

Lichens from the Matterhorn and Ice Lake, Northeastern Oregon

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Abstract. A backpack trip to Ice Lake (2435 m) and the summit of the Matterhorn (2995 m) in the Wallowa Mountains in Oregon sponsored by Northwest Lichenologists resulted in numerous interesting finds, including several rare species and new state records. *Caloplaca oblongula*, *C. saxifragarum*, *Cephalophysia leucospila*, *Dermatocarpon polyphyllizum*, *Farnoldia micropsis*, and *Solorina spongiosa* are apparently new to Oregon. Many of the calciphiles found in this area on marble have seldom been reported from Oregon.

Keywords. *alpine*, *Caloplaca oblongula*, *Caloplaca saxifragarum*, *Cephalophysia leucospila*, *Dermatocarpon polyphyllizum*, *Farnoldia micropsis*, *Solorina spongiosa*, *floristics*, *lichenized fungi*, *Wallowa Mountains*

Several noteworthy species were encountered by the Northwest Lichenologists backpack trip to Ice Lake and the Matterhorn in the Eagle Cap Wilderness, Wallowa Mountains, northeastern Oregon, in September 2005. The list of participants is given under the Acknowledgments. Most of the interesting records were calciphiles, partly because calcareous rock is infrequent in the mountains of Oregon, and partly because the Wallowa Mountains have hardly been explored for lichens. However, lichen data from forested plots studied as part of the U.S. Forest Services air quality program can be queried online, through the website <http://gis.nacse.org/lichenair>. The Wallowa Mountains are notable for the many coastal disjuncts that occur there, but what drew us to the Matterhorn

was the possibility of a unique alpine experience. Apparently the Matterhorn is the highest elevation for calcareous rock in Oregon.

Caloplaca oblongula (H. Magn.) Wetmore is unusual for the genus with its black apothecia and poorly formed spore septa. It has been reported from only a few locations in the Great Basin states (Wetmore 1994). Here we report it from calcareous rock near Ice Lake (McCune 27921).

Caloplaca saxifragarum Poelt, also new to Oregon, was locally abundant on large clumps of *Saxifraga oppositifolia* (McCune 27980). It occurs on dead leaves of this and other hard-leaved plants (e.g. *Saxifraga*, *Dryas*) on basic substrates, and has been reported as far south as Colorado (Weber & Wittmann 1992).

Cephalophysis leucospila (Anzi) Kilius & Scheidegger (Kilius 1985) is a rare arctic-alpine species with black apothecia sunken in pits, found on marble at the summit of the Matterhorn (McCune 27978). New to Oregon, this tiny, rare, arctic-alpine calciphile is known south to Colorado.

Dermatocarpon polyphyllizum (Nyl.) Blomb. & Forssell has been reported in North America from the Arctic and Arizona (Heidmarsson & Breuss 2004), but apparently not in between. Here we report it from near the summit of the Matterhorn, on argillite but surrounded by marble (Nelson 4178). This largely overlooked arctic-alpine species is superficially similar to polyphyllous forms of *D. miniatum*, from which it is distinguished by a medulla turning deep red brown in Melzer's iodine. Heidmarsson (2001) recommended the test on a thallus section under the dissecting scope. The usual IKI solution more frequently used by lichenologists does not give this reaction. Collections assigned to *D. miniatum* from throughout western North America should be checked for the Melzer's reaction, to discover additional localities for *D. polyphyllizum*. But Melzer's solution is difficult to obtain, because it contains the restricted substance chloral hydrate. It is likely, therefore, that confusion will continue, at least until a substitute reagent or a reliable morphological character is discovered.

Farnoldia micropsis (A. Massal.) Hertel is an inconspicuous crustose species not previously reported from Oregon, but reported here from the summit of the Matterhorn (McCune 27915). This species usually occurs on rocks with intermediate carbonate content, being rare on pure limestone. It is arctic-alpine; circumpolar south to SE Alaska, Montana, Colorado, and Utah (see map in Hertel 2001). It is widespread but seldom reported.

Solorina spongiosa (Ach.) Anzi is a broadly distributed but fairly rare cyanobacterial macrolichen. This species has not been previously reported from Oregon. It has been proposed for state listing by the California Lichen Society. For a description of range and ecology of the species, see http://calbcc.crustose.net/sponsorships/Solorina_spongiosa.pdf. In our case, *Solorina spongiosa* was found on moist, peaty stream banks near Ice Lake and on wet ledges between Ice Lake and the Matterhorn (McCune 27889, Nelson 4168).

A list of the species found is given below. Vouchers are in the herbaria of Oregon State

University, University of Washington, and the research herbaria of the authors. Nomenclature follows the latest North American checklist, with few exceptions

(<http://www.ndsu.nodak.edu/instruct/esslinge/chcklst/chcklst7.htm>).

Site 1 – Vicinity of Ice Lake

Sparse *Pinus albicaulis* and *Abies lasiocarpa* forest, grassy openings, outlet stream, and rock outcrops and boulders (limestone, marble, granite, iron-rich argillite, and dark igneous dike), 45.228° N 117.269° W (datum: WGS84), 2435 m.

Acarospora badiofusca? (McCune)
Aspicilia contorta (McCune)
Bellemeria alpina (McCune, Vilella)
Bellemeria cinereorufescens (Glew)
Bellemeria diamarta (Vilella)
Brodoa oroarctica (Nelson)
Buellia punctata (McCune)
Caloplaca cladodes (McCune, Vilella)
Caloplaca jungermanniae (Nelson, Vilella)
Caloplaca lactea (McCune)
Caloplaca oblongula (McCune)
Caloplaca saxicola (McCune, Vilella)
Caloplaca stillicidiorum (McCune)
Caloplaca tirolensis (McCune)
Candelariella aurella (Vilella)
Candelariella xanthostigma (McCune)
Catapyrenium cinereum (McCune, Vilella)
Cyphelium pinicola (McCune)
Dermatocarpon miniatum (Nelson)
Dermatocarpon reticulatum (McCune)
Dermatocarpon rivulorum (McCune)
Endocarpon pulvinatum (McCune)
Farnoldia micropsis (McCune)
Fulgensia bracteata (Vilella)
Hypogymnia austerodes (Nelson)
Hypogymnia imshaugii (McCune)
Lecanora albellula (McCune)
Lecanora argopholis (McCune)
Lecanora bicincta (McCune)
Lecanora hagenii (McCune)
Lecanora laxa (McCune)
Lecanora mughicola (McCune)
Lecanora polytropa (Glew, McCune)
Lecanora zosteræ (McCune)
Lecidea atrobrunnea (McCune)
Lecidea leucothallina (McCune)
Lecidella stigmata (Glew, McCune)

Megaspora verrucosa (McCune, Nelson, Vilella)
Melanohalea exasperatula (McCune)
Parmelia sulcata (McCune)
Peltigera extenuata (McCune)
Peltigera kristinssonii (McCune)
Peltigera rufescens (McCune)
Phaeophyscia decolor (McCune)
Phaeophyscia sciastra (McCune, Nelson)
Physcia caesia (McCune)
Physcia dubia (McCune)
Physconia muscigena (McCune, Nelson)
Placynthiella icmalea (McCune)
Protoblastenia rupestris (McCune, Vilella)
Pseudephebe minuscula (McCune)
Rhizocarpon geographicum (Glew)
Rhizocarpon lecanorinum (McCune)
Rhizoplaca melanophthalma (McCune, Vilella)
Rinodina bischoffii (McCune)
Rinodina roscida (McCune)
Solorina spongiosa (seen, not collected)
Staurothele areolata (McCune)
Stereocaulon glareosum (Vilella)
Thamnotia subuliformis (McCune, Nelson)
Thelomma ocellatum (McCune)
Tremolecia atrata (McCune, Vilella)
Umbilicaria krascheninnikovii (Nelson)
Umbilicaria hyperborea (McCune, Nelson)
Umbilicaria virginis (McCune, Nelson)
Xanthomendoza fulva (McCune)
Xanthoparmelia coloradoensis (McCune)
Xanthoria sorediata (McCune)

Site 2 – Summit of Matterhorn

Marble and iron-rich argillite, 45.228° N 117.299° W, 2995 m.

Acarospora chlorophana (McCune)
Caloplaca epithallina (McCune)
Caloplaca lactea (McCune)
Caloplaca saxicola (McCune)
Caloplaca saxifragarum (McCune)
Caloplaca stillicidiorum (Nelson)
Calvitimela armeniaca (DC.) Hafellner
Candelariella aurella (McCune)
Candelariella rosulans (McCune)
Cephalophysia leucospila (McCune)
Collema tenax group (McCune)
Dermatocarpon polyphyllizum (Nelson)
Lecanora hagenii (McCune)
Lecanora novomexicana (McCune)
Lecidea protabacina (McCune)

Lecidea tessellata (McCune)
Lecidella patavina (McCune)
Polysporina urceolata (McCune)
Rhizoplaca melanophthalma (Glew, McCune)
Sporastatia testudinea (Glew, McCune)
Staurothele areolata (McCune)
Umbilicaria krascheninnikovii (McCune)
Umbilicaria virginis (McCune)

Site 3 – Ledges and outcrops between Ice Lake and Matterhorn

Iron-rich argillite on east shoulder of Matterhorn; streamlet with seepy banks on ledge on east side of Matterhorn; other outcrops on trail to Matterhorn; ca. 45.23° N 117.29° W, 2700-2880 m.

Acarospora fuscata (Glew)
Bellemeria cinereorufescens (Glew)
Candelariella rosulans (Glew)
Cladonia pocillum (McCune)
Cladonia sp. (squamules only) (Vilella)
Dermatocarpon reticulatum (Glew, McCune)
Dermatocarpon rivulorum (Glew, McCune, Nelson)
Koerberia sonomensis (Nelson)
Lecanora polytropa (Glew)
Lecidea atrobrunnea (Glew)
Lecidea auriculata (McCune)
Lepraria cacuminum (McCune)
Physconia muscigena (Vilella)
Protoblastenia rupestris (Vilella)
Pseudephebe minuscula (Nelson)
Psora decipiens (Vilella)
Psora globifera (Glew)
Psora montana (McCune)
Rhizocarpon geographicum (Glew)
Rhizoplaca melanophthalma (Glew)
Sarcogyne regularis (Glew)
Solorina spongiosa (McCune, Nelson)
Staurothele areolata (Glew)
Staurothele fissa (McCune)
Tremolecia atrata (Glew)
Umbilicaria krascheninnikovii (Glew)
Umbilicaria virginis (Glew, Nelson)
Xanthoria elegans (Glew)

Site 4 – Trail to Ice Lake

Mixture of granite and iron-rich argillite, partly forested with *Pseudotsuga*, other conifers, and *Populus tremuloides*, ca. 45.234° N 117.241° W, ca. 1700-2200 m.

Bellemeria diamarta (Vilella, det. A. Fryday)

Candelariella vitellina (McCune)
Hertelidea botryosa? (McCune)
Lecanora circumborealis (McCune)
Lecanora hagenii (McCune)
Lecanora mughicola (McCune)
Lecidella elaeochroma (McCune)
Lepraria sp. (Villevella)
Massalongia carnosa (Nelson)
Melanohalea exasperatula (McCune)
Psoroma hypnorum (Nelson, Villevella)
Xylographa vitiligo (McCune)

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LITERATURE CITED

- Heidmarsson, S. 2001. The genus *Dermatocarpon* (Verrucariales, lichenized Ascomycotina) in the Nordic countries. *Nordic Journal of Botany* 20: 605-639.
- Heidmarsson, S. and O. Breuss. 2004. *Dermatocarpon*. Pages 88-93 in Nash, T. H. et al., *Lichen Flora of the Greater Sonoran Desert Region. Volume II. Lichens Unlimited*, Arizona State University, Tempe.
- Hertel, H. 2001. Floristic and taxonomic notes on saxicolous lecideoid lichens. *Sendtnera* 7:93-136.
- Kilias, H. 1985. *Cephalophysia* (Hertel) Kilias gen. nov., eine weitere Gattung der Teloschistaceae mit einzelligen Sporen. *Herzogia* 7:181-190.
- Weber, W. A. and R. C. Wittmann. 1992. *Catalog of the Colorado Flora: a Biodiversity Baseline*. University of Colorado Press, Boulder.
- Wetmore, C. M. 1994. The lichen genus *Caloplaca* in North and Central America with brown or black apothecia. *Mycologia* 86:813-83.