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The California Lichen Society seeks to promote the appreciation, conservation, and study of the lichens. The focus of the Society is on California, but its interests include the entire western part of the continent. Dues are $18 per year ($20 for foreign subscribers) payable to The California Lichen Society, 1200 Brickyard Way, #302, Point Richmond, CA 94801. Members receive the *Bulletin* and notices of meetings, field trips, and workshops.

The Bulletin of the California Lichen Society (ISSN 1093-9148) is edited by Isabelle Tavares, Shirley Tucker, William Sanders, Richard Moe, and Darrell Wright and is produced by Richard Moe. 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. Manuscripts may be submitted to Richard Moe, Bulletin of the California Lichen Society, University Herbarium, 1001 Valley Life Sciences Bldg. #2465, University of California, Berkeley, CA 94720-2465. The best way to submit manuscripts apart from short articles and announcements is by E-mail or on diskette in WordPerfect or Microsoft Word format; ASCII format is a very good alternative. Manuscripts should be double-spaced. Figures are the usual line drawings and sharp black and white glossy photos, unmounted, and must be sent by surface mail. A review process is followed. Nomenclature follows Esslinger and Egan's Sixth Checklist (The Bryologist 98: 467–549, 1995), and subsequent on-line updates http://www.ndsu.nodak.edu/instruct/esslinge/chcklst/chcklst7.htm. 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 will be provided for a nominal charge. The *Bulletin* has a World Wide Web site at the URL http://ucjeps.herb.berkeley.edu/rlmoe/cals.html.

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Cover: *Vermilacinia laevigata* (Bowler & Rundel) Spjut, from Morro Bay State Park, San Luis Obispo County, California. Photography by Richard Doell.

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Usnea silesiaca and *U. subgracilis* in California

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Although *Usnea silesiaca* Motyka (1930) and *U. subgracilis* Vainio (1915) are unfamiliar species names in North American lichen literature, they were used in the preliminary key to California *Usnea* (Tavares, 1997) published last year in the Bulletin of the California Lichen Society. Despite their unfamiliarity, if they are accepted as synonyms, as proposed by Clerc (1997), they are nevertheless the correct names for the taxa otherwise reported as *U. hesperina* and *U. madeirensis*, respectively.

In a previous article I explained the relationship between these pairs of names briefly (Tavares, 1997); here they are considered in greater depth. The synonymies are listed below, under the correct name of the taxon, and comments are made about the name used by Clerc (1997) for each combined species, together with information on species characteristics and California locality records.

Usnea subgracilis

Usnea subgracilis Vainio, 1915, p. 7 (as cited in Motyka, 1936–1938, p. 562). Jamaica.

synonyms:

Usnea gracilis Ach. var. *subplicata* Vainio, 1915, p. 7 (as cited in Motyka, 1936–1938, p. 558). Jamaica.

Usnea subplicata (Vain.) Motyka, 1937, p. 558 (see Motyka, 1936–1938).

Usnea elongata Motyka, 1937, p. 411 (Motyka, 1936–1938). Chile.

Usnea hesperina Motyka, 1937, p. 383 (Motyka, 1936–1938). Canary Islands.

Usnea hesperina Motyka subsp. *liturata* Motyka, 1937, p. 384 (Motyka, 1936–1938). Northwestern France.

The conspecificity of these taxa was first proposed by Clerc (1997), who adopted a much broader circumscription than that of Motyka. The distinctions by which *U. hesperina* was originally separated from *U. subgracilis* apparently were considered by Clerc to be insignificant when populations rather than individuals were considered. Some of the differences used by Motyka (1936–1938) to separate the two species are discussed below.

Pending extensive studies of structure and distribution patterns of structural variants, I am in general agreement with Clerc about the limits of this species, with the exception of his inclusion of *Usnea schadenbergiana* Göpp. & Stein (1883) in the synonymy. According to my interpretation, based on an isotype from Zurich, Switzerland (ZT is the acronym for that herbarium), *U. schadenbergiana* should be excluded from this synonymy because of chemical and morphological differences from *U. hesperina*: stictic acid and other substances are present (Clerc 1997, and my own unpublished observations), rather than protocetraric acid, and the axis, instead of being uniform in structure, is filled with discolored, swollen, distorted hyphae (Motyka, 1936–1938, p. 414, described the axis as excavate, a condition that may be associated with an irregular arrangement of hyphae in the axis); in addition the cortex is more fragile.

Clerc (1997) used the name *U. hesperina* for the combined species, although he recognized that both *U. schadenbergiana* and *U. subgracilis* have nomenclatural priority. He stated, without providing justification, that he would propose *U. hesperina* for conservation, but so far the proposal has not been published. Subsequent to Clerc's treatment, the name *U. hesperina* was used by Clerc and Herrera-Campos (1997), Halonen et al. (1998), and Herrera-Campos et al. (1998). Nevertheless, I see no compelling reason why *U. hesperina* should be conserved, and therefore continue to use the earliest name, which is the correct one for the combined species *U. subgracilis*.

Usnea subgracilis Vainio was said by Motyka (1936–1938, pp. 556, 562) to be pendent, narrow, and little-branched; a photograph of the type collection (TUR, acronym for the Herbarium at Turku University, Finland)

shows scattered, irregularly arranged, curving fibrils.

Although the original (type) collection of *U. hesperina* is not available (Clerc, 1997), its characters can be deduced from Motyka's description (Motyka, 1936–1938) and from other collections examined by Motyka. The figures given for the cortex, medulla, and axis widths for *U. hesperina* by Motyka (1936–1938, p. 383), if correct, would be closer to 9.1%:27.3%:27.3% than the 9.5%:24%:34% given for the neotype selected by Clerc (1997). Motyka described *U. hesperina* as densely covered with perpendicular fibrils and compared its appearance with *U. longissima*, as well as with *U. subplicata* (Vainio) Motyka, which was put into synonymy with *U. hesperina* by Clerc (1997). Thus, the neotype selected for *U. hesperina* by Clerc differs to some extent from Motyka's description and also from the holotype of *U. subgracilis*, on which Vainio based his species and which was the basis of the extensive description published by Motyka (1936–1938).

Localities given by Halonen et al. (1998) in British Columbia for *U. hesperina* are near the coast on Vancouver Island, and it is to be expected that most of the California material will also have a coastal distribution.

Some California collections are being reported here: Sonoma Co.: Kruse Rhododendron Reserve, D. E. Baltzo 1230, 4.V.1975 (Herb. Baltzo). Mendocino Co.: on *Pinus*?, 2 mi. e. on Little River Rd. from State Highway 1, W. Sanders 97N22.6, 22.XI.1997; on *Pinus*, 5 miles up Little Lake Road from Highway 1 in Pygmy Cypress Forest, J. Lindsay 137, 17.VII.1971 (HSC—Humboldt State Univ. Herb.).

Usnea silesiaca

The same comments can be made here about priority of the earliest species name and conservation as were made above concerning *U. subgracilis*. *Usnea silesiaca* was considered to be conspecific with *U. madeirensis* by Clerc (1997), who used the latter name for the combined species. Clerc stated, without providing justification, that he would propose *U. madeirensis* for conservation. The proposal has not yet been published. *U. madeirensis* was used by Clerc (1991, 1992) and by Purvis et al. (1992), and subsequent to Clerc's publication of the synonymy in 1997, by Halonen et al. (1998). It is possible that further studies of anatomy will show that *U. silesiaca* and *U. madeirensis* should be regarded as distinctly different species. Meanwhile, I shall use the earliest name for the combined species, *U. silesiaca*, accepting Clerc's (1997) opinion as to the limits of this species.

Usnea silesiaca Motyka, 1930, p. 19. Mountains in southern Poland.

synonym:

U. madeirensis Motyka in C. N. Tav., 1964, p. 136. Island of Madeira, off the southwest coast of Europe.

Usnea silesiaca was shown by Motyka (1930) to be pendent with several branches diverging above the base, then converging toward the apex; Motyka (1936–1938, pp. 257, 289) distinguished it from other European species that were about twice as long as broad by the presence of soralia on larger branches and by the narrow (12%), dense medulla.

A photograph of *U. madeirensis* from the original (type) collection in Stockholm (S—Swedish Museum of Natural History) shows a slender, pendent, irregularly branched specimen that is quite different in appearance; Motyka (see C.N. Tavares, 1964) compared its habit to that of *U. dasypoga*, which is today regarded as a synonym of *U. filipendula* Stirton.

Usnea madeirensis was reported for California by Clerc (1991). The localities given were: Marin Co., Point Reyes National Seashore, on *Alnus*, and San Luis Obispo Co., between Baywood Park and Morro Bay, on *Ceanothus*, both localities close to the coast. Localities given for British Columbia (Halonen et al., 1998) were also near the coast (Vancouver Island, Queen Charlotte Islands). To this may be added an additional California collection: on shrubs, mouth of Klamath R., Del Norte Co., I. Tavares 2631, 2.VIII.1978. This specimen is short and divergent, resembling most closely some of the thalli shown in fig. 1b, in Clerc (1991). It is to be expected that most California localities will be coastal, although because *U. silesiaca* was described far from the coast in Poland, inland localities might also occur in California.

Acknowledgements

I thank the directors and curators of the herbaria cited for the privilege of examining the specimens mentioned.

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Editorial Notes on Nomenclature

Lichens receive their scientific names in accordance with the International Code of Botanical Nomenclature (Greuter et al. 1994). The Code is a compendium of rules and examples that are designed to prevent confusion that would result from arbitrary application of names. It has been revised and amplified several times since the first version (DeCandolle's *Lois de la nomenclature botanique*, which was adopted by the International Botanical Congress at Paris in 1867). The most recent version (the Tokyo Code) was published in 1994 following the International Botanical Congress in Japan. The Code is an instrument of consensus. It takes its force from the willingness of botanists around the world to be bound by its rules. The primary tenet of the Code is that each taxonomic entity may have only one correct name. What constitutes a taxonomic entity is a matter of opinion, and taxonomists may differ about the limits (circumscription) of a species and about which genus a species should be assigned to. The correct name, therefore, is partly a matter of opinion and partly a matter of rules.

Valid publication. In order to be available for use, a name must be validly published. The current Code details the requirements for valid publication, two of the most important of which are the designation of a holotype and the provision of a Latin diagnosis.

Type specimens. Since 1935, the Code has specified that a name is based on a specimen—the type specimen, which is associated with the name at the time of its publication—independent of circumscription. Even though the circumscription may vary, the name must stay with the type. According to the current Code, the type must be designated at the time of publication of the name. A type so designated is called a holotype. Because taxonomists of the past did not always designate holotypes, modern taxonomists have the responsibility of rectifying these oversights by selecting type specimens. Selection (lectotypification) of a type specimen (a lectotype) when the author of the name did not designate a holotype is governed by article 9 of the Code. A lectotype must be chosen from among the specimens cited by the author in the original publication of the name. If no specimen can be found, a specimen not seen by the author can be proposed as neotype to guide the application of the name. A lectotypification may be superseded if it can be shown that the lectotype is in conflict with the author's description. Neotypes are automatically superseded if specimens cited by the author are discovered. The term isotype is applied to a duplicate (same locality and date) of the holotype or lectotype.

Priority. The concept of priority of publication is central to the correct application of names according to the Code. If two or more names have been used for what is regarded as a single taxonomic entity, then the name that was published first is correct. The publication date of a species refers to the first publication of the name, not to the date of publication of any transfers of the species to another genus.

Synonyms. Synonyms are different names that have been applied to what is regarded as one taxonomic entity. There are two kinds of synonyms: nomenclatural synonyms and taxonomic synonyms. Nomenclatural synonyms (homotypic synonyms) are names that are based on the same type specimen. Taxonomic synonyms (heterotypic synonyms) are names that are based on different type specimens that are regarded as belonging to the same taxonomic entity. Both kinds of synonyms can be demonstrated with some lichenological history.

In 1859 Tuckerman described a new species from Monterey, California, and placed it in the genus *Cetraria* as *C. californica*. This name is referred to as a basionym, because it forms the basis for combinations (transfers of the species to another genus). Merrill (1910) transferred *C. californica* to *Alectoria* and Thell and Goward (1996) transferred it to *Kaernefeltia* as the type species of a new genus. *Cetraria californica* Tuck., *Alectoria californica* (Tuck.) G. Merr., and *Kaernefeltia californica* (Tuck.) Thell & Goward are thus nomenclatural synonyms since they are all based on the same Tuckerman specimen. In his treatment of *Cetraria californica*, Kärnefelt (1986), following Merrill (1910), included as a taxonomic synonym *Alectoria cetrariza*, a species described by Nylander (1887) from Tillamook ["Tellanock"], Oregon. *Cetraria californica* has nomenclatural priority by 28 years.

The term homonym is sometimes used in connection with synonymy. According to the Code, homonyms are validly published names that are spelled identically and are based on different types. The more recently published of two homonyms ("later homonym") is illegitimate and must be renamed if it is to be used.

Conservation. Stability in nomenclature is a desirable goal, but as long as scientific names reflect taxonomic position, advances in taxonomic understanding will entail nomenclatural changes. Some changes, however, are disadvantageous. For instance, careful monographic work will sometimes reveal that a relatively unknown species is conspecific with and has priority over a well-known species. Conservation is a mechanism established by the Code to promote stability in these cases by allowing names without priority to be considered correct. In order to conserve a name, a formal proposal must be published, and the proposal must be recommended by a special committee and passed by a general vote at a Botanical Congress. Before the Tokyo Code, conservation was applied to names of families and genera and to names of species of economic importance. According to the current Code, however, conservation may be invoked to avoid changes that would be disadvantageous to stability of any family, genus or species name.

The Code is a complex document that is not easy to understand. It is available on line (http://www.bgbm.fu-berlin.de/iapt/nomenclature/code/tokyo-e/default.htm); also available is a tutorial dealing with botanical nomenclature (http://fp.bio.utk.edu/mycology/nom-index.htm) put together by the mycologist Ronald Petersen of the University of Tennessee.

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Richard Moe

Collections from the 1998 Northwest Lichen Guild—CALS Field Trip to the Pilot Rock Area, Siskiyou Mountains, Jackson County, Oregon, May 23, 1998

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Pilot Rock at 1800 m elevation in the eastern Siskiyou Mountains of south central Oregon is a local high point on the elevational isthmus connecting the Klamath/Siskiyou and Cascade ecoregions. This ridge system is also the east-west divide between the drainage of the Rogue River flowing north into Oregon and that of the Klamath River flowing south into California. The area is vegetationally diverse with elements of Cascade, Great Basin, Modoc Plateau, and Klamath floras. Pilot Rock is 21 km SE of Ashland, Oregon, and 145 km from the Pacific Ocean. The midpoint of our trail at the lichen-rich rock outcrops about 0.3 km below the summit was

42.02368°N, 122.5539°W by GPS (Global Positioning System).

Geologic mapping of the area (Beaulieu and Hughes 1977) stopped at an east-west line 6 km north of Pilot Rock, which is thus unmapped, but the rock is known by Dave Wagner to be volcanic (Pilot Rock is a plug) and may correspond to the extensive Tertiary period volcanics (Roxy formation) mapped to the north (see *Caloplaca decipiens* for the occurrence in these rocks of carbonates, normally associated with sedimentary rocks).

The nearest official climatic records with similar altitude (1400 m) are from Howard Prairie Dam 24 km to the northeast with a 28-year average annual precipitation of 968 mm (Oregon Climate Service, date of publication not given). Mapping by Weisberg and DeYoung (1997) on a scale too coarse to precisely locate Pilot Rock shows areas with up to 1500 mm in the vicinity (Dave Wagner estimates that this figure is close to what Pilot Rock receives); mean summer maximum temperature is shown as 78–82°C, mean winter minimum 22–26°C. Snow is constant throughout the winter. Vegetation is a mosaic of open, grassy areas and late successional *Pseudotsuga menziesii* forest, including *Abies concolor* and *A. magnifica*. Within the forest is a lichen community dominated by *Usnea*, *Letharia*, *Platismatia* and *Bryoria*, while at the forest edge relatively xerophytic *Xanthoria* and *Melanelia exasperatula* are prominent on *Sambucus mexicana*.

Land use (Oregon 1978) has included timber harvesting, mostly lower in altitude than our collecting area, and cattle grazing. The area is managed by the U.S. Department of the Interior, Bureau of Land Management, and is now protected from logging.

On Sunday, May 24, guided by David Wagner, some of us hiked the Enchanted Forest Trail in the lowlands near the Applegate River. This area provided mixed hardwoods, meadow and chaparral with a few large conifers (and an abundance of poison oak).

We thank the Bureau of Land Management, Medford office, for granting a collecting permit, Dave Wagner for information on the Pilot Rock area, Wayne Rolle for guiding the field trip, and Isabelle Tavares and Dick Moe for helpful reviews. Veva Stansell reported on this field trip in the last number of the *Bulletin* (Bulletin of the California Lichen Society 5[1]: 22. 1998). We supplement her report with this list of participants: Doris Baltzo, Cheryl Beyer, Bill Hill, Ed Horn, Steven Jessup, Curt Leet, Barbara Mumblo, Peter Neitlich, Ginny Post, Judy Robertson, Wayne Rolle, Carter Rose, Charlene Simpson, Veva Stansell, Gretchen Vos, David Wagner, Darrell Wright, and Stella Yang.

The following list is based on identifications made by Doris Baltzo, Judy Robertson, Steven Jessup, and Darrell Wright. Darrell Wright took the opportunity to examine some of the species (mostly the crustose species) carefully. His observations are presented separately following this list, which is inclusive. In the list, PR = Pilot Rock, AW = Applegate Watershed, DEB = Doris E. Baltzo, JR = Judy Robertson, DW = Darrell Wright, SJ = Steven Jessup

Alectoria imshaugii Brodo & D. Hawksw. —PR(DEB)
Alectoria sarmentosa (Ach.) Ach.—on *Pseudotsuga menziesii* PR(DEB, JR)
Bryoria capillaris (Ach.) Brodo & D. Hawksw. —PR(DEB, JR as *cf. capillaris* on *Pseudotsuga menziesii*, DW)
Bryoria fremontii (Tuck.) Brodo & D. Hawksw.—AW (DEB), PR(JR as *cf. fremontii* on *Pseudotsuga menziesii*)
Bryoria fuscescens (Gyelnik) Brodo & D. Hawksw.? —PR(DW)
Bryoria glabra (Mot.) Brodo & D. Hawksw.—greenish-white soralia PR(DEB)
Bryoria tortuosa (G. Merr.) Brodo & D. Hawksw.—on *Quercus* AW(JR)
Calicium abietinum Pers. on dead snag —PR(JR)
Caloplaca decipiens (Arnold) Blomb. & Forss.; soraliate—PR(DEB, DW)
Caloplaca epithallina Lynge —PR(SJ rock outcrop at crest of open ridge, e of Pilot Rock, on *Rhizoplaca melanophthalma*)
Caloplaca sp.—PR(DW)
Candelaria concolor (Dickson) Stein—PR(JR)
Cladonia fimbriata (L.) Fr.—PR(JR on dead stump, DW)
Cladonia pocillum (Ach.) Grognot—PR(SJ 1762m, N side of rock; ledge and base of cliffs above first talus)
Cornicularia normoerica (Gunn.) Du Rietz—PR(SJ 1800m at summit)
Cyphelium inquinans (Sm.) Trevisan—PR(DW)
Dermatocarpon miniatum (L.) W. Mann—on rocky outcrop PR(JR)
Dermatocarpon reticulatum H. Magn.—PR(DW)
Diploschistes scruposus (Schreber) Norman—PR(DEB)
Esslingeriana idahoensis (Essl.) Hale & M.J. Lai—on conifer PR(JR)
Evernia prunastri (L.) Ach.—AW(DEB), PR(DEB, JR)
Hypocenomyce castaneocinerea (Räsänen) Timdal—PR(DW)
Hypocenomyce scalaris (Ach.) M. Choisy—on burned stump PR(JR)
Hypogymnia enteromorpha (Ach.) Nyl. on dead conifer branch —PR(JR)
Hypogymnia imshaugii Krog— AW(JR) on *Pinus ponderosa*, PR(JR) on conifer branch
Hypogymnia inactiva (Krog) Ohlsson —PR(DW)
Hypogymnia cf. metaphysodes (Asah.) Rass. —PR(DEB)
Hypogymnia tubulosa (Schaerer) Hav.—on *Pinus pon-*

derosa AW(DEB)

Lecanora gangaleoides Nyl. —PR(DW)

Lecanora polytropa (Hoffm.) Rabenh. —PR(DW)

Lecanora rupicola (L.) Zahlbr. —PR(DW)

Lecanora cf. straminea Ach. —PR(DW)

Leptogium lichenoides (L.) Zahlbr.—on moss PR(JR)

Leptogium californicum Tuck. —PR(JR on soil, DW)

Letharia columbiana (Nutt.) J. W. Thomson —PR(DEB, JR)

Letharia vulpina (L.) Hue —PR(DEB, JR on *Pseudotsuga menziesii*)

Lobaria pulmonaria (L.) Hoffm.—on *Quercus* AW(JR)

Lobothallia alphoplaca (Wahlenb.) Hafellner—on rocky outcrop PR(JR)

Melanelia exasperatula (Nyl.) Essl.—PR(JR on dead branch, DW)

Melanelia infumata (Nyl.) Essl.—PR(SJ 1800m at summit)

Melanelia multispora (A. Schneider) Essl.—on dead branch PR(JR)

Melanelia subelegantula (Essl.) Essl.—lobulate isidia PR(DEB, JR on dead branch)

Melanelia subolivacea (Nyl.) Essl. —PR(DW)

Mycocalicium subtile (Pers.) Szat. —PR(DW)

Neofuscelia verruculifera (Nyl.) Essl.—on rocky outcrop PR(JR)

Nephroma helveticum Ach.—on *Quercus* AW(JR)

Nodobryoria abbreviata (Müll. Arg.) Common & Brodo—with apothecia PR(DEB, DW)

Normandina p[illegible]hella (Borrer) Nyl.—AW(DEB on *Peltigera* on moss [illegible]n *Quercus*)

Ochrole[illegible]a cf. farinacea Howard —PR(DW)

Parmelia hygrophila Goward & Ahti—on dead tree PR(JR, DW)

Parmelia saxatilis (L.) Ach. —PR(DEB)

Parmelia sulcata Taylor —AW(DEB), PR(DEB, DW, JR on *Pseudotsuga menziesii*)

Parmeliopsis ambigua (Wulfen) Nyl.—on base of *Pseudotsuga menziesii* PR(JR, DW)

Parmeliopsis hyperopta (Ach.) Arnold on base of *Pseudotsuga menziesii* —PR(JR)

Peltigera cinnamomea Goward on moss —PR(JR)

Peltigera collina (Ach.) Schrader AW(DEB)

Peltigera didactyla (With.) J.R. Laundon —PR(DW)

Peltigera neopolydactyla (Gyelnik) Gyelnik on moss—PR(JR)

Physcia adscendens (Fr.) H. Olivier AW(DEB), PR(DEB, JR on dead *Sambucus*)

Physcia aipolia (Ehrh. ex Humb.) Fürnr. on dead *Sambucus* —PR(JR)

Physcia biziana (A. Massal.) Zahlbr. on rock —PR(JR)

Physcia stellaris (L.) Nyl. on dead *Sambucus* —PR(JR)

Physcia tenella (Scop.) DC. on rocky outcrop —PR(JR, SJ 1755m)

Physconia americana Essl.—on bark PR(JR)

Physconia enteroxantha (Nyl.) Poelt—yellowish soredia and medulla AW(DEB), PR(DEB)

Physconia isidiigera (Zahlbr.) Essl.—on bark PR(JR)

Physconia muscigena (Ach.) Poelt—on rocky outcrop PR(JR)

Physconia perisidiosa (Erichsen) Moberg— AW(JR) on *Quercus*, PR(JR) on *Pseudotsuga menziesii*

Platismatia glauca (L.) Culb. & C. Culb.—upper surface gray-white when fresh, sorediate, on *Pseudotsuga menziesii* PR(DEB, JR)

Platismatia norvegica (Lynge) Culb. & C. Culb.—white below, many lobulate isidia, upper surface green when fresh PR(DEB)

Pleopsidium chlorophanum (Wahlenb.) Zopf —PR(DEB, DW)

Porpidia thomsonii Gowan? —PR(DW)

Pseudephebe pubescens (L.) M. Choisy—on rocky outcrop PR(DEB, JR, DW, SJ 1800m at summit)

Psora nipponica (Zahlbr.) Gotth. Schneider—on rocky outcrop PR(JR)

Ramalina farinacea (L.) Ach.—AW(DEB) PR(DW)

Rhizocarpon distinctum Th. Fr. —PR(DW)

Rhizocarpon geminatum Körber —PR(DW)

Rhizocarpon geographicum (L.) DC. *s.l.*—sparse PR (DEB, DW)

Rhizoplaca melanophthalma (DC.) Leuckert & Poelt— on rocky outcrop PR(JR)

Rinodina cf. cacuminum (Th. Fr.) Malme —PR(DW)

Rinodina confragosa (Ach.) Körber —PR(DW)

Rinodina cf. milvina (Wahlenb.) Th. Fr. —PR(DW)

Tuckermannopsis platyphylla (Tuck.) Hale—on dead branch PR(JR)

Umbilicaria arctica (Ach.) Nyl. —PR(SJ 1485m, on face of low boulder in moist, sloping meadow)

Umbilicaria cylindrica (L.) Delise ex Duby—on rock outcrop PR(JR)

Umbilicaria decussata (Vill.) Zahlbr. —PR(SJ 1755m, w side of rock; ledges and vertical crest of cliff face)

Umbilicaria hyperborea (Ach.) Hoffm.—on rock outcrop PR(DEB, JR, DW, SJ 1580m on rock outcrop at crest of open ridge e of Pilot Rock)

Umbilicaria krascheninnikovii (Savicz) Zahlbr.—on rock outcrop PR(DEB, JR, SJ 1755m, w side of rock; ledges and vertical crest of cliff face)

Umbilicaria phaea Tuck. —PR(DEB, SJ 1580m on rock outcrop at crest of open ridge e of Pilot Rock)

Umbilicaria polyrhiza (L.) Fr. —PR(SJ 1755m, w side of rock; ledges and vertical crest of cliff face)

Umbilicaria torrefacta (Lightf.) Schrader—perforate margins PR(DEB)

Umbilicaria vellea (L.) Hoffm. —PR(SJ 1762m, N side of rock; ledge and base of cliffs above first talus)

Umbilicaria virginis Schaerer —PR(SJ 1762m, N side of rock; ledge and base of cliffs above first talus)

Usnea filipendula Stirton—AW(DEB), PR(DEB, JR on dead conifer branch)

Usnea cf. fulvoreagens (Räsänen) Räsänen—AW(DEB)

Usnea glabrata (Ach.) Vainio—with *U. scabiosa* AW(DEB)
Usnea pendulina Mot. group —PR(DW)
Usnea scabiosa Mot.—AW(DEB), PR(DEB)
Usnea scabrata Nyl. —PR(DEB, DW)
Usnea subfloridana Stirton—AW(DEB)
Xanthoria fallax (Hepp) Arnold—on dead *Sambucus* PR(JR)
Xanthoria fulva (Hoffm.) Poelt & Petutschnig—on bark PR(JR)
Xanthoria polycarpa (Hoffm.) Rieber—on dead *Sambucus* PR(JR, DW as cf. *polycarpa*)
Xanthoria sp—on leafless shrub PR(DW)

Notes on Wright collections

Abbreviations (mostly self-explanatory) are as in McCune and Goward (1995). I add the following: amph = amphithecium, asc = ascus, hyp = hypothecium, subhym = subhymenium, UV = long-wave ultraviolet light. *Wright 6375* through *Wright 6385* are from the same outcrop with localized carbonates.

***Bryoria capillaris* (Ach.) Brodo & D. Hawksw.** *Wright 6373*: on conifer bark, part of a *Bryoria* tangle including *Nodobryoria* and *B. fuscescens*. **Brs** pale brown, uneven, twisted, with both v-shaped (acute) and U-shaped (obtuse) axils. **Pseudocyph** mostly short, some opening in the manner of fissural soralia to reveal a white pruina. **K+** pale yellow (2 tests), C-, KC- (2 tests), PD+ bright yellow (filter paper). Co-chromatography in solvent C (Culberson 1972) of *6373* with *B. capillaris Wright 4773* from Lake Co., California, shows identical chromatograms for both collections, with alectorialic and barbatolic acids only.

***Bryoria fuscescens* (Gyelnik) Brodo & D. Hawksw.?** *Wright 6373c*: on conifer bark, entwined with other *Bryoria* spp. **Brs** uneven, pale brown, matt to somewhat shiny. **Soralia** markedly tuberculate, wider than the branch, **K+** dingy yellow, PD+ yellow (strongly so when a soralium is pressed into filter paper with a plastic toothpick wetted with fresh alcoholic PD). That the spot tests suggest psoromic acid is troubling, since among the North American species only *B. implexa*, a rarity not known south of northern Idaho (McCune and Goward 1995; Brodo and Hawksworth 1977) has this substance. *B. implexa*, however, is pseudocyphellate and has not been reported to have soralia in North America.

***Caloplaca decipiens* (Arnold) Blomb. & Forss.** *Wright 6375*: on HCl+rock. **Th** of sterile rosettes to 7 mm with lobes to 2.5 x 0.6 mm. **Sor** in lip-shaped soralia on tips of short lobes near center of th. Lower cortex lacking (McCune 1994; Purvis et al. 1992). The carbonates responsible for the HCl reaction here, which are normally associated with sedimentary rather than volcanic rocks, would have been deposited as the Pilot Rock volcano was covered by seas which encroached with subsidence of the Continental Plate, the volcano rising again with later uplift (Press and Siever 1974). Dave Wagner also finds calciphile mosses among such volcanic rocks.

Caloplaca sp.* *Wright 6376b: on at most weakly HCl+ rock. **Th** of scanty, slightly roughened, verrucose, orange areoles to 0.2 mm. **Ap** a darker, somewhat dingy red-orange, to 0.5 mm. Marg not excluded in age, its cortex I-. **Hym** 55 µm. **Paraph** with tips to 7 µm. **Asc** to 40 x 16 µm. **Sp** 14 x 5 µm with 3–4 µm septum, ca. 8/asc. This comes close to *C. lithophila* H. Magn. as mentioned by Thomson (1997) under *C. fraudans*. Compare *"C. approximata"* as discussed by McCune (1994, p.14).

***Cladonia fimbriata* (L.) Fries** *Wright 6362*: on moss on dead, fallen, tree trunk. **Th** of wispy "golf tee" podetia with cups slightly wider than podetial support. **Sor** less than 80 µm in maximum diameter (Hammer 1995). **PD+** red. Here considerably further E in southern Oregon than mapped by Hammer.

***Cyphelium inquinans* (Sm.) Trevisan** *Wright 6392*: On conifer trunk. **Th** gray, thick, sublobate-verrucose. Algal layer thick. **Med** pale yellow below ap. **Ap** to 1.1 mm on broad, short stalks. **Sp** 2-celled, oblong, with thick, brown walls and greenish locules (*Rinodina*-like, pale when immature), somewhat indented at the septum, 14 x 10 µm, no surface striation seen. Cortex **K+** dingy yellow, PD+ pale yellow; the immersed, nearly black extension of the hyp into the thalline wart ("stalk") K+ bright red diluting out to yellow (quinone?; anthraquinones are reported from *Thelomma* and a few other genera of Caliciales [Culberson, Culberson and Johnson 1977; Tibell 1984]). The color reaction of the stalk is not mentioned in the literature I have examined, e.g., Thomson (1997), Tibell (1984), Noble (1982). Yellow part of med K+ rusty red, PD-; a yellow pigment has been reported, e.g., in Thomson (1997). Several quinonoid pigments may be present, one in the stalk (perhaps missed because workers seldom section mazaediate ap; sectioned in this case to see the base of the ap in profile) and another in the med.

***Dermatocarpon reticulatum* H. Magn.** *Wright 6383*: on rock. Distinguished from *Umbilicaria* by having dot-like perithecia vs. expanded, gyrose apothecia and from *D. miniatum* (L.) Mann by the densely papillose vs. somewhat smooth lower surface (McCune and Goward 1995; Noble 1982).

***Hypocenomyce castaneocinerea* (Räsänen) Timdal** *Wright 6374*: on uncharred lignum. **Th** of sterile brown squamules with concolorous marg to 1 mm with one side elevated, on which a sorediate lip is formed. Mature soredia are discolored with a black powder (parasitic fungus?). **K**−, C−, KC−, PD− (McCune and Goward 1995; Timdal 1984).

***Hypogymnia inactiva* (Krog) Ohlsson** *Wright 6387*: Fallen in conifer woods. **Th** weakly rugose centrally. **Branching** distinctly isotomic (cf. McCune and Goward (1995, p. 108). **Sor** lacking. **Medullary cavity** dark throughout. Med **K**−, C−, KC+ red, PD− (each test done twice; med faintly PD+ orangish on 1 test), UV+ blue. TLC (solvent C: Culberson 1972) shows that *6387* differs by 2 spots from *H. inactiva* (*Wright 5627*) collected in Marin Co., California, with 4 spots in common, including physodic acid and atranorin. The chromatogram does not exclude hypoprotocetraric acid, as in *H. rugosa*, but *6387* is unlikely to be that species in view of its spot tests and poorly developed rugae. Ohlsson (1973) listed 3 chemical races of *H. inactiva* from British Columbia, Canada, but it is difficult to compare my results with his data from solvent A.

***Lecanora gangaleoides* Nyl.** *Wright 6377*: on at most weakly HCl+ rock. **Th** a light gray, warty areolate crust. **Ap** dull, black, to 2.3 mm, with crenate thalline marg, some disks pruinose and partly pale brown. **Amph** to 150 µm with large, irregular, K-insoluble crystals to 40 µm; amphithecial cortex distinct, to 20 µm. **Epihym** black to faintly greenish (clears to a weak green in KOH), 10 µm. **Hym** 75 µm, upper part I+ turquoise. **Subhym** hyaline, 45 µm. **Hyp** light gray, 140 µm centrally, shallower toward the edge of the disk, gray color not discernible until KOH is drawn under the cover slip. **Paraph** slender with slightly expanded tips, unbranched. **Asc** narrowly clavate, 55 x 17 µm. **Sp** simple, hyaline, ellipsoid, 16 x 9 µm, without visible contents and with 0.8 µm thick wall (water mount), 8/asc. Cortex **K**+ rather bright yellow, C−, KC−, PD+ pale yellow; disk clearly N+ purplish. I had found it earlier on Mt. Tamalpais, Marin Co., California. Although generally coastal, it was found in Yosemite Valley at 1000 m (Brodo 1984); this report extends the range given by Brodo to Oregon and confirms that the species reaches middle elevations in the mountains.

***Lecanora polytropa* (Ehrh. *in* Hoffm.) Rabenh.** *Wright 6381g*: on rock. **Th** crustose, of tiny, smooth, pale yellow, quite convex areoles, prothallus probably lacking. **Ap** waxy pale yellow, appearing lecideine, to 0.4 mm. Part of 1 mature disk is blackening, characteristic of *L. polytropa*. **Epihym** pale yellow (hyaline in K), 15 µm. **Hym** hyaline, 45 µm. **Hyp** 100 µm, hyaline or gray. **Paraph** to 1.5 µm, unbranched, expanded a little at the tips in KOH. **Sp** simple, ellipsoid, hyaline, some with the apices thickened, 11 x 7 µm, wall 0.7 µm, contents +/- granular, ca. 8/asc. **K**−, C−, KC− (or intensifying the pale yellow color of thallus?). Asc but not paraph I+ blue. A common and distinctive boreal species (Thomson 1997, Wirth 1995), which could be mistaken for a *Lecidea*, since the thalline marg lacks algae except at the base.

***Lecanora rupicola* (L.) Zahlbr.** *Wright 6381b*: on rock. **Th** crustose, of whitish areoles to 1.5 mm, prothallus black. **Ap** initially flat, later markedly convex, white pruinose, blue-black, to 1.2 mm with narrow thalline marg, looking almost lecideine. **Epihym** brown above, greenish below, entirely yellow in K, I+ blue. **Hym** hyaline, 65 µm. **Hyp** hyaline, white to naked eye. **Sp** simple, oblong to ellipsoid, 12 x 7 µm with 1 µm wall and faintly granular contents, 8/asc. Cortex **K**+ dingy yellow, C−, KC−, PD+ pale yellow; med I-; pruina of disk K+ pale yellow, C+ yellow. C+ yellow disk characteristic (McCune 1997, p. 14).

***Lecanora* cf. *straminea* Ach.** *Wright 6385*: on rock. **Th** crustose, pale yellow-green with marginal lobes flat to convex, rarely a little concave, areoles and lobes with blackish marg. **Ap** sessile to +/- stipitate ("verengt sitzend") on the small central areoles, to 1 mm with light brown disks which have irregular thalline marg colored like the areoles, including the black to blue edges. **Amph** dark, ca. 160 µm; without crystals in non-polarized light. **Epihym** yellow-brown, strongly bleached by KOH. **Hym** 80 µm, hyaline, upper part I+ blue. **Paraph** mostly unbranched with slightly enlarged tips. **Sp** simple, 11 x 5 µm, wall 1 µm, 8/asc. Clusters of algae extend upward toward the indistinct hyp. Med **K**−, C−, KC−, PD−; cortex K−, slowly C+ yellow, CK+ dingy orangish yellow, PD−. *L. muralis* lacks xanthones (is C−) and has flat to concave lobes. The weakly convex lobes, the unusual black marg of the areolae, and the yellow rather than orange to red reaction with C do not fit the description of *L. straminea* given by Thomson (1997).

Lecidea s.l. *Wright 6389b*: on bark of a leafless shrub, possibly *Sambucus*. **Th** lacking, filmy whitish prothallus (?) abundant. **Ap** to 0.3 mm with pale orangish tan disk (some pruinose) and white, wavy-irregular, proper marg; thalline marg lacking. **Asc** outlines not visible in K, intensely blue in I, with a tapering I+ blue arc across the apex (1000x), agreeing with Thomson's (1997) *Lecidea*-type apex but considerably larger than the arc figured for the *Lecidea*-type in Purvis et al. (1992) and Wirth (1995). **Epihym** pale yellowish. **Hym** 90 µm, with rectangular crystals forming in KOH. **Hyp** hyaline. **Sp** ellipsoid, simple, hyaline, with granular contents, 9 x 5 µm. Disk and marg of ap **K**−, C− (pruinose and non-

pruinose), KC-, PD-; medulla (subhypothecial) C-.

***Lecidea s.l.* (*s.s.*?)** *Wright 6381f*: on rock. **Th** of convex, warty, dark gray, shiny margined areoles to 0.3 mm, prothallus black. **Ap** black, flat to concave (2 seen), lecideine, to 0.3 mm, between and +/- flush with areoles. **Epihym** 20 µm, nearly black above, emerald green below, I+ blue. **Hym** 65 µm, hyaline, possibly with oil drops. **Paraph** slightly expanded at the dark green apex. **Sp** simple (?), narrowly ellipsoid, a few narrowed at 1 end, hyaline, thin walled, 12 x 4 µm, with 1or 2 vacuoles, ca. 8/asc, most asc immature. **K**+ dingy yellow, C-. Med I-. Differs from *Lecidea plana* (Lahm) Nyl. by the darker color and black prothallus (Purvis et al. 1992).

***Leptogium californicum* Tuck.** *Wright 6369, 6370*: moss on rock in open area. **Th** small, sterile with dull, dark brown, erect lobes finely wrinkled toward the apices. Marg of most lobes with flattened, isidia-like projections whose tips are darker than their bases. **Isid** on only a few lobes, in patches, shining, +/- clavate, 50 µm tall. **Cortices** 1-cell thick. **Med** scanty, with hyphae of large diameter. Photobiont cells scattered; only a few chains seen. Goward et al. (1994) indicate in their key that this is a species aggregate; McCune and Goward (1995) consider it doubtfully distinct from *L. lichenoides*. (L.) Zahlbr. The specimens fit reasonably well with Sierk's (1964) description of *L. californicum*.

***Melanelia exasperatula* (Nyl.) Essl.** *Wright 6390*: on bark of a leafless shrub, possibly *Sambucus*. **Th** foliose, pale brown, a few lobes weakly pruinose toward margins. **Isid** fusiform to lobular, ca. 150 x 75 µm, occasionally weakly branched. **Ap** lacking. Medulla **K**-, C-, KC-, CK-, PD-. The swollen, barrel-shaped isid distinguish this from *M. subelegantula* which has cylindrical isid also arising from spherical, non-pseudocyphellate papillae and also becoming lobulate in age (Esslinger 1977).

***Melanelia subolivacea* (Nyl.) Essl.** *Wright 6365*: on bark of *Holodiscus* (?). **Th** foliose, small, dark brown, apotheciate, neither sorediate nor isidiate, without cortical characters except for being minutely rugose centrally. **Sp** 8/asc, globose, 7 µm in diameter. **K**-, C-, PD-. Fits in all details with Esslinger's (1977) account.

***Mycocalicium subtile* (Pers.) Szat.** *Wright 6366*: on dead wood of *Sambucus*. A non-lichenized fungus traditionally treated with the lichens (Wirth 1995). **Th** not evident. No endoxylic photobiont detected. **Ap** black to 0.3 mm on glossy black stalks to 0.6 x 0.05 mm, **K**-, I- in the interior. **Asc** when young appear to project in tubular fashion at the apex, but I see no evidence of an apical canal either in mature or immature asci (note that according to Tibell [1975, p. 22]: "[canal] best seen in Lactic Blue"). The black stalk emerges as red brown after a hard squash. **Sp** brown, simple, ellipsoid to fusiform with a suggestion of flattening, 8 x 4 (-5) µm with surface ornament (visible only when the walls at the sides of the sp are out of focus, i.e., with the focus on the surface of the spore), 8 in each narrow, cylindrical asc, evidently not forming a mazaedium. On the trail Peter Neitlich suggested *Chaenothecopsis* in which paraph are absent (Purvis et al. 1992), but in Wright 6366 paraph are present on a section of the tiny, fragile ap. Sections of the ap must be made dry, because wetting renders the tissue too soft to cut. The distinctions, mostly according to Tibell, are as follows:

Chaenothecopsis	*Mycocalicium*
Ascus apex with narrow canal	Ascus apex without canal
Asci < 50 µm tall (Thomson)	Asci to 65 µm
Paraph absent (Purvis)	Paraph present
Hyphae of stalk interwoven	Hyphae of stalk parallel
Hyphae in center of stalk pale	Hyphae of stalk dark throughout
Spores ellipsoidal–subcylindric	Spores ellipsoidal–subfusiform
Spores not flattened	Spores flattened

One stalk appeared to have interwoven hyphae; in another they were +/- parallel. The stalk with the parallel hyphae had a pale center while that with the interwoven hyphae was uniformly darker throughout, jumbling the characters listed above (both stalks were grossly the same under the dissecting 'scope). Most asci were ca. 50 µm. Purvis et al. (1992) warns about *Mycocalicium subtile*: "Easily confused with *Chaenothecopsis* species in which the ascus apex is penetrated by a narrow canal."

***Nodobryoria abbreviata* (Müll. Arg.) Common & Brodo** *Wright 6373b*: on conifer bark, entwined with Bryorias. **Th** tufted, reddish brown, foveolate. **Brs** not flattened, to 0.4 mm. **Ap** spinulose. Whether the ap should be called lateral or subterminal is unclear, as a number of them have stout brs from the underside of the exciple which continue on to bear more ap. **K**-, C-, KC-, PD-.

***Ochrolechia cf. farinacea* Howard** *Wright 6361*: on trunk of *Pseudotsuga menziesii*. **Th** gray, verrucose. **Ap** to 2 mm, some double in the amphithecial wart,

marg thick. **Epihym** pale orange, pruinose. **Hym** 300 µm. **Hyp** 100 µm, yellow, resting almost on the substrate (pigmentation of the hyp is not mentioned by Brodo (1991), but Howard (1970) gave deep brown for *O. farinacea*, while Verseghy (1962) gave yellowish for *O. szatalaënsis* Verseghy; no subhypothecial algae observed. **Sp** simple, ellipsoid, 30 x 60 µm with granular contents and 2 µm thick wall, ca. 8/asc. **Spot tests**: cortex of verrucae: **C**−, med C+ pink, erratic; marg of ap: cortex C−, med C−; disk and parathecial crown (extension of the proper exciple on the inner side of the thalline marg) C+ yellow; the reaction is clearer on the parathecial crown than on the disk. UV− throughout.

Fits poorly with the species of Brodo (1991), but would seem to be in the *upsaliensis* alliance with *O. szatalaënsis* and *O. farinacea* (the thick, verrucose thallus and sp more than 4/asc seem to rule out *O. szatalaënsis*). The algal pattern, with algae lacking beneath the hyp and a continuous line of them against the outer wall of the amph, might fit with Brodo's type B1 (1991, fig. 3), but the pattern of spot tests with C is not among those described by him: neither of his species with a C+ yellow ascoma (*O. farinacea, O. szatalaënsis)* has a C+ pink thallus. In this connection, Brodo stated it is variolaric acid which is reacting C+ yellow, but J.A. Elix (pers. comm. 1998), who with co-workers verified the structure of variolaric acid (Rana, Sargent and Elix 1975) advises that, in their experience, variolaric acid is C− and agrees that it is more likely the unknown xanthone Ofr-1 that is reacting yellow. I am forwarding material provided by Brodo to Elix for identification of that substance. Note: *szatalaënsis*, for Ödön Szatala (1889-[illegible]rseghy (1930-: vèr-sheh-gee, according to an Hungarian informant).

***Parmelia hygrophila* Goward & Ahti** *Wright 6363*: on bark of dead stump. Like *P. sulcata* but with **isid** which are +/- ecorticate (McCune and Goward 1995).

***Parmelia sulcata* Tayl.** *Wright 6368*: substrate not recorded. **Th** white maculate, lobe tips brown tinted. **Sor** in round to linear laminal soralia (cf. Thomson 1984). **Rhizines** squarrosely branched. **K**+ yellow → deep red.

***Parmeliopsis ambigua* (Wulfen) Nyl.** *Wright 6360*: on trunk of *Pseudotsuga menziesii*. **Th** foliose, very narrow-lobed, yellow-green. **Sor** in laminal soralia. **K**−, C−, KC−, UV+ in med. Could be mistaken for *Xanthoparmelia* if it grew on rock.

***Peltigera didactyla* (With.) J.R. Laundon** (Syn: *P. canina* [L.] Willd. var. *spuria* [Ach.] Schaerer [Thomson 1950]) *Wright 6386*: on moss of soil bank in open area in conifer woods. **Th** foliose, photobiont blue-green. **Lobes** all apotheciate, to 0.9 mm wide with appressed tomentum toward the tips, the margins downturned distally, upturned closer to the center. **Veins** broad, well raised, uniformly pale to the center of the thallus. **Ap** to 5 mm. long. Med **K**−, C−, KC−. Dave Wagner suggested in the field that this was *P. cinnamomea*, but that species has broader lobes, longer apothecia and narrow veins which darken toward the center of the thallus. *Wright 6386* corresponds to *P. didactyla* var. *extenuata* (Nyl.) Goffinet & Hastings, the inland variety which is lobate with woolly rhizines throughout (Goward et al. 1994, p. 103; McCune and Goward 1995, p. 134).

***Pleopsidium chlorophanum* (Wahlenb.) Zopf** (Syn.: *Acarospora chlorophana* [Wahlenb.] A. Massal.) *Wright 6376*: on at most weakly HCl+ rock. **Th** crustose, lemon yellow, with slightly dispersed areoles and small, sinuous, weakly roughened marginal lobes. **Ap** abundant, sessile, nearly concolorous with th, the flat 0.6 mm disks slightly darker than their persistent marg and scarcely brownish. **Epihym** yellow, 20 µm. **Hym** hyaline, 80 µm. **Paraph** capitate. **Asc** clavate, many-spored, to 50 x 15 µm. **Hyp** hyaline, 70 µm. **Sp** ellipsoid to oblong, 4 x 1 µm. **K**−, C− (cortex and med); KC−; UV+ + yellow orange. *Wright 6376* seems intermediate between descriptions of *P. chlorophanum* and *P. flavum* (Bellardi) Körber in Poelt (1969) and Thomson (1997), as *A. chlorophana* and *A. oxytona*. Thomson noted that they are very similar and that Weber (1968) considered them to be the same species.

***Porpidia thomsonii* Gowan?** *Wright 6372b*: on rock. **Th** crustose, of dispersed, +/- swollen whitish areoles with tan marg, to 1 mm, the largest of which have a lobate tendency. Black prothallus extensive. Photobiont green. **Ap** black, flat to convex, lecideine, to 0.8 mm with roughened disc. In 1 larger ap there is a central column of sterile tissue, not apparent at the surface of the disk; another large disk actually has a hole in the center. Cells of exciple ca. 5 µm broad. **Asc** 60 x 25 µm, 2 of them with an apical canal which has deeply I+ blue walls, as in the *Porpidia*-type apex. **Epihym** dark blue-green in water, clearing in KOH in which surface granules become yellow. **Hym** 100 µm, with light blue-green tint in water, clear in KOH. **Paraph** branched and anastomosed, swollen distally and then capitate with dark blue-green tips. **Hyp** brown to golden brown in water, yellow to orange in KOH. **Sp** mostly immature, ca. 8/asc, simple, ellipsoid, with 1 µm wall and 1 large or several small vacuoles, 15 x 6-8 µm. Whitish surface of areoles **K**+ clear yellow, C−, KC−, PD−, UV-. Proper marg and upper hym I+ blue. Med I- in one areole, faintly discolored with I in part of another (nascent ascoma?). Disk not noticeably red with concentrated nitric acid. *Porpidia thomsonii* is known from the Coast Ranges of Mendocino Co. and the Sierra Nevada in Tulare Co., California, the Rocky Mountains of Colo-

rado, and from Alaska and the Canadian Arctic (Gowan 1989).

Pseudephebe pubescens **(L.) Choisy** *Wright 6384*: on rock. **Th** fruticose, tiny, delicate, richly branched, dark brown to black, suggesting a miniature *Bryoria*. **Brs** round, irregularly swollen to 0.2 mm with internodes to 1.5 mm, attached by multiple holdfasts and without tendency to dorsal flattening as in *P. minuscula* (Nyl. *ex* Arn.) Brodo & Hawksw. (McCune and Goward 1995). **Ap** lacking.

Ramalina farinacea **(L.) Ach.** *Wright 6367*: on bark of dead shrub. **Th** fruticose. **Brs** dividing dichotomously, to 2 mm wide. **Sor** in marginal soralia. **K+** slowly and weakly yellow, PD+ red-orange. Seen only once.

Rhizocarpon distinctum **Th. Fr.** *Wright 6381c*: on rock. **Th** crustose, of warty, gunmetal gray areoles to 0.2 mm, prothallus black. **Ap** black, lecideine, mostly flat, a few quite convex, to 0.2 mm. **Epihym** brownish black, partly altering to reddish in KOH. **Hyp** brownish black. **Hym** hyaline, upper part I+ blue, 90 µm. **Asc** clavate, 90 x 20 µm. **Sp** ellipsoid, 22 x 12 µm, 3-5-celled when mature, one end sometimes pointed, terminal cell at broader end divided with a longitudinal wall. Med **PD-**, I+ deep blue. The sp are easily recognized in the illustrations of both Noble (1982, p. 217, fig. 35c) and Wirth (1995, p. 805). Wirth and Purvis et al. (1992) reported stictic acid complex (PD+) in med, but Noble found her material PD- like *Wright 6381c*.

Rhizocarpon geminatum **Körber** *Wright 6372a*: on rock. **Th** crustose with 0.2 mm brown areoles, sometimes with paler marg. **Ap** sessile, black, lecideine, to 0.7 mm with flat, roughened disks and glossy, finely radially striate proper marg. **Epihym** brownish red (KOH mount). **Hym** hyaline, 100 µm. **Hyp** dark brown. **Asc** broadly clavate. **Sp** 2/asc, dark greenish to brown, ca. 25-celled, oval to clavate, 36-55 x 25 µm, with botryose appearance (the cells produce bulges in the sp wall). Spot tests difficult due to thinness of the thallus, but med **K-**, C-, probably KC-, PD-. Intra-ascomatal structures I-. The species is distinctive and a good match for the color photo in Wirth (1995, p. 810).

Rhizocarpon geographicum **(L.) DC.** ***s.l.*** *Wright 6381*: on rock. **Th** crustose, of flat to slightly convex, pale chartreuse areoles to 1.0 mm, prothallus black. **Ap** between the areoles, plentiful, somewhat sunken, black lecideine to 0.7 mm, proper marg brown. **Epihym** black, pale red-brown in KOH-mounted section, 25-30 µm. **Hym** brownish, 105 µm. **Hyp** hyaline, I+ blue. **Sp** broadly elliptic, irregularly muriform with 6–10 cells, greenish, (brown in KOH) 22 x 13 µm; 4–6(?)/asc. UV+ orange. *R. geographicum s.l.* of Ryan's (1988) key.

Rinodina cf. cacuminum **(Th. Fr.) Malme** *Wright 6385b*: on rock. **Th** crustose, black to brown with small roughened areoles. **Ap** black, to 0.4 mm, marg concolorous with th, the thalline marg sometimes poorly developed and then appearing lecideine but clearly showing algae in section. **Asc** clavate, 70 x 30 µm. **Epihym** brown. **Hym** 100 µm, hyaline, I+ blue. **Paraph** mostly unbranched, dilated apically with dark brown caps to 1.5 µm. **Hyp** 60 µm, hyaline. **Sp** brown with 2 thick-walled cells, 19 x 10 µm, ca. 8/asc, some with a single equatorial pigment band which is indistinct over the center of the sp, without tendency to form a porus; surface ornament not seen (1000x). Med very scanty, **K-**, C-. This collection is closer to descriptions of *R. milvina* than *Wright 6381e* (see below). *6385b* has larger sp than *R. cacuminum* without evident ornament. Although Thomson (1997) did not mention a roughened surface for the areoles of *R. cacuminum*, Poelt and Vězda (1981) did.

Rinodina confragosa **(Ach.) Körber** *Wright 6381d*: on rock. **Th** crustose, of gray areoles 0.2 (-0.6) mm, prothallus black. **Ap** resting on a thick algal layer, to 0.6 mm with flat to slightly convex black disks with gray, crenate, radially striate thalline marg. **Amph** with outermost part green in KOH. **Epihym** dark to lighter brown with yellow areas. **Hym** hyaline, 70 µm, I+ blue. **Sp** 21 x 9 µm, 2-locular with thick walls, non-halonate, 8/asc, brown in the asc, lighter brown to greenish outside. Inner edge of outer sp wall I+ red, no surface ornament seen (1000x). Cortex **K+** yellow, C-, KC-, PD+ pale yellow, suggesting atranorin. The apothecial anatomy is remarkably like that in *Wright 6381e,* while th and ap appear very different externally.

Rinodina cf. milvina **(Wahlenb.) Th. Fr.** *Wright 6381e*: on rock. **Th** of roughened black to brown areoles to 0.3 mm. **Ap** to 0.3 mm with flat to concave orange-brown disks with shiny black marg, the inside edges of which form a white, finely granular line. Thalline marg 150 µm with wide algal layer. **Epihym** dark brown, 10 µm. **Hym** 90 µm, hyaline below, golden brown in the uppermost 5–10 µm, without oil drops. **Subhym** hyaline. **Hyp** gray. **Paraph** +/- branched with brown tips expanded to 4 µm. **Asc** clavate, 70 x 20 µm. **Sp** appear to be *Physcia*- or perhaps *milvina*-type (see Purvis et al. 1992), mostly straight, 2-celled, 20 x 10 µm, with brown walls and greenish cells at maturity (KOH mount), 8/asc; inner wall unequally thickened, outer wall not thickened at apices, lacking transverse bands at all observed stages of development, no surface ornament seen (1000x). Med **K-**, C-, KC-. Could be placed with *R. milvina* except for the distinctive concave, orange-brown disks and lack of finely warty sp ornament (Poelt and Vězda 1981). Although all other available references report black disks, Thomson (1997)

reported brown and black.

***Umbilicaria hyperborea* (Ach.) Hoffm.** *Wright 6379, 6380*: on rock. **Th** monophyllous-foliose with non-reticulate rugae centrally and attenuated rugae at the marg resembling papillae and apparently not accounted for in Llano (1950). **Lower cortex** brown to blackish, erhizinate, finely roughened but without plates.

Unknown* *Wright 6378: on rock. **Th** crustose with flat, grayish white areoles to 0.8 mm, prothallus not seen. **Amph** without crystals. **Ap** strongly clustered, jet black, lecideine, with stipe 1 mm long. What appear to be nascent ap are immersed. The concolorous marg are distorted into a wavy state by pressure from the clustering. **Epihym** green. **Hym** hyaline to pale brown, 55 µm. **Paraph** branched. **Asc** with scarcely differentiated spores, even in the largest ap. **Hyp** pale brown to red-brown. Cortex and med **K**+ yellow, C−, KC−, PD+ pale yellow; med I−. The random access LIAS key (Rambold 1995) suggests *Buellia* and *Rhizocarpon.* Stipitate condition of ap striking.

Unknown *Wright 6382*: on rock. **Th** +/- crustose, of heaped, thick, wavy-distorted, often concave and/or foveolate, glossy pale brown, squamiform areoles. **Ap** abundant, dark brown at maturity, to 3.5 mm, mostly covering squamules and taking their outline from them. Ap, when immature, have a distinct, somewhat elevated marg which is concolorous with the areole and has algae in the basal part, extending beneath the hypothecium. Marg mostly excluded at maturity. **Epihym** brownish yellow. **Asc** with clearly I+ blue tholus. **Hym** hyaline, 50 µm, I+ blue in upper part. **Hyp** hyaline, of hyphae parallel with the breadth of the ap. **Amph** blue-gray in lower part. **Med** thick, crumbly. **Paraph** slightly expanded at apices. **Sp** simple, with what appear to be several irregularly shaped vacuoles, ellipsoid, 11 x 5 µm, tapering slightly at the apices, ca. 8/asc (asc mostly immature). **K**−, C−, KC− in both med and on disk; disk probably nitric acid -; epihym and upper hym I+ blue.

***Usnea pendulina* Motyka** group, *Wright 6364:* on bark of small tree. **Th** pendulous, 13 cm long. **Brs** with some inflation. **Base** strongly blackened. **Sor** lacking. **Papillae** thin and low except at base where they reach 50 µm in height. **Fibrils** slender, short, widely spaced. **Foveolae** present. **Cortex** 11%, pale greenish yellow. **Med** 24%, of very lax, radiating hyphae. **Axis** 30%, white. **K**+ yellow → red-orange at axis-med interface, PD+ orange-yellow. Det. I. Tavares.

***Usnea scabrata* Motyka** *Wright 6388*: fallen in conifer woods. **Brs** pendent, apices fasciculate. **Papillae** blunt, broad, abundant, joined in a few areas by longitudinal ridges. **Fibrils** small, weak, rarely clustered. **Sor** lacking. Only a few of the typical, deep, broad edged **rugae** are present. **Cortex** 6%; **med** 19%, loose; **axis** 50%, white. Med **K**+ yellow → deep orange. Det. I. Tavares.

***Xanthoria cf. polycarpa* (Hoffm.) Th. Fr.** *Wright 6389*: on a leafless shrub, possibly *Sambucus*. **Th** foliose with lobes +/- elevated from substrate, < 0.7 mm wide (?). It is unclear to me from Lindblom's paper where the lobes measurements, critical for her key, are to be made. **Lower cortex** well developed back of the lobe tips, attached with what may be hapters (dilated apically but not clearly footed) rather than short rhizines (Lindblom 1997). **Sor** lacking. **Hym** 120 µm. **Ap** to 1.3 mm. **Pyc** not seen. **Sp** 17 x 9 µm with 7 µm septum, broadly and bluntly ellipsoid. In McCune and Goward (1997) *Wright 6389* and the following collection, *Wright 6391*, would key to *X. polycarpa* (Hoffm.) Th. Fr. Sp measurements for *6389* suggest *X. hasseana*; while the elevated, +/- rounded rather than flattened lobes suggest *X. polycarpa*; shape of the conidia, if pycnidia could be found, should decide between the two.

***Xanthoria* sp.** *Wright 6391*: on a leafless shrub, possibly *Sambucus*. **Th** foliose. **Lobes** flat, < 0.7 mm wide (?). **Sor** lacking. **Ap** to 0.7 mm (wetting makes them too soft to section). **Hym** 120 µm. **Sp** 17 x 8 µm with long, 7-8 µm septum, more narrowly ellipsoid and pointed than in *Wright 6389*, 8/ascus. Only 2 **pyc** seen on 8 small thalli, the one sectioned without conidia. Sp measurements suggest *X. hasseana*; the short, apically dilated rhizines suggest *X. polycarpa*; neither of these, however, has a 120 µm hym (Lindblom 1997). Listed separately from *Wright 6389* because, although the measurements are mostly the same for both, it does not *look* like *6389*: it is flatter, the lobes are more dilated distally, and the ap are much smaller.

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Field Trip to Brushy Peak Regional Preserve, Livermore Area Recreation and Parks Department
Saturday, April 25, 1998

Bill Hill, Doris Baltzo, Mikki McGee, Susan Crutchfield, and Judy Robertson, members of the California Lichen Society, met with Sharon Peterson of Livermore Area Recreation and Parks District for an observation trip to the Brushy Peak Regional Preserve. The LARPD is formulating preservation and management policy for the site and our purpose was to compile a list of lichens observed, to assess the present status of lichens in the Preserve, and to give advice about how best to maintain the rich lichen flora present.

The area consists of rolling hills with slopes covered with grass and scattered *Quercus lobata*. Rock outcrops, which culminate in Brushy Peak, are primarily sandstone often showing strong wind erosion. The outcrops are host to a rich lichen flora. We spent most of the day around the perimeter of one outcrop approximately 30 feet in diameter with lichens covering over 75% of the formation. The outcrop was of very soft, poorly cemented sandstone of medium sandy-tan color. It crumbled easily, at the slightest touch in some cases. Clearly, the lichens present were instrumental in helping to stabilize the substratum. If the pristine condition of this lichen habitat is to be preserved, some provision for limiting public access will indeed be necessary.

After lunch we proceeded to the northwest slopes of the peak to examine a relatively level area of sandstone with embedded cobbles. This sandstone was much firmer than the sandstone explored in the morning but with a very similar flora. Fenceposts and the few oaks and buckeye nearby all exhibited the expected assemblages of corticolous and crustose species.

The following list of lichens observed and collected at the site is based on a list submitted to the LARPD. We recommended limiting access to Brushy Peak Regional Preserve in order to preserve the rich lichen flora present, to prevent further erosion of the sandstone formations, to maintain the site for air quality studies as development continues to surround the area, to educate the public about the uniqueness of lichens, and to preserve the beauty of the chartreuses and oranges, browns, greens and grays that "paint" these lovely rock formations.

Acarospora schleicheri (Ach.) A. Massal.—Gold yellow thallus without a lobate margin (sandstone) 980425. 1250 JR

Acarospora sp.—Medium brown, dull, irregular squamules (sandstone) 11724h DEB

Acarospora sp.—Dark brown, shiny, rounded squamules (sandstone) 11723j DEB

Aspicilia sp.—Brown-white thallus (sandstone) 11723d DEB

Aspicilia sp.—Dark gray thallus (sandstone) 11723l DEB

Aspicilia sp.—Black thallus (cobblestone) 11731 DEB

Buellia badia (Fr.) A. Massal.—Brownish black, irregular, squamulose thallus with black apothecia, brown, septate spores (sandstone) 980425.1232 JR

Buellia sp.—Olive brown thallus, black convex apothecia 11721e DEB

Caloplaca cf. bolacina (Tuck.) Herre —Orange granular to squamulose thallus, orange apothecia with concolorous rim (sandstone) 980425.1303 JR

Caloplaca cf. cerina (Ehrh. ex Hedwig) Th. Fr.—Grayish white thallus, small orange apothecia with gray thalline rim (corticolous) 980425.1110 JR

Caloplaca cf. impolita Arup —Yellow-orange thallus with lobed margin (sandstone) 980425.1327 JR

Caloplaca cf. lobulata (Flörke) de Lesd. (sandstone) 11730a DEB

Caloplaca cf. saxicola (Hoffm.) Nordin —Orange thallus, lobed margins (sandstone) 980425.1244 JR

Caloplaca sp.—Sorediate 11732d DEB

Caloplaca sp.—Dark thallus 11722f DEB

Caloplaca sp.—Medium orange, granular to smooth thallus; apothecia deep orange with pale margin (on *Quercus*) 11721b DEB

Candelaria concolor (Dickson) Stein—Bright lemon yellow, foliose thallus (corticolous) 11723i, 11730c DEB: BP 1513 JR

Cladonia cf. pyxidata (L.) Hoffm.—Podetia short and low with fine granular surface 11722h DEB: BP 1454 JR

Dermatocarpon miniatum (L.) W. Mann —Umbilicate gray thallus, dotted with black perithecia (sandstone) BP 1456 JR

Diploschistes scruposus (Schreb.) Norm.—Whitish crust with urceolate black apothecia (sandstone) 11728a DEB

Flavoparmelia caperata (L.) Hale —Yellow green foliose thallus with diffuse laminal soredia (*Quercus lobata*) BP 1333 JR

Flavopunctelia flaventior (Stirton) Hale—Greenish yellow pseudocyphellate thallus with laminal and marginal soralia (*Quercus lobata*) BP 1120 JR

Lecanora muralis (Schreber) Rabenh.—Greenish to yellow thallus with lobate margins, apothecia with brown discs (sandstone) 11726c, 11732a DEB: 980425.1332 JR

Lecidea cf. atrobrunnea (Ramond ex Lam. & DC.) Schaerer —Brown squamules with whitish rim, black

apothecia (sandstone) BP 1202 JR

Lecidea sp.?—Dark brown squamules, black apothecia, pale exciple, spores 4.8–6 x 14.4–16.8μm (sandstone) 11727a DEB

Lecidea sp.—(cf. *L. fuscoatra* (L.) Ach. or *L. atrobrunnea* or *L. mannii* Tuck.) (sandstone) 11723g DEB

Lecidea sp.—Brown, rounded areoles becoming squamulose, black, clustered apothecia to 4 mm across (sandstone) BP 1156 JR

Lecidea sp.—Grayish white squamules with crenate, clustered, shiny black apothecia (sandstone) BP 1139 JR

Lepraria sp.?—Bluish gray, leprose thallus (sandstone) 980425.1315 JR

Parmeliella cyanolepra (Tuck.) Herre—Steel-blue minutely granular thallus with small apothecia (sandstone) 980425.1307 JR

Peltula bolanderi (Tuck.) Wetmore —Thin, lobed squamules with immersed apothecia (on cobblestone) BP 1500 JR

Phaeophyscia cf. hirsuta (Mereschk.) Essl.—Dark gray thallus with labriform soralia 11732b DEB

Physcia adscendens (Fr.) H. Olivier —Small, pale gray thallus with long marginal cilia and helmet-shaped sorediate lobe tips (*Quercus*) 980425.1107 JR

Physcia callosa Nyl.—Whitish-gray thallus with marginal soredia (sandstone) BP 1124 SC

Physconia enteroxantha (Nyl.) Poelt —Whitish gray thallus with yellowish soredia 11722g DEB

Physconia isidiigera (Zahlbr.) Essl.—Heavily pruinose, brownish thallus with squarrose rhizines on under surface (*Quercus lobata*) 980425.1334 JR

Placynthium sp.—Black, isidia-covered squamules, photobiont blue green (on cobblestone) JR

Pleopsidium cf. chlorophanum (Wahlenb.) Zopf —Lemon yellow to chartreuse thallus with medium narrow marginal lobes, apothecia dark (sandstone) 11724i DEB

Psora sp.—11723a DEB

Punctelia subrudecta (Nyl.) Krog —Mineral gray thallus with pseudocyphellae on the upper surface, light lower surface (*Quercus lobata*) BP 1333 JR

Punctelia stictica (Duby) Krog —Brownish thallus with prominent white pseudocyphellae (sandstone) BP 1333 JR, 11722c DEB

Ramalina puberulenta Riefner & Bowler—Tiny, cushion-like fruticose thallus with tiny hairs (sandstone); note that *R. puberulenta* was reported only on bark (Mycotaxon 52: 248. 1994) 11723b DEB

Rinodina cf. tephraspis (Tuck.) Herre —Brownish gray areoles, apothecia with black disc, thalline rim concolorous with thallus; brown, 1-septate spores (sandstone) 980425.1250 JR

Tephromela atra (Hudson) Hafellner—Thick, white thallus, apothecia with white rim and shiny black disc (sandstone) 11722i DEB: 980425.1209 JR

Thelomma cf. occidentale (Herre) Tibell—Brownish-gray thallus, spores in mazaedium (fencepost) 980425.1442 JR

Trapeliopsis cf. *wallrothii* (Flörke) Hertel & Gotth. Schneider —Grayish-white squamulose thallus with black, pruinose apothecia (sandstone) 980425.1135 JR

Umbilicaria polyphylla (L.) Baumg.—Dark brown umbilicate thallus with dissected margins (sandstone) 980425.1232 JR 11724k DEB

Xanthoparmelia mexicana (Gyelnik) Hale—Yellowish green thallus densely covered with isidia (cobblestone) 980425.1457 BH

Xanthoparmelia cf. novomexicana (Gyelnik) Hale—Yellow-green thallus, apothecia common, light underside, medulla K- (sandstone) BP 1252 JR

Xanthoparmelia sp.—Yellow-green thallus, no apothecia 11724b DEB

Xanthoria candelaria (L.) Th. Fr.—Minutely fruticose-appearing yellow-orange thallus with soredia (*Quercus*) 980425.1110 JR

Xanthoria parietina (L.) Th. Fr.—Yellow-orange thallus with wide lobes (*Quercus*) 980425.1110 JR

Xanthoria tenax (L.) Lindblom —Yellow-orange pruinose thallus frequently with apothecia (*Quercus*) 980425.1110 JR, 11724e, 11721a DEB

List compiled by Judy Robertson, text by Bill Hill, Mikki McGee, and Judy Robertson

California Lichen Conservation and CALS

The Board Members of the California Lichen Society have appointed me to represent CALS on issues relating to conservation. My role will be to actively educate, inform, cajole, suggest, encourage, and (when all else fails) threaten responsible agencies to consider lichens when regulating projects. I am willing to act as Conservation Chairman to further the conservation goals of CALS. Anyone interested in helping me on the CALS Conservation Committee is very welcome and encouraged. I look forward to your ideas and input.

I am a botanist (and student of lichenology for the past 15 years, with more serious study over the last 5 years), receiving a BA in Environmental Studies and Geography from UCSB. I have been a full-time environmental consultant (David Magney Environmental Consulting, Ojai) since 1986. I have been active in the California Native Plant Society (CNPS) since the early 1980's, serving as a Director-At-Large (1989–1991), President (1991–1994), Vice President-Conservation (1994–1995), Vice President-Legislation (1995–1996), Chairman of the Wetlands Conservation Committee, and Chairman of the Caltrans Committee. I have been conducting lichen surveys throughout California on various projects related to the California Environmental Quality Act (CEQA), often with the much-appreciated help of Charis Bratt.

Pursuant to the California Environmental Quality Act, all development projects that require discretionary approvals from state and local public entities must consider the impacts that a proposed project would have on the environment. The word "environment" is all-inclusive and includes lichens as well as other life forms. Fortunately, just the threat of a lawsuit can be enough to keep the preparers of CEQA review documents from ignoring environmental issues of concern to the public and groups such as the California Lichen Society (CALS).

The California Native Plant Society (CNPS) has been very successful over the years in forcing agencies responsible for preparing the CEQA documents to consider project-related impacts on California's native flora. Most recently CNPS sued the Ventura County Board of Supervisors in Superior Court for failing to adequately evaluate project-related impacts on lichens for the Camarillo Regional Park. The Environmental Impact Report (EIR) consultants for the county never conducted any surveys of the lichen flora at the project site, nor did they evaluate indirect impacts the project would have on the lichen flora. The judge ruled that the project EIR was indequate according to CEQA and ordered the county to conduct a survey of the lichens and evaluate fully the impacts the project might have on the lichens. I believe this was a "first" in California.

The California Lichen Society must work toward the goal of convincing agencies that they should consider and evaluate California lichens. As an organization, our word could have considerable weight when we wish to be heard on our lichen flora. We should start work on a list of California Rare and Endangered Lichens, patterned after the Inventory of Rare and Endangered Vascular Plants of California, researched and published by the California Native Plant Society, now in its fifth edition. This publication is the primary authority that is referred to when impacts on the California flora are considered in the California Environmental Quality Act review process.

I have taken it upon myself to draft a Preliminary List of California Rare Lichens, which is now being circulated among selected California lichenologists for review. After the list has been reviewed and edited, it will be submitted for publication in the *Bulletin*, making it available when we want agencies to consider the impacts that a project might have on lichens. This list will be updated as new information about rare California lichens comes to my attention. CALS may also consider adopting policy statements about conserving lichens and how surveys and evaluations should be conducted, as has been done by the California Native Plant Society and the California Botanical Society. Another task would be to petition the California Fish and Game Commission to list California rare lichens as threatened or endangered. Two taxa come to mind that are deserving of protection under the California Endangered Species Act: *Cladonia firma* and *Sulcaria isidiifera*, both occurring in the Los Osos/Baywood Park area of Morro Bay. Listed species get much more attention than rare species that are not listed, so it is important to obtain official listing as soon as possible for those taxa deserving such protection. I am interested in receiving your input about rare lichens wherever they occur in the State.

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NEWS AND NOTES

1999 dues

Very reluctantly the CALS Board has voted to increase dues to $18.00 per year for regular members and $20.00 per year for foreign members. We do not want to compromise the excellent quality of the *Bulletin*; however the existing dues barely cover the cost of printing and postage. We are hoping each of you will continue to support CALS. The student and hardship fee will remain unchanged. For your convenience we have enclosed an envelope for returning your dues and would appreciate your payment by March 1.
Thank you.

Donors and Sponsors

We would like to recognize the following DONORS and SPONSORS of CALS for 1998.

Mark Boyll
Charis Bratt
Irene Brown
Dr. C.F. Culberson
Bill Hill
Lori Hubbart and Greg Jirak
Barbara Leitner
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Donna Maytham
Edith McAbier
Dr. J.F. Fraser and Helen Muirhead
Dan Norris
Ronald Robare
Elizabeth Rush
Judith Sakrison
Jim Shevock
Jacob Sigg
Shirley Tucker
Stella Yang and Steven Buckout

Mushroom Fair December 5–6, 1998

Lichens of the Bay Area was the theme for the CALS exhibit at the Mushroom Fair held in the Presidio Exhibition Hall. Richard and Janet Doell explored the Bay Area for lichen growth on unusual substrates in unusual places and displayed their finds through photography. With telescopic views from boats to bunkers and closeups of the lichens found, they took us from Redwood City to Marin County, Point Richmond to the coastline. Janet also gave a slide presentation both days which was well attended and stimulated lots of questions. Another highlight was the three microscopes set up and manned by Bill Hill. Both children and adults were awed by the world of algae and spores. Also helping at the display were Susan Crutchfield, Barbara Lachelt and Judy Robertson.

CALS Workshops held at San Francisco State University, Hensill Hall, 10a.m. to 4 p.m.

September 26, 1998

CALS members delved into the genus *Xanthoria* this day. Using Louise Lindblom's *Xanthoria* key (J. Hattori Bot. Lab. 83:75–172. 1997, reviewed in Bull. Calif. Lichen Soc. 4:28) we had the opportunity to use *Xanthoria* specimens identified by Dr. Lindblom and loaned to us from the Santa Barbara Museum of Natural History herbarium to help identify our own collections. Although we did not have time to look at the SFSU collection, one of our goals in these workshops is to confirm and update the specimens housed there and to identify unsorted specimens.

October 24, 1998

This day focused on microscopy. An excellent presentation was given by Mikki McGee. Starting from the basics and with "hands on" demonstrations, Mikki explained each step necessary to get the best resolution possible from any microscope, whether a homemade, student, or more costly model. She explained the features to look for in purchasing a 'scope or parts of one. We then moved on to techniques for mounting and staining specimens. Mikki explained the various stains and their best uses. With many literature references this workshop was invaluable to those attending.

November 21, 1998

The family Physciaceae was the topic of this workshop. We spent the morning looking at *Physcia* specimens and using various keys to distinguish common species. In the afternoon we used Dr. Theodore Esslinger's unpublished key to *Physconia* in California to identify our own specimens as well as ones from the SFSU Herbarium. In the time remaining, we briefly reviewed the genus *Phaeophyscia*. Charis Bratt from Santa Barbara drove north to join us. She brought *Physconia* specimens identified by Dr. Esslinger as well as other representative specimens from the Santa Barbara Herbarium.

We would like to thank Dr. Dennis Desjardin of the Biology Department for making the classroom available at San Francisco State University. We have enjoyed using their new dissecting 'scopes and having convenient access to the herbarium. Thanks also to Dr. Esslinger for providing his *Physconia* key for us to try out.

Volunteers Wanted

GRANTS. Do you have experience writing grant proposals? Funds that could be obtained through grants could be used to cover costs of printing the *Bulletin*, sponsoring lichenologists to travel to California for seminars or workshops, funding lichen conservation projects, printing local lichen guides—the sky's the limit. If this is your special talent or if you have always wanted to try it, please contact Judy Robertson at 707-584-8099 or JKSRR@aol.com.

CALIFORNIA LICHEN POSTERS. CALS has lots of beautiful posters for sale. Would you be interested in contacting nature stores, state and local park stores, botanical gardens and other possible state and local organizations for selling these posters? Please contact Janet Doell at 510-236-0489 or doell@slip.net if you are interested.

USNEA LONGISSIMA STUDY. Darrell Wright and I would like to repeat the notice which appeared in the CALS *Bulletin* Volume 5, No.1 inviting members to join

us in our efforts to record locations of *U. longissima* in California. Please include date, geographic location, substrate, surrounding vegetation and altitude in your report, or as much of this information as is available. Also, we would appreciate a small (4" to 5") piece of the thallus as a voucher specimen (which will be returned to you at your request). Please mail your report to:
Janet Doell
1200 Brickyard Way #302
Pt. Richmond, CA 94801
e-mail: doell@slip.net

Desert Field Trip
Between October 9 and 12, 1998, eleven CALS members enjoyed a field trip to the Sweeney Granite Mountains Research Center, a unit of the University of California Reserve System located in the eastern part of the Mojave National Preserve. Lichens, weather and camaraderie were outstanding. A full report and lichen lists will appear in a future *Bulletin*.
Janet Doell

Collections Move
The lichen collection previously at the Santa Barbara Museum of Natural History, is being moved to the Santa Barbara Botanic Garden, 1212 Mission Canyon Rd., Santa Barbara, CA 93105.

The collection will continue to be curated by Shirley Tucker, who is a Research Botanist there (while still keeping her adjunct professorship at the University of California at Santa Barbara), and Cherie Bratt. Exchanges, loans, and correspondence about lichens will be handled through the Santa Barbara Botanic Garden from now on.
Shirley Tucker

UPCOMING EVENTS

January 23, 1999 (Saturday)
Crystal Springs Watershed, San Mateo Co.
Under the umbrella of the San Francisco Mycological Society, members of CALS will be able to return to the the Crystal Springs Watershed in San Mateo County for a second field trip. We will start at 10:00 a.m. and drive to the rock quarry with a promise of many crustose lichen species. Then Bill Freedman will lead us to the Cahill Gate area about a mile away. This area receives the greatest amount of rainfall in the Watershed. Ferns and fog promise lots of lichens with the additional attraction of lichen-covered fenceposts. Please join us as we continue to map the lichens of the area.
Contact:
Judy Robertson
JKSRR@aol.com
707-584-8099

February 20, 1999 (Saturday)
Pepperwood Ranch Natural Preserve, Sonoma Co.
Oak woodland, stands of Douglas fir, chaparral, riparian habitat and rock outcrops promise a variety of lichens for our excursion to this California Academy of Sciences Natural Preserve. The Preserve is a 30 minute drive north of Santa Rosa; plan to meet inside the Preserve entrance at 10 a.m. We will be able to collect specimens for identification.
Contact:
Judy Robertson
JKSRR@aol.com
707-584-8099

February 27, 1999 (Saturday)
Marine Algae of San Francisco Bay
Join Dick Moe of the Herbarium of the University of California, Berkeley, a specialist in marine algae, for an introductory exploration of our local marine algal flora. We meet at 2:00 p.m. in the parking lot at Fort Point in the Presidio. Prepare for possibly cold/wet conditions and wear slip-resistant footwear. A handlens will also be helpful. For those who wish more information about marine algae, Dr. Moe recommends *Marine Algae of California* by Abbott and Hollenberg and *Seashore Plants of California* by Dawson and Foster as good introductory texts.
Contact:
Marck Menke
415-824-8959

March 5, 1999 (Friday evening)
Reception for Dr. Larry St. Clair
CALS will host a reception for Dr. Larry St. Clair in Room 1001, Valley Life Sciences Building, University of California, Berkeley. Please look for more information later about the reception on the CALS website (http://ucjeps.berkeley.edu/rlmoe/cals.html).
Contact:
Judy Robertson
JKSRR@aol.com
707-584-8099

March 6–7, 1999 (Saturday and Sunday)
Lichen Workshop at the Jepson Herbarium
Cost: $165/$150
Location: University of California, Berkeley
Instructors:
Dr. Larry St. Clair, professor and curator, Herbarium, Brigham Young University
Clayton Newberry, graduate student, UC Berkeley

This short course in lichenology will have a heavy emphasis on developing basic skills for field identification. Classroom instruction will include information about the dynamics of the lichen symbiosis, growth forms, thallus morphology, sexual and asexual reproductive structures, ecology, nomenclature, basic tools for identifying lichens, methods for curating lichens, and practical uses of lichens. There will also be a "general audience" type seminar on the use of lichens as biomonitors of air quality. The workshop will end with a day-long field trip to a yet-to-be-determined location in the Bay Area. There will be a series of student handouts for the workshop.

Contact:
Susan D'Alcamo
dalcamo@uclink4.berkeley.edu
(510) 643-7008

March 30, 1999 (Tuesday evening)
Seminar, War in the World of Lichens
University of California, Berkeley
CALS will be hosting a seminar by Professor David Richardson, Dean of Science at St. Mary's University in Halifax, Nova Scotia. His topic will be the interaction between lichens and lichenicolous fungi. Professor Richardson was born in England, where he studied at Nottingham and Oxford Universities. He has held posts at several universities in the United Kingdom and Canada, and has been Dean of Science at St. Mary's for the last six years. He has published three books, *The Vanishing Lichen*, *The Biology of Mosses*, and *Pollution Monitoring with Lichens*, and edited another, *Biological Indicators of Pollution*. We are indeed fortunate to have such a distinguished speaker. Be sure and save the date if possible. No reservations are necessary, and there is no charge.The seminar will be held at the UC Herbarium, 1001 Valley Life Sciences Building, University of California at Berkeley at 7:30 PM on Tuesday, March 30.

Contact: Janet Doell
510-236-0489 or
doell@slip.net

April 16–18, 1999 (Friday to Sunday)
San Simeon State Park, San Luis Obispo Co.
CALS has the unique opportunity to provide the California State Parks system with a list of the lichens found in San Simeon Campground and surrounding 541 acres. San Simeon State Park is located 5 miles south of Hearst San Simeon State Historical Monument north of San Luis Obispo on Highway 1. The area has wooded as well as open areas and should be great at this time of year in terms of wildflowers as well as lichens. Nearby coastal access will please beachcombers and sunset watchers.

Developed campsites are available at the State Park, or participants may opt for one of the many hotels in San Simeon. There are also plenty of restaurants in San Simeon. The campground is located a very short distance from the entrance to Hearst Castle. Participants may wish to visit the Castle early on Friday or on Sunday afternoon. It is advised that tour tickets be purchased in advance via Ticketron. For more information regarding San Simeon State Park, call 805 927-2068.

Please call, write, or e-mail Mona Bourell if you are interested in participating and you will receive maps and program details as they develop.

Contact:
Mona Bourell
Dept. of Botany, Calif. Academy of Sciences,
Golden Gate Park, San Francisco, CA. 94118
415-750-7195
mbourell@cas.calacademy.org

May 15, 1999 (Saturday)
Lincoln Park, San Francisco
Lincoln Park is the golf course near the Palace of the Legion of Honor, wedged between Land's End, the Veteran's Hospital, and the area known as Sea Cliff. The steps of the Palace are the jumping off place for the San Francisco Mycological Society's Mushroom Walks. Although this area does not host lichen rarities, it is a rich area, with several dozen species in several genera. Join us for a lichen walk to explore this area within the city of San Francisco. Watch the CALS website for details (http://ucjeps.berkeley.edu/rlmoe/cals.html).
Contact:
Judy Robertson
JKSRR@aol.com
707-584-8099

August 14–15, 1999 (Saturday and Sunday)
Horse Mountain-Samoa Dunes Field Trip, Humboldt Co. We will visit these two famous *Bryoria-Alectoria* localities (see *Alectoria lata*, *Bryoria spiralifera*, etc., in I. Brodo and D. Hawksworth, *Alectoria* and allied genera, Opera Botanica 42: 1–164, 1977). There are also two *Cladina* species on the Samoa Dunes, one possibly not reported for California; can we find it again? There are plenty of accommodations in the area. Another announcement will appear in the next issue of the *Bulletin*. Darrell Wright will lead.

Contact:
Darrell Wright
dwright3@jps.net;
4517 Valley West Blvd., #C,
Arcata, 95521
707-825-0779

PRESIDENT'S MESSAGE

As this year draws to a close, I realize that our organization is the sum of many parts, each so very important. I want to take this opportunity to thank the many people who have helped me and who have given so much time and energy to make CALS work. First, thank you to the editor-in-chief of our *Bulletin*, Dick Moe, and to the associate editors,William Sanders, Isabelle Tavares, Shirley Tucker, and Darrell Wright. The *Bulletin* represents CALS around the world and is unique in its color cover and coverage of California lichens. Next, thank you to the organizers of the field trips this year, to Mikki McGee for our Watershed and San Bruno excursions, to Bill Hill for Brushy Peak, Veva Stansell for Pilot Rock and to Janet and Richard Doell for the Granite Mountains trip. Organization for these events starts long before the trip and extends to the time the final lichen list is published in our *Bulletin*. Thank you to the leaders of our workshops—Doris Baltzo for the *Usnea* workshop, Mikki McGee for a great workshop on microscopy and to Cherie Bratt for providing identified specimens from the Santa Barbara Herbarium. Thank you to Shirley Tucker for putting together the CALS lichen reference collection available for loan to any member. Many thanks to Dick Moe for maintaining our CALS Web site, which makes CALS and information about California lichens accessible worldwide. And last, I want to extend my thanks to each contributor to the *Bulletin*, each participant in a field trip, each attendee of a workshop and to each of you who have maintained your membership in CALS. Your support not only meets your unique individual need but also contributes to our greater goal of education, appreciation, and conservation of California lichens. I want to close with special thanks to Janet Doell, Bill Hill, and Mikki McGee for their support during this first year of my term of office. I am looking forward to the many activities we have planned for 1999. I am hoping to see you at one of our field trips or attending a workshop or lecture and I hope you choose to continue your support of CALS. If we can serve your needs better, please let me know at JKSRR@aol.com

Judy Robertson

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