you received or expect to receive other grants or 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, and living expenses. CAL S does not approve grants for outright purchase of capital equipment or high-end items such as computers, software, machinery, or for clothing.
- Academic status (if any). State whether you are a graduate student or an undergraduate student. CAL S grants are also available to non-students conducting research on California lichens. CAL S grants are available to individuals only and will not be issued to institutions.
- Two letters of support, from sponsors, academic supervisors, major professors, professional associates or colleagues should accompany your application.
- Your signature, as the person performing the project and the one responsible for dispersing the funds. All of the information related to your application may be submitted electronically.

Review: Members of the CAL S Grants Committee conduct anonymous evaluation of grant proposals once a year based on completeness, technical quality, consistency with CAL S goals, intended use of funds, and likelihood of completion. Grant proposals received by November 1 each year will be considered for that year's grant cycle. The CAL S Grants Committee brings its recommendations for funding to the CAL S Board of Directors, which has final say regarding approval or denial.

Grant amounts: CAL S typically offers two grants each year in the amounts of \$750.00 and \$1000.00. Typically, grants are awarded to two separate individuals; however, depending on the quality of the applications and the amount of funding available, the committee maintains the option to disburse funds as appropriate. All grants are partially dependent on member contributions. Therefore, the amounts of these awards may vary from year to year. Contact the committee chair for an estimate of the available funding for a given year.

Obligations of recipients: 1) Acknowledge CAL S in any reports, publications, or other products resulting from the work supported by CAL S. 2) Submit an article to the *Bulletin of the California Lichen Society*. 3) Submit any relevant rare lichen data to California Natural Diversity Data Base using NDDDB's field survey forms. See <http://californialichens.org/conservation> for additional information.

How to submit an application: Please email submissions or questions to the committee chair at grants@californialichens.org by **November 1 of the current calendar year**. The current chair is Tom Carlberg.

President's Message

Dear CALS members – This was a very busy summer for me, without much time for the Society; at one point I had spent nine out of ten weeks camping in the field. But that has eased off, and since September things have started happening again, beginning with a multi-day field trip to the UC Berkeley Sagehen Creek Field Station last October. Except for species of *Letharia*, it turned out to be nearly devoid of macrolichens, but a great trip for crustose species. Sorry there's no write-up yet; most of those who attended are still working on their collections, but I think we can count on an interesting report in the summer issue.

I would very much like to hear from you all about other potential field trip locations, especially those that involve a multi-day trip, and would take us to a place that CALS has never been before – if you aren't sure about previous visits, try googling the place name along with *Bulletin of the California Lichen Society*, and see if any of our articles come up.

Even if there has been an earlier trip, it may be time for a revisit; the pygmy forests in Mendocino and Sonoma Counties are a good example of this; see the article on *Hypogymnia schizidiata* in this issue for a good reason. Other venues that have been suggested are the remote UC Angelo Reserve in Mendocino County, and Cone Peak Road, along a ridgetop in Big Sur, where the rare Santa Lucia fir grows. The latter trip needs dry road conditions, so a summer trip for sure. Where would you like to go?

2018 is going to be a very good year for workshops, as the Upcoming Events section of this *Bulletin* makes clear. It starts in January with a lichen dye workshop at the UC Berkeley Botanic Garden. In February there is a three-day identification to genus workshop for lichens of the central coast at the Jepson Herbarium. I will deliver my usual ID to genus for the Cascade foothills in Chico in April, there is an ID to genus workshop at Pepperwood in May, and then something new in October: an introduction to identifying lichens that require a compound microscope. If you've been thinking about spores, like I have, this might be your chance! Look for more details about the October event in the summer 2018 issue of the *Bulletin*.

Our annual meeting this year is east of San Jose, at the UC Blue Oak Ranch Reserve. They have new (2016) lodging and meeting facilities, it's convenient, and there are seven species of oaks! But at present they do not have a species list for lichens; let's change that. Visit their website: <http://blueoakranchreserve.net>.

One of my recurring themes (or rants, if you will) when I look at the state of lichenology in California is that despite several decades of exploration and research by knowledgeable and experienced individuals, there are still *many* discoveries to be made. Take note of the many new records for Tehama County that turned up from the Dye Creek inventory reported in the last *Bulletin*. Also read the articles on *Lecidoma demissum* and *Hypogymnia schizidiata* in this one, and realize that these new reports were not all made by people with decades of experience. Please also consider that the ongoing work of the CALS Conservation Committee is largely responsible for the new knowledge we have gained regarding *H. schizidiata*; it seems that when you bring something forward, you learn something new.

See you in January, I hope!

Tom Carlberg
President@californialichens.org



SUE CALLA

At Tolowa Dunes State Park near Crescent City, CA.



CALIFORNIA LICHEN SOCIETY

PO Box 472, FAIRFAX, CALIFORNIA 94978

The California Lichen Society (CAL S) 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.

Members receive the *Bulletin of the California Lichen Society* (print and/or online access), voter rights in society elections, access to the CAL S community, and notices of meetings, field trips, lectures, and workshops.

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Cyanolichens of the Mount Vision Lichen Hot Spot

Point Reyes National Seashore, Marin County, California

Mount Vision has been described as a lichen hot spot, a locality with unusually high species richness and/or abundance (D. Wright, *Bulletin of the California Lichen Society*, Vol. 5(1), 1998). In addition to the new occurrence of *Hypogymnia schizidiata* found on conifer bark (see article by Carlberg, this issue), mature coastal scrub at Mount Vision supports the diversity of cyanolichens pictured below. All photos by Shelly Benson.



Collema furfuraceum



Lobaria anomala



Pseudocyphellaria crocata



Lobaria pulmonaria



Lobaria scrobiculata



Nephroma laevigatum



Pannaria rubiginosa



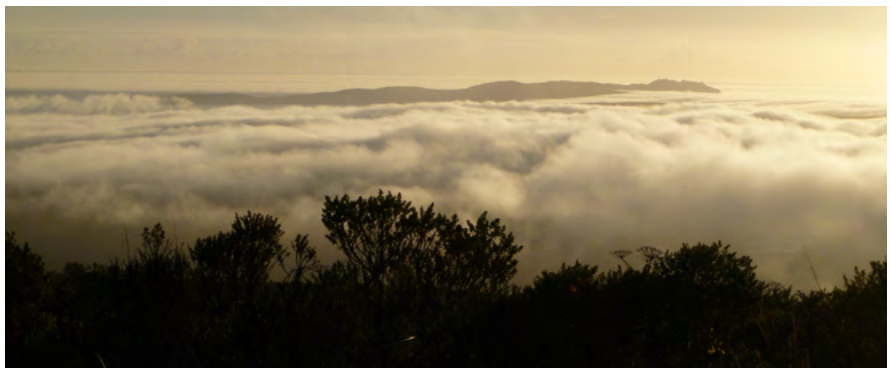
Peltigera collina



Sticta fuliginosa



Sticta limbata (with *Teloschistes flavicans*, above)



View from Mount Vision showing coastal scrub habitat within the fog zone.