

## Floristic and taxonomic notes on saxicolous lecideoid lichens

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### Abstract:

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(1) *Lecidea lapicida* var. *maungahukae* Hertel (from New Zealand) is described as a new variety. (2) *Carbonea latypizodes* (Nyl.) Knoph & Rambold (syn. *Lecidea latypizodes* Nyl.) is proposed as a new combination. (3) The following taxa are synonyms (correct names in parenthesis): *Lecidea deagostinii* Sambo (= *L. lapicida* var. *pantherina*), *L. squamifera* Stizenb. var. *bylii* Zahlbr. (= *L. capensis*), *L. subsquamifera* Zahlbr. (= *L. terrena*), *L. tolstooi* H.Magn. (= *Farnoldia micropsis*). (4) Lectotypes are chosen for *Lecidea lepadina* Sommerf. and *L. tolstooi* H.Magn. (5) New localities are documented for: *Adelolecia kolaensis* (new to the Southern Hemisphere), *Caloplaca oblongula* (new to Arizona, U.S.A.), *Carbonea atronivea* (new to U.S.A.), *C. phaeostoma* (new to South America), *C. vorticosa* (new to Arizona, California and Washington), *Cecidonia umbonella* (Kavkaz Mts., second record), *Cephalophysis leucospila* (new to U.S.A.), *Clauzadeana macula* (new to Prov. Salzburg, Austria; new to Maine, U.S.A.), *Farnoldia hypocrita* (new to Liechtenstein), *F. micropsis* (Siberia, second record), *Immersaria athroocarpa* (new to Macquarie Island), *I. usbekica* (new to Iran), *Lecanora avium* (new to Prov. Antofagasta, Chile), *Lecidea atomorio* (South Africa), *L. cerviniicola* (Alps, Spain), *L. fuscoatra* (new to South America), *L. fuscoatrula* (New Zealand, South Africa), *L. lapicida* var. *lapicida* (new to Cyprus), *L. leucothallina* var. *kujalae* (new to the Americas), *L. lygomma* var. *lygomma* (new to Africa), *L. plana* (New Zealand, third record), "*Lecidea*" *polycocca* (Svalbard, second record), *Lecidella pataviana* (new to Argentina), *L. stigmatea* (new to Prov. Mendoza, Argentina), *Miriquidica deusta* (new to U.S.A.), *M. pulvinatula* (new to Iceland), *Poeltiaria corralensis* (new to Prov. Magallanes, Chile), *Poeltidea perusta* (new to Chile), *Rhizocarpon dinothetes* (new to Prov. Salzburg, Austria), *Rimularia insularis* (new to Alaska), *Schaereria fuscocinerea* (new to Africa). (6) Distribution maps are presented for *Carbonea vorticosa* (U.S.A. and adjacent parts of Canada), *Farnoldia micropsis* (Northern Hemisphere), *Lecidea cerviniicola* (Alps), *Lecidella pataviana* (North America), *L. stigmatea* (North America), *Poeltidea perusta* (circum-antarctic regions), *Rimularia insularis* (new to Saskatchewan, Canada), *R. psephota* (Southern Hemisphere), and *Tremolecia atrata* (circum-antarctic regions). (7) Diagrams show the variability of spore size in *Lecidea confluescens*, *L. fuscoatra* and *L. speiodes*. as well as the correlation between altitude and latitude of American collecting sites of *Carbonea vorticosa* (clearly demonstrating its arctic-alpine character).

### Zusammenfassung:

(1) *Lecidea lapicida* var. *maungahukae* Hertel var. nov. wird aus dem hochalpinen Bereich Neuseelands beschrieben. (2) Die Kombination *Carbonea latypizodes* (Nyl.) Knoph

& Rambold (syn. *Lecidea latypizodes* Nyl.) wird legalisiert. (3) Als Synonyme werden gewertet (korrekte Namen in Klammern): *Lecidea deagostinii* Sambo (= *L. lapicida* var. *pantherina*), *L. squamifera* Stizenb. var. *bylii* Zahlbr. (= *L. capensis*), *L. subsquamifera* Zahlbr. (= *L. terrena*), *L. tolstoyi* H.Magn. (= *Farnoldia micropsis*). (4) Für *Lecidea lepadina* Sommerf. und *L. tolstoyi* werden Lectotypen festgelegt. (5) Zahlreiche Neufunde (Details im englischen Abstract) werden mitgeteilt. (6) Verbreitungskarten werden vorgelegt für: *Carbonea vorticosa* (U.S.A. and angrenzendes Kanada), *Farnoldia micropsis* (Nordhalbkugel), *Lecidea cerviniicola* (Alpen), *Lecidella pataviana* (Nordamerika), *L. stigmathea* (Nordamerika), *Poeltidea perusta* (Gesamtareal), *Rimularia psephota* (Südhemisphäre) und *Tremolecia atrata* (Subantarktis). (7) Diagramme zeigen die Variabilität der Größe der Ascosporen von *Lecidea confluenscens*, *L. fuscoatra* und *L. speirodes* sowie die Abhängigkeit der geographischen und der Höhenverbreitung bei den amerikanischen Vorkommen von *Carbonea vorticosa* (wobei der ausgeprägt arktisch-alpine Charakter der Art deutlich sichtbar wird).

## Introduction

Noteworthy floristic and taxonomic data on saxicolous lecideoid lichens are presented here. Besides information on rarely collected taxa, we also include records of those more common species, which were often misunderstood. Citation of collecting localities follows the original spelling given on the labels. Additions made by the author are given in square brackets.

New records cited below are generally based on undetermined or incorrectly determined specimens, deposited in the Botanische Staatssammlung München (M) or from the herbaria ASU, B, BCC, CANL, CANU, COLO, FI, G, GZU, H, LD, MICH, MIN, MSC, O, S, STU, UPS, W, and WIS (acronyms following HOLMGREN et al. 1990). I would like to thank the directors and curators of these herbaria for supplying the material on loan.

## The taxa

### *Adelolecia kolaensis* (Nyl.) Hertel & Rambold

HERTEL & RAMBOLD, *Bibl. Lichenol.* 57: 214–221 (1995) = *Lecidea kolaensis* Nyl., *Flora* 46: 306 (1863).

= *Lecidea conferenda* Nyl., *Flora* 49: 418 (1866).

New record:

**Chile. XII Región de Magallanes y de la Antártica Chilena. Prov. de Magallanes:** Punta Arenas, Cerros Mina Rica, on stones in naked mineral-soil (solifluction), 550 m, 4.3.1941, *Santesson 6144* (S).

New to the Southern Hemisphere. *Adelolecia kolaensis* is known from cool and cold temperate regions of Europe, Greenland, and Colorado, U.S.A. (HERTEL & RAMBOLD 1995).

