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The California Lichen Society seeks to promote the appreciation, conservation and study of the 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.

The Bulletin of the California Lichen Society (ISSN 1093-9148) is edited by Charis Bratt with a review committee including Larry St. Clair, Shirley Tucker, William Sanders and Richard Moe, and is produced by Richard Doell. 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 1.44 Mb diskette or a CD in Word Perfect or Microsoft Word formats. Submit a file without paragraph formatting. Figures may be submitted as line drawings, unmounted black and white glossy photos or 35mm negatives or slides (B&W or color). Contact the Production Editor, Richard Doell, at <rdoell@sbcglobal.net> for e-mail requirements in submitting illustrations electronically. 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. The Bulletin has a World Wide Web site at <http://ucjeps.herb.berkeley.edu/rlmoe/cals.html> and meets at the group website <http://groups.yahoo.com/group/CaliforniaLichens>.

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Front cover: *Trichoramalina crinata* (Tuck.) Rundel & Bowler was photographed by Andrew Pigniolo with an unidentified crust on a dead branch of *Rhus integrefolia* on Point Loma in April 2003. *Ca*. 1.5×. (see also Article on p. 9.)

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California and New Zealand: Some Lichenological Comparisons

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Abstract: California and New Zealand are compared lichenologically with respect to lowland forests and cities. Usnea wirthii *Clerc is reported as new to New Zealand.*

California lichenologists might wonder if there is any other place as fascinating for its lichens as their state, but there *are* a few areas of the world to challenge it, and New Zealand looks like a contender. Although it lacks a true desert such as the Mojave, it does on the other hand have areas of very high rainfall, reaching 6985 mm (275 inches) annually in parts of the South Island (Wards 1976). California's maximum, reached in eastern Del Norte County, is about 3810 mm (150 inches: Spatial Climate Analysis Service 2000). The range of habitats in New Zealand, although wide, would not be as wide as in California with its deserts and much higher mountains. Table 1 gives some other numeric comparisons.

	Lichen Genera(1)	Lichen Species(1)	Species richness (2)	Area km² (3)	Latitude (3)	Population /km² (4)	Pop. increase since 1965 (4)
CA	296	1442	3.6	406,000	33º - 42° N	84	116%
NZ	308	1378	5.1	269,000	34º - 47° S	14 (!)	60%

Table 1. Some comparisons between California and New Zealand

Man's impact on the vegetation of both California and New Zealand has been severe. Two pairs of maps in *New Zealand Atlas* (Wards 1976, p.104-107), comparing the vegetation of New Zealand in 1840 with that in 1970, remind me of a map of the North Coast of California on display at the Humboldt Watershed Council in Eureka, comparing old growth forests in about 1950 with those of 1990: 90% are gone in California; well over half are gone in New Zealand. The great kauri *Agathis australis*, (Araucariaceae) and podocarp forests of the North Island, especially those of totara, *Podocarpus totara*; matai, *Prumnopitys (Podocarpus) taxifolia*, and rimu, *Dacrydium cupressinum* (Podocarpaceae, note 1), were cut and replaced with pasture or with timber plantations. The timber plantations are mostly of Monterey Pine, *Pinus radiata*, introduced from California and now the construction timber of New Zealand. I have looked at several of these ubiquitous pine plantations, including one quite old one that is now public open space, and found few lichens in them. I suspect these plantations, especially the younger ones (they are harvested at about 30 years) do not contribute much to New Zealand lichen habitat, although more of them, especially in rural areas, should be examined. The pristine lichen situation in New Zealand must have suffered badly then with the removal of these forests of phorophytes, much as it has suffered in California, and in some areas there would have been a change towards a drier climate influencing even saxicolous

communities. New Zealand, however, might be expected to be overall a better environment for lichens than California in view of its low human population density (Table 1) and correspondingly low atmospheric pollution, including acid rain, and the species richness numbers in Table 1 suggest that it is a better environment.

Lowland Rainforest

About 40 km north and east of Wellington, the capital city, is the southern end of the Tararua Range, part of a 190 km long spine in the lower third of the North Island with peaks reaching 1570 m (5150 ft.). It is comparable to the Coast Ranges of California, separating the west coast which fronts on the Tasman Sea, that part of the Pacific Ocean separating New Zealand from Australia, from the Wairarapa Valley, comparable on a small scale to the Central Valley of California (although its climate is more like that of the Napa Valley). This part of the Tararuas is temperate lowland mixed beech *(Nothofagus*, Fagaceae) rain forest and looks more like coastal Washington State than California with tree trunks and the ground covered by bryophytes and lichens (contrary to a theory advanced once on the Honolulu listserver that, when the mosses become luxuriant, the lichens recede). The appearance is something like the wet coastal forests of California dominated by *Pseudotsuga* and *Sequoia*. There are, of course, almost no vascular species in common. *Nothofagus menziesii*, the silver beech (the closest thing New Zealand has to a native oak) along with *N. fusca* and perhaps *N. solandri* is plentiful in this forest bordering the Waingawa River. I found other hardwood tree species as well, like kamahi, *Weinmannia racemosa* (Cunoniaceae), and Five-finger, *Pseudopanax arboreus* (Araliaceae), and a dense understory of shrubs like *Coprosma* (Rubiaceae), some of which are garden subjects in California.

At the Mt. Holdsworth entrance to Tararua Forest Park west of Masterton, *Pseudocyphellari*a and *Sticta* take the place of the Parmeliaceae in California, with huge thalli hanging from tree branches and wet, bright green, muscicolous-terricolous individuals growing like lettuce along the trail (more than a third of *Pseudocyphellaria* species here have green algal photobionts). I have not seen a statistical survey of this situation, but as early as 1865 the Scottish lichenologist, W. Lauder-Lindsay (quoted by Galloway 1985), noted a similar replacement on the South Island. Although California has its *Pseudocyphellaria* species, three to be exact with a fourth, *P. rainierensis*, hoped for in Del Norte County, New Zealand has 50 Pseudocyphellarias according to Malcolm and Galloway (1997). Galloway (1985) notes that New Zealand and southern South America are the two great centers of speciation for this genus. One of the most remarkable species is *P. coronata* (figs. 1 and 2, back cover) in which red-brown pigment can be seen with the naked eye in natural cracks in the upper cortex. I did not observe it in pseudocyphellae of the lower cortex. A tangential removal of cortex (Hale 1979, p. 11) shows scattered red-brown areas at the interface between algal layer (green) and the yellow medulla. At 400x these are seen to be aggregations of fine, K+ purple, probably crystalline granules. Polyporic acid and unidentified anthraquinones have been reported (C. Culberson 1969, 1970; C. Culberson et al. 1977) along with an array of 9 triterpenoids and 3 pulvinic acid-related substances. In connection with the use of this lichen to produce fabric dyes Galloway (1985) notes: "Very often populations are devastated by collectors who imagine that because the lichen is usually well-developed and also often common, it must regenerate quickly. In the interests of conserving New Zealand's unique lichen flora *the use of lichens for dyeing must be strongly condemned*" (italics mine). There are simply not enough lichens left in New Zealand or in California to be harvesting them on the scale required for making dyes.

Another *Pseudocyphellaria* with a quite different, dissected appearance is *P. episticta* (fig. 3, back cover). It occurs inside the forest with *Sticta (S. subcaperata*, fig. 4, back cover) and is characteristic of partially shaded situations. I found it also in the Johnston Hill Reserve not far from my home in the city of Wellington. There are 13 species of *Sticta* in New Zealand (perhaps three in California) of which the evidently fairly common *S. subcaperata* is representative. The thallus photographed had fallen from a tree on the Waingawa River.

Usneas, of which Galloway (1985) lists 16 for New Zealand (Tavares [1997] gives 24 for California in her preliminary key), are on trees and shrubs in well-lit places in the rainforest, including several "reds", all subsumed by Galloway under *U.*

rubicunda, although he notes the chemistry with salazinic and norstictic acids does not conform to the stictic acid chemistry of the type. In fact, some of these look like the candy-striped material with norstictic and salazinic acids (confirmed by TLC, K+ bright red) which turned up a few years ago at Pt. Reyes, Marin County, California and which is similar morphologically and chemically to *U. rubescens* Stirton. Other specimens have other distributions of the orangish cortical pigment.

Down in the forest where light levels are low, *Usnea* does not occur much, but individuals fallen from high up will be found lying on the forest floor (equally the case, for example, in redwood-Douglas fir forest at Prairie Creek Redwoods State Park, Humboldt Co., California). Handsome, very fertile *U. xanthophana* turned up in this way. It has fumarprotocetraric acid (Galloway 1985) with a PD+ bright orange-red reaction in the inner medulla and an interesting PD+ bright yellow reaction just beneath the cortex (my observation), perhaps representing a second lichen product and the one responsible for the K+ brownish reaction which becomes reddish after a minute. I wondered how close it might be to *U. rigida* of the Pacific Northwest (Halonen et al. 1998), since the surface morphologies are similar. The CMA's differ considerably, however: 7:26:33 for Wright 7428, 9: 30:22 for *U. rigida* from data of Motyka (1936-1938), who synonymized *U. xanthophana* under the New Zealand endemic *U. xanthopoga*, a quite different lichen according to Galloway's account.

Usnea wirthii Clerc, known in the Western Hemisphere from Chile and Peru (Clerc 1997) as well as from California and the Mediterranean region, is also present in New Zealand. I have 2 collections of this taxon, not yet chromatographed, *Wright 7340* (medulla K-, PD-; soralia K-, PD+ golden yellow: presumably the psoromic acid chemotype), from Mt. Lees Reserve near Palmerston North which agrees well with California material except for the lack of red spots, a condition which may be the norm for continental Europe (Clerc 1984) and which is encountered in California although rarely (Wright unpubl.). The second collection, this time with red spots, is *Wright 7467* (medulla K+ yellow becoming quickly deep orange red, PD+ light orange; what may be incipient soralia are K- and PD-: presumably the norstictic acid chemotype [Wright 2001, Tavares et al. 1998, p. 196]) from coastal brush on the flank of Makara Hill (400 m alt.) west of Wellington, establishing the known range in New Zealand as the Manawatu District (Palmerston North) 120 km south to Wellington. This is the first report of *U. wirthii* for New Zealand (W. Malcolm, pers. comm.).

Urban Lichens

All cities I have seen have a few lichens. The operative word is "few": cover is typically low to very low and the assemblages are species poor. Berkeley, California, for example, has crustose species on the curb at the incredibly busy intersection of Ashby and Telegraph Avenues, and even Red Bluff, set in the center of a lichenological wasteland in the now chronically desiccated northern Central Valley, has significant *Xanthoria* on street trees. Wellington, the capital city of New Zealand with a population of 350,000 at the south end of the North Island, is rather different in this respect. There is plentiful *Xanthoria parietina* around town, and it is not hard to find other lichens like the weedy *Stereocaulon ramulosum* in a garden in the Kelburn district about 3 km from the city center (fig. 7). In the same garden was *Baeomyces heterophyllus* and four *Cladonia* species: *C. fimbriata*,

Fig. 7. *Stereocaulon ramulosum*, *Wright 7436*. 0.5×.

another member of the *C. chlorophae*a complex, *C. ochrochlora* (syn. *C. coniocraea*), and *C. subulata* with an unusual twisting growth habit (fig. 8). All four species are known also from California. Across

Fig. 8. *Cladonia subulata*, *Wright 7434*. 0.6×.

the street on the tile roof of St. Michael's Church, *Cladia cf. schizophora* (fig. 9 and note 2) mingles with *Xanthoparmelia scabrosa*. Downtown along a freeway exit *Xanthoparmelia mexican*a, a species, indeed a genus, which Californians know only from rock, does well on a wooden fence rail; it is reported also from bark by Galloway (1985). *Parmotrema chinense*, which I associate with comparatively clean coastal environments in California, is frequent on plantings

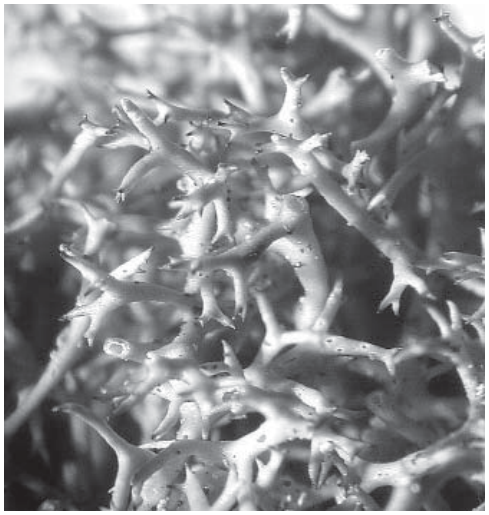

Fig. 9. *Cladia* cf. *schizophora*, *Wright 7401*. 9×

in the city and is considered by Galloway to be probably a non-native species "whose range has been greatly increased by man and his activities." At the edge of the city *Pseudocyphellaria cf. crocata* does well on the pavement with *Xanthoparmelia scabrosa*. There is even a common urban *Usnea*, the "intensely polymorphic" *U. arida*, which appears to belong to the *U. fragilescens* aggregate (Clerc 1987, p. 487 ff.). It reaches about 10 cm on trees in gardens here.

Far and away the most remarkable urban lichen, however, is *Xanthoparmelia scabrosa*. I am reproducing here my posting on this species to the Honolulu lichen listserver in an edited version:

Xanthoparmelia scabrosa is a finely isidiate species with a very interesting and complex secondary product chemistry (scabrosins, sulfur and nitrogen containing compounds with potent activity against human breast cancer [Ernst-Russell et al. 1999]) known from Argentina, Australia, Japan, New Guinea, and New Zealand. In New Zealand it has, at least by the standards of western North America, a remarkable distribution, on which Mason Hale commented in his monograph of the genus (Hale, 1990): "It is especially common in New Zealand where it even grows on pavement and sidewalks in cities." A stronger statement could be made: it is nearly ubiquitous and frequently abundant and luxuriant, as in the city of Wellington on sidewalks, asphalt, stone walls, and rocks (figs. 5 and 6, back cover). I have seen it on glass of a window in the Kelburn district. It is downtown where it grows in some cases even where automobiles are rolling and pedestrians are treading continually. I am not aware of any equivalent phenomenon in California. T. Ahti (pers. comm., 2002) reports that there is some *Xanthoparmelia* on pavement in Australia, and M. McCanna in Virginia noted by e-mail that a *Xanthoparmelia* does occur on pavement of the Blue Ridge Parkway there but not as luxuriantly as shown in figures 5 and 6 on the back cover of this issue of the Bulletin. Macrolichens (*Xanthoparmelia*, *Flavoparmelia*, even *Heterodermia*) may rarely be found on pavement in central and northern California on unused streets in housing developments which were abandoned before the homes were built and on other little used byways; *X. scabrosa*, however, is extremely common on streets and sidewalks, including busy ones.

Some of this must have to do with the frequent light rainfall and comparatively unpolluted air of a city scoured fairly clean by winds from the Antarctic and elsewhere, and the use of catalytic converters to reduce motor vehicle emissions, but it would seem there must be something about this lichen as well that enables it to perform as it does. Does *Xanthoparmelia scabrosa* convert SO_2 and $NO_{(x)}$ products into scabrosin, rendering those pollutants harmless? The fine isidia, which could be transported by rainwash and to some extent on the feet of pedestrians, even on automobile tires, appear to be highly effective propagules.The damp climate with plentiful rain and fog must contribute also. I have observed *X. scabrosa* to be superabundant and luxuriant on high cliffs that receive much fog from the Cook Straits, which separate the North and South Islands, and on particularly mesic, protected sidewalks that still get a fair amount of sun. James Bennett of the University of Wisconsin and I will soon publish a survey and interpretation of the elemental content of *X. scabrosa* from clean and from polluted areas in New Zealand.

Fig. 10. A magnificent tree, probably Silver Beech, *Nothofagus menziesii*, photographed on the bank of the Waingawa River near the *Pseudocyphellaria* and *Sticta* collecting sites. Note the abundant epiphytes, many of which are lichens (the large epiphyte in the center is a monocot flowering plant).

Names of the New Zealand taxa follow Galloway (1985) for lichens and Metcalf (2002) for vascular plants. Names of the California taxa follow Esslinger (1997) for lichens and Hickman (1993) for vascular plants.

Notes:

1. Podocarpaceae, unfamiliar to most Americans, reach the Northern Hemisphere only in Asia. The native taxa closest to them are the Taxaceae: the Western Yew, *Taxus brevifolia,* and the California Nutmeg, *Torreya californica,* both uncommon to rare. Podocarpaceae and Taxaceae are gymnosperms which produce seeds not in cones but singly atop brightly colored receptacles.

2. *Cladia,* a southern hemisphere genus is known to North Americans chiefly, I suspect, from photos of *C. retipora* (see, e.g., Nash [1996], p.44, fig.9), an unusual species comparable for its strong fenestration to *Ramalina menziesii*, although it is much smaller and less conspicuous. *Cladia* is much like *Cladina* but with a cortex, often with tiny perforations (except in *C. retipora* which has very large perforations compared with other *Cladia* species). In fig. 9 see below and to the right of center.

Notes for Table 1:

1. California: S. Tucker, pers. comm., 11-2002; New Zealand: Malcolm and Galloway 1997.

2. Species richness for purposes of this discussion = total spp. ÷ area x 1000 (species per square km x 1000), using values from references 1 and 3.

3. Hammond Universal World Atlas, C.S. Hammond Co., New Jersey, 1965.

4. Based on a population for California of 34 million (http://www.ca.gov/state/portal/myca_homepage.jsp, California Facts, California Demographics, accessed 11-7-02), and for New Zealand of 3.9 million (http://www. stats.govt.nz, Top 20 Statistics, accessed 11-7-02).

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Pacific Northwest Lichens in Northern California

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Northern California and southern Oregon share many attributes of climate and geography, with the result that the lichen flora of these two political entities is similar. Common to both states are the coastal environs of the Pacific Ocean, the Klamath, Siskiyou and Cascade Mountains, the Coast Ranges, the Illinois and Klamath Rivers, and large fast-growing conifer forests that include both ubiquitous commercially valuable species and scarce remnant species. A number of lichen species approach the southern extent of their ranges here, becoming rare or confined to specific habitats, including *Usnea longissima, Platismatia lacunosa, Ramalina thrausta, Nephroma bellum* and others. The coastal influence that extends strongly to the Cascade Mountains in Oregon does not penetrate as far inland in California, with the result that lichen species widely distributed in western Oregon are confined to more coastal areas in California.

As a result of an ongoing correspondence with Dr. Shirley Tucker at the University of California, Santa Barbara, there is new information available regarding the occurrence of some lichens in northern California that are considered to be infrequent to common in the Pacific Northwest but are apparently either unreported from California in the literature or reported only in secondary sources (keys or general texts). These omissions came to light as a result of Dr. Tucker's review of a species list from the Six Rivers National Forest cryptogamic herbarium, and her review of selected specimens towards the eventual revision of *A Catalog of California Lichens* (Tucker & Jordan 1979). Some of the lichens discussed are new reports for California, although given that none are truly rare in the Northwest, their absence from the published literature is probably more a matter of omission, undercollecting, and the limited number of lichen surveys that have taken place in the area.

Alectoria lata (Taylor) Lindsay – Primary citation in Brodo & Hawksworth (1977); secondary citations in Brodo et al. (2001) and Tucker & Jordan (1979). Brodo & Hawksworth (1977) cite a Weber collection *(Weber Lich. Exs. 417)* from the summit of Horse Mountain. Recent collections of *A. lata* have been made by Darrell Wright and Doug Glavich (Wright, pers. comm., Glavich, pers. comm.) in what is now the Horse Mountain Botanical Area in Six Rivers National Forest. It is also known from Elk Valley Ridge in Six Rivers National Forest *(Hoover LDH01)*. The Northwest Lichen guild considers it uncommon enough to include it in their *Listed Macrolichens in the Pacific Northwest* (2003).

Cornicularia normoerica (Gunn.) Du Rietz – Primary citation in Sigal & Toren (1974); secondary citations in Brodo *et al*. (2001) and Tucker & Jordan (1979). This lichen might be underreported because of its affinity for exposed rocky alpine and subalpine habitats, although as with *Alectoria lata* it is included in *Listed Macrolichens in the Pacific Northwest*. Collected from the summit of Broken Rib Mountain in the Broken Rib Botanical Area in Six Rivers NF *(Carlberg 00633).*

Icmadophila ericitorum (L.) Zahlbr. – Common on conifers in the older redwood forests, this lichen has one primary citation in Tucker & Kowalski (1975) and secondary citations in Brodo *et al*. (2001), Jørgensen & Goward (1994), and Tucker & Jordan (1979). The common name is "fairy puke". It is distributed across most of Canada but is largely absent from North America, except for a few areas of incursion, extending no further south than Northern California on the Pacific coast (Brodo *et al*. 2001). The Six Rivers collection *(Isaacs/McFarland 23)* is from the southern part of the forest.

Leptogium polycarpum P.M. Jørg. & Goward – No primary citations; secondary citation in Brodo *et al*. (2001). Goward et al. (1994) list this lichen as rare in British Columbia; McCune & Geiser (1997) describe it as one of the most common *Leptogium* species in western Oregon. The two reported locations in California are both associated with riparian areas. In Six Rivers NF *(Carlberg 00612)* it was found in the headwaters of the Little Van Duzen River. The other location is in the Mattole River valley *(Carlberg*

00658). It is only recently described (Jorgensen & Goward 1994) and may appear in collections under other names.

Leptogium subaridum Jørgensen & Goward – No primary or secondary citations. This appears to be a first report for California, although as with *L. polycarpum* it was newly described in 1994 (Jorgensen & Goward [1994]). Two collections, both from riparian areas in Six Rivers NF *(Carlberg 00560 and 00600).*

Parmelia pseudosulcata Gyelnik – No primary citations; two secondary citations in Goward *et al*. (1994) and Hale & Cole (1988). In Six Rivers NF *(Isaacs/Bergman 42)*.

Peltigera neckeri Hepp ex Müll. Arg – No primary or secondary citations. One collection from Six Rivers *(Isaacs/Bergman 51)* from a densely-forested north slope, and another from private land near the coast *(Carlberg 00436)*, in an oak pocket in a tanoak-Douglas-fir forest.

Peltigera neopolydactyla (Gyelnik) Gyelnik – No primary citations; one secondary citation in Brodo *et al*. 2001. Occurs with some frequency in moist coastal forests on the immediate coast near the town of Orick *(Carlberg 00056, 00801)* and on the Samoa Peninsula near Arcata (Glavich, pers. comm.).

Peltigera ponojensis Gyelnik – No primary citations; three secondary citations in Brodo *et al*. 2001, Goward *et al*. (1994) and McCune & Geiser (1997). The Six Rivers occurrence is on the immediate coast, but another location on Grizzly Creek on the Shasta-Trinity National Forest (Carlberg 00748) demonstrates that this species has the potential for a broader range in northern California.

Psoroma hypnorum (Vahl) Gray – No primary citations; one secondary citation in Hale (1979). Dr. Tucker included a request in the CALS Bulletin (Winter 2002) for information on California collections of this species. It is not mentioned in Hale & Cole (1988). The three locations in Six Rivers NF are very different, one being a moist location at the top of Mill Creek where it is abundant in mosses on rocks and soil. The other two are both in the Broken Rib Botanical Area, but occur there sparsely and are restricted to the bases of trees.

I would be interested to hear from others who have collections of any of these species, since there is a strong possibility that these lichens are not really unusual for California. If so it argues strongly for an accessible database of California lichens that reports at least the verified presence of taxa in the state, and at best includes information regarding abundance and location, and the likelihood of new species based on their presence in adjacent areas.

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An Exciting Find

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Years ago when I first started studying lichens, I was inspired by specimens at the Smithsonian Institution which were collected in the late 1800s and the early 1900s. Hasse's book of southern California lichens listed many species and their distributions. Small wonder that I was led to start searching for those that I had seen or read about.

Teloschistes californica, or *T. villosus* as it was known then, was represented at the Smithsonian by lovely specimens and was described in Hasse from Lower California (Baja), Point Loma near San Diego, near Newport and as far north as Santa Cruz Island where it was collected by Blanche Trask. Hasse's Exsiccati #134 of this species was collected at San Quintin Bay in Baja. This may indicate that it was not plentiful at Point Loma. For over 20 years now, this species has eluded me on mainland California. In all my explorations of Point Loma and in the Newport area, it has not been found. I have found it in Baja and I have collected it on 6 of the 8 Channel Islands, but not Catalina or Santa Cruz Islands. It was not included in the *Flora of Santa Catalina Island.*

Trichoramalina crinata, or *Ramalina crinata* as it was called then, is another species represented in the Smithsonian collections and in Hasse's book. It, too, is found in Baja but only the Point Loma location was given for California. Hasse's Exsiccati #115 was collected at Point Loma in 1909 which would lead us to suppose that it existed there in quantity.

After the lichen walk at Point Loma in April, I was shown a different area of Point Loma. While there, Andrew Pigniolo handed me a tiny specimen asking what the thing with black cilia was (see front cover image). I knew immediately that he had found *Trichoramalina!* Quite obviously, he would not have picked it had he know its rarity. The specimen now resides at the Santa Barbara Botanic Garden as proof that it still exists in 2003. A few other small specimens were located in the area. Andy is now working with people from the City of San Diego to see if some protection can be given to the area as there are other rare things known from this place.

It was a very exciting day for Andy, Kerry Knudsen and me. It also points out that the more people we have in the field looking at lichens, the more we are going to find and learn about. Nothing could demonstrate this more clearly than last issue's article and pictures of *Texosporium sancti-jacobi*. There has been an explosion of sitings since then which will be presented in the December issue.

Happy lichening!

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Clarification of three Umbilicaria species new to California

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In 1998 I reported *Umbilicaria lambii* Imshaug and *U. rigida* (Du Rietz) Frey as new to California in the Proceedings of the First Conference on Siskiyou Ecology (Peterson 1998). Unfortunately those proceedings were informally published, leading to a difficult-to-find, and potentially invalid, report of the species. This note is to establish a more tangible report that the two species occur in California. Further, the only published specimen report of *Umbilicaria phaea* var. *coccinea* Llano in California was more than 50 years ago (Llano 1950), so two locations for that taxon are also reported here.

Umbilicaria lambii and *U. rigida* were found on the same ultramafic rock outcrop near Sanger Peak in Del Norte County, California. The site was along a wind (and fog) swept ridge at ca. 1700 m elevation and within 50 km of the Pacific Coast. The original specimens collected by myself with Martin Hutten were identifiable but small, so I collected additional voucher specimens at a later date. *U. lambii* is rather unusual for the genus in that it has a nearly squamulose growth form. Previously *U. rigida* was known from Oregon and northward, while *U. lambii* was known from Washington and northward.

Umbilicaria phaea var. *coccinea* is unusual for the genus in that it has a deep red color. It is commonly called the "lipstick lichen" because in its habitat, it looks like someone took a tube of red lipstick and dotted the rock. The taxon was found at 2 locations near Interstate Highway 5, Siskiyou County. It is abundant in the area, frequently growing right along side of var. *phaea*. *U. phaea* var. *coccinea* is a rather locally distributd taxon, occurring in the drier, eastern portion of the Klamath region of northern California and southern Oregon, and with several disjunct populations in eastern Oregon and eastern Washington.

Specimens

Umbilicaria lambii: EBP #2485 (OSC) and EBP #2539 (hb. Peterson, hb. McCune, OSC); on ultramafic rock; subalpine rocky outcrops among dense shrubs and sparse trees (*Abies* sp., *Picea breweriana*, *Pinus monticola*, *Pseudotsuga menziesii*); along trail to Sanger Peak on S side before it crosses ridge; 41°55.2'N, 123°39.2'W; 1700 m elevation; 1 June 1997 (#2485) and 15 August 1997 (#2539).

Umbilicaria phaea var. *coccinea*: EBP #1527 (hb. Peterson); on rock; chaparral and oak savanna on NW facing slope with rocky ground (*Quercus garryana*, *Ceanothus* spp.); 1 km E of Hilt, Jefferson road, NE side of small rock quarry at end of county road; 41°59.8' N, 122°36.5'W; 900-1100 m elevation; 17 May 1996. EBP #2458 (hb. Peterson); on rock, basalt?; chaparral dominated by *Ceanothus*, lower slope, S face; along Klamath River upstream from Shasta River – just SW of intersection of HWY 96 and Interstate 5, along an annual creek just after HWY 96 curves right when going south from intersection; 41°50.9' N, 122°34.4'W; ? m elevation; 3 May 1997.

Umbilicaria rigida: EBP #2494 (OSC) and EBP #2540 (OSC); on ultramafic rock; subalpine rocky outcrops among dense shrubs and sparse trees (*Abies* sp., *Picea breweriana*, *Pinus monticola*, *Pseudotsuga menziesii*); along trail to Sanger Peak on S side before it crosses ridge; 41°55.2' N, 123°39.2'W; 1700 m elevation; 1 June 1997 (#2494) and 15 August 1997 (#2540).

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Questions and Answers

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When talking to the general public about lichens on field trips or at workshops, I am asked certain questions which are of common interest to those attending. Three such questions are answered below. The column is meant to serve people who are new to lichens and do not have easy access to lichen literature.

1. Question: How are lichens classified?

Answer: This question was addressed in this column a few years ago. It keeps reappearing, however. Maybe it is time to take it up again.

Whatever method of classification is used, the huge input of information becoming available to lichenologists in the modern world leads to constant change and rearrangements. Taxa come and taxa go and sometimes taxa return. The advent of scanning electron microscopy was one new source of information some years ago, soon followed by the results of ongoing DNA and other molecular studies.

Classification involves placing individuals in groups according to their similarities in morphological, chemical and molecular characteristics. In some branches of biology cladistics are used – that is, grouping according to known ancestry. Phenetics is another method of classification, which is more numerical and relies on overall percentage similarities. Lichenologists, on the whole, have continued to use traditional, evolutionary systematics. In our newest major lichen text, The *Lichens of North America*, by Brodo and the Sharnoffs, classification follows this model.

We start with the kingdom. Lichen names all refer to the fungal partner only, and lichens are thus in the Kingdom Fungi.

The lichen forming fungi are divided into two Classes (sometimes called Phyla): 1. Basidiomycetes, of which there are only a few, where the spores are formed outside the basal cell called a bacidium, and 2. Ascomycetes, in which the spores are formed internally in a sac-like ascus. In this class we find 80% of lichens.

Then there are two subclasses: 1. Euascomycetes in which the asci have single layered walls and the ascocarps (fruiting bodies) have paraphyses (specialized fungal filaments) in the hymenium (spore bearing layer). 2. Loculoascomycetes, without true paraphyses and with double walled asci.

These subclasses are divided into orders. The names of these orders end in "ales", i.e., Caliciales, and these divisions are based on general characteristics of asci and apothecia and type of photobiont (algal or cyanobacterial partner). The largest order is that of the Lecanorales, which is divided into suborders.

The orders are divided into families, names ending in "aceae", i.e., Caliciaceae. These divisions are based on general morphological characters and reproductive details .

Within the families you find the genera, i.e., Calicium, determined by more details about chemicals, spore structure and other features. From

there you go to species. The question of exactly what determines a species in lichenology probably deserves an answer all its own. Perhaps in the next Bulletin?

2. Question: How do toxic compounds actually kill a lichen?

Answer: Absorption of toxic compounds causes degradation of the chlorophyl until photosynthesis is no longer possible and the lichen has no source of nourishment.

3. Question: What can one do to keep a lichen alive on a rock or manmade surface?

Answer: This question is asked so often that the British Lichen Society has published a free brochure on the subject, also including advice on how to get rid of an unwanted lichen. I quote:
"Over the past few years many different substances have been painted onto buildings to encourage more rapid colonization. These include yogurt, beer, skimmed milk, thin porridge and, in Japan, rice water. To all these substances a small quantity of PVA (polyvinyl acetate) adhesive may be added. This acts as a binder, improves the adhesion of the nutrient and possibly allows more gradual release over a longer period. On very alkaline materials, such as new concrete, a slightly acid substance will assist in neutralizing the high alkalinity. Dilute cow slurry is frequently used, the urine present providing the acid content and the brown staining, caused by the slurry, giving an immediate toning down of the concrete. Little work so far has been done to determine the frequency of application or strength required. The evidence from those who have tried these methods seems to show that they work. Various timings have been suggested but it is probably worth trying about four applications at yearly intervals. Even a single application would probably assist, but due to the very alkaline nature of new concrete it would be more effective to give at least a second coat after about two years. On more acid stones, such as granite and sandstone, it is suggested that, especially in polluted areas, powdered chalk be added to the mixture to neutralize this acidity to some extent. To aid colonization, coarsely ground up pieces of lichen can be added to the mixture before it is painted on to the surface. Care should be taken to use only lichens that are growing abundantly in the local area, and which are found in a similar microhabitat to that on which they are placed."

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Literature Reviews and Remarks

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The Lichens of Wisconsin by John Thomson (Wisconsin State herbarium, 2003) sets the standard for what a state lichen flora should be. 148 genera and 615 species are covered including species to be expected in the area but not yet collected. The keys are relatively easy and excellent. They can be utilized experimentally in California to key a crust to genus or find a *Lecidea* segregate. The descriptions of species are in the concise minimalist style of Thomson's Arctic floras. Like Hasse's equally short descriptions, they can contain gems of information mined from the author's direct observations of numerous specimens.

The comprehensiveness, the concise descriptions, and efficient keys of Thomson's flora should be the principle characteristics of any good state flora. These virtues guarantee its value for use by non-lichenologist professionals, who can utilize it in the context of ecological and biodiversity studies, land management and other work, and for the serious amateur who is ready to graduate from macrolichen guides. It is hoped that one day we will see Hale's *Lichens of California* surpassed by a state flora equaling Thomson's *Lichens of Wisconsin.*

One of the imperatives of lichenology in the beginning of the 21st century is to establish a finely-detailed model of the distribution of lichens in North America and Mexico. To show how much work has to still be done in this area, the Preface to *Lichens of Wisconsin* gives an illuminating example. A lichen workshop was held in Wisconsin in April, 2002. After making field collections in northern Wisconsin, participants in the workshop were given preview copies of *Lichens of Wisconsin* to key out their collections. The workshop produced 130 new county records and 47 new state records (which are included in Appendix 1.) And Wisconsin is not only a state where Thomson himself collected for years, but was also collected by his graduate students Mason E. Hale Jr. and William L. Culberson.

Though the Sonoran Flora will be the ultimate and magisterial reference for the lichen flora of Southern California, and will be the touchstone of accurate determinations, only a state flora of California will bring into proper perspective the unique natural history of cismontane Southern California and its relation to Northern California's lichen flora. *Lichens of Wisconsin* does that service for its state. Wisconsin is divided into two natural provinces. Glaciers covered most of the state. But the "Driftless Area" in southwestern Wisconsin has not been glaciated in the last two million years and forms a province with contiguous parts of Minnesota, Iowa, and Illinois. Thomson's flora, for instance, shows the links of these two provinces through its mapping of disjunctive occurrences of northern lichens in southern microhabitats.

In the historical development of scientific literature, the artificial floras of states prepare the way for national and continental floras.

Unfortunately, there will be no volumes on the lichen flora of North America included among the many projected volumes of the Flora of North America which is slowly being published. In this, Australia is far ahead of the United States. So far twenty-six books of the Australian flora have been published since 1981, including three on the lichen flora, the latest of which is Volume 58A, Lichens 3, in 2001. This volume is written mostly by Australian and New Zealand lichenologists including Dr. Patrick M. McCarthy and Dr. David J. Galloway, but also includes sections written by such eminent international authorities as Dr. Othmar Breuss, familiar to users of the Sonoran flora for his excellent work on Endocarpons and

Placidiums. While probably not of much utilitarian value to Californians, Lichens 3 nonetheless brings into perspective the global distribution of lichens, something that should always be kept in mind as one develops an understanding of one's local flora and is an unavoidable fact in studying lichen genera or in the conservation of lichens.

I did find one section very helpful, especially combined with Hasse's flora and Bruce Ryan's CD. McCarthy has written an absolutely excellent illustrated section on the global genus *Verrucaria*, which in the natural history of Australia represents a temperate intrusion into their flora.

In fact, A. Aproot cites McCarthy's "Trichotheliales and Verrucariaceae" from Lichens 3 in the slim amount of references he used in preparing "Pyrenocarpous Lichens and Related Non-Lichenized Ascomycetes from Taiwan," published in the hardback *Journal of the Hattori Botanical Laboratory*, No. 93, 2003. In an amazing feat, Andre Aproot and Laurens Sparrius, at the invitation of Prof. Ming-Jou Lai, collected in two weeks 101 pyrenocarpous lichens and related ascomycetes, of which 96 were new records for Taiwan. And in those two weeks they went everywhere, from the tops of mountains at 3500 meters to the seashore to collect Verrucarias off volcanic outcrops and *Verrucaria hocstetler* off a coral reef. Taiwan "has become one of the best-known tropical areas for pyrenocarpous lichens in the world," to quote a modest Aproot on page 156.

The Bryologist has published two important articles of special interest to Californians.

In the last issue of 2002, Vol. 105(4), John W. Shead and Halmut Mayrhoffer's "New Species of Rinodina (Physciaceae, Lichenized Ascomycetes) from Western America," describe seven new species with distributions in California. The descriptions of all the new western species are excellent and the drawings of spore development are of immediate practical value when you are analyzing your mount. Transcending the value of the new taxa is a key to the Rinodina species of Western North America which is very easy to use if you read the article carefully.

In the first issue of The Bryologist in 2003, Vol. 6(1), Clifford M. Wetmore published "The Caloplaca squamosa Group in North and Central America," with fine color photographs. It is an elegant piece of work describing the diversity of this evolutionary-related group in four species with an easy-to-use key. To fully appreciate Wetmore's achievement one should read the selection of specimens examined in the process of the formulation of each taxon.

Of interest to all of us who have ever examined a lichen without ignoring those "anomalies," is "Lichenicolous Fungi: Interactions, Evolution, and Biodiversity" by James D. Lawrey and Paul Diederich in The Bryologist, Vol. 6(1). In an exciting intellectual tour-de-force they roam through the subject of lichenicolous fungi throwing around facts, ideas, and hypotheses with the joy and agility of Cirque du Soleil acrobats juggling Ming dynasty vases. All serious lichen collectors should read and re-read this essay and consider developing a segregated collection of lichenicolous fungi because in the future these undetermined collections will be of value.

Last but not least are two items printed in 2003 but probably now unavailable. Frank Burgatz's ASU Herbarium Lichen Calendar of 2003 is graced with beautiful pictures of Sonoran species. A great deal were the sturdy T-shirts sold by the Northwestern Lichenologists. They feature *Letharia columbiana*, looking like the mandala of an alien civilization. The lichen design is absolutely stunning in yellow on a black T-shirt. I could have sold five straight off on the last Nature Conservancy walk I went on. If they are still available, buy one. Amiable Erin Martin has done a wonderful job handling the promotion and sales.

Lichens of Wisconsin and issues of the Bryologists are available through the ABLS website at http://www.unomaha.edu/~abls/

The Journal of the Hattori Botanical Laboratory is available through the Hattori website at http://www7.ocn.ne.jp/~hattorib/

For Northwest Lichenologist T-shirts try http://www.proaxis.com/~mccune/nwl.htm

News and Notes

CALS Field trip to Redwood Regional Park, General Meeting, and Birthday celebration January 11, 2003

Redwood Regional Park is one of the many parks in the East Bay Regional Park district. Situated above Skyline Blvd. in Oakland, many trails have spectacular views of the San Francisco Bay. Also, the Bay Area Ridge trail runs lengthwise through the park. Twelve lichen enthusiasts met at the Redwood Gate on the east side of the park. We focused on lichen ecology. Close to the parking lot was a large grassy area with some non-native trees. A creek lined with willows was close by. A small amount of chaparral scrub was on the hillside. We looked at various trees in the grassy, open area. Noticeable was the predominance of the Xanthorian assemblage on the non-native trees especially on the lower part of the trunks. *Xanthoria parietina* was present and *Physcia adscendens* was very common. The willows along the creek had many more species and numbers of lichens than any of the other trees we observed. The lichens found there were common in the Bay area: *Parmotrema chinense, Evernia prunastri, Parmelia sulcata, Punctilia subrudecta, Flavoparmelia caperata, Physconia isidiigera, Xanthoria candelaria, Melanelia sp., Heterodermia leucomelaena, Hypotrachyna revoluta, Usnea sp.*, and a variety of crustose lichens. Even the picnic tables where we had lunch had lichen growth.

After lunch, we drove to a Serpentine prairie in the park and walked a short trail. Again, *Xanthoria* species were very common on the shrubs along the path.

Participating were Arlyn Christopherson, Irene Winston, Shelly Benson, Cherie Bratt, Janet and Richard Doell, Bill Ferguson, Bill Hill, Kathy Faircloth, Susanne Altermann, Judy Robertson, and Kuni Kitajima.

Following the field trip we drove to the Brickyard Landing Clubhouse in Pt. Richmond.

We held our annual General Meeting followed by a delicious pot luck dinner. Some of the dishes were Coq au Vin, stuffed squash, spinach salad, polenta, and a salad of black rice, apples, and nuts. After dinner, we had a Birthday cake to celebrate the 9th anniversary of the California Lichen Society.

After the the eating was over, the board members present held their board meeting.

It was a special day for all attending.

Reported by Judy Robertson.

CALS field trip to Fairfield Osborne Preserve, Sonoma County March 1, 2003

The day was mostly sunny and slightly cool when 14 people met in the SSU parking lot to carpool to Fairfield Osborne Preserve, named in honor of the pioneer ecologist, Fairfield Osborne. The preserve was established by the Roth Family in 1972. It was acquired by The Nature Conservancy, but is now owned and managed by Sonoma State University. A group of dedicated volunteers are working to protect and restore the natural communities on the Preserve as well as foster ecological understanding through education.

Our group spent much time at the large valley oak near the parking lot. At least 25 species of lichens were counted on trunk, branches and twigs. With a simple key, Judy led the participants through identification of the most common lichens present: *Flavopunctelia flaventior*, and *Flavoparmelia caperata*, *Parmelia sulcata* and *Parmotrema chinense*, *Physcia adscendens*, *Physconia sp.*, *Xanthoria polycarpa* and *Teloschistes chrysophthalmus*.

We walked up the trail on a nearby hillside looking for lichens found on soil banks. At least 4 species of Cladonia, 2 species of Leptogium, *Leptochidium albociliatum*, and 2 species of Peltigera were on display. We also observed *Diploschistes muscorum*

parasitizing many of the Cladonia patches.

We headed to the vernal pool for lunch. Again using the simple key to lichens of Sonoma County, we identified *Hypogymnia imshaugii* and *H. tubulosa.* Other species on the oaks were*: Physconia americana, Physcia stellaris,* and *Hypotrachyna revoluta.*

Across the small bridge we found *Normandina pulchella* and *Waynea stoechadiana*, on the trunk of a small live oak with *Lobaria pulmonaria*, *Pseudocyphellaria anthraspis*, *P. anomola* and *Nephroma helveticum* nearby.

As we returned on the same route, we observed the crustose lichens on the rocks. Common was *Lecidea tessellata*, with a variety of *Aspicilia sp*., *Caloplaca sp*., and *Xanthoparmelia sp*.

This was a very enjoyable day for all participating: Bill Hill, Kathy Faircloth, Earl Alexander, Don Brittingham, Janet and Richard Doell, Jessica Wilson, Daniel George, Devi Rao, Irene Winston, Walter Levison, Celia Chong, Kuni and leader Judy Robertson

In addition to the lichens listed above, these species are known to occur at Fairfield Osborne Preserve:

Caloplaca chrysophthalma Degel
Candelaria concolor (Dickson) Stein
Cladonia cervicornis subsp. verticillata (Hoffm.) Ahti
Cladonia chlorophaea (Florke ex Sommerf.) Sprengel
Cladonia fimbriata (L.) Fr.
Cladonia furcata (Hudson) Schrader
Cladonia macilenta Hoffm.
Cladonia ochrochlora Florke
Cladonia pyxidata (L.) Hoffm.
Collema furfuracium (Arnold) Du Rietz
Collema nigrescens (Hudson) DC.
Dermatocarpon miniatum (L.) W. Mann
Diploschistes scruposus (Schreber) Norman
Evernia prunastri (L.) Ach.
Fuscopannaria leucostictoides (Ohlsson) P.M. Jorg.
Graphis scripta (L.) Ach.
Hyperphyscia adglutinata (Florke) H. Mayrh. & Poelt
Hypogymnia enteromorpha (Ach.) Nyl.
Hypogymnia physodes (L.) Nyl.
Lecanora muralis (Schreber) Rabenh.
Lecidea atrobrunnea (Ramond ex Lam. & DC.) Schaerer
Leptogium corniculatum (Hoffm.) Minks
Leptogium lichenoides (L.) Zahlbr.
Leptogium corniculatum (Hoffm.) Minks
Melanelia elegantula (Zahlbr.) Essl.
Melanelia subaurifera (Nyl.) Essl.
Melanelia subolivaceae (Nyl.) Essl.
Neofuscelia verruculifera (Nyl.) Essl.
Nephroma laevigatum Ach.
Ochrolechia subpallescens Vers.
Parmelia saxatilis (L.) Ach.
Parmelliela cyanolepra (Tuck.) Herre
Parmelina quercina (Willd.) Hale
Parmotrema stuppeum (Taylor) Hale
Peltigera canina (L.) Willd.
Peltigera collina (Ach.) Schrader
Peltigera membranaceae (Ach.) Nyl.
Pertusaria amara (Ach.) Nyl.
Phaeophyscia cernohorskyi (Nadv.) Essl.
Physcia aipolia (Ehrh. Ex Humb.) Furnr.
Physcia biziana (Massal) Zahlbr.
Physcia callosa Nyl.
Physcia dubia (Hoffm.) Lettau
Physcia phaea (Tuck.) J.W. Thomson
Physcia stellaris (L.) Nyl.
Physcia tenella (Scop.) DC.
Physconia isidiigera (Zahlbr.) Essl.
Punctilia stictica (Duby) Krog
Punctilia subrudecta (Nyl.) Krog
Ramalina farinacea (L.) Ach.
Ramalina leptocarpha Tuck.
Ramalina menziesii Taylor
Sphaerophorus globosus (Hudson) Vainio
Sticta fuliginosa (Hoffm.) Ach.
Sticta limbata (Sm.) Ach.
Teloschistes exilis (Michaux) Vainio
Umbilicaria phaea Tuck.
Usnea arizonica Mot.
Usnea ceratina Ach.
Usnea hirta (L.) F. H. Wigg
Xanthoparmelia cumberlandia (Gyelnik) Hale
Xanthoparmelia mexicana (Gyelnik) Hale
Xanthoria candelaria (L.) Th. Fr.
Xanthoria fallax (Hepp) Arnold

Reported by Judy Robertson.

Point Loma Lichen Foray
March 23, 2003

Cherie Bratt's energy and excitement for lichens has spread to a small but growing group of lichen enthusiasts in the far southern points of California. On Sunday, March 23rd, Cherie led a CALS group on a tour of the lichens of Cabrillo National Monument in San Diego. Cabrillo National Monument is located at the tip of a windswept and sometimes foggy peninsula called Point Loma on the west side of San Diego Bay. In addition to its association with the landing of the explorer Cabrillo, Point Loma is known for it's historic lighthouse and beautiful vistas. From the 19th century to today the lighthouse has been a landmark stop for visitors to San Diego, and the specific locale of 'Point Loma' has often made it onto historic lichen collection labels where other locality descriptions are otherwise too general to be useful. Cherie's previous research in the 1980s was able to compare historic collections and descriptions with current conditions (Bratt, 1986) and as part of her research she prepared a lichen checklist (Bratt, 1997) and photo album for the Monument in addition to conducting a transplant study.

Photo by Mary Ann Hawke

Left to right: Neil Buscaron, Jo Ellen Kassebaum, Cherie Bratt, Kerry Knudsen, Nola Lamken, Andrea Compton and in front, Andy Pigniolo

Lichenologists led the way into the park and with the assistance of park ranger Andrea Compton, we were allowed to explore sensitive areas while Ms. Compton mapped lichen locations with GPS equipment. A rock wall along the path to the lighthouse introduced us to some of the common crustose lichens in the park, like *Dimelaena radiata* (Tuck.) Hale & Culb. Once we entered the coastal sage scrub vegetation, we were introduced to *Pertusaria* sp. on a low drought deciduous shrub called *Euphorbia misera*. Cherie explained that early visitors to Point Loma had described abundant fruticose lichens growing on the Euphorbia and another drought deciduous shrub called *Lycium californicum*. As modern visitors, we were limited to crustose species including *Buellia* sp. and *Arthonia* sp (possibly *Arthonia polygramma* based on CALS member Kerry Knudsen's skillful analysis). In a shaded patch of lemonadeberry (*Rhus integrifolia*) we passed some foliose *Parmotrema hypoleucinum* (Steiner) Hale.

Soil crusts provided another dimension to the lichens and we found ourselves crawling around on our hands and knees looking at a white sterile *Leproloma* sp., *Diploschistes diacapsus*, and an *Endocarpon* sp. that Kerry Knudsen later keyed as *Endocarpon loscosii* Mull. We also found *Xanthoparmelia coloradoensis* loosely attached to the soil in several areas.

As we returned to the Bayside Trail, we noted *Caloplaca* sp. brightly radiating color on World War II era cement. Back at the head of the trail, we wound our way down the peninsula toward the top of the cliffs and beautiful views of the bay. Sunny exposures of a loose sandstone bank along the trail formed a substrate for bright patches of *Pleopsidium* sp., and shaded *Adenostoma fasciculatum* branches glowed with neon *Chrysothrix candelaris*

(L.) J.R. Laundon. Portions of the sandstone bank demonstrated the importance of lichens as a soil stabilizer and how the removal of lichens by graffiti artists had destabilized a large portion of the bank. More stabile portions of the shaded bank were painted with *Lepraria* sp. and included large carpets of *Leprocaulon microscopicum* (Vill.) Grams ex D. Hawks. The sparsely scattered orange apothecia of *Caloplaca luteominia* var. *luteominia* (Tuck.) Zahlbr. also covered large portions of the sandstone bank.

After getting some great views of lichens and the bay, we retraced our steps and drove down to the ocean side of Point Loma for a look at an isolated boulder that retained several of the historically documented fruticose species. A short trek through thick lemonadeberry bushes led us to a fuzzy boulder covered with *Roccella peruensis* (Krempelh) Darb. and *Niebla* sp. This is one of the few mainland localities for *Roccella* in the state. The rock was also covered with a variety of crustose lichens and provided a whole lesson in itself.

We called it a day in the early afternoon but the hike was a treat to all those who were able to attend and we hope one of many hikes to come. In the past weeks, the trip has spawned additional interest in the lichens of Point Loma and the San Diego area and it contributed to a better appreciation of the lichen flora by park staff. Thanks again to the enthusiasm and leadership of Cherie Bratt which continues to spread in the south. Our Point Loma hikers included Neil Bouscaren, Andrea Compton, Nola Etta, Mary Ann Hawke, JoEllen Kassebaum, Kerry Knudsen, and Andrew Pigniolo. Thanks again to our leader Cherie Bratt.

References

Bratt, Charis C., 1986, Point Loma Lichens - Now and Then. In *Conservation and Management of Rare and Endangered Plants*. Thomas S. Elias, Editor. California Native Plant Society.

Bratt, Charis C., 1994, Lichens of Cabrillo National Monument, Point Loma, San Diego. Bulletin of the California Lichen Society 4(1).

Reported by Kerry Knudson.

Sonoma Workshop

An Introduction to the Foliose and Fruticose Lichens, Darwin Hall, Room 201, Sonoma State University, Cotati, CA
February 8, 2003

Lawrence Glacy, Don Brittingham and Kuni Kitajima participated in this introductory workshop held at SSU. After a short introduction to lichens, we spent the morning looking at about 30 specimens of different lichens. We divided them into foliose, fruticose and crustose species, then began to look at identification characters: color, reproductive structures, morphological features, comparing and contrasting like and unlike specimens. After lunch in the sun in the University quad, we resumed using the same specimens and Hale and Cole's *Lichens of California* with Irwin Brodo's *Lichens of North America* keys to identify the specimens to genus. The participants left with a good introduction to common lichens in the area as well as morphological search images to take out in the field.

Thank you to Dr. Chris Kjeldsen for arranging the use of the classroom.

Reported by Judy Robertson.

Conservation Committee Report

The Conservation Committee of our California Lichen Society met face to face for the first time on Friday January 17, 2003 at the California Native Plant Society's state office in Sacramento.

Present were all 5 members of the Board appointed Conservation Committee: Eric Peterson (chair), Greg Jirak, Cherie Bratt, David Magney and Cheryl Beyer. In addition we had CALS Board members Bill Hill (president) and Boyd Poulsen (vice president and potential addition to the committee), and some invaluable advisors: Roxanne Bittman of the California Natural Heritage Program, David Tibor of the Native Plant Society (whose meeting room we were in), and Sue Wainscott of the Nature Conservancy who came with Cheryl Beyer from Las Vegas. CALS would like to thank these folks for their time and their invaluable input.

First we decided on our mission statement: "To maintain genetic diversity of lichens and to conserve them in their natural habitat."

We considered and resolved further our operating structure and procedures for determining how lichens will be considered for listing as rare or sensitive in California. It was decided to essentially use the CNDDB (California Natural Diversity Data Base) ranking system which is used in all states and several other countries by state Natural Heritage Programs or their equivalents (the CNDDB in California). The programs and the ranking system were initiated by The Nature Conservancy about 30 years ago and a lot of thought has gone into this ranking system over the years.

We noted that lichens are different enough from vascular plants that we may possibly need to consider somewhat different views for their conservation. In particular, air quality seems to be a rather important added issue for the survival of some species. The definition of a 'population' or 'occurrence' may be controversial, although we agreed that the standards established by CNDDB appear to be adequate for our purposes.

California is somewhat unique in the area of environmental laws in that, besides the Federal regulations available to all states, we have CEQA (the California Environmental Quality Act) and most states have no equivalent state level legislation.

As far as our functioning structure, we have a voting 'conservation committee' of 5 members (which we considered increasing to 7) that reports to the CALS Board of Directors, and we will form a body of 'scientific advisors' which serve to provide scientific input to the rankings of individual taxa. CALS members and other individuals will have the opportunity to participate by 'sponsoring' specific taxa. Sponsoring will involve the collection of background information on the taxa; more details will be given in the near future.

We significantly modified the 'preliminary red list' we have had on our CALS website for a few years now, and the new list will be reborn on the CALS website under a different name. All in all we amazed ourselves with how much we got done, and in such a short time. But this is just the beginning, albeit a good one.

Prepared by Bill Hill and Eric Peterson.

Soil Crust Class

Several CALS members participated in the Jepson Herbarium's Biotic Soil Crust class taught by CALS member Dr. Larry St. Clair of Brigham Young University. It was taught at the Desert Research Station in Zzyzx, CA, a facility which is administered by CSU Fullerton. The class combined lab and field studies to help us gain a better understanding of soil crusts and their several components: microfungi, green algae, diatoms, lichens and mosses.
..

Photo by Kate Kramer

Left to right - Cindy Hopkins, Mary Ann Hawke, Dave Silverman, Cherie Bratt, Adrian Howard, Boyd Poulsen, Ellen Cypher, Sue Wainscott, Richard Strong, Kate Kramer, Larry St. Clair.

Reported by Charis Bratt.

Upcoming Events

Calaveras Big Trees State Park
Friday, June 20, 2003

Calaveras Big Trees State Park lies on the west slope of the central Sierra on the Highway 4 corridor. Featured in the park are two separate groves of *Sequoiadendron giganticum* (giant Sequoia) along with the flora of the surrounding mixed conifer forests. We will be visiting Big Trees Creek to view the submerged water lichen *Hydrotheria venosa* and Eric Peterson is looking for a lichen of the Caliciales group that is only known to be found on giant Sequoia. We will meet at the north Grove parking lot just to the right of the kiosk entrance station. Meet at 10:00 A.M. and we will car pool to the pristine South Grove. If interested contact Boyd Poulsen at (209) 795-5400 or boydpoulsen@hotmail.com

UC White Mountain Research Station, Inyo County
July 11-14, 2003

The White Mountain Research Station (WMRS) is a multi-campus research unit of the University of California. WMRS was established in 1950 to provide laboratory, teaching, and housing facilities for researchers doing field work in the Eastern Sierra. While WMRS was originally used for research in high-elevation physiology, it is now used also by scientists in such diverse fields as archaeology, astronomy, atmospheric science, ecology, geology, plant biology, and zoology.

Housing will be at the Crooked Creek Conference Center, located at the edge of the Patriarch Grove and at an elevation of 10,150 feet. The fee is $45 per night which includes room and board (and the meals are very good). We will meet Friday evening for dinner. Saturday and Sunday we will be out in the field.

The field trip will end at noon on Sunday. We will be preparing a checklist of lichens of the area. Collecting will be limited to reference specimens.

For more information, contact Judy Robertson at: jksrr@aol.com.

Lichens of the Lagunas
Mount Laguna, Cleveland National Forest, San Diego County
August 22-24, 2003

The Mount Laguna area is in a mixed conifer forest at an elevation of 6,000 feet overlooking the Anza Borrego Desert. The area offers a variety of lichen habitats from shaded forest and canyons, exposed metamorphic and granitic rock outcrops, oak woodland, and chaparral. Black oak, (*Quercus kellogii*) bark offers an important substrate for a variety of lichens. The Pacific Crest trail passes through the area and a variety of short hikes and drives will provide access to the range of lichen habitats in the area.

The base of operations for the weekend trip will be a CALS member's recreational summer cabin. The cabin is not large but it should provide working room in the evenings, indoor plumbing, and kitchen and barbecue facilities. Camping is available adjacent to the cabin without cost or in two nearby Forest Service campgrounds. The nearby Mount Laguna Lodge provides rooms at moderate rates for less rustic lichenologists, but reservations will be needed.

We will meet Friday evening to set up camp. Saturday and Sunday will be spent on field excursions exploring the lichens of the area and enjoying the beautiful desert views. Day trippers from San Diego are welcome but it is an hour commute one-way. Saturday night we will pull together for a potluck meal. The field trip will officially end Sunday after lunch. Collecting reference specimens for the San Diego County Plat Atlas project will be permitted.

For more information and directions, contact Andrew Pigniolo at ArcheoAndy@aol.com or 858 490-0447.

San Pedro Valley Park, San Mateo Co.
Saturday, Sept. 6, 2003

This 1,150 acre park has three fresh-water creeks, which flow year round through lush valleys: the south and middle forks of the San Pedro Creek and Brooks Creek. They are of particular significance because they provide some of the few remaining spawning areas for migratory Steelhead in San Mateo county.

Join us for a lichen walk through this interesting area. We will learn basic information about lichens and explore the park for common species.

Directions: Coming from the North (San Francisco) or South (San Jose) use Highway 280 to Highway 1. Take Highway 1 South to the city of Pacifica (San Mateo County). Turn east onto Linda Mar Boulevard. Follow Linda Mar Boulevard until it ends (about 2 miles) at Oddstad Boulevard. Turn right on Oddstad. Proceed on Oddstad Boulevard one block to the park entrance.

For more information about the Park, one Website to visit is: http://www.bahiker.com/southbayhikes/sanpedro.html.

For information about the field trip, contact Judy Robertson at jksrr@aol.com or 707 584-8099.

Whiskeytown National Park, Shasta County
October 3-6, 2003

Whiskeytown National Park has nine major plant communities including mineral seeps along Willow Creek, a subalpine meadow at the top of Shasta Bally and old growth forests. CALS will be surveying the lichens present in the Park as well as establishing some long term monitoring plots. During the 3 day weekend, participants will be divided into groups to cover different habitats in the Park. We will be collecting reference specimens and participants will be responsible for identification of specimens collected.

If you are interested in participating in this project, please contact Judy Robertson at jksrr@aol.com

McClellan Ranch Park, Santa Clara Co.
Saturday, Oct. 25, 2003, 10 am

This 23.5 acre park is owned and maintained as a nature preserve by the City of Cupertino. Stevens Creek flows through the park, shaded by western sycamores, black cottonwoods, willows and other riparian trees.

This fertile land was supporting a thriving population of Native Americans when Juan Bautista De Anza camped nearby in 1776. His expedition named the creek there Arroyo San José Cupertino. Today it is known as Stevens Creek, after Captain Elisha Stephens who settled there in 1859. In 1975 it was designated as a Nature and Rural Preserve. Each year thousands of children and adults participate in naturalist-led activities in the park.

Join us for a lichen walk. We will learn basic information about lichens and explore the park for common species.

Directions: McClellan Ranch Park is located in the city of Cupertino, Santa Clara County. Take Highway 85 to the Stevens Creek Boulevard exit in Cupertino. Go west on Stevens Creek for about a mile until it intersects with Stevens Canyon Road. Make a left turn onto Stevens Canyon Road, then proceed for about a third of a mile (heading south), until you see McClellan Road on your left. You may have to drive slowly to find the street sign. Follow McClellan Road about one quarter of a mile, until you see a golf course on your right. At this point slow down; the park will be on your immediate left. There is currently no admission fee.

For more information about McClellan Ranch Park, please call Cupertino Parks and Recreation at 408 777-3120, or www.cupertino.ord/update/rec/facility.html.

For more information about the field trip, contact Judy Robertson at jksrr@aol.com or 707 584-8099.

An Introduction to Crustose Lichens
2003 Darwin Hall, Rm 207, SSU, Cotati, CA
November 15, 2003

Judy Robertson will lead us through a Saturday workshop introducing the beginner to the identification of crustose lichens. Using a 'teaching set' of prepared crustose specimens, participants will learn how to section an apothecium, to identify various kinds of spores, to stain ascus tips, as well as to use keys to identify the specimens. Coffee and tea will be provided. Please bring a lunch.

Again, if you are interested in any of the above field trips or workshop, or would like more information, contact Judy Robertson at jksrr@aol.com, or 707 584-8099.

MSSF Fungus Fair. Look for more information about the Fungus Fair to be held in December 2003 on the CALS Website or the SFMS Website.

In the meantime, CALS members might want to consider helping with the lichen display, which CALS has put together at the Fair for the past dozen years

Ongoing Lichen Identification Workshops

Darwin Hall, Room 207, Sonoma State University. The 2nd and 4th Thursday of every month, 5 pm. to 8:30 pm.

Join us every 2nd and 4th Thursday of each month for these Lichen ID sessions at SSU. We bring our specimens, use the classroom dissecting and compound scopes and a variety of keys to identify them.

We help one another at difficult places in the keys and get feedback about our methods. This is a great time to work on those specimens you have collected but have not had time to ID, those that you have had difficulty identifying or just learning about lichens. We have snacks and enjoy hearing about the latest good collecting spot. There is no cost for our workshops but be prepared to pay a $2.50 parking fee.

Southern California Activities

Information on other field trips and workshops for Southern California is not available at this time. If you are interested, please be sure that your name and email address are on the Southern California distribution list kept by Andrew Pigniolo at ArcheoAndy@aol.com.

Sierra Nevada Activities

There is an informal group that meets every first Saturday of the month in Reno, Nevada, at the home of Eric Peterson. We meet from 10:00 A.M. till 3:00 P.M. and the highlight of the day is a potluck lunch at 12:00 noon. Any interested parties are welcome to join in. Just contact Tamara Sasaki at 530 581-4315 or E-mail to tsasaki@parks.ca.gov.

Announcements

Our Heartfelt Thanks

The California Lichen Society would like to thank our benefactors and donors for 2003. Their support is greatly appreciated and helps in our mission to increase the knowledge and appreciation of lichens in California.

Benefactors:

Charis C. Bratt
Boyd Poulsen

Donors:

Robert Egan
Dana Ericson
Bill Hill
Elisabeth Lay
Donna Maytham
Patti Patterson
Curt Seeliger
Dr. Shirley Tucker

The CALS Reference Collection

The CALS Reference Collection is available to any CALS member to borrow for up to one month. The entire collection or any number of specimens can be loaned. The borrowing member will be responsible for all postage. The specimens in the CALS Reference Collection are:

Acarospora socialis H. Magn.
Alectoria sarmentosa (Ach.) Ach.
Anisomeridium biforme (Borrer) R.C. Harris
Arthonia pruinata (Pers.) A.L. Sm.
Arthonia radiata (Pers.) Ach.
Buellia halonia (Ach.) Tuck.
*Caloplaca cerina (*Hedwig) Th. Fr.
Caloplaca coralloides (Tuck.) Hulting
Candelaria concolor (Dickson) Stein
Candelariella rosulans (Mull. Arg.) Zahlbr.
Chrysothrix candelaris (L.) J.R. Laundon
Cladina rangiferina (L.) Nyl.
Cladonia chlorophaea (Flörke ex Sommerf.) Sprengel
Cladonia firma (Nyl.) Nyl.
Cladonia furcata (Hudson) Schrader
Cliostomum griffithii (Sm.) Coppins
Cyphelium tigillare (Ach.) Ach.
Dimelaena radiata (Tuck.) Hale & Culb.
Diploschistes scruposus (Schreber) Norman
Diplotomma penichrum (Tuck.) Szat.
Evernia prunastri (L.) Ach.
Flavoparmelia caperata (L.) Hale
Graphis scipta (L.) Ach.
Heterodermia leucomelos (L.) Poelt
Heterodermia namaquana Brusse
Hyperphyscia adglutinata (Flörke) H. Mayrh. & Poelt
Hypogymnia imshaugii Krog
Hypogymnia mollis L. Pike & Hale
Hypogymnia physodes (L.) Nyl.
Lasalia papulosa (Ach.) Llano
Lecanora caesiorubella ssp. *merrillii* Imshaug & Brodo
Lecanora confusa Almb.
Lecanora pacifica Tuck.
Lecanora sierrae Ryan and Nash with *Candelariella aurella* (Hoffm.) Zahlbr.
Lecanora stobilina (Sprengel) Kieffer
Lecanora symmicta (Ach.) Ach.
Lecidea tessellata Flörke
Leprocaulon microscopicum (Vill.) Gams ex D. Hawksw.
Leptochidium albociliatum (Desmaz.) Choisy
Leptogium corniculatum (Hoffm.) Minks
Letharia columbiana (Nutt.) J.W. Thomson
Letharia vulpina (L.) Hue
Megaspora verrucosa (Ach.) Hafellner
Melanelia glabra (Schaerer) Essl.
Melanelia subaurifera (Nyl.) Essl.
Nephroma bellum (Sprengel) Tuck.
Nephroma resupinatum (L.) Ach.
Nectria parmeliae (Berk. & Culb.) D. Hawksw.
Ochrolechia laevigata (Rasanen) Vers. ex Brodo

Ochrolechia oregonensis H. Magn.
Opegrapha herbarum Mont.
Parmelia sulcata Taylor
Parmotrema chinense (Osbeck) Hale & Ahti
Parmotrema hypoleucinum (Steiner) Hale
Peltigera collina (Ach.) Schrader
Pertusaria amara (Ach.) Nyl.
Pertusaria flavicunda Tuck.
Pertusaria lecanina Tuck.
Pertusaria texana Mull. Arg.
Pertusaria xanthodes Mull. Arg.
Physcia aipolia (Ehrl. ex Humb.) Furnr.
Physcia clementei (Sm.) Lynge
Physcia millegrana Degel.
Physcia stellaris (L.) Nyl.
Physconia perisidiosa (Erichsen) Moberg
Placidium lacinulatum (Ach.) Breuss
Platysmatia glauca (L.) Culb. & C. Culb
Platysmatia stenophylla (Tuck.) Culb. & C. Culb.
Psora tuckermanii R. Anderson ex Timdal
Punctelia subrudecta (Nyl.) Krog
Pyrrhospora quernea (Dickson) Korber
Ramalina farinacea (L.) Ach.
Ramalina leptocarpha Tuck.
Ramalina menziesii Taylor
Rinodina hallii Tuck.
Sigridea californica (Tuck.) Tehler
Staurothele elenkinii Oksner
Syzygospora physciacearum Diederich
Teloschistes exilis (Michaux) Vainio
Thelomma mammosum (Hepp) A. Massal.
Tremella parmeliarum Diederich
Tuckermannopsis platyphylla (Tuck.) Hale
Umbilicaria phaea Tuck.
Usnea rubicunda Stirton
Usnea wirthii Clerc
Vermilicinia cephalota (Tuck.) Spjut & Hale
Vermilicinia procera (Rundel & Bowler) Spjut
Vouauxiella lichenicola (Lindsay) Petrak & Sydow
Vulpicida canadensis (Räsänen) J. E. Mattsson & M.J. Lai
Waynea stoechadiana (Abbassi Maaf & Roux) Roux & Clerc
Xanthoparmelia cf *cumberlandia* (Gyelnik) Hale
Xanthoparmelia taractica (Kremp.) Hale
Xanthoria fulva (Hoffm.) Poelt & Petutschnig
Xanthoria polycarpa (Hoffm.) Rieber

Contact Judy Robertson at jksrr@aol.com or 707 584-8099 to obtain reference specimens.

The Ryan Reference Collection

Dr. Bruce Ryan of Arizona State University has donated these lichens to the California Lichen Society – "Ryan Reference Collection". A CALS member may borrow any of these specimens for up to one month. The borrowing member must pay all postage costs.

Specimens with a "*" are not listed in the 6th checklist.

The specimens in The Ryan Collection are:

Acarospora fuscata (Schrader) Arnold
Ahtiana sphaerosporella (Mull. Arg.) Goward
Ahtiana pallidula (Tuck. ex Riddle) Goward & Thell
Aspicilia caesiocinerea (Nyl. ex Malbr.) Arnold
Aspicilia mastrucata (Wahlenb.) Th. Fr.*
Bellemerea alpina (Sommerf.) Clauzade & Roux
Bryoria capillaris (Ach.) Brodo & Hawksw.
Bryoria cf. *fuscescens* (Gyelnik) Brodo & D. Hawksw.
Bryoria fremontii (Tuck.) Brodo & D. Hawksw.
Bryoria pseudofuscescens (Gyelnik) Brodo & D. Hawksw.
Buellia erubescens Arnold
Buellia stillingiana Steiner
Calicium glaucellum Ach.
Caloplaca californica Zahlbr.
Caloplaca citrina (Hoffm.) Th. Fr.
Caloplaca holocarpa (Hoffm. ex Ach.) Wade
Caloplaca peliophylla (Tuck.) Zahlbr.
Caloplaca saxicola (Hoffm.) Nordin
Caloplaca squamosa (de Lesd.) Zahlbr.
Caloplaca stellata Wetm. & Karnef.*
Caloplaca subsoluta (Nyl.) Zahlbr.*
Candelaria concolor (Dickson) Stein
Candelariella rosulans (Mull. Arg.) Zahlbr.
Cladidium bolanderi (Tuck.) Ryan
Cladonia carneola (Fr.) Fr.
Cladonia chlorophaea (Flörke ex Sommerf.) Sprengel
Cladonia scabriuscula (Delise) Nyl.
Dendrographa leucophaea (Tuck.) Darbish
Dendrographa minor Darbish
Dimalaena californica (H. Magn.) Sheard
Diploschistes diacapsis (Ach.) Lumbsch
Diplotomma alboatrum (Hoffm.) Flotow
Diplotomma venustum (Korber) Korber
Evernia prunastri (L.) Ach.

Flavopunctelia flaventior (Stirton) Hale
Fulgensia bracteata (Hoffm.) Räsänen
Heterodermia erinacea (Ach.) W.A. Weber
Hypocenomyce castaneocinerea (Räsänen)Timdal
Hypocenomyce scalaris (Ach.) Choisy
Hypocenomyce sierrae Timdal*
Hypogymnia imshaugii Krog
Hypogymnia mollis L..Pike & Hale
Lecanactis californica Tuck.
Lecanactis cf *nashii* Egea & Torrente*
Lecania dudleyi Herre
Lecania fructigena Zahlbr.
Lecanographa dimelaenoides (Egea & Torrente) Egea & Torrente
Lecanographa hypothallina (Zahlbr.) Egea & Torrente
Lecanora argopholis (Ach.)
Lecanora bicincta Ramond
Lecanora bipruinosa Fink
Lecanora caesiorubella Ach. ssp. *merrillii* Imshaug & Brodo
Lecanora campestris (Schaer.) Ach. Hue
Lecanora circumborealis Brodo & Vitik.
Lecanora conizaeoides Nyl. ex Crombie
Lecanora demissa (Flot.) Zahlbr.
Lecanora gangaleoides Nyl.
Lecanora garovaglii (Körber) Zahlbr.
Lecanora horiza (Ach.) Linds.
Lecanora hybocarpa (Tuck.) Brodo
Lecanora kofae Ryan & Nash
Lecanora mellea W.A. Weber
Lecanora mughicola Nyl.
Lecanora muralis (Schreber) Rabenh.
Lecanora novomexicana Magnusson
Lecanora opiniconensis Brodo
Lecanora oreinoides (Korb.) Hertel & Rambold
Lecanora pachysoma B.C. Ryan & Poelt*
Lecanora phaedrophthalma Poelt
Lecanora phryganitis Tuck.
Lecanora polytropa (Hoffm.) Rabenh.
Lecanora pseudistera Nyl.
Lecanora pseudomellea B.D.Ryan
Lecanora semitensis (Tuck.)
Lecanora sierrae Ryan & Nash
Lecanora subcarnea (Liljeblad) Ach.
Lecanora subrugosa (Nyl.) Lumbsch & Feige
Lecanora sulfurescens Fee*
Lecanora tropica Zahlbr.*
Lecanora valesiaca (Müll. Arg.) Stizenb.
Lecanora weberi B.D. Ryan
Lecanora xanthosora B.D. Ryan
Lecidella cf *scabra* (Taylor) Hertel & Leuck
Lecidella euphorea (Flörke) Hertel
Leptogium furfuraceum (Harm.) Sierk
Leptogium hirsutum Sierk
Leptogium tenuissimum (Dickson) Körber
Letharia columbiana (Nutt.) J.W. Thomson
Lobothallia alphoplaca (Wahlenb.) Hafellner
Neofuscelia atticoides (Essl.) Essl.
Niebla homalea (Ach.) Rundel & Bowler
Opegrapha brattiae Egea & Torrente*
Parmotrema hypoleucinum (Steiner) Hale
Pertusaria californica Dibben
Pertusaria hemisphaerica (Flörke) Erichsen
Pertusaria ophthalmiza (Nyl.) Nyl.
Pertusaria tejocotensis de Lesd. *
Physcia tenella (Scop.) DC.
Pseudocyphellaria anthraspis (Ach.) H. Magn.
Ramalina farinacea (L.) Ach.
Reinkella parishii Hasse
Rhizocarpon bolanderi (Tuck.) Herre
Rhizoplaca cavicola Rosentreter & Ryan*
Rhizoplaca chrysoleuca (Sm.) Zopf
Rhizoplaca haydenii (Tuck.) W.A. Weber
Rhizoplaca melanophthalma (DC.) Leuck. & Poelt
Rhizoplaca peltata (Ramond) Leuck. & Poelt
Rhizoplaca subdiscrepans (Nyl.) R. Sant.
Rhizoplaca tubulosa Rosentreter & McCune*
Rimelia reticulata (Taylor) Hale & Fletcher
Roccellina franciscana (Zahlbr. ex Herre) Follm.
Schizopelte californica Th. Fr.
Sigridea californica (Tuck.) Tehler
Teloschistes californicus Sipman
Tephromela nashii Kalb*
Thelomma occidentale (Herre) Tibell
Trapeliopsis wallrothii (Flörke) Hertel & Gotth.
Tuckermannopsis orbata (Nyl.) M.J. Lai
Umbilicaria phaea var. *coccinea* Llano*
Waynea stoechadiana (Abbassi Maaf & Roux) Roux & Clerc
Xanthoparmelia mexicana (Gyelnik) Hale

Contact Judy Robertson at jksrr@aol.com or 707 584-8099 to obtain reference specimens from the Ryan ollection.

CALS Educational Grants Program
$500.00 Available For 2003

CALS offers small academic grants to support research pertaining to the Lichens of California. No geographical constraints are placed on grantees or their associated institutions. The Educational Grants Committee administers the Educational Grants Program, with grants awarded to a person only once during the duration of a project.

Grant applicants should submit a proposal containing the following information:

1. Title of the project, applicant's name, address, phone number, e-mail address. Date submitted.
2. Estimated time frame for project.
3. 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.
4. Description of the final product: We ask you to submit an article to the CALS Bulletin, based on dissertation, thesis or other work.
5. Budget: summarize intended use of funds. If you received or expect to receive grants or other material support, show how these fit into the overall budget.

   The following list gives examples of the kinds of things for which grant funds may be used if appropriate to the objectives of the project:

   - Expendable supplies
   - Transportation
   - Equipment rental
   - Laboratory services
   - Salaries
   - Living expenses

   CALS does not approve grants for outright purchase of high-end items such as cameras, computers, software, machinery, or for clothing.
6. Academic status: state whether you are a graduate student or an undergraduate student.
7. Academic support: one letter of support from a sponsor, such as an academic supervisor or major professor, should accompany your application. The letter can be enclosed with the application, or mailed separately to the CALS Grants Committee Chair.
8. Your signature, as the person performing the project and the one responsible for dispersing the funds.

The proposal should be brief and concise.

The Education Grants Committee brings its recommendations for funding to the CALS Board of Directors, and will notify applicants as soon as possible of approval or denial.

Review

Proposals are reviewed as received, by members of the committee using these criteria: Completeness, technical quality, consistency with CALS goals, intended use of funds, and likelihood of completion.

Grant Amounts

CALS grants are made in amounts of $500.00 or less.

Obligations of Recipients

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

How To Submit An Application

Please email your grant application to:

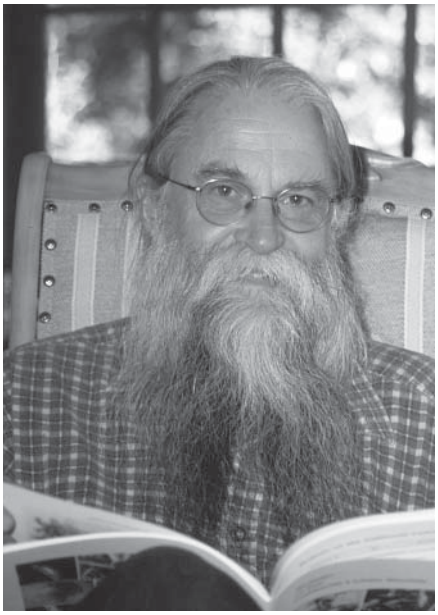
> Lori Hubbart, Chair of CALS Educational Grants Program: lorih@mcn.org

Or mail a hardcopy to:

> Lori Hubbart
> P.O. Box 985
> Point Arena, CA 95468

(Announcements continued on p. 28)

President's Message



The California Lichen Society continues to mature, with each issue of our Bulletin serving as a mile-mark on our journey. Several local study groups that we were talking about starting in previous issues, are now meeting – Southern California with Cherie Bratt and Andrew Pigniolo organizing them, the Reno-Sierra Nevada with people meeting with Eric Peterson, and of course our regular alternate Thursday workshop at Sonoma State University with Judy and Ron Robertson. Mikki McGee has been imparting her knowledge of lichen microscope technique to some enthusiastic members at her place, a few people at a time, with a possible West Bay group forming out of this. There may be other local lichen study groups forming that I don't even know about.

I took my own suggestion to heart and sent an email invitation to several people living near me, and now we have a primordial North Bay group going out on impromptu local Sunday morning lichen jaunts. We even had a few friends and neighbors join us, and they say that now they can't miss noticing the lichens wherever they go. One time I set up my microscopes and lichen books on the tailgate of my car parked by roadside rocks, and we had an instant lichen lab right where the lichens were growing – we could spend a month of Sundays at that one rock, identifying lichens, especially now with wonderful resources available like the "Lichens of North America" by Brodo and the Sharnoffs.

It is heartening to see how the internet is serving as a constant notice about us to the world. New members continually find us these days online through our website, and by people joining our yahoogroup mail list. We could exploit this considerably more than we have, but even using simple e-mail is turning out to be a most useful tool for us. A case in point: Darrell Wright, the founding editor of our Bulletin, now lives in New Zealand where the lichens are bountiful but library resources are more scarce. He emailed me the other day that "Could you go photocopy some articles at the University library and send them to me?" So I went to the library, but rather than photocopy, I scanned the articles into my laptop with my portable scanner and emailed the articles back to Darrell. The megabytes of JPG files nearly choked his e-mail inbox, and I had to send it all in two separate batches. He printed out the pages

on his printer, color illustrations and all, better than photocopy quality he said. It didn't cost us a cent in postage, and I doubt that he could have gotten them more quickly any other way. I can see it coming – chatroom lichen workshops online, comparing webcam photos thru the microscope. Although workshops by remote control may be a thing in our future for those who live far from scheduled workshops and fieldtrips, I still urge you to organize and announce, by email lists and otherwise, your own lichen hikes and gatherings – you may just find a new lichen enthusiast neighbor to collaborate with.

We are also flexing our professional expertise by committing ourselves for further field surveys. Recently we participated in the first fieldtrip of a biodiversity survey of Tomales Bay in Marin County, and there is a potential for doing a lichen survey in Whiskeytown National Recreation Area in Northern California.

Our Conservation Committee has now met in person, and a working structure and procedure is shaping up under the adept guidance of our chairperson Eric Peterson. And we have made some progress in developing a database for members to record their collections. It turns out we find that Daniel George, a new member who is my nearby neighbor, is adept with Microsoft Access. More on that project later. Now to get to that backlog of unidentified lichens.

– Bill Hill

(cont. from p. 26)

Items for Sale

CALS has the following items for sale. Checks should be made out to The California Lichen Society.

1. *A CALS mini guide to some common California Lichens*, text by Janet Doell, photography by Richard Doell. A pocket sized book illustrating 41 lichen species, with an introduction and descriptive notes for each photo. Designed as an introduction to California lichens for anyone interested in the natural world who would like to learn something about lichens. Price $10.00 (tax included), $12.00 if mailed. To order contact Janet Doell at 510 236-0489, or e-mail her at rdoell@sbcglobal.net.

2. CALS lichen poster. This colorful 30″ x 20″ poster features 21 lichens. Photography by Richard Doell. You can see a picture of the poster at the CALS Web site: http://ucjeps.herb.berkeley.edu/rlmoe/cals.html. To order contact Janet Doell as outlined above.

3. Hand Lens. $5.00 (tax included), $7.00 if mailed. These are Waltex 4 × 6 × 10 magnifiers (2 fold out lenses in a single holder; they are superimposed for the highest magnification). To order contact Judy Robertson at 707 584-8099 or e-mail her at jksrr@aol.com.

For lichen identification supplies, including chemical kits, please contact Charis Bratt at 805 682-4726, ext. 152, or e-mail her at cbratt@sbbg.org.

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Fig. 1. *Pseudocyphellaria coronata* (*Wright 7404*), Holdsworth entrance, Tararua Forest Park, New Zealand. 0.5×.
Fig. 2. Thallus of *7404* with tangential sections of cortex removed to show the spotty red pigment at the phycobiont-mycobiont interface. 5×.
Fig. 3. *Pseudocyphellaria episticta* (*Wright 7408*) from within the rainforest near the Waingawa River. 0.7×.
Fig. 4. *Sticta subcaperata* (*Wright 7409*) from near *7408*. 0.6×.
Fig. 5. *Xanthoparmelia scabrosa* (*Wright 7300*) carpeting the edge of a freeway offramp in the Thorndon district of Wellington, the capital of New Zealand. On the fence in the foreground is *X. mexicana* (*Wright 7299*).
Fig. 6. Closeup of the *Xanthoparmelia scabrosa* "carpet".

Pseudocyphellaria, *Sticta*, and *Xanthoparmelia* from New Zealand. See the article by Wright on p. 1. Legend on overleaf.