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of the
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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 (in \$US per year): Student and fixed income - \$10, Regular - \$18 (\$20 for foreign members), Family - \$25, Sponsor and Libraries - \$35, Donor - \$50, Benefactor - \$100 and Life Membership - \$500 (one time) payable to the California Lichen Society, P.O. Box 472, Fairfax, CA 94930. Members receive the Bulletin and notices of meetings, field trips, lectures and workshops.

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The Bulletin of the California Lichen Society (ISSN 1093-9148) is edited by Tom Carlberg, tcarlberg7@yahoo.com. The Bulletin has a review committee including Larry St. Clair, Shirley Tucker, William Sanders and Richard Moe, and is produced by Eric Peterson. 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 or on a CD in the format of a major word processor (DOC or RTF preferred). Submit a file without paragraph formatting; do include italics or underlining for scientific names. Figures may be submitted electronically or in hard copy. Figures submitted electronically should provide a resolution of 300 pixels-per-inch; hard copy figures may be submitted as line drawings, unmounted black and white glossy photos or 35mm negatives or slides (B&W or color). Email submissions of figures are limited to 10 MB per email, but large files may be split across several emails. Contact the Production Editor, Eric Peterson, at eric@theothersideofthenet.com for details of submitting illustrations or other large files. A review process is followed. Nomenclature follows Esslinger and Egan's 7th Checklist on-line at <http://www.ndsu.nodak.edu/instruct/esslinge/chcklst/chcklst7.html>. The editors may substitute abbreviations of author's names, as appropriate, from R.K. Brummitt and C.E. Powell, Authors of Plant Names, Royal Botanic Gardens, Kew, 1992. Style follows this issue. Reprints may be ordered and will be provided at a charge equal to the Society's cost.

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Front cover: *Ramalina thrausta*, showing hooked branch tips (see also article on p. 17).
Photography by Tom Carlberg.

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VOLUME 13 NO. 1 SUMMER 2006

Hypotrachyna afrorevoluta Discovered in Central California

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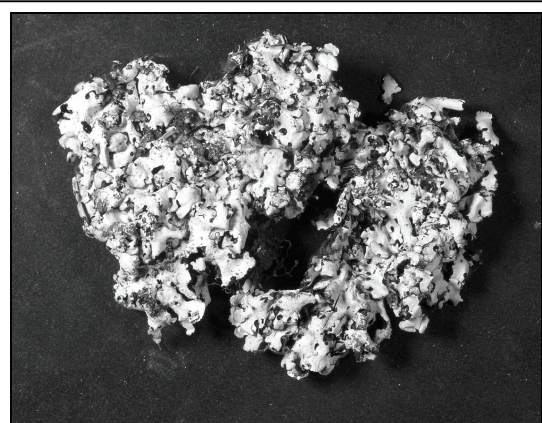
Hypotrachyna revoluta (Flörke) Hale, has long been recognized as a widespread variable species whose thalli could have either eroding soralia or sorediate pustules (Hale 1975). The C+ pink medulla (due to the presence of gyrophoric acid and members of the hiassic acid complex), soredia or sorediate-pustules, and revolute lobe tips distinguish the species in most popular field guides (Brodo et al. 2001) and technical species revisions (Nash et al. 2002).

When Krog & Swinscow (1979) studied the species in Africa they recognized the pustulose-sorediate specimens as a distinct species, describing *Parmelia afrorevoluta* Krog & Swinscow from Kenya, now called *Hypotrachyna afrorevoluta* (Krog & Swinscow) Krog & Swinscow. Thus, the name *Hypotrachyna revoluta* was restricted to only specimens with eroding soralia. Other lichenologists on other continents subsequently discovered that what they had previously called *H. revoluta* actually represented both of the species and *H. afrorevoluta* was reported from Asia, Australia, and Europe (for a summary see Knudsen & Lendemer 2005).

When I first began to collect lichens in eastern North America I occasionally encountered specimens of a pustulose foliose lichen that had a C+ pink medulla and keyed out to *Parmelinopsis spumosa* (Asah.) Elix & Hale, because of the presence of cilia on the lobe tips. During the 12th Tuckerman Workshop in coastal North Carolina, other lichenologists were puzzled by the same species, which we collected during the

workshop along with “true” *Parmelinopsis spumosa*, which is a rather attractive and distinctive species with a small fragile thallus and pigmented medulla. After several years of being continuously puzzled by the species in the field my colleague Richard Harris questioned if the specimens might be *Hypotrachyna showmanii*, which was considered a rare species endemic to the Ohio River Valley. When I reviewed herbarium specimens of *H. revoluta* searching for additional records of *H. showmanii* I discovered several collections of *H. afrorevoluta* which had been misidentified as *H. revoluta*.

So, last year Kerry Knudsen and I reported *H.*



Hypotrachyna afrorevoluta. Marin County, California. Photography by James C. Lendemer. See also back cover.

afrorevoluta as new to North America in our series of papers in *Mycotaxon* documenting changes and additions to the North American Lichen Flora. At that time I considered *H. afrorevoluta* to have an Appalachian-Great Lakes Distribution (Knudsen & Lendemer 2005) in eastern North America.

When I visited the Bay Area with Kerry Knudsen for the CALS Anniversary meeting in 2006, the CALS members graciously took us to several rich localities in the Bay Area. The first day we visited Sweeney Ridge in San Mateo County where I observed a number of interesting lichens. While the CALS members explored a fog-covered ridge looking for *Sticta* and *Pseudocyphellaria*, Kerry Knudsen and I examined the crustose lichens on a large rock outcrop on a west-facing slope. While discussing the diversity of crustose lichens and musing over large thalli of *Pertusaria californica* which neither of us had seen before we observed thalli of a sorediate *Hypotrachyna* growing loosely attached to the rock. The next day we visited several localities in Mount Tamalpais State Park where I collected a sorediate *Hypotrachyna*, this time occurring on the bark and branches of oak trees. In the field I assumed the specimens represented *H. revoluta*, which was the only sorediate C+ species reported from California. However I mentioned to several CALS members that they should watch out for *H. afrorevoluta*.

When I returned to Philadelphia and sat down to name my collections I discovered that all but one of the specimens I assumed were *H. revoluta* in the field actually represented *H. afrorevoluta*, which has not previously been reported from western North America or from California. I also realized the thalli observed on Sweeney Ridge were particularly interesting because they are almost identical to the type specimen collected by Hildur Krog in Kenya.

Hypotrachyna afrorevoluta is a distinctive and attractive species (see back cover photo) and I suggest that CALS members and lichenologists that have collected *Hypotrachyna revoluta* in California should review their specimens to search for additional records of *H. afrorevoluta*. A key to the pustulose/sorediate species of *Hypotrachyna* and *Parmelinopsis* in eastern North America can be found in Lendemer & Harris (2006) (online at <http://clade.acnatsci.org/lendemer/volume3.html>) and it will work for specimens from California. It

should be noted that badly treated or scrappy specimens of *Hypotrachyna afrorevoluta* can be very hard to distinguish from *H. revoluta* and should be studied carefully. In cases where the sorediate pustules are hard to observe, one can often find the traces of pustules on the older portions of the thallus. Specimens identified as *H. revoluta* in most herbaria are actually a mixture of more than one species and thus should not automatically be re-identified as *H. afrorevoluta*.

Specimens Examined: USA. CALIFORNIA. Marin Co., Mount Tamalpais State Park, *Lendemer 5868* (hb. Lendemer).

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Two New Records of *Lepraria* from California

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ABSTRACT

Lepraria cacuminum (A. Massal.) Lohtander and *Lepraria vouauxii* (Hue) R. C. Harris are reported as new to California.

KEYWORDS

Cabrillo National Monument, Californian lichen flora, *Lepraria*, Palomar.

INTRODUCTION

The Tucker-Ryan Catalog (2006) reports 10 *Lepraria* taxa for California, although the report of *Lepraria membranacea* (Dicks.) Vainio definitely needs to be re-examined as this name was sometimes applied to any lobed specimen. The North American checklist (Esslinger 2006) lists 21 *Lepraria* taxa for North America. However, in our opinion *L. frigida* J. R. Laundon is best treated as a synonym of *L. eburnea*, as suggested by Tønsberg (2004), reducing the number to 20 taxa. In both the Catalog and checklist, *L. caesioalba* (de Lesd.) J. R. Laundon includes both *sens. str.* specimens (containing atranorin, fumarprotocetraric acid, roccellic acid and angardianic acid) as well as *sens. lato* specimens (with alternative chemistry), the latter being treated merely as chemotypes (Leuckert et al. 1995; Tønsberg 2004). However, it appears that the psoromic acid chemotype may be a good candidate for further study and consideration for possible species status (Ekman & Tønsberg 2002). In this

paper we report two new records of *Lepraria* from California.

METHODS

The collections of *Lepraria* from California were made by K. Knudsen during a number of lichen surveys. Initially, thin layer chromatography (TLC) in solvent C was performed by J.C. Lendemer using the standardized methods of Culberson and Kristinsson (1970). J.A. Elix subsequently re-analyzed the collections using high performance thin layer chromatography (HPLC; Elix *et al.* 2003) and suggested possible species identities. K. Knudsen subsequently studied the morphology of the specimens in detail, and made the determinations, and these were agreed upon by all three authors.

NEW SPECIES RECORDS

Lepraria cacuminum (A. Massal.) Lohtander was collected growing on smooth, hard granite on the vertical sides of boulders in the shade of mixed conifer and oaks along a stream on Palomar Mountain at 1445 meters (4728 feet) in Palomar Mountain State Park in San Diego County (SD, UCR). It was only associated with a gray *Aspicilia* species which is a common, hard acid rock pioneer. Thalline colonies of *L. cacuminum* were indeterminate, whitish, up to 10 cm wide, but eroded at the center to expose a white hypothallus. HPLC analysis showed that the population contained atranorin (major), roccellic and/or angardianic acid

(major), gyrophoric acid (minor - contaminant?), and ursolic acid (minor). *Lepraria jackii* Tønsberg has overlapping chemistry but *L. cacuminum* can be distinguished by the presence of a hypothallus. Furthermore, *L. jackii* generally occurs on acid bark rather than on rock (Tønsberg 1992). This is first report of *L. cacuminum* from California but it might be expected to occur on acid rocks in other, similarly humid, shaded situations. It is also a new record for the Greater Sonoran Region (Tønsberg 2004). A second collection of *L. cacuminum* was made in San Diego County on Warner Hot Spring Ranch at 1001 meters (3283 feet), in the plain southeast of Palomar Mountain. That population contained atranorin (major) and roccellic and/or angardianic acid (major), was more diffuse on uneven decaying granite, overgrowing a moss and lichens and spreading on to soil above a seasonal stream in shade.

Lepraria vouauxii (Hue) R. C. Harris was collected below the Bayside Trail in Cabrillo National Monument at the end of Point Loma in San Diego at 85 meters (279 feet). It was growing on detritus as well as on lichens (*Rinodina intermedia* Bagl.) and the prostate spike moss *Selaginella cinerascens* A.A. Eat. in thin-soiled openings of maritime chaparral. Other associated species included *Texosporium sancti-jacobi* (Tuck.) Nádav., *Caloplaca luteominia* var. *luteominia* (Tuck.) Zahlbr., an undescribed, terricolous *Buellia* (Bungartz *et al. in prep.*), and *L. xerophila* Tønsberg. *Lepraria vouauxii* is a polymorphic species, with thalli varying from indeterminate and leprose morphs to more compact and lobed forms. In the maritime habitat of Point Loma this species was leprose, gray-white, and tended to break into fragments formed in part by the various substrates. HPLC analysis showed the population contained pannaric acid 6-methyl ester (major), atranorin (minor), roccellic and/or angardianic acid (major), ursolic acid (minor), and pannarin (trace - contaminant?). *L. xerophila* was abundant at the same site and has similar chemistry, but it can be distinguished from *L. vouauxii* by its distinct marginal lobes, the formation of lobules and by the absence of fatty acids (roccellic or angardianic acids). The occurrence of 4-oxypannaric acid 6-methyl ester in *L. vouauxii* is variable. It certainly does occur in the holotype specimen of *L. vouauxii* but is not always present in otherwise typical material.

SELECTED SPECIMENS:

Lepraria cacuminum: California: San Diego County: Palomar Mountain State Park: Palomar Mountain. K. Knudsen# 2716 w/ Lawrence Glacy (SD, UCR); Warner Hot Spring Ranch. K. Knudsen #3897 w/ Char Glacy & Nancy Nenow (UCR).

Lepraria vouauxii: California: San Diego County, Cabrillo National Monument, Point Loma, below the Bayside Trail. K. Knudsen# 2658.2 w/ Andrea Compton (UCR).

CONCLUSION

These two new records increase the number of species of *Lepraria* in California to twelve and further temperate species present in North America and Europe could be expected to occur in the state.

ACKNOWLEDGMENTS

We thank Andrea Compton for access to Cabrillo National Monument, Darren Smith for access to Torrey Pines State Park, Jim Dice and Kim Marsden of the Colorado Desert State Park District for commissioning a lichen survey of Palomar Mountain State Park, Mary Ann Hawke and the San Diego Natural History Museum, Char Glacy and Nancy Nenow, and Andrew Sanders, curator of the UCR Herbarium. We thank Shirley Tucker and Silke Werth for reviewing this mss.

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SPECIMENS DONATED

The California Lichen Society has received from the following from the Monte L. Bean Life Science Museum in Provo, Utah: Anderson and Shushan: Lichens of Western North America, Fascicle IV

Included in the Fascicle are:

Acarospora schleicheri (Ach.) A. Massal.
Cladonia cariosa (Ach.) Sprengel
Cladonia cervicornis ssp. *verticillata* (Hoffm.) Ahti
Cladonia ecmocyna Leighton ssp. *ecmocyna*
Cladonia multififormis G. Merr.
Flavoparmelia caperata (L.) Hale
Hypogymnia austerodes (Nyl.) Räsänen
Hypogymnia physodes (L.) Nyl.
Leprocaulon albicans (Th.Fr.) Nyl. ex Hue
Melanohalea subolivacea (Nyl.) O. Blanco et al.
Protopannaria pezizoides (Weber) P.M. Jørg. & S. Ekman
Peltigera aphthosa (L.) Willd.
Polychidium muscicola (Se.) Gray
Umbilicaria americana Poelt & T. Nash
Umbilicaria virginis Schaerer
Vulpicida pinastri (Scop.) J.E. Mattsson & M.J. Lai
Xanthoparmelia wyomingica (Gyelnik) Hale

Xanthomendoza fallax (Hepp) Søchting, Kärnefelt & S. Kondr.

Brigantiaea praetermissa Hafellner & St. Clair
Lobaria pulmonaria (L.) Hoffm.
Alectoria sarmentosa (Ach.) Ach. ssp. *sarmentosa*
Cladonia mitis Sandst.
Alectoria imshaugii Brodo & D. Hawksw.
Alloctetraria madreporiformis (Ach.) Kärnef. & Thell
Thamnolia subuliformis (Ehrh.) Culb.

Many thanks to Dr. Larry St. Clair for this valuable contribution to the CALS reference collection. The entire collection was published in the Summer 2003 Bulletin of the California Lichen Society 10(1): 23; Fascicle No. 3 of the Anderson & Shushan exsiccate, also courtesy of Dr. St. Clair, was added in 2003 (CALS 10(2): 50). Fascicle IV will join the rest of the collection at the College of Marin. Those wishing to borrow from this collection should contact Judy Robertson at jksrr@aol.com. Postage is the responsibility of the borrower.

Reported by Judy Robertson.

Additional Lichen Collections from Pinnacles National Monument, San Benito County, California

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The flora of Pinnacles National Monument is significant because the area is one of transition between floras of northern and southern California. The lichens differ greatly between these regions, so knowledge of this transitional area is likely to show significant overlaps or gaps in ranges of lichens.

Previous lichen surveys of Pinnacles National Monument are summarized in Benson (2005) with a total of about 184 taxa reported. The basic objective of this new study, under a permit from the National Park Service, was to bring lichen experts from both northern and southern California to hunt for rare lichens not previously found or recognized in the Monument or taxa showing transitional distributions.

On Oct. 15-16, 2005, a party of lichenologists explored the east side of the Monument for additional lichen taxa. Kerry Knudsen spent considerable time examining rock falls along the Bear Gulch trail and scouting bare-earth openings in the chaparral on the steep hillsides. Judy and Ron Robertson took the Upper Trail, examining rocks at higher elevations, as well as looking for soil lichens. On oaks near the Bear Gulch headquarters, Ron found *Lecania fuscelloides*, an inconspicuous and rare crust. Shirley and Ken Tucker looked for corticolous lichens along the Bear Gulch trail, as well as rock crusts on large boulders along the trail and on cobbles in the dry creek bed of Chelone Creek. Richard and Janet Doell photographed some of the splendid rock lichens along Bear Gulch and other trails. Other participants

included Sara Blauman, Dan Kushner, Kathy Faircloth, Amanda Heinrich and Chris Hayes, Bill Hill, Ken Howard, Patti Patterson, and Boyd Poulsen.

The foray added 37 lichen species to the known lichen flora of Pinnacles National Monument. Sixteen of these have been rarely collected in California, and at least one is a new report for the state. Affinities of the newly reported lichens appear to be mostly with southern California (nine species, as listed below) although three have mostly been collected in the north. Fifteen overlap both areas, and nine are too rare to judge ranges. *Trapeliopsis glaucopholis* is included in the list but is probably identical with material previously collected as *T. wallrothii*, so not new.

Newly reported lichens having primary affinity with the southern California lichen flora: *Acarospora elevata*, *Acarospora obnubila*, *Lecania fuscelloides* (previously collected only in Channel Islands and once near Guadalupe, Santa Barbara Co.), *Lecanora circumborealis*, *Lecanora* cf. *pseudistera*, *Lecidea laboriosa*, *Miriquidica mexicana* (only a few other collections known from CA), *Placidium lacinulatum*, and *Xanthomendoza hasseana*.

Newly reported lichens having primary affinity with northern California lichen flora: *Buellia muriformis*, *Lichinella cribellifera*, and *Waynea californica*.

New lichens distributed in both northern and southern

ADDITIONAL COLLECTIONS FROM PINNACLES

California, although most are not commonly collected: *Acarospora veronensis*, *Arthonia punctiformis*, *Arthothelium orbilliferum*, *Buellia badia*, *Buellia dispersa*, *Buellia punctata*, *Buellia stellulata*, *Caloplaca cerina*, *Caloplaca holocarpa*, *Caloplaca luteominia* var. *luteominia*, *Candelaria "pacifica"*, *Phaeophyscia hirsuta*, *Sarcogyne similis*, *Staurothele drummondii*, and *Xanthoria tenax*. *Candelaria "pacifica"* is the most common *Candelaria* in the Monument, turning dead branches of pines a brilliant yellow color. In the Sonoran Lichen Flora, M. Westberg and T. Nash (2002) listed it as common along the Pacific coast, and differing from the better known *C. concolor* in spore number (8 spores per ascus in *C. pacifica*, vs. 30 in *C. concolor*) and in having soredia on the lower side rather than on the upper surface and on margins, as in *C. concolor*. The latter has also been reported in the Monument.

New lichens found in the Pinnacles Monument but too rare elsewhere in CA to judge range: *Aspicilia filiformis* (previously reported in CA from only one site in San Luis Obispo Co.), *Caloplaca stellata*, *Dermatocarpon leptophyllodes*, *Lecanora brattiae* (collected only in Monterey and Santa Barbara Counties), *Lecanora latens* (only four collections known from western North America), *Placopyrenium zahlbruckneri*, *Punctelia ulophylla*, *Verrucaria fusca*, *Verrucaria memnonia*.

These newly reported lichens from the Pinnacles National Monument are deposited in the herbarium of the Santa Barbara Botanic Garden, Santa Barbara, CA.

Nomenclature follows that of Esslinger (2006). Distributions in CA and rarity are judged on the basis of citations in Tucker and Ryan (2006). Special thanks are offered to Othmar Breuss of Austria and Tom Nash, who made available the Breuss key to the difficult crustose genus *Verrucaria* for the Sonoran area (to be published in the third Sonoran Desert volume), for an area south of the Pinnacles but still very helpful. Kerry Knudsen is responsible for adding the several new reports of *Acarospora* species, another very difficult crustose genus which he is revising. Many of these new reports result from treatments of genera in the Sonoran Lichen Flora (Nash et al., 2002, 2004), which are invaluable to students of lichenology in California.

NEW LICHEN REPORTS FROM PINNACLES NATIONAL MONUMENT

Acarospora elevata H. Magn. (K. Knudsen 4173, 36°29'06"N, 121°10'06"W, west-facing slope, North Chalone Peak; RARE.)

Acarospora obnubila H. Magn. (Sara Blauman, 31°29.593N, 121°10.358W; elevation: 1025 feet, gravel wash; RARE: first report for CA.)

Acarospora veronensis A. Massal. (S. Tucker 38639, 36°29'N, 121°10'17"W, on rocks in rock fall along Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center.)

Arthonia punctiformis Ach. (S. Tucker 38637, 36°29'N, 121°10'17"W, on live oak bark, Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center; RARE.)

Arthothelium orbilliferum (Almq.) Hasse (S. Tucker 38638, 36°29'N, 121°10'17"W, on bark and twigs of live oak, Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center; RARE.)

Aspicilia filiformis Rosentreter (K. Knudsen 4173, 36°29'06"N, 121°10'06"W, on soil on slope with spikemoss, west-facing slope, North Chalone Peak; RARE.)

Buellia badia (Fr.) A. Massal. (K. Knudsen 4138.1, 36°29'05"N, 121°10'03"W, on rock along Chalone Creek, riparian woodland. A previous report of *B. turgescens* may be based on the same taxon.)

Buellia dispersa A. Massal. (K. Knudsen 4138.2, 36°29'05"N, 121°10'03"W, on volcanic rock along Chalone Creek, riparian woodland.)

Buellia muriformis A. Nordin & Tønsberg (S. Tucker 38643, 36°29'N, 121°10'17"W, on gray pine twigs, Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center.)

Buellia punctata (Hoffm.) A. Massal. (Synonym: *Amandinea punctata*) (S. Tucker 38646, on *Cercocarpus* twigs; Tucker 38647 on chamise, *Ptelea* twigs.)

Buellia stellulata (Tayl.) Mudd (cream crust on rock, apo. .2-.3 mm, K+) Tucker 38649, 36°29'N, 121°10'17"W, rocks in rock fall along Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center.)

Caloplaca cerina (Ehrh. ex Hedw.) Th. Fr. (S. Tucker 38650, 36°29'N, 121°10'17"W, base of live oak along Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center.)

Caloplaca holocarpa (Hoffm. ex Ach.) A. E. Wade (S. Tucker 38651, 38657, 36°29'N, 121°10'17"W, on live oak along Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center.)

Caloplaca luteominia (Tuck.) Zahlbr. var. *luteominia* Arup (S. Tucker 38653, 36°29'N, 121°10'17"W, on rock along Bear Gulch Trail, ~0.5 mi. east of Bear Gulch Visitors Center.)

Caloplaca stanfordensis H. Magn. (S. Tucker 38652, 36°29'N, 121°10'17"W, on base of oak ~0.5 mi. E of Bear Gulch Visitors Center; RARE.)

Caloplaca stellata Wetm. & Kärnefelt (K. Knudsen, 36°29'07"N, 121°10' W, west-facing slope, chamise chaparral, on volcanic rock with *Caloplaca demissa*; RARE.)

Candelaria "pacifica" Westberg, in prep. (S. Tucker 38659, 36°29'N, 121°10'17"W, on gray pine, ~0.5 mi. E of Bear Gulch Visitors Center; S. Tucker 38660, 36°29'N, 121°10'17"W, on *Eriogonum* (buckwheat) in dry bed of Chalone Creek, ~ 1 mi. E of Bear Gulch Visitors Center.)

Dermatocarpon leptophyllodes (Nyl.) Zahlbr. (K. Knudsen 4164, on rock, slope above seasonal stream bed feeding Bear Creek below Mt Defiance. 36°28'13"N, 121°09'52"W; RARE.)

Lecania fuscelloides B. D. Ryan & van den Boom (R. Robertson, 36°29'54"N, 121°10'41"W, on oak, Bear Gulch Visitors Center; RARE.)

Lecanora brattiae B. D. Ryan & T. H. Nash (K. Knudsen 4181, nr. 36°29'14"N, 121°10'W, on volcanic rock, west-facing slope, North Chalone Peak; RARE.)

Lecanora circumborealis Brodo & Vitik. (S. Tucker 38668, 36°29'N, 121°10'17"W, on gray pine, along Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center.)

Lecanora latens Printzen (S. Tucker 38667, 36°29'N, 121°10'17"W, on gray pine, along Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center; RARE.)

Lecanora cf. pseudistera Nyl. (S. Tucker 38674, 36°29'N, 121°10'17"W, on boulder close to road ~0.5 mi. E of Bear Gulch Visitors Center.)

Lecidea laboriosa Müll. Arg. (S. Tucker 38675, on rock; Sara Blauman, 31°29.593N, 121°10.358W, elevation: 1025 feet, gravel wash.)

Lichinella cribellifera (Nyl.) Moreno & Egea (K. Knudsen, 36°29'05" N, 121°10'03"W, rock slab on west-facing slope above Chalone Creek. Single abundant local population seen.)

Miriquidica mexicana Rambold (S. Tucker 38641, 36°29'N, 121°10'17"W, on boulder along Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center; K. Knudsen 4146, nr. 36°29'05"N, 121°09'35"W, on volcanic rock, ravine above Chalone Creek, North Chalone Peak; RARE. This saxicolous crust resembles the very common *Lecidea atrobrunnea*, with reddish brown overlapping areoles and pruinose black apothecia.)

Phaeophyscia hirsuta (Mereschk.) Essl. (S. Tucker 38688, 36°29'N, 121°10'17"W, on live oak, along Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center.)

Placidium lacinulatum (Ach.) Breuss (S. Tucker 38692, 36°29'N, 121°10'17"W, on rock along Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center.)

Placopyrenium zahlbruckneri (Hasse) Breuss (K. Knudsen 4144, 36°29'05"N, 121°09'35"W, on volcanic rock outcrop, ravine above Chalone Creek, North Chalone Peak; RARE.)

Punctelia ulophylla (Ach.) van Herk & Aptroot (S. Tucker 38694, 36°29'N, 121°10'17"W, on base of small *Ptelea*, along Bear Gulch Trail, ~0.5 mi. E of

Bear Gulch Visitors Center.) Note: The report of *Punctelia subrudecta* by Benson (2005) should be changed to *P. perreticulata* (Räsänen) G. Wilh. & Ladd, the most common species in California.

Sarcogyne similis H. Magn. (K. Knudsen; S. Tucker 38699, 38700, 36°29'N, 121°10'17"W, on cobbles in dry streambed of Chalone Creek, along Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center.)

Staurothele drummondii (Tuck.) Tuck. (K. Knudsen 4183, nr. 36°29'14"N, 121°10'W, on cobble, seasonal streambed, below North Chalone Peak; RARE.)

Trapeliopsis glaucopholis (Nyl. ex Hasse) Printzen & McCune (K. Knudsen 4172.1, 36°29'10"N, 121°09'59"W, on moss, spikemoss, & soil, west-facing slope below North Chalone Peak.)

Verrucaria fusca Pers. in Ach. (S. Tucker 38704, 36°29'N, 121°10'17"W, on rock in rockfall along Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center; RARE.)

Verrucaria memnonia (Körb.) Arn. (S. Tucker 38700 pr. p., 38703, 36°29'N, 121°10'17"W, on rock in rockfall along Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center.)

Waynea californica Moberg (S. Tucker 38701, 36°29'N, 121°10'17"W, on live oak along Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center; rare or possibly overlooked in S CA, but fairly common northward.)

Xanthomendoza hasseana (Räsänen) Søchting, Kärnefelt & S. Y. Kondr. (S. Tucker 38705, 36°29'N, 121°10'17"W, on rock, along Bear Gulch Trail, ~0.5 mi. E of Bear Gulch Visitors Center.)

Xanthoria tenax L. Lindblom (K. Knudsen, 36°29'06"N, 121°10'06"W, on *Adenostoma fasciculatum*, chamise chaparral, west-facing slope.)

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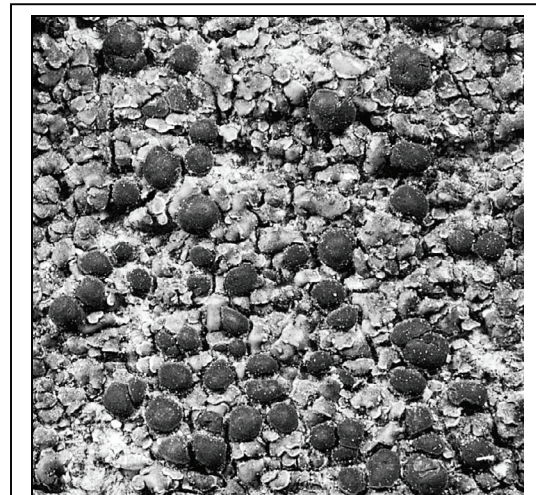
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Lecidea atrobrunnea, Pinnacles National Monument, reservoir trail. 8.4X. Photography by Richard Doell.

Notes on the Lichen Flora of California #2

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ABSTRACT

Candelariella deppeanae Westberg in prep. is reported new to California; a new population of *Flavoparmelia subcapitata* from San Diego County is reported; old-growth chaparral, fire frequency, and lichen diversity is discussed; a new location of *Catapyrenium squamellum* is reported and its rarity is discussed.

KEYWORDS

California lichen flora, *Candelariella deppeanae*, *Catapyrenium squamellum*, chaparral, fire frequency in chaparral, *Flavoparmelia subcapitata*.

CANDELARIELLA DEPPEANAE

One of the components contributing to California's biological diversity is the Sonoran area of southern California with its connections with the floras of Sonoran Mexico, Arizona, and Baja California. The Sonoran lichen flora project is biased toward collections from Arizona and Mexico, but many of the species newly described or reported in its erudite pages will eventually be found in California.

A good example is *Candelariella deppeanae* Westberg in prep. Though not reported in Vol. 2 of the Lichen Flora of the Greater Sonoran Region (Westberg 2004) as occurring in California, it is reported as "commonly collected on decorticated trunks of *Juniperus deppeanae* but also on pines, oaks, and shrubs in desert scrub, riparian woodland, and canyons up to 2100 meters" in Arizona, Chihuahua, and Baja California. There is an excellent picture of it in Vol. 2 of the Lichen Flora of the Greater Sonoran Region (Nash et al, 2004). It looks similar to *Candelariella xanthostigma*, also usually found on decorticated wood, but differs in having bright yellow convex apothecia and eight spores per ascus (*C. xanthostigma* has 16 to 24 spores though one must be careful to look at several mature asci). The apothecia of *C. deppeanae* are biatorine from the beginning of their development, a distinctive feature.

The thallus is granular areolate, as is that of *C. xanthostigma*.

I was with Char Glacy (Lawrence Glacey's sister) and Nancy Nenow, on a survey for the San Diego Plant Atlas Project and we were looking at flowers in a spring-fed creek in the Cleveland National Forest in San Diego County, north of Hotspring Mountain and approximately east of Warner Hot Springs at 1209 meters (3966 feet). This is a dry montane area with chaparral and scattered oaks and pines. We found *C. deppeanae* covering the branches of red shanks (*Adenostoma sparsifolium*) above the creek. The branches showed signs of having been charred in the past.

Despite being abundant in the one stand of red shanks, it was not seen the rest of the day. Unless it is discovered farther north in California or in the high desert of the greater Mojave, it may be on the edge of its range in California with its center of distribution in Mexico.

FLAVOPARMELIA SUBCAPITATA

In the last summer's Bulletin of the California Lichen Society, we published a report of four collections of *Flavoparmelia subcapitata* (Nyl. ex Hasse) Hale ex DePriest & B. Hale from San Diego County (Knudsen, Lendemer & Riefner 2005). It is part of the Baja flora that terminates in southern California. Only one site, at St. Elijo Lagoon, had a sizeable population.

At the UC Dawson Preserve in Vista, California, in San Diego County, Silke Werth, Valérie Reeb and I were collecting in 15 acres of old-growth chaparral that has not burned in over a hundred years. The chaparral is made up mostly of chamise (*Adenostoma fasciculatum*) mixed with coffeeberry (*Rhamnus* sp.) and mission manzanita (*Xylococcus bicolor*) with occasional thin-soiled openings. At this site *Flavoparmelia subcapitata* is abundant on chamise.

Nonetheless, in adjoining chamise chaparral that had burned in late eighties and regenerated from burls, no specimens were discovered. The old-growth chaparral supported abundant growth of two *Usnea* species (*U. subfloridana* and *U. glabrata*), and they were also not found in the regenerated chaparral. *Chrysothrix granulosa* was also restricted to old-growth chaparral. All of these species are established through asexual propagules. Apparently the conditions necessary for them to populate a new stand of chaparral include a considerable time factor. *F. subcapitata* may have been more abundant once in coastal San Diego County but has been extirpated through the destruction of chaparral due to human development as well as due to increased disturbance, particularly fire and a shortened fire frequency cycle.

It is debatable if *Flavoparmelia subcapitata* is worth the effort of going through the listing process as a lichen of special concern. It is at the northern limit of its range in San Diego County, and it is probably abundant in Baja California. It has a worldwide distribution, and on a global level it is in no apparent danger of extinction. Its largest California populations are on protected land. I would oppose proposing it at this time. Nonetheless one year of catastrophic fires in the coastal area of San Diego County could make it extinct in the United States.

OLD-GROWTH CHAPARRAL AND LICHEN DIVERSITY

However, the habitat of *Flavoparmelia subcapitata*, old-growth chaparral, is definitely becoming rare in southern California (Knudsen and Magney 2006) and even some of its fire-adapted components like chamise are eventually exhausted by the human-caused increase of fire frequency (Andrew Sanders, *pers. comm.*) and replaced by a type conversion to ruderal belts of non-native grasses and weeds (Halsey 2004; Halsey 2006).

In the Santa Monica Mountains, where fire frequency in chamise chaparral has increased from every 125 years to incidents every 15 to 20 years (John Tiszler, *pers. comm.*), the impact on lichen diversity is especially evident. National Parks Service bryologist Tarja Sagar and I visited a couple acres of old-growth chamise chaparral that had not been burned through some happy confluence of factors. We were looking for more *Letharia vulpina*, where Tarja Sagar had made a tiny collection, the only modern record of the species in the Santa Monica Mountains. We found

Usnea glabrata, *U. flavocardia*, *Evernia prunastri* and *Kaernefeltia merrillii* abundant in this small stand (Knudsen *in prep*). All of these species are common components of the coastal chamise chaparral in southern California. Though the Santa Monica Mountains provide excellent habitat with regular fog and good rainfall totals for these species, all are rare in the fifty-mile-long range. In fact, in frequently burned chaparral, even on north slopes, we have seen hundreds of acres without a single epiphyte.

The specimen of *Letharia vulpina* Tarja had collected, which was too small and old to submit for DNA extraction, looked like what Susanne Altermann would probably molecularly determine as *Letharia vulpina* 'vulpina' which is common especially at low elevations in the coastal ranges of central California (Susanne Altermann, *pers. comm.*) and should probably be common in Santa Monica Mountains, in my opinion, based on the continuation of its range farther south in the coastal ranges of Riverside County.

It is easy for some lichen experts to attribute the extirpation of epiphytic lichens in southern California to air pollution. I do not doubt for a moment that the most sensitive species have been extirpated or that ozone is causing severe damage at high elevations in the mountains or that nitrate deposition is a serious problem. But all of the species from old-growth chaparral in the Santa Monica Mountains can be found in Riverside County, farther inland in drier conditions and with worse air pollution, where old-growth chaparral occurs (except that *Usnea hirta* replaces the more coastal *Usnea* species). The anthropogenic increase in fire frequency has a major impact on lichen diversity through the reduction of the old-growth chaparral (Knudsen and Magney 2006).

CATAPYRENIUM SQUAMELLUM

In a report of the Santa Cruz foray (Tucker, Robertson & Altermann 2004), a collection of *Catapyrenium squamellum* (Nyl.) J.W. Thomson was reported. This represented only the seventh documented collection of this species. It was originally collected twice by Hasse in the Santa Monica Mountains, once by Harry Thiers in Trinity County among moss on a tree, once by Othmar Breuss in Arizona, once in Jamaica in the Caribbean,

and once by me in the San Mateo Wilderness Area in Riverside County in Southern California (Knudsen 2003).

Catapyrenium squamellum is a delicate squamulose pyrenolichen that becomes a vibrant green when wet and is very noticeable in soil crusts even among mosses and can form patches up to ten centimeters across. It does need a careful verification but specimens for comparison are available in ASU, SBBG, the Thiers herbarium at San Francisco State University, and UCR. The population I found in the San Mateo Wilderness Area in a soil crust on a vertical trail cut disappeared in April, 2003 in a torrential rainstorm that dumped several inches in one night. For its eighth documented occurrence, I located an extensive population in another vertical soil crust along the Fisherman Camp trail in the San Mateo Wilderness Area in December, 2003. When originally found the population was extensive, forming several pure patches, each about five to ten centimeters across as well as being mixed among some mosses. But the vertical bank was already cracking and peeling, and beginning to slough off, and did not look like it would last the next rainy season. I collected the most endangered part of population and distributed good collections for future identifications to MIN, NY, Othmar Breuss, and hb. Lendemmer at PH. In the winter of 2004-2005, when the long drought in Southern California came to an end and we had a record year of rain, access to the area was cutoff. Just recently my wife Liz and I were able to return and the entire population I had documented was wiped out, lost in piles of decomposed granite, the destruction much more extensive than I had expected. We were able to find a very small patch of *C. squamellum* growing along the same trail, less than 2 centimeters across (farther down the trail).

Catapyrenium squamellum is apparently exceedingly rare. But how rare is it really? I don't know. Jamaica and Arizona are unusual disjunct sites and raises questions about the lichen's total geographic range. Hasse himself made only two collections (an indication it was rare in his area.) The number of lichenologists collecting in California, since Hasse, relative to botanists for instance, is incredibly small for such a large state. I haven't seen it anywhere else collecting in southern and central California. Despite extensive collecting by dozens of expert

lichenologists, it has not been discovered on the Channel Islands. Thiers' collection in Trinity County suggests it could be found in Pacific Northwest on trees but it hasn't been reported. It is just as possible that these rare sites (of which there are probably more) may nonetheless represent relict populations of a once widespread species. Alternately, various factors may naturally limit the species, including its possible niche as a pioneer of newly-exposed vertical surfaces, or problems in establishment of lichenization, or poor competitive capacity, or overall climate change since the ice age or...I don't know. I do suspect under-collection, but I have an open mind. I await new discoveries with anticipation.

Selected specimens: *Candelariella deppeanae*: California: San Diego County: Cleveland National Forest, north of Hotspring Mountain. Knudsen # 3883 w/ Char Glacy & Nancy Nenow (RSA, SD, UCR); *Flavoparmelia subcapitata*: California: San Diego County: Vista: UC Dawson Preserve. Knudsen#4792 w/ Valerie Reeb & Silke Werth (UCR); *Letharia vulpina*: California: Los Angeles County: Santa Monica Mountains, Backbone Trail north of Camp 15 at Encinal Canyon Road, Sagar (UCR); *Catapyrenium squamellum*: California: Riverside County: San Mateo Wilderness Area: Los Alamos Canyon, on vertical soil bank, 458m. Knudsen #754 (hb. Breuss, hb. Lendemmer, NY, MIN, UCR); California: Santa Cruz County: USCS Campus, on soil bank. Ronald Robertson # 8718 (hb. Robertson).

ACKNOWLEDGMENTS

Thanks to Char Glacey & Nancy Nenow, James C. Lendemmer, Tarja Sagar, Valérie Reeb & Silke Werth, Judy and Ron Robertson, and Shirley Tucker. Thanks to Dr. Amanda Heinrich and Susanne Altermann for their helpful and much-appreciated reviews of this mss.

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A SINCERE THANKS

The California Lichen Society would like to thank our Benefactor, Donor, and Sponsor memberships in 2006, and acknowledge our growing list of Life Members. Their support is greatly appreciated and helps in our mission to increase the knowledge and appreciation of lichens in California.

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Literature Review:
Revised Catalog of Lichens, Lichenicoles, and Allied Fungi in California
by Shirley Tucker and Bruce Ryan.

Published online in *Constancea* 84, 2006, on the Jepson Herbarium website at
http://ucjeps.berkeley.edu/constancea/84/tucker_ryan.html.

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The Revised Catalog of Lichens, Lichenicoles, and Allied Fungi in California by Shirley Tucker and Bruce Ryan is the product of a decade of labor. It is a revision of the original Tucker & Jordan catalog (1979), which has long been obsolete and no longer easily obtainable. The Catalog reports 1,575 taxa in 297 genera, which is an increase of about 580 taxa since the 1979 catalog and nearly double the number of taxa that Herre reported in 1945. This is happening despite the continuing effort of many lichenologists to clear the North American Lichen Checklist of 'dead wood' gathered from the pulpy pages of outdated monographs, which regularly subtracts from these total diversity numbers. The lichen biota of California includes about 36% of the 4,429 species reported for the continental United States and Canada. If you are familiar with botany for instance you will know just how incredible these statistics are. In the study of lichens and lichenicoles in California, as in the rest of North America, we are still in an age of discovery. Seldom does a month go by in lichenology without hearing of a new record for California and many un-described species are still being found and described, despite a real lack of lichen taxonomists in California.

Especially with the lack of a lichen flora of California or a comprehensive national lichen flora, a checklist for the state is indispensable and a necessary adjunct to the North American checklist (Esslinger 2006). For anyone doing lichen identifications, after making an ID, you can check if the species has been reported for the state, get an idea of its distribution, and get information on publications about it. This can be quite helpful, especially if you are using keys or descriptions that are not specific for California or learning a new genus. Though new state records are

regularly being reported, nonetheless any ID of a rare or unreported species needs special verification and is often incorrect. Regularly using the catalog allows your knowledge of the flora to grow swiftly. Having species' synonymies available aids one in using older keys that may have special local value or be easier to use than a better but more technical or more poorly written, user-unfriendly key.

For the professional engaged in molecular work, taxonomy and systematics, or floristic surveys or management, it goes without saying, it is indispensable. It has links to the references for each taxon listed as well as a link to Index Fungorum. This makes for quick, easy research, and the references, 854 to be exact, can be easily copied and pasted.

Is it perfect? No, that would be impossible. The minute you publish a flora or checklist, a new paper comes out changing the nomenclature in a genus, or somebody discovers a new state record, or an expert decides, belatedly, that one of the species included has been incorrectly identified. Taxonomy, systematics, and floristics are sciences, and science by its dialectical process evolves with each new question and observation, undermining yesterday's certainties and expanding our knowledge and understanding of lichens. Also, despite years of careful proofing and research, readers and users start finding errors. A flora or checklist is the product of human beings, whose natural condition cannot escape imperfection. Nothing is more doomed to obsolescence than the hard copy of a flora or checklist. They are not holy writ, though often copies are more worn than Bibles ever get. Besides, the Catalog is written on the changing sands of the internet.

This is the great advance of fully using modern technology to the maximum and publishing the catalog online. Not only does it allow for links, and any new links the authors might want to make in the future, but it allows the Catalog to be updated inexpensively. The Catalog, like the North American checklist, will be regularly updated, probably once a year. Already Shirley Tucker has many new additions piling up, lists of changes to implement, as well as the whole next volume of the Sonoran lichen flora to incorporate and with Trevor Goward's much-anticipated macrolichen book looming on the horizon.

The electronic format allows access to everyone with access to the internet. It can be downloaded for free on to your hard drive. The Catalog can be printed out if you like hard copies or don't regularly work with a computer or want to keep a copy you can make notes on.

Its beautiful clean layout, its accessibility, and its full use of modern technology is the work of Dick Moe, who has done an absolutely brilliant job.

There is one inherent weakness in the Catalog that one should keep in mind. It is not a flora, where each section has been carefully crafted by an expert, who has verified the specimens that voucher every report and has a high degree of authority. The Catalog is based on literature searches, and despite the input of dozens of experts to whom the authors addressed questions and their attempt to use the most up-to-date sources, it reflects the best judgment of the authors and peer reviewers. We of course trust the integrity of the authors, but some reports are referenced by out-of-date floras, old monographs, or from reports of collections from forays or surveys or even just to the Tucker & Jordan Catalog. This allows a certain amount of unavoidable possible error to underlie the Tucker & Ryan Catalog. When working on a specific problem one should keep this in mind and check out the references, or even check out the vouchers or contact an expert. This may sound like a quibble, a scruple, or an uncharitable criticism, but in the age of the internet, the staffs of public lands managers, as well as consultants, often generate lists of taxa

expected in an area, or reported, or considered rare that are filled with old nomenclature, outdated references and flagrant error. Sometimes a single species may be listed under several names, or even the name of a species not occurring in California, or some hoary misidentification of Thomson, Weber or Hale may be repeated again and again. The Catalog will cut down on the errors in the literature searches of public agencies and consultants but it will always be trailing behind advances in lichenology and be dependent on the integrity of its sources. In several genera I am familiar with, because of the continuing advance of the science of lichenology, the sections in the Catalog are already partially out-dated. In a few cases, the sources have, in my opinion, been misunderstood. Thankfully, with the plan of annual revisions, errors or inaccuracy can be purged as they are discovered and not haunt the literature for decades.

The Catalog is a monumental achievement and the electronic format a brilliant advance. Though the number of professional lichenologists is small in North America and the world, with more work than they can even collectively handle, nonetheless lichenology has been on the forefront of using new technology for communication. It is wired, *man*, increasing the productivity of every lichenologist and increasing the speed of the evolution of knowledge in the science of Lichenology.

I want to thank Alan Fryday and Cécile Gueidan for reviewing this review.

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California Page

Tom Carlberg, Kerry Knudsen, and Eric Peterson
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The last six months has seen the publication of a number of interesting papers on lichens in California. In the last issue of *The Lichenologist*, in 2005, Michaella Schmall and Toby Spribille transferred *Lecidea dolodes* to its correct genus *Schaereria* and documented its distribution in western North America where it occurs on the bark of conifers in humid forests. It has been reported from several locations in California. It was originally collected by Hasse in the San Gabriel Mountains in southern California.

In the last issue of *The Bryologist* for 2006, Louise Lindblom published the new species *Xanthomendoza galericulata* (which occurs throughout western North America) with a key for sorediate species of *Xanthomendoza* in North America. In the same issue, a new key to *Bactrospora* by Jeanne Ponzetti and Bruce McCune includes three rare or under-collected species from central California.

The Southern California Botanists annual symposium will be held at Cal State Fullerton on Oct. 28, 2006. The symposium will have eight presentations on the Santa Monica Mountains, including one on the lichen flora by Kerry Knudsen. Information at <http://www.socalbot.org>.

The SCB journal *Crossosoma*, under the direction of Denise Knapp, is on schedule with two issues coming out a year. The latest issue, 31:1, contained a pilot study of the carbonate lichen flora of the San Bernardino Mountains.

CALS member James C. Lendemer has published Vol. 3 of *Opuscula Philolichenum* in Spring, 2006. The latest issue includes a paper on the county-level conservation of lichen habitats in Ventura County by Kerry Knudsen and Dave Magney. All issues are available in PDF files available online at <http://clade.acnatsci.org/lendemer/opus.html>.

One of the specimens of *Leptogium saturninum* collected by Shelly Benson from the Pinnacles

National Monument Inventory Project had perithecia. Paul Diederich determined it to be the lichenicolous fungus *Obryzum corniculatum*, new to the Sonoran area, and an addendum will be published in Vol. 3 of the Sonoran Flora.

This year the American Bryological and Lichenological Society annual meeting will be held from July 30-August 2 in Chico, California at Botany 2006. Information at <http://www.2006.botanyconference.org> and ABLS website.

And in brief:

- According to Tom Nash, the long-awaited Sonoran flora should be out in late summer or early fall of 2006.
- CALS member Susanne Altermann has sequenced more than 145 *Letharia* specimens for both the fungus and the alga. Based on some of her preliminary results we have heard informally, her final results are much anticipated.
- CALS member Robin Schroder, Assistant Curator of the ASU Lichen Herbarium, is expecting a boy. She has re-designed the herbarium web page which is now at <http://nhc.asu.edu/lichens>.
- An independent Northern California Botanists group has formed. Information at <http://www.csuchico.edu/biol/Herb/norca/bot/index.htm>.
- The Crustose.Net website run by Eric Peterson from his home now has a photo gallery section. Accounts are free to the lichen-interested community. Go to <http://photos.crustose.net> to sign up for a photo account or email Eric directly for a standard web site account (address above).

Conservation Committee Sponsorship

Completed Conservation Committee sponsorship forms may be viewed in full at <http://calbcc.crustose.net>.

SPECIES: *Ramalina thrausta* (Ach.) Nyl.

SPONSOR: Tom Carlberg, Arcata, CA.

PROPOSED RANKS: G3G4.1, S1.1 in California

PROPOSED LISTS (CNPS-compatible): 2 (rare in California, but more common elsewhere)

EXECUTIVE SUMMARY: *Ramalina thrausta* has a global boreal distribution and is uncommon throughout its range. It has a scattered distribution in northern California, existing exclusively in strongly riparian areas. Populations are declining significantly in Europe (10 - 30%), and apparently declining in California with a net loss of 12.5% of sites in three-year period. Population numbers in California and Washington are very small to begin with, and any decrease can validly be viewed with alarm, while Oregon has a large number of sites distributed across two mountain ranges. Protection of current sites in California is good, since Late Successional and Congressionally Withdrawn designations appear stable, but protection is heavily dependent on these land allocations, which are political in nature.

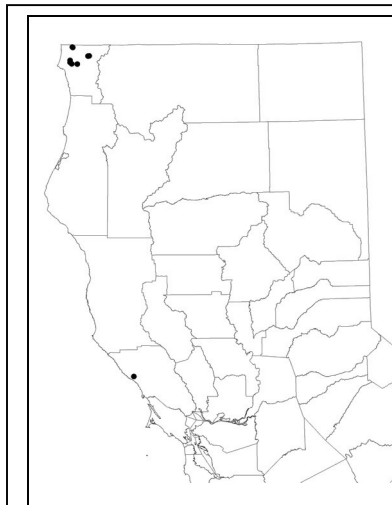
DESCRIPTION: "Thallus fruticose, pendulous, to 30 cm long, pale greenish; branches filamentous, mostly <0.5(1)mm diam., the tips often hooked or curled and ending in minute soralia" (McCune & Geiser 1997). The thin branches have a translucent cortex with occasional punctate to slightly elongated slightly raised pseudocyphellae. From a distance of 6 - 10 feet the thalli look like lint from a hairbrush. All spot tests are negative.

SIMILAR SPECIES AND DISTINGUISHING CHARACTERISTICS: *Alectoria sarmentosa* and *A.*

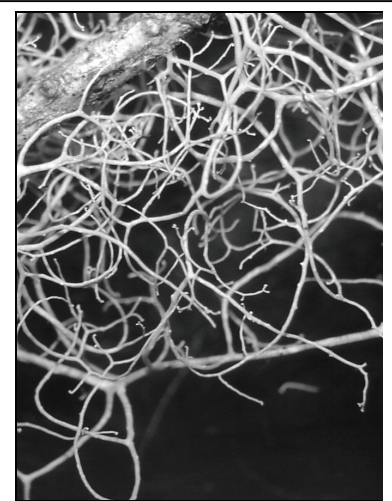
vancouverensis are superficially similar in being fruticose, filamentous and pendulous, but have a yellow cast to the thallus due to the presence of usnic acid. They have medullas that test KC+ red (rarely KC-), and C+ red, respectively. Their primary branches when mature are angular in section and up to 2.5mm in diameter, as opposed to round and almost always <1mm in *R. thrausta*. Both *Alectoria* species have an opaque cortex with raised, elongate pseudocyphellae, unlike the translucent cortex and round sessile pseudocyphellae found in *R. thrausta*. *Ramalina menziesii* on the immediate coast can have a similar color and predominantly fine branches, with tips that appear similar to the hooked tips of *R. thrausta*, but will invariably have small to large netted areas on at least the tips of the branches, and at some point one can find branches that are clearly flattened and strap-like. The curled branch tips with soredia are diagnostic (adapted from McCune & Geiser 1997, Brodo *et al.* 2001).

REFERENCES

- Brodo, I.M., S.D. Sharnoff, S. Sharnoff. 2001. The Lichens of North America. Yale University Press, New Haven and London. 795 pp.
- McCune, B., L. Geiser. 1997. Macrolichens of the Pacific Northwest. Oregon State University Press. Corvallis, OR. 386 pp.



Known distribution of *Ramalina thrausta* in California.



Ramalina thrausta, showing hooked branch tips. See also front cover.

News and Notes

LICHEN WALK AT SWEENEY RIDGE, CALS ANNUAL
GENERAL MEETING AND POT LUCK, WITH KERRY
KNUDSEN SPEAKING ON 'LICHENS AND LICHENOLOGY
IN SOUTHERN CALIFORNIA'
JANUARY 28, 2006

The day was drizzling and cold when 10 of us met at the Golden Gate National Recreation Area parking lot on the Skyline College grounds to start our walk to see the lovely lichen *Pseudocyphellaria crocata* (L.) Vainio. It was a special treat to have with us Kerry Knudsen from UC Riverside and James Lendemer from the Herbarium of the Academy of Natural Sciences of Philadelphia.

We had a back up plan, in case of rain, to visit the San Francisco State Lichen Herbarium, but our search for *P. crocata* took precedence and we started out.

There is a unique cyanolichen lichen flora that grows at Sweeney Ridge. *Pannaria malmei* C.W. Dodge, *Collema furfuraceum* Du Rietz, *Nephroma laevigatum* Ach., *Lobaria scrobiculata* (Scop.) DC., *Sticta limbata* (Sm.) Ach., *S. fuliginosa* (Hoffm.) Ach., *Pseudocyphellaria anomola* Brodo & Ahti, *P. anthraspis* (Ach.) H. Magn. are abundant, mostly on the base of *Baccharis pilularis* shrubs. Also on the shrubs are the green algal lichens, *Flavoparmelia caperata* (L.) Hale, *Parmotrema chinense* (Osbeck) Hale & Ahti, *Usnea wirthii* P. Clerc, *Heterodermia leucomela* (Fee) Swinscow & Krog, *Ramalina farinacea* (L.) Ach. Not often encountered, but such a treat to see were the isolated clumps of the bright orange lichen, *Teloschistes flavicans* (Sw.) Norman. *Pseudocyphellaria crocata* (L.) Vainio does not begin to appear until far out on Sweeney Ridge, but the bright yellow soredia on the dark brown thallus are worth waiting for.

We struggled through mist and fog and wind to see these lichens, ending at lunch time at the old barracks on the ridge where we gathered inside for conversation and food.

Participating were Tom Carlberg, Michelle Caisse, Sara Blauman, Suzanne Alterman, Linda Kincaid,

Ken Howe, Daniel Kushner, Kerry Knudsen, James Lendemer, Bill Hill, Ron and Judy Robertson

Look for a more complete list of the lichens at Sweeney Ridge in a future CALS bulletin.

After the field trip, we headed across the San Francisco Bay to Point Richmond and the Brickhouse Clubhouse for our annual CALS birthday pot luck and General meeting. This has been a treat to have the celebration at the Clubhouse for the last 3 years. It is just the right size for our group and the food and camaraderie make for a very pleasant evening. The pot luck always is a hit for a variety of foods. Bill Hill, President for another term, headed the General meeting with a discussion about where we have been and where we are going. The evening was complete with a talk by Kerry Knudsen about the 'Lichens and Lichenology in Southern California'.

Reported by Judy Robertson.

CALS FIELD TRIP TO MT. DIABLO STATE PARK,
SATURDAY, APRIL 22, 2006

This has been a very beautiful spring in Northern California. Lots of rain has brought green hillsides and much new growth. Just to spend the day at Mt. Diablo with the company of like-minded lichenologists was a great treat. We started at Rock City exploring the oaks and rocks for the lichens already on Doris Baltzo's list and the additions made since her study. (CALS Bulletin Vol. 11, No. 2). Of course, we had our eyes out to find any species new to those lists and we discovered *Ochrolechia upsaliensis* (L.) A. Massal on moss on a small outcrop above our lunch spot, *Phaeophyscia cernohorskyi* (Nádv.) Essl. and *Xanthomendoza oregana* (Gyeln.) Søchting on oak, and *Mycocalicium subtile* (Pers.) Szat. on a snag next to our picnic table. Also, we located the uncommon *Trapeliopsis steppica* McCune & Camacho as we walked from the parking area to the picnic tables.

After lunch we drove to the lookout at the top of Mt. Diablo. It is the highest peak in the East Bay and as

we walked along the view area, we could see the entire Bay Area below. The Visitor center highlighted the origin and unique features of the State Park. It was a very enjoyable day for those participating: Earl Alexander, Michelle Caisse, Daniel Kushner, Ken Howard, Sara Blauman, Debbi Brusco, Kathy and Stevie Faircloth, Judy and Ron Robertson, and Bill Hill.

Reported by Judy Robertson.

CNPS FIELD TRIP TO ARMSTRONG REDWOODS,
SONOMA COUNTY, FEB. 4, 2006

CALS members were invited to join this California Native Plant Society field trip led by Judy Robertson to Armstrong Redwoods State Park near Guerneville in Sonoma County. Nearly 20 CNPS members joined Bill Hill and Judy for this morning walk. Our emphasis was on the lichen genus *Usnea* as Armstrong hosts a beautiful *Usnea longissima* Ach. tree within walking distance of the center picnic area.

We gathered around 2 picnic tables for a mini workshop on fruticose lichens. We learned how to differentiate *Usnea* species from the commonly encountered *Ramalina menziesii* Taylor which festoons the oaks in the county, from *Alectoria sarmentosa* Ach. which is found in the Guerneville area and from *Bryoria*, which although rarely encountered, is sometimes seen.

The day before, we had rain, so the *Usnea* specimens Judy gathered from the forest floor were wet and elastic, delighting the participants. The most common pendulous *Usnea* species in the area is *Usnea ceratina* Ach. The coarse thallus, usually darker green color, and pink cord are diagnostic. Less encountered is *U. filipendula* Stirton. *Usnea longissima* Ach. can be found on the forest floor as windfall. We also talked about the tufted species to be found in the park: *Usnea cornuta* Körber, *U. fragilesceus* Hav. ex Lynge, *U. wirthii* Clerc, *U. glabrata* (Ach.) Vainio and other tufted *Usnea* species without cigar-shaped segments. After about an hour workshop, we walked to the nearby *Usnea* tree. A tall Douglas-fir and shorter black oak are draped with the long *Usnea* strands, the characteristic looping visible. The trees are right next to the road so the display is easily seen. We walked further along the road, the

CNPS people finding the invasive 'broom' plant and forming a 'broom bashing party' and uprooting it. About lunch time, we headed back to the picnic area and ended the day.

Reported by Judy Robertson.

MINUTES OF THE CALIFORNIA LICHEN SOCIETY
GENERAL MEETING
JANUARY 28, 2006

Location: Club House, Brickyard Landing, 1223
Brickyard Cove Lane, Point Richmond.

The meeting was called to order by President Bill Hill at 6:50 pm, January 28, 2006, at the Brickyard Landing Clubhouse in Point Richmond following the Sweeney Ridge field trip, annual potluck dinner, and program presented by Kerry Knudsen.

Officers Present:

Bill Hill, President, presiding
Michelle Caisse, incoming Vice President
Sara Blauman, Secretary
Kathy Faircloth, Treasurer
Tom Carlberg, Bulletin Editor

Minutes: Provided to the membership via email after the General Meeting last January.

Treasurer's Report: None. The Treasurer's Report shall be submitted subsequently (the data was unavailable for presentation to the membership due to a computer crash).

Committee Reports: None.

Old Business: None.

New Business:

Appreciation to Richard Doell – CALS presented member and outgoing Bulletin Publications Editor Richard Doell with a copy of "The Lichen Hunters" by Oliver Gilbert as a token of the society's appreciation for his hard work as Production Editor.

Forest Service Region 5 Meeting – Bulletin Editor Tom Carlberg clarified that the Forest Service is looking for opportunities in partnering. CALS member Kerry Knudsen suggested some ways in

which CALS can increase its visibility among various governmental agencies, organizations, and institutions. The membership agreed to consider the opportunities and responsibilities that partnering affords. An ad-hoc committee was formed to investigate the issue further. Its members are: Tom Carlberg, Linda Kincaid, and Cheryl Beyer.

Galapagos Work by Frank Bungartz – CALS member Kerry Knudsen informed the membership that CALS member Frank Bungartz is working on lichens in the Galapagos and will have photographs available. Kerry suggested that CALS consider utilizing Frank's work to produce some special products such as a calendar and Special Edition of the Bulletin devoted to the Galapagos. This issue was also discussed in the Board Meeting and it was agreed that the Board shall consider pursuit of funding for any additional products that can be arranged with Frank.

Lichens of California – CALS member Susi Altermann mentioned that Mariette Cole has lichen specimens that need homes. Susi agreed to contact

Mariette to see how she would like their availability to be advertised.

Bulletin Content – CALS member Ron Robertson asked CALS member Kerry Knudsen his opinion on whether the Bulletin should be scientific or intended for a more general readership. Kerry replied, from his experience, that the Bulletin should be a mix of scientific and general content in order to be useful to as many individuals as possible.

Online Handbook – President Bill Hill suggested expanding the CALS website to include an online handbook geared towards documenting methods of lichen determination used in CALS workshops. Database Committee member, Michelle Caisse, noted that a tool (which does not currently exist) would be necessary to enable individuals to enter their own observations.

The meeting adjourned at 7:30 pm January 28, 2006.

Reported by Sara Blauman, Secretary



CALS Field Trip to Mt. Diablo State Park, Saturday, April 22, 2006. Photography by Bill Hill.

Upcoming Events

BOTANY 2006 CHICO STATE UNIVERSITY
JULY 28 – AUGUST 3, 2006

This is an annual gathering where the American Bryological and Lichenological Society joins with other like groups for talks, events and field trips. This year, Dr. Don Kowalski, bryologist, lichenologist and slime mold expert will lead a lichen field trip on Sunday, July 30. If you are interested in attending the field trip or any of the events, please see the ABL website for registration information.

FIELD TRIP TO THE SAN FRANCISCO STATE FIELD
STATION AT YUBA PASS, YUBA COUNTY
AUGUST 4 – 6, 2006

This will be a splendid time to visit this field station in the Sierras. We will collect in the day and work on lichen identification in the evenings. Accommodations will be tents with mattresses on platforms situated along the North Yuba River. Accommodations include hot water and showers. The dining hall provides great meals and promotes camaraderie.

We will start on Friday and conclude on Sunday. More detailed information will be given to those planning to attend.

BEAR BASIN BUTTE, IN DEL NORTE COUNTY
SEPTEMBER 22 - 24, 2006

Situated on a ridge between the South and Siskiyou Forks of the Smith River, Bear Basin Butte is a high-elevation subalpine botanical area on Six Rivers National Forest. The botanical area boasts 252 species of vascular plants in a Douglas-fir/true fir forest, including fourteen conifers and six hardwoods. To the east is the Siskiyou Wilderness, to the north and south are the headwaters of the South and Siskiyou Forks of the Smith River, one of the last undammed rivers in California. The larger area has a variety of unusual macrolichen species including *Leptogium rivale*, *Ramalina thrausta*, *Imshaugia aleurites* and at least six species of *Peltigera*. The crustose species are largely unstudied.

There is a comfortable cabin and an old fire lookout

at the site. The lookout was built in 1924 but was struck by lightning and burned in 1936. It was relocated to nearby Coon Mountain, and eventually moved to its current site at nearly 5300' above sea level. Accommodations as a group for the cabin are available for a modest fee; there is no water or electricity. Details will be forwarded to interested persons as the foray dates draw near.

CASTLE ROCK STATE PARK, 15000 SKYLINE BLVD.
LOS GATOS, SANTA CRUZ COUNTY
OCT. 21, 2006 10 AM TO 3 PM

Along the crest of the Santa Cruz Mountains, Castle Rock State Park embraces 3,600 acres of coast redwood, Douglas-fir, and madrone forest, most of which has been left in its wild, natural state. Steep canyons are sprinkled with unusual rock formations that are popular with rock climbers. The forest here is lush and mossy, crisscrossed by 32 miles of hiking and horseback riding trails. These trails are part of an even more extensive trail system that links the Santa Clara and San Lorenzo valleys with Castle Rock State Park, Big Basin Redwoods State Park, and the Pacific Coast. We will explore for lichens once collected by A.W.C.T. Herre. Collecting will be for reference specimens only.

The park is located on Highway 35, just 2 1/2 miles southeast of the junction with Hwy 9. Meet at the entrance at 10. Bring a lunch. Check out http://www.parks.ca.gov/default.asp?page_id=538 for more information about the Park.

BRUSHY PEAK REGIONAL PRESERVE,
CONTRA COSTA CO.
SATURDAY, NOVEMBER 4, 2006 10:00AM

In April, 1998, CALS members took part in an observational field trip to this Livermore Area Recreation and Parks Department Preserve. The purpose was to help the LARPD formulate a preservation and management policy for the site. The report is in the CALS Bulletin Winter 0998, Vol. 5, No. 2.

We will be returning to observe any changes in the lichens from our 1998 visit and use this information

in working with the East Bay Regional Parks system to formulate management guidelines for the Vasco Caves Preserve, which we will visit the following week. See below. A small group of CALS members will take part in this trip. Look for more information on the CALS Website in the fall.

VASCO REGIONAL PRESERVE, CONTRA COSTA CO.
SATURDAY, NOVEMBER 11, 2006 10:00AM

This 1,339 acre preserve in the East Bay between Brentwood and Livermore, has just recently been opened to limited tours. The East Bay Regional Parks staff would like to have CALS help with guidelines in managing this area. The Vasco Caves were an ancient gathering spot for American Indians for thousands of years. Tribal spiritual leaders looked for solace in this place with its tall and twisted rock outcroppings, pools of threatened fairy shrimp, and eagles and hawks soaring above scenic vistas. They left behind cave paintings, barely visible today.

A small group of CALS members will be allowed to investigate the lichens in the park and help with plans for future use of the area.

Look for more news on the CALS Website in the fall.

MYCOLOGICAL SOCIETY OF SAN FRANCISCO FUNGUS
FAIR. OAKLAND MUSEUM
SATURDAY & SUNDAY, DECEMBER 2 - 3

This is quite a spectacular event. CALS has been hosting a display for many years, even before the formal organization of the Society. Bill Hill sets up a table with microscopes, always a big hit with young and old alike. Seeing lichens, up close and personal, is a new experience for all age folks. Please let us know if you can help with the display and please plan to attend. Watch for more information on the CALS regular and Yahoo Websites.

ONGOING LICHEN IDENTIFICATION WORKSHOPS,
MARIN COMMUNITY COLLEGE
2ND AND 4TH WEDNESDAYS, 5:30 TO 9:00 PM

We encourage you to attend these enjoyable workshops at the Community College.

Dr. Paul DiSilva has graciously allowed us to use the classroom and scopes. Patti Patterson organizes the logistics. We bring our own lichens and work with each other to identify them. There are usually snacks. Parking at the college is \$3.

Announcements

CHANGES TO THE BY-LAWS OF THE CALIFORNIA LICHEN SOCIETY

To our Members: One of the upshots of the annual meeting in January 2006 was a realization that the section of the Society's By-Laws dealing with the relationship between the Board and the Committees was in need of clarification and revision. The reason behind the change is to clarify the purpose of Committees, and to make the Board accountable for their creation and/or dissolution. As the Society matures, the function of a Committee may change; there was previously no mechanism within the By-Laws for dealing with that change.

Enclosed with this issue is a ballot for members to return to the Board, letting us know whether or not

you approve of these changes. We look forward to hearing from you.

- Members of the Board of the California Lichen Society

BY-LAWS OF THE CALIFORNIA LICHEN SOCIETY

As amended on January 28, 2006. Recent changes appear in *italic*.

ARTICLE I

Purpose:

The purpose of the California Lichen Society shall be to promote the appreciation and study of California lichens; to promote public awareness of California's lichen flora; and to conduct field trips, workshops and seminars and publish a Bulletin toward this end.

ARTICLE II

Mailing Address:

The mailing address of the society shall be the address of the president then presiding or otherwise as the Board shall designate.

ARTICLE III

Membership:

Section 1. Qualifications. Membership in the society shall be open to anyone with an interest in lichens.

Section 2. Dues, to be set by the Board of Directors, shall be paid annually between January 1 and March 21 of each calendar year.

Section 3. There shall be one corporate meeting of the membership each calendar year.

- a) The corporate meeting shall be held in January at the beginning of the fiscal year. In addition, members may organize and lead field trips, seminars and classes according to the interests of, and the time available to the membership.

ARTICLE IV

Officers:

Section 1. There shall be a Board of Directors (the Board) of five officers, each elected to a two year term.

1. A President whose duties shall be to:
 - a. Organize and preside over the annual meeting each year, plus one additional meeting.
 - b. Maintain records of society activities.
 - c. Serve as chair of the Board of Directors.
2. A Vice President whose duties shall be to:
 - a. Organize and preside over one meeting a year.
 - b. Preside over meetings in the president's absence.
3. A Secretary whose duties shall be to:
 - a. Take minutes of meetings and make them available to the membership.
 - b. Assist the President in matters of correspondence, announcements and other mailings.
 - c. Help the President keep track of the membership.
4. A Treasurer whose duties shall be to:
 - a. Oversee and record all business transactions and prepare an annual account of same.
5. A member at large.
6. The Board of Directors shall meet at the call of the President.

Section 2. Election of Officers. Officers shall be elected by mail-in ballot enclosed in the Winter Bulletin of the year preceding or by mail in December of the year proceeding. Ballots not returned in 30 days shall be deemed to be an affirmative vote.

ARTICLE V

Committees:

1. *The Board shall have the power to create and dissolve committees according to need as perceived by the Board.*
2. *Each committee created by the Board shall receive from the Board a Charter, which shall be the Board's rationale for the creation of the committee, and shall delineate the goals of the committee.*
3. *Upon creation of a new Committee, the Committee Chair shall add to the Charter a description of the Committee, including the organization of the Committee, its membership and the duties of its members, and the means by which the Committee shall accomplish the goals delineated by the Board.*
4. *Each Committee dissolved by the Board shall receive from the Board a Resolution stating the reasons for the Board's action.*
5. *The Board shall make the Charter and its accompanying description available to the members of the Society, and maintain the documents relating to Committees (the Charters and Resolutions) at a location accessible to Members of the Society.*

ARTICLE VI

Amendments to By-Laws:

These By-Laws may be amended by the vote or consent of a majority of members *after a written draft is distributed. Amendments shall be distributed at an annual meeting or by the mail or enclosed in the Bulletin. Ballots not returned in 30 days shall be deemed an affirmative vote.*

ARTICLE VII

Quorum:

5% of the membership shall constitute a quorum for the transaction of business.

President's Message

With this issue of our Bulletin you find us evolving with our production process now working completely 'at a distance'. Our Science Editor Tom Carlberg in Arcata CA emails material to our new Production Editor Eric Peterson in Reno NV who now must send the assembled Bulletin to our printer in Richmond CA, and yet others pick it up and package it to mail it to you. Gone are the 'simple days' in the beginning when Darrell Wright with my assistance would personally take the Bulletin through the entire process. Or more recently when Richard Doell personally composed, delivered, inspected, and retrieved the Bulletin from the printer, and often mailed it as well. Bear with us as we learn.

I simply must congratulate Eric Peterson for his energy and dedication, now wearing multiple hats of Production Editor as well as Chair of the Conservation Committee, and maintaining and developing <http://crustose.net>. And you see that Kerry Knudsen continues to write prolifically for us.

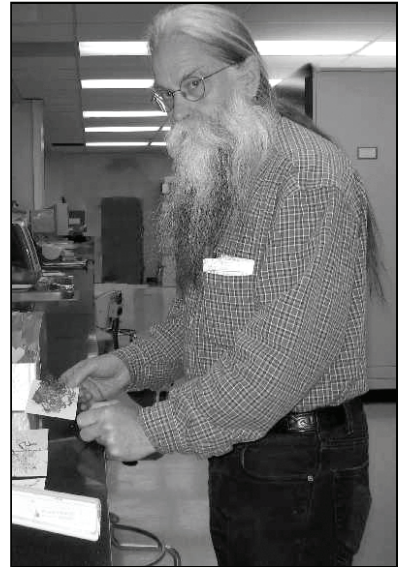
More kudos also to our Conservation Committee. In March our member Greg Jirak emailed that "CALs rocks!" He forwarded a note from the California Native Plant Society that "CNPS has changed its approach for reviewing rare plant status based on the work done by the CALS conservation committee." Now you must realize that our definition of 'rare and endangered' lichen status was modeled on the CNDDDB and CNPS definition for vascular plants, with their over 40 years of experience. We added a step by step procedure of Sponsoring a particular species in determining more objectively its status. (See <http://calscc.crustose.net>.) And now CNPS has adopted our process for their Inventory. Good going to everyone on the Conservation Committee.

Continued praises to Michelle Caisse, now also our Vice President, for continued development of our website <http://CaliforniaLichens.org> which now resides on Eric Peterson's crustose.net server. Praises also to Eric for his further work on <http://crustose.net> as a communications tool for lichenologists, with its framework of lichen interest discussion groups. Finally thanks to Dick Moe, who originally began our web presence at <http://ucjeps.berkeley.edu/rlmoe/cals.html>, and now has the new Tucker/Ryan "Revised Catalog of Lichens, Lichenicoles, and Allied Fungi in California" online complete with automated searches in the e-publication "Constancea" <http://ucjeps.berkeley.edu/constancea/84> -- see Kerry Knudsen's review in this Bulletin.

For those doing literature searches online, full-text CALS articles in .pdf format can be accessed through hyperlinks attached to citations on Dr. Einar Timdal's searchable database <http://www.nhm.uio.no/botanisk/lav/RLL/RLL.HTM>, which is based on Theodore Esslinger's regular feature, "Recent Literature on Lichens," in The Bryologist. Or the complete issues (as .pdfs) can be accessed directly at <http://CaliforniaLichens.org>.

We continued as usual with our Lichen Exhibit at the annual Fungus Fair, fieldtrips throughout the year, our mainstay of alternate Wednesday night workshops at the College of Marin, and impromptu lichen jaunts.

Happy Lichenizing,
Bill Hill -aropoika@earthlink.net



The Bulletin of the California Lichen Society

Vol. 13, No. 1

Summer 2006

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The deadline for submitting material for the Winter 2006 CALS Bulletin is 1 November 2006.

Back cover:

- A) *Hypotrachyna afrorevoluta* (Krog & Swinscow) Krog & Swinscow. Mount Tamalpais State Park, Marin County, California (see also article on p. 1). Photography by James C. Lendemer.
- B) *Caloplaca ignea* Arup, Pinnacles National Monument, Bear Gulch trail. 7.1X. Photography by Richard Doell.
- C) *Physconia enteroxantha* (Nyl.) Poelt, Pinnacles National Monument, Bear Gulch trail. 0.8X. Photography by Richard Doell.
- D) *Physconia isidiigera* (Zahlbr.) Essl., Pinnacles National Monument, reservoir trail. 1.6X. Photography by Richard Doell.
- E) Cf. *Xanthoria candelaria* (L.) Th. Fr., Pinnacles National Monument, Bear Gulch trail. 3.7X. Photography by Richard Doell.