### *Adelolecia pilati* (Hepp) Hertel & Hafellner

HERTEL & HAFELLNER in HAFELLNER, *Beih. Nova Hedwigia* 79: 260 (1984); HERTEL & RAMBOLD, *Bibl. Lichenol.* 57: 221–227 (1995); THOMSON, *American Arctic Lichens* 2: 36–38 (1997) = *Lecidea pilati* (Hepp) Körb., *Parerga Lichenol.* : 223 (1861).

New records:

**Svalbard. Spitsbergen:** Kongsfjord, Blomstrandhalvøya, Gipfelbereich des Berges Bratlietoppen [78°59'N, 12°05'E], an lose am Boden liegendem Schieferstein, 369 m, 22.7.1975, *Hertel 16297 & Ullrich* (M). Reported from Svalbard from the Icefjord area (HERTEL 1977a, HERTEL & RAMBOLD 1995), and West Station (PAULSON 1928; unconfirmed record; material not found in BM).

**Austria. Kärnten:** Maltatal, Pflüghof-Klampfereralm [46°59'N, 13°27'E], am Weg im Wald auf Gneis, 1600 m, 26.7.1931, *Frey* (G). – Already known from Kärnten (HERTEL & RAMBOLD 1995).

*Amygdalaria elegantior* (H.Magn.) Hertel & Brodo

HERTEL & BRODO in BRODO & HERTEL, *Herzogia* 7: 506–508 (1987); THOMSON, *American Arctic Lichens* 2: 40–41 (1997).

New record:

**U.S.A. Alaska:** Ridge above Okpilak Lake, 69°23'N, 144°05'W, 975 m, 15.8.1957, *Cantlon & Gillis* 57-2212 (MSC). Already known from Alaska (THOMSON 1997, TALBOT & al. 1997).

*Amygdalaria panaeola* (Ach.) Hertel & Brodo

HERTEL & BRODO in BRODO & HERTEL, *Herzogia* 7: 510–511 (1987); THOMSON, *American Arctic Lichens* 2: 40, 42 (1997).

New records:

**Canada. British Columbia:** 37 miles E of Terrace along Highway 16, 54°51'N, 128°21'W, 215 m, 3.8.1970, *Ohlsson* 2883 (MSC) – Mt. Cain, just north of Schoen Lake [50°12'N, 126°19'W], on exposed rock above timberline, 1800 m, 9.8.1969, *Ohlsson* 1594 (MSC). Mentioned for British Columbia by NOBLE & al. (1987).

**U.S.A. Alaska:** Ca. 40 miles E of Cape Lisburne, 0.5 miles from coast, W of Pitmegea River, [68°53'N, 164°41'W], below crest of windswept ridge with barrens vegetation, less than 100 ft, 25.6.1957, *Cantlon & Gillis* 57-170 (MSC). Already known from Alaska (THOMSON 1997, TALBOT & al. 1997).

*Amygdalaria pelobotryon* (Wahlenb. in Ach.) Norman

NORMAN, *Nyt Mag. Naturvid.* 7: 230 (1853); INOUE, *J. Hattori Bot. Lab.* 56: 326–328 (1984); BRODO & HERTEL, *Herzogia* 7: 511–513 (1987); THOMSON, *American Arctic Lichens* 2: 42–44 (1997); MAKAROVA in ANDREEV, KOTLOV & MAKAROVA, *Handbook Lichens Russia* 7: 124–125 (1998).

New records:

**Ireland. South Kerry** (H1), Dingle Peninsula: Windverblasener Sattel am Ballysitteragh, NE von Dingle, ca. 600 m, 24.7.1963, *Leuze & Doppelbauer* 10882 (M). – Already known from South Kerry (SEAWARD 1984).

**U.S.A. Alaska:** Vicinity of Juneau, Mt. Roberts Trail [58°17'N, 134°20'W], ca. 1070 m, in low alpine zone, 4.7.1962, *Imshaug* 28212 (MSC). Already known from Alaska (TALBOT & al. 1991, THOMSON 1997, TALBOT & al. 1997).

*Caloplaca oblongula* (H.Magn.) Wetmore

WETMORE, *Mycologia* 86: 828 (1994) ≡ *Lecidea oblongula* H.Magn., *Acta Horti Gothob.* 19: 37 (1952) ≡ “*Caloplaca oblongula*” in HERTEL, *Herzogia* 3: 367–369, 370 (1975) ≡ *Apatoplaca oblongula* (H.Magn.) Poelt & Hafellner, *Mitt. Bot. Staatssamml. München* 16: 507 (1980); BELLEMÈRE, HAFELLNER & LETROUIT-GALINO, *Cryptog. Bryol. Lichénol.* 7(3): 189–211 (1986; on ultrastructure).

New record:

**U.S.A. Arizona,** Coconino Co.: Echo Cliffs, 10 miles SSW of Page [36°55'N, 111°28'W], along U.S. 89, ca. 1500 m, on sandstone, 23.4.1973, *Nash* 6546 (ASU).

This record corresponds closely in morphological and anatomical characters with the holotype of the taxon (as described and figured by HERTEL 1975c). *Caloplaca oblongula* is based on a collection from Utah. WETMORE (1994) gives an additional record from Colorado.

Because of its often unicellular spores, the taxon may be erroneously considered as a species of *Fuscidea* which shares some ascus and gross morphological characters. However, *Caloplaca oblongula*, has a K+ violet epihymenium and excipular cortex and prefers semiarid sites, while *Fuscidea* is a genus restricted to humid climates.

***Carbonea atronivea* (Arnold) Hertel**

HERTEL, Mitt. Bot. Staatssamml. München 19: 442 (1983); THOMSON, American Arctic Lichens 2: 191 (1997) = *Lecidea atronivea* Arnold, Flora 53: 123 (1870); HERTEL, Beih. Nova Hedwigia 24: 101–104 (1967); HERTEL, Herzogia 1: 33 (1968), 2: 39 (1970), 2: 232 (1971), 2: 484 (1973), 3: 375 (1975).

New records:

**Switzerland.** Kanton Glarus: Ziger, 47°04'N, 9°15'E, nördlich oberhalb Unterterzen, 2050 m, 27.9.1972, *Hertel 15867* (M).

**Italy.** Prov. Belluno: Marmolada-Gruppe, Ombretta-Pass [46°29'N, 11°51'E], ca. 2700 m, VIII.1968, *Wunder 802* (M).

**France.** Dépt. Hautes Alpes: Aiguille de Chambeyron [44°32'N, 6°51'E], NE oberhalb St. Paul, am Col de Vars, 3300 m, 11.9.1996, *Schauer* (M).

**U.S.A.** Montana: Glacier Co., Glacier National Park, Siyeh Pass [48°43'N, 113°38'W], 2500 m, 17.8.1950, *Imshaug 9027* (MSC – a small thallus beside *Lecidella pataviana*) – Glacier National Park, Dawson Pass [48°29'N, 113°28'W], 7500–8000 ft, 13.8.1950, *Imshaug 8649* (MSC). New to U.S.A.

This well-named taxon (with small black and shiny apothecia on a chalky snow-white thallus) is strictly calciphilous. Its distribution in the Alps is mapped by HERTEL (1967), and its general distribution is outlined by HERTEL (1975c). Remarkable additional records are reported by CLAUZADE & ROUX (1974), KILIAS (1978, Picos de Europa, Spain), PORYADINA (1998, Yakutia), and TÜRK & WUNDER (1999).

***Carbonea latypizodes* (Nyl.) Knoph & Rambold comb. nov.**

Basionym: *Lecidea latypizodes* Nyl., Flora 57: 12 (1874).

= *Carbonea montevidensis* (Müll.Arg.) Rambold & Knoph in RAMBOLD, Bibl. Lichenol. 34: 79–82 (1989).

New records:

**Argentina.** Prov. Tucumán: Valle de Tafí, Carapunco-Infiernillo, 2800 m, schistose rock, 19.11.1947, *Lamb 5192* (UPS), and 23.9.1947, *Lamb 5390* (UPS; both specimens contain atranorin and 2'-O-methylperlatolic acid). – Previously reported from Argentina by OSORIO (1987).

***Carbonea phaeostoma* (Nyl.) Hertel**

HERTEL, Lecideac. Exs., fasc. VI, no. 103 (1984); HERTEL, Beih. Nova Hedwigia 79: 443–444 (1984); HERTEL, Mitt. Bot. Staatssamml. München 21: 304–306 (1985), 23: 324–325 (1987), 28: 215 (1989).

New records:

**Argentina.** Isla de los Estados: Puerto Vancouver, 54°47'S, 64°04'W, littoral zone at point on E side of bay, 28.10.1971, *Imshaug & Ohlsson 52054, 52057, 52093* (MSC) – Puerto Basil Hall, littoral zone at Punta Passalacqua, N of Pto Abrigado, 54°45'S, 64°10'W, 22.10.1971, *Imshaug & Ohlsson 51345* (MSC) – Puerto San Juan, on slope of Punta Lasserre facing entrance to bay, 54°44'S, 63°52'W, 26.10.1971, *Imshaug & Ohlsson 51958* (MSC). New to South America.

**Falkland Islands** (= *Islas Malvinas*). West Falklands: Port Philomel, Halfway Cove [ca. 51°43'S, 60°25'W], on sandstone, 22.11.1907, *Skottsberg s.n.* (UPS, beside "*Lecidea elatizans*").

**Îles de Kerguelén.** Péninsule Courbet, sheltered cliffs near summit of Pointe Molloy, 50–100 m, 16.2.1971, *Imshaug 48306, 48310* (MSC) – Halage des Swains (vicinity), sea coast and base of cliffs on shore opposite Ile Richard-Foy, 26.2.1971, *Imshaug 48676* (MSC).

**Auckland Islands.** Auckland Island: Littoral zone S side of inner part of Musgrave Inlet, 19.12.1972, *Imshaug 56589* (MSC) – NW end of North Arm, Carnley Harbour, north of Figure of Eight Island, 28.12.1972, *Imshaug 57031* (MSC) – Forest with bryophyte cover and tree ferns, south side near head of bay, McLennan Inlet, 31.12.1972, *Imshaug 57179, 57194* (MSC) – South side of Crozier Point peninsula, 25.12.1972, *Imshaug 56841, 56843* (MSC).

*Carbonea phaeostoma* shows a circumantarctic distribution, being known from New Zealand and its subantarctic islands, and from Macquarie Island, Heard Island, Îles de Kerguelén, and



Prince Edward Islands (mapped by HERTEL 1987).

*Carbonea vorticosa* (Flörke) Hertel

HERTEL, Mitt. Bot. Staatssamml. München 19: 442 (1983); 21: 306–308 (1985); 28: 215–216 (1989); 30: 300–301 (1991); RAMBOLD, Bibl. Lichenol. 34: 83–88 (1989); THOMSON, American Arctic Lichens 2: 192–193 (1997) ≡ *Lecidea vorticosa* (Flörke) Körb.; HERTEL, Khumbu Himal, Ergebn. Forsch.-Unternehmens Nepal Himalaya 6: 316–317 (1977).



Figure 1: *Carbonea vorticosa* in non-arctic North America. The species is restricted to alpine stands (see fig. 2). Map based on studied specimens.

New records:

**Svalbard.** Spitsbergen: Isfjord, Bolterdalen [78°08'N, 16°00'E; ca. 170 m], 4.8.1975, *Hertel 17236 & Ullrich* (M) – Kongsfjord, Blomstrandhalvøya, Gipfelbereich des Bratliektoppen [78°59'N, 12°05'E], 365 m, 22.7.1975, *Hertel 16299 & Ullrich* (M).

**Austria.** Tirol: Kaunergrat, Gipfel der Watzespitze [46°59'N, 10°48'E], 3530 m, VIII.1953, *Poelt* (M, filed under *Lecidea atrobrunnea*).

**Switzerland.** Kanton Graubünden: Unterengadin, Piz Linard [46°48'N, 10°04'E], Gipfelgrat, 3350 m, an Gneis-Platten, 4.8.1945, *Frey 28229* (G) – Sesvenna, Großer Block an der Moräne des Gletschers, 2650 m, 5.9.1929, *Frey 515* (G). – Kanton Wallis: Zermatt, Gornergrat, Rotboden bei der Bergstation

[45°59'N, 7°46'E], aus dem Curvuletum aufragende Grünschiefer-Felsrippen, 2780–2800 m, 21.7.1961, *Frey 27228* (G) – Plateau du Trient, Pointe d'Orny, Arête SE, 3250 m, 30.7.1946, *Frey 1672* (G) – Val d'Herens, Sasseneire [46°08'N, 7°32'E], Gipfelgrat, 3250 m, 31.7.1929, *Frey 420/1* (M) – Unteres Findexrothorn [46°01'N, 7°48'E], 3000 m?, 29.7.1922, *Schroeter* (G).

**Greenland.** N.E. Greenland: Fligely near Kuhn Ø., 74°49'N, 20°45'W, 28.7.1988, *Hansen* (M, Lich. Groenl. Exs. 347; tiny accompanist of *Sporostatia testudinea*).

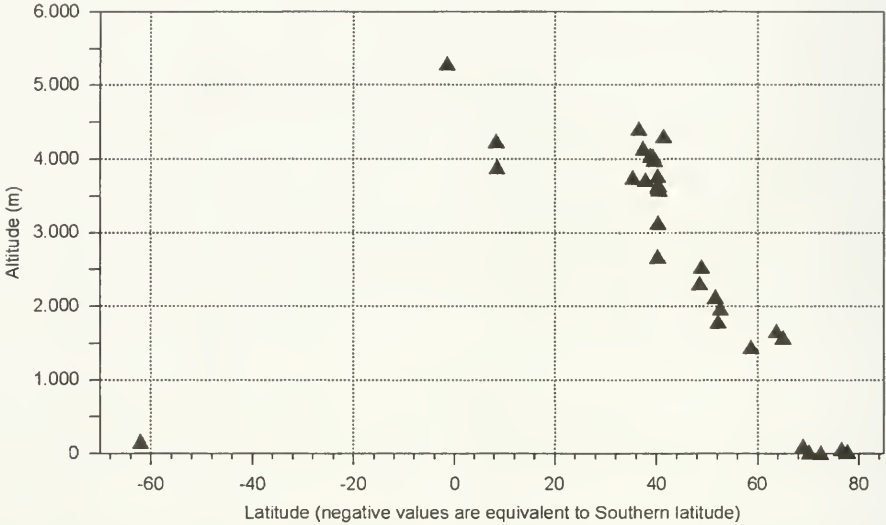


Figure 2: *Carbonea vorticosa*: Correlation between altitude and latitude of collecting localities in North and South America and adjacent parts of Antarctica. Note, that *Carbonea vorticosa* is restricted to localities of the alpine belt. Low altitude literature records given for U.S.A. most likely are based on misidentifications.

**Canada.** Alberta: Jasper National Park: Ridge opposite Angel Glacier on Mt. Edith Cavell, [52°38'N, 118°06'W], 1980 m, 16.–17.7.1950, *Imshaug 6993, 7047* (MSC, beside *Lecidea lapicida* var. *pantherina* and *Tremolecia atrata*). – British Columbia: Mt. Cain just N of Schoen Lake, 50°12'N, 126°19'W, 1800 m, just above timberline on exposed rock, 9.8.1969, *Ohlsson 1579* (MSC).

**U.S.A.** Alaska: Juneau Icefield, summit of ridge on mountain above Camp 10 and above névé of Taku Glacier at 4800 ft [= 1460 m] elevation, 58°42'N, 134°13'W, 19.7.1962, *Imshaug 28917* (MSC – small thalli beside *Rhizocarpon* sp.). – Arizona: Coconino Co., summit of Agassiz Peak [35°19'N, 111°40'W], San Francisco Mts., 3760 m, 7.7.1955, *Imshaug 17902* (MSC). – California: San Bernardino Co., San Bernardino Mts., summit of San Geronio Mt. [34°06'N, 116°50'W], 3500 m, 27.6.1955, *Imshaug 17785* (MSC, beside *Lecidea atrobrunnea*), *17983b* (MSC) – Siskiyou Co., summit of Mt. Shasta, southern Cascade Mts., 41°25'N, [122°18'W], 4317 m, 29.7.1955, *Imshaug 18339* (MSC) – Tulare Co., Sierra Nevada, summit of Mt. Whitney, 36°35'N, [118°00'W], 4418 m, 11.7.1955, *Imshaug 17983b* (MSC), *Imshaug 17991* (MSC, beside *Lecidea atrobrunnea*) – Tuolumne Co., summit of Mammoth Peak, 37°52'N, [119°15'W], Sierra Nevada, 3726 m, 20.7.1955, *Imshaug 18207b* (MSC). – Colorado: Clear Creek Co., wet meadow on Mt. Evans, Front Range, 39°36'N, [105°38'W], 3990 m, 15.7.1952, *Imshaug 11115* (MSC) – El Paso Co., Pikes Peak, Front Range, 38°50'N, [105°02'W], 4055 m, 4.8.1952, *Imshaug 11964* (MSC) – Larimer Co., dry meadow along Trail Ridge Road, Front Range, Rocky Mt. National Park, 40°24'N, 3660 m, 16.7.1952, *Imshaug 11202* (MSC) – Summit Co./Park Co., Hoosier Ridge, 39°22'N, [106°00'W], 4050 m, 8.7.1956, *Imshaug 19054* (MSC) – Summit of West Spanish Peak, Sangre de Cristo

Range, 37°23'N, [104°59'W], 4152 m, 6.8.1952, *Imshaug 12057* (MSC). Already reported from Colorado by ANDERSON (1964). – **Montana**: Glacier National Park, Scenic Point [48°29'N, 113°19'W], 2320 m, 15.8.1950, *Imshaug 8868* (MSC). – **Washington**: Okanogan Co., summit of Windy Peak, 48°55'N, [119°58'W], Northern Cascade Mts., 2543 m, 17.8.1995, *Imshaug 18685* (MSC).

Already reported for Alberta by ANDERSON (1964), for British Columbia by NOBLE & al. (1987), for Alaska by e.g. THOMSON (1997), for Arizona by FINK (1935 – no additional records mentioned in NASH & JOHNSEN's catalogue 1975), for California by HASSE (1913 – no additional records mentioned in TUCKER & JORDAN's catalogue 1979), for Colorado by ANDERSON (1964), for Montana by DEBOLT & MCCUNE (1993), for Washington by THOMSON (1969 – based upon HOWARD 1950). However, these old records for Arizona, California, Washington (as well as those for New Mexico by RUDOLPH 1953) are rather doubtful (see also ANDERSON 1964). *Carbonea vorticosa* is an oreophyte with a world-wide distribution (mapped by HERTEL 1985) and restricted to high altitudes and/or high latitudes (as fig. 2 clearly shows). In Himalaya *Carbonea vorticosa* is found up to an altitude of 7400 m (HERTEL 1977c), in the Andes up to 5300 m (HERTEL 1971b) in the Alps up to 4000 m (HERTEL 1970), in Japan up to 3750 m (HERTEL 1977c), and in New Zealand up to 2955 m (HERTEL 1989). It is incredible that this taxon occurs at altitude of only 1600 m in California HASSE 1913), or 1890 m in New Mexico (RUDOLPH 1953).

### *Cecidonia umbonella* (Nyl.) Triebel & Rambold

TRIEBEL & RAMBOLD, Nova Hedwigia 47: 284 (1988); TRIEBEL, Bibl. Lichenol. 35: 131–132 (1989); HAFELLNER, Herzogia 8: 367–368 (1990); HERTEL, Mitt. Bot. Staatssamml. München 30: 301 (1991); WIRTH, Flechten Baden-Württembergs 1: 263 (1995; macrophoto!); INOUE, Bull. Nation. Sci. Mus., Tokyo, ser. B, 23(2): 45–46 (1997).

New records:

**Sweden. Jämtland**: Skurdalsporten, 26.6.1914, *Magnusson* (W, on thallus of *Lecidea praenubila* Nyl.). *Cecidonia umbonella* is rather common in Scandinavia (see map in TRIEBEL & RAMBOLD 1988). It mainly colonises thalli of *Lecidea lapicida*. By contrast, *Lecidea praenubila* is a very rare host of this cecidiogenous lichenicolous species with only one published record (Sweden: Torne Lappmark – see TRIEBEL & RAMBOLD 1988).

**Russia. Respublika Kabardino-Balkaria**: Caucasus Centralis, distr. Tyrnyauz, Regio Mons Elbrus, vicinitatis lacus Donguzorumkoel, in declivibus occid. montis Cheget, 2400–2600 m, 20.6.1980, *Vašák* s.n. (M; on *Lecidea lapicida* var. *pantherina*). – From the Kavkaz Mts. *Cecidonia umbonella* is known only by a single report from Northern Osetia (TRIEBEL & RAMBOLD 1988).

### *Cephalophysia leucospila* (Anzi) Kiliias & Scheidegger

KILIAS & SCHEIDEGGER in KILIAS, Herzogia 7: 183 (1985); HERTEL, Mitt. Bot. Staatssamml. München 30: 301–302 (1991); THOMSON, American Arctic Lichens 2: 203–204 (1997).

= *Lecidea ultima* Th.Fr. – Th.FRIES, J. Linn. Soc. London (Bot.) 17: 363 (1879); HERTEL, Beih. Nova Hedwigia 24: 107–110 (1967); HERTEL, Herzogia 1: 36 (1968), 2: 51 (1970), 2: 249–250 (1971), 2: 496–497 (1973), 4: 387 (1977), 5: 458 (1981); HERTEL, Mitt. Bot. Staatssamml. München 12: 136–140 (1975).

New records:

**Austria. Tirol**: Lechtaler Alpen, Kaiserjoch [47°10'N, 10°20'E], 2300 m, oberhalb Pettneu im Stanzer Tal, VIII.1892, *Arnold* (M). – This record was published as "*Lecidea paraphana* Nyl. var. ...." [sic!] by ARNOLD (1893).

**France. Dépt. Hautes Alpes**: Aiguille de Chambeyron [44°32'N, 6°51'E], NE oberhalb St. Paul, am Col de Vars, 3300 m, 11.9.1996, *Schauer* (M).

**U.S.A. Colorado**: Virginia Basin, Elk Mts., 38°59'N, [106°58'W], 3660 m, 5.7.1952, *Imshaug 10616* (MSC) – Gunnison Co., summit ridge of White Rock Mt., Elk Mts., 38°59'N, 3900 m, 13.7.1952, *Imshaug 10947* (MSC) – Summit/Park Co., Hoosier Ridge, Park Range, 39°22'N, [106°00'W], 3960 m, 8.8.

1956, *Imshaug 18961* (MSC; a small cryptothalline thallus beside *Glypholecia scabra* (Pers.) Müll.Arg.). New to U.S.A.

*Cephalophysis leucospila* is a tiny, arctic-alpine, calcicolous species. Its holarctic distribution is mapped by HERTEL (1975b), that in the Alps by HERTEL (1967 and 1971a) and that in North America by THOMSON (1997). ANDREEV & KUDRATOV (1992) reported it from the Gissarskij Mountains of Tadzhikistan. Additional records for France and Spain are given by KILIAS (1978), ROUX (1983), NAVARRO-ROSINÉS & HLADUN (1991 – specimen seen in BCC-Lich), and BOOM et al. (1995). In North America hitherto only records from the Arctic were known.

***Clauzadeana macula*** (Taylor) Coppins & Rambold

COPPINS & RAMBOLD in RAMBOLD, *Bibl. Lichenol.* 34: 85 (1989); HERTEL, *Mitt. Bot. Staatssamml. München* 30: 302–303 (1991).

= *Lecanora morioides* (Arnold) Blomb., *Bot. Not.* 1895: 96 (1895); THOMSON, *American Arctic Lichens* 2: 293–294 (1997).

New records:

**Austria. Salzburg:** Radstätter Tauern, Mt. Wurmwand, north of the village Obertauern, SE ridge, above the pass Seekarscharte, 47°16'N, 13°34'E, ca. 2100 m, on *Protoparmelia badia*, 14.8.1994, *Hertel 38259* (M). – Not mentioned in TÜRK & WITTMANN's (1987) catalogue of the lichens of Salzburg.

**Russia. E. Chukotka:** Gilimimliveen River, near hot source, on cobble, 31.07.1977, *Makarova s.n.* (M, accompanist of *Sporastatia testudinea*).

**U.S.A. Maine:** Hancock Co., Acadia National Park, Mt. Desert Island, around peak of Cadillac Mountain, on rock outcrops and in stunted spruce forest, 17.6.1983, *Wetmore 45753* (MIN) – Mt. Desert Island, in gorge south of saddle between Cadillac and Dorr Mts, in birch, oak and young spruce woods with rock boulders along sides, 21.7.1984, *Sullivan 4357* (MIN), *4368* (MIN) – Desert Island, Long Pond south of Duck Rock (N–NE of Mansell Mt.), in *Thuja*, maple, spruce, and birch woods with rock outcrops and along shore and talus slope, 1.7.1985, *Sullivan 5248* (MIN). New to Maine.

The taxon was hitherto known only from Europe, Japan, North America (Colorado), and Australia (summarized by RAMBOLD 1989). HERTEL (1989) added records from New Zealand, ANDREEV & ANTONOVA (1989) from Kola Peninsula (Russia), HERTEL (1992) from Canada (N.W.T.), ANDREEV & MYRZAKULOVA (1992) from Kazakhstan, KOTLOV (1995) from Eastern Siberia, and TALBOT & al. (1997) from Alaska.

***Farnoldia hypocrita*** (A.Massal.) Fröberg

FRÖBERG, The calcicolous lichens on the Great Alvar of Öland, Sweden (Lund): 57–59 (1989);

MAKAROVA in ANDREEV, KOTLOV & MAKAROVA, *Handbook Lichens Russia* 7: 135–136 (1998) = *Lecidea hypocrita* ["ypocrita"] A.Massal., *Symmicta Lich. Nov.* 54 (1855); HERTEL, *Beih. Nova Hedwigia* 24: 69–74 (1967); HERTEL, *Herzogia* 2: 485–487 (1973 – with distribution map); THOMSON, *American Arctic Lichens* 2: 352–353 (1997).

New records:

**Austria. Salzburg:** Steinernes Meer, zwischen P. 2052 und P. 2018 nördlich der Schönfeldgrube [47°28'N, 12°57'E], MTB 8543/2, 11.8.1987, *Schuhwerk 2015* (M).

**Liechtenstein.** Am Fürstensteig, zwischen Alpispitz und Gafleispitz [47°10'N, 9°33'E], nördlich von Schaan, ca. 1900 m, auf Kalkfelsen (beside *Farnoldia jurana* (Schaer.) Hertel), 25.9.1972, *Hertel 12811* (M). – Not recorded for Liechtenstein by DALLA TORRE & SARNTHEIN (1902), or by HERTEL (1967), who mapped the distribution of *Farnoldia hypocrita* in the Alps.

**Italy. Prov. Bozen:** Am Karersee [= Karersee, 46°25'N, 11°34'E] in den Dolomiten, 1954, *E. Schmid* (M).

***Farnoldia micropsis*** (A.Massal.) Hertel

HERTEL, *Mitt. Bot. Staatssamml. München* 19: 443 (1983), 28: 216–217 (1989), 30: 304 (1991);

THOMSON, *American Arctic Lichens* 2: 226–227 (1997); MAKAROVA in ANDREEV, KOTLOV



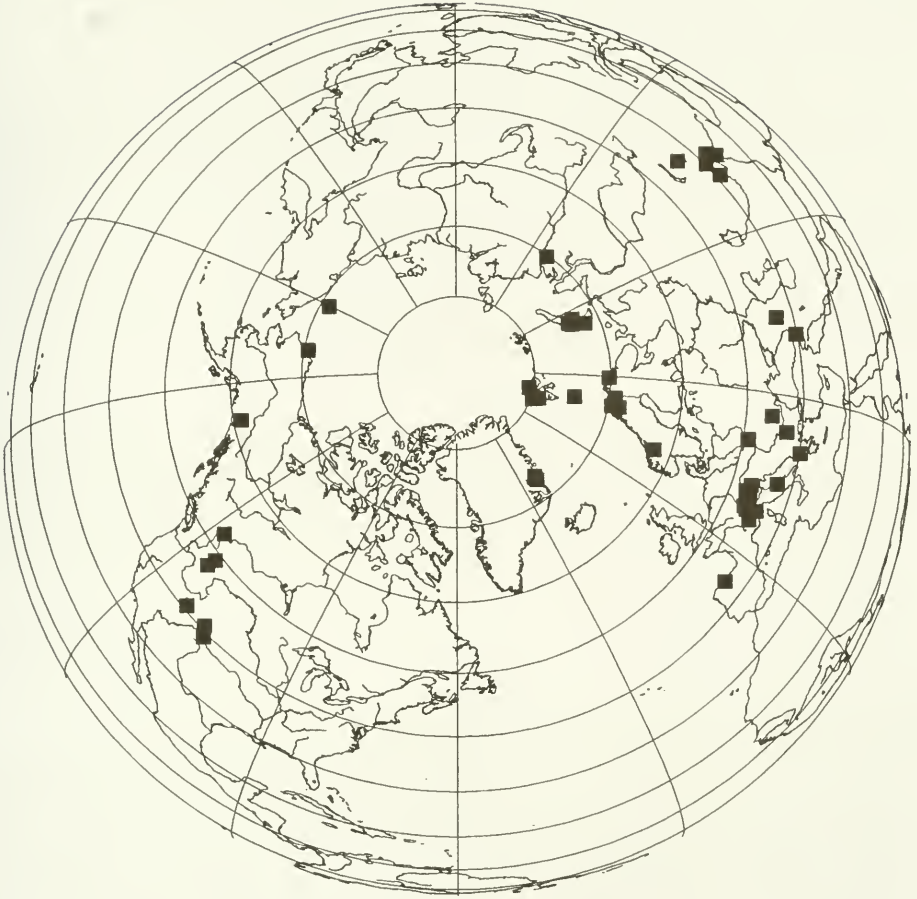


Figure 3: Holarctic distribution of *Farnoldia micropsis*, a bipolar, calciphilous species. (Based on specimens studied by the author.)

& MAKAROVA, Handbook Lichens Russia 7: 135–136 (1998) = *Lecidea micropsis* A.Massal., Atti I.R. Istit. Ven. Sc., Lett. ed Arti, III (II): 368 (1856) = *Lecidea nivalis* Anzi, Catal. Lich. Sondr. : 82 (1860) = *Lecidea rhaetica* Hepp ex Th.Fr., Lichenes Arctoi : 209 (1860) = *Tremolecia nivalis* (Anzi) Hertel, Khumbu Himal, Ergebn. Forsch.-Unternehmens Nepal Himalaya 3: 354–356 (1977).

New synonym: *Lecidea tolstoi* H.Magn. – MAGNUSSON, Svensk Bot. Tidskr. 30: 256–257 (1936). – Type: Russia: Guv. Jenisejsk, Tolstoj nos [Tajmyrski (Dolgoro-Nenecki) nac. okrug, Tolstyi Nos], 70°10'N [83°15'E], “ad fl. Jenisej”, 31.8.1876, *Brenner 1573e* (S, lectotype, selected here).

New records:

**Finland.** *Lapponia enontekiensis*: Porojärvet, Toskalharji, Ostteil, auf Dolomit, 750 m, 14.7.1955, *Henssen 914* (M) – Toskalharji, Gipfel, 900 m, auf Kalkgeröll, 4.8.1955, *Henssen 1355* (M).

**Turkey.** [Prov. *Gümüşhane* (29):] Ak Dagħ [Ak Dağ] inter Erzerum–Trapezunt [40°09'N, 40°37'E], 1914, *Pietschmann* (W). – The record was published by SZATALA (1960) as “*Lecidea rhaetica* Th.Fr. var. *intrusa* J. Steiner”. I am indebted to V. JOHN (Bad Dürkheim), who managed – with the help of a recon-

struction of V. Pietschmann's itinerary – to find out, which of the very many Ak Dağs (= White Mountains) in Turkey was the very collecting locality of this species.

**Canada.** Alberta: Banff National Park: near Upper Victoria Glacier (near Lake Louise), 13.7.1950, *Imshaug 6937b* (MSC). Already reported from Alberta (HERTEL 1973).

**U.S.A.** Alaska: Along the Kaolak River, south of Wainright, 69°56'N, 159°57'W, on calcareous rock, VII.1958, *Shushan & Maher 10436* (WIS; as *Lecidea crustulata*). – Montana: Glacier National Park, Siyeh Pass [48°43'N, 112°38'W], 2500 m, 17.8.1950, *Imshaug 8982* (MSC). From a nearby locality in Alaska previously recorded by HERTEL (1991). Non-arctic U.S.A. records are from Colorado (ANDERSON & CARMER 1974), Montana (HERTEL 1967) and Utah (HERTEL 1975b).

*Farnoldia micropsis* is a calciphilous arctic-alpine lichen, widespread in the Northern Hemisphere (see map, fig. 3). It is adapted to intermediate rock types and is very rare on pure limestone and dolomite (see HERTEL 1967, table 9). From Siberia there is only one record, from Wrangel Island (DOBRYSH 1995, MAKAROVA 1998).

***Fuscidea mollis*** (Wahlenb.) V. Wirth & Vězda

WIRTH & VÉZDA, Beitr. Naturk. Forsch. Südwest-Deutschl. (Karlsruhe) 31: 92 (1972); HERTEL, Khumbu Himal, Ergebn. Forsch.-Unternehmens Nepal Himalaya 6: 197–198 (1977); INOUE, Hikobia suppl. 1: 168–170 (1981); HAFELLNER, Mitt. Naturwiss. Ver. Steiermark 123: 172 (1993); TÜRK, Wiss. Mitt. Nationalpark Hohe Tauern 2: 24 (1996; macrophoto!); THOMSON, American Arctic Lichens 2: 232–233 (1997); BRODO & WIRTH in GLENN, HARRIS, DIRIG, & COLE (eds.): Lichenogr. Thomsoniana: 154–156 (1998).

New record:

**Canada.** Nunavut: East coast of Hudson Bay, Belcher Islands, on pure quartz ca. 56°11'N, 78°47'W, 27.8.1939, *Marr M-599* (MIN, as *Lecidea atrobrunnea*).

***Immersaria athrocarpa*** (Ach.) Rambold & Pietschmann

RAMBOLD & PIETSCHMANN in RAMBOLD, Bibl. Lichenol. 34: 240 (1989); HERTEL, Mitt. Bot. Staatssamml. München 28: 217–218 (1989), 30: 305–306 (1991); WIRTH, Flechten Baden-Württembergs 2: 771, 772 (1995; macrophotos!); MAKAROVA in ANDREEV, KOTLOV & MAKAROVA, Handbook Lichens Russia 7: 137–138 (1998); CALATAYUD & RAMBOLD, Lichenologist 30: 240 (1998) = *Porpidia athrocarpa* (Ach.) Hertel & Rambold in HERTEL, Lecideac. Exs., fasc. VIII, p. 8 (1985); HERTEL, Mitt. Bot. Staatssamml. München 21: 312–313 (1985) = *Lecidea athrocarpa* (Ach.) Ach.; HERTEL, Khumbu Himal, Ergebn. Forsch.-Unternehmens Nepal Himalaya 6: 228–230 (1977); HERTEL & ZHAO, Lichenologist 14: 146 (1982); INOUE, J. Sci. Hiroshima Univ., ser. B, div. 2 (Botany) 18: 22–25 (1982).

New records:

**Iceland.** Suður Múlasýsla: ca. 1.5 km NW von Djupivogur, 64°40'N, 14°18'W, 20–40 m, 8.7.1979, *Hertel 21509* (M).

**Russia.** Far East, Chabarovsk Krai: Badzhai Mountain Range (Badzhai'skij Chrebet), upper course of the river Omot, on a stone in the river, 10.7.1981, *Randlane 437* (M).

**Nepal.** Vorhimalaya: Ostnepal, alpine Matten bei Rauje [Rowuche Teng], ca. 4500 m, IX./X.1962, *Poelt L-1465* (M, extremely eroded specimen). – Khumbu (Mahalangur) Himal: Khumbu, Höhen westlich über Gorak Shep [27°57'N, 86°50'E], 5540 m, IX.1962, *Poelt L-1193* (M). – Previously recorded for Nepal by HERTEL (1977c).

**China.** Men Tou Gou Distr.: Beijing Forest Ecosystem Research Station, 120 km W of Beijing, on north slopes of Dong Ling Shan, along ridge with few oaks and *Betula platyphylla*, 2250 m, 15.9.1994, *Wetmore 75097* (MIN). – Within China *Immersaria athrocarpa* was reported from the provinces of Yunnan (ZAHLEBRUCKNER 1930, HERTEL 1977c) and Jilin (HERTEL & ZHAO 1982); no further records are given in Wei's catalogue (1991).

**Canada.** Northwest Territories: Mackenzie District, Richardson Mountains, Headwaters of Cache River, 68°10'N, 136°25'W, 22.6.1964, *Thomson 16357* (CANL). – Ontario: Algoma Distr., coast of Lake Superior, Sand Bay [46°44'N, 84°33'W], north of Sault Ste. Marie, on igneous rock along coast, 14.7.

1962, *Henssen & Cain 14211c* (GZU) – Rosspport Provincial Campground, 3 miles E of Rosspport [48°50'N, 87°31'W], along shore of Lake Superior and on rock ridges back from shore, 4.7.1976, *Wetmore 25028* (MIN) – Slate Islands, Cove Island on S side of Patterson Island, 48°40'N, 87°00'W, rocky small island with a few spruce and shrubs, 27.7.1977, *Wetmore 29681* (CANL, M, MIN).

U.S.A. **Minnesota:** Cook Co., Susie Islands near Grand Portage, on Long Island along rock shore, 6.9.1980, *Wetmore 41947* (MIN). – **Michigan:** Keweenaw Co., Isle Royale National Park, Heron Island [48°08'N, 88°30'W] in Rock Harbor outside of Tookers Isl., 48°09'N, 88°29'W, 26.7.1983, *Wetmore 49547* (M).

**Mexico. Veracruz:** Cofre de Perote, alpine area below communication installations, by Channel 13 TV Station, ca. 15 km SE Perote, 19°29'N, 97°09'W, alpine vegetation, grassland, ca. 4100 m, 5.3.1995, *Nash 25717* (ASU). *Immersaria athrocarpa* was reported from Mexico (provinces Mexico and Oaxaca) by de LESDAIN (1933).

**Subantarctic Islands. Macquarie Island:** On rocks between Mount Elder and North Mountain, 7.12.1968, *D. McVean 6946* (COLO). – New to the subantarctic region. The species is well known from continental Australia (RAMBOLD 1989). #

***Immersaria usbekica*** (Hertel) M. Barbero, Nav.-Ros. & Cl. Roux

BARBERO, NAVARRO-ROSINÉS & ROUX, Bull. Soc. Linn. Provence 41: 139–142 (1990); MAKAROVA in ANDREEV, KOTLOV & MAKAROVA, Handbook Lichens Russia 7: 137–138 (1998) = *Lecidea usbekica* Hertel, Khumbu Himal, Ergebn. Forsch.-Unternehmens Nepal Himalaya 6: 288–290 (1977).

= *Amygdalaria tellensis* Esnault & Cl. Roux. – ESNAULT & ROUX, Anal. Jardin Bot. Madrid 44 (11): 212–224 (1987).

New record:

**Iran. [Prov. Markazi]:** Mowdere-Berg bei Sultanabad [= Arak, 34°05'N, 49°42'E], [1905–1906], *Strauss* (W). – An almost sterile collection with many graphidioid pycnidia (pycnosporos bacilliform, 6–8.5 × ± 1 µm) and gryophoric acid and O-methylgryophoric acid (chem. det. Ch. Leuckert, Berlin) as lichen substances, growing on slightly calcareous rock. STEINER (1910) published it as *Lecidea atrobrunnea* and SZATALA (1957) repeats these data in his catalogue of the lichens from Iran.

*Immersaria usbekica* is known from Uzbekistan and Kazakhstan (HERTEL 1977a), Tadzhiikistan (ANDREEV & BAIBULATOVA 1985), Algeria (ESNAULT & ROUX 1987), and Spain (BARBERO & al. 1990). – New to Iran.

***Lecanora avium*** (Zahlbr.) Hertel

HERTEL, Beih. Nova Hedwigia 79: 447, 475 (1984) = *Lecidea avium* Zahlbr. in SKOTTSBERG, Nat. Hist. Juan Fernandez 2: 357–358 (1924).

= *Lecidea chilena* Zahlbr., Catal. Lich. Univ. 3: 533 (1925), nom. nov. pro *Lecidea aeruginosa* Nyl., Annal. Sci. Nat. Bot., ser. 4, 3: 164 (1855) nom. illegit.

New record:

**Chile. II Región de Antofagasta. Prov. de Antofagasta:** Cerro Moreno [23°26'S, 70°24'W], rocas costoneras [granite], 10 m, 1965, *Follmann 16536* (M; a small thallus beside isotype of *Arthothelium pacificum* Follmann).

Formerly, *Lecanora avium* was known only from the Juan Fernandez Islands and from the Chilean province of Coquimbo (HERTEL 1984).

***Lecidea atromorio*** C. Knight

KNIGHT, Trans. Proc. New Zealand Inst. 8: 315–316 (1876); HERTEL, Mitt. Bot. Staatssamml. München 21: 321–322 (1985), 28: 219 (1989); RAMBOLD, Bibl. Lichenol. 34: 165–167 (1989).

New records:

**South Africa. Eastern Cape Prov., Ciskei:** Second Hogsback Mountain, north of Alice, 32°36'S, 27°00'E, 1580–1780 m, 1.6.1982, *Hertel 24972, 24974* (M).



**New Zealand.** Wellington: Cape Palliser Road ca. 13 km north of Ngawihi, 41°29'S, 175°13'E, rock outcrops near the sea, 18.8.1992, *Mayrhofer 10852 & Hierzer* (GZU). – Marlborough: NE of Kaikoura, Ohau Stream north of Ohau Point, 42°14'S, 173°50'E, 31.8.1992, *Mayrhofer 12187 & Meurk* (GZU) – Goose Bay SW of Kaikoura, coastal rocks, 42°28'S, 173°32'E, 1.9.1993, *Mayrhofer 12148 & Meurk* (GZU). – Otago: Clutha River Valley, 1 km SE of Roxburgh East, near Roxburgh [45°33'S, 169°18'E], ca. 100 m, schist outcrops at a steep sunny slope, 1.2.1985, *Hertel 30157 & Mayrhofer* (M).

*Lecidea atromorio* was first described from New Zealand, where it is apparently widespread (HERTEL 1985, 1989). It is reported also from continental Australia (RAMBOLD 1989), Tasmania (HERTEL 1989), and South Africa (RAMBOLD 1989; no localities given).

### *Lecidea auriculata* Th.Fr.

FRIES, Lichenes Arctoi: 213 (1860); HERTEL, Khumbu Himal, Ergebn. Forsch.-Unternehmens Nepal Himalaya 6: 233–234 (1977); HERTEL, Mitt. Bot. Staatssamml. München 13: 339–342 (1977), 28: 219–220 (1989), 30: 306–307 (1991); INOUE, J. Sci. Hiroshima Univ., ser. B, div. 2 (Botany) 18: 26–28 (1982); HERTEL, Bibl. Lichenol. 58: 154–155 (1995); HERTEL, Symb. Bot. Upsal. 32(1): 99–100 (1997); THOMSON, American Arctic Lichens 2: 328–330 (1997); ANDREEV in ANDREEV, KOTLOV & MAKAROVA (eds.), Opredel. Lishayn. Rossii 7: 27–29 (1998).

New records:

**Austria.** Tirol: Osttirol, Granatspitz-Gruppe, Südkamm des Nussingkogels, Kante eines Überhangdaches beim Trugenköpfl [47°03'N, 12°33'E], 2620 m, 30.8.1988, *Schuhwerk 2219* (M). – Kärnten: Kreuzeck-Gruppe, Knotenberg [46°47'N, 13°07'E] bei Greifenburg, 2180–2215 m, 15.7.1978, *Wirth 6310* (STU).

**Switzerland.** Kanton Wallis: Rothhorn [46°01'N, 7°49'E], au dessus du Zermatt, 1854, *DeCandolle* (G–DC, as *Lecidea pilati*).

**Italy.** Prov. Bozen: Vordere Schönaufspitze [46°30'N, 10°37'E] SE von Innersulden, 2400 m, Überhangfläche, 27.7.1970, *Hertel 11491* (M).

**France.** Dépt. Hautes Alpes: Col de Granon [44°57'N, 6°37'E], NNW Briançon, 2350 m, 11.7.1970, *Hertel 11580* (M).

**Russia.** Respublika Kabardino-Balkaria: Caucasus Centralis, distr. Tynmyauz, Regio montis Elbrus, in vicinitate glaciei Shelda, in valle fluminis Shelda, 2100–2300 m, 29.7.1981, *Vašák* (M).

**Canada.** Northwest Territories: [Mackenzie district]: Unnamed tributary of the Arctic Red River, entering from the E side [ca. 65°45'N, 131°30'W], ca. 120 miles WNW of Norman Wells, on boulders, 4.8.1978, *Bird & Thomson 19880* (M). – Nunavut: Ellesmere Island, Goose Fjord [76°24'N, 88°19'W], 0–100 ft, *Innes-Taylor 74* (CANL).

*Lecidea auriculata* is a bipolar, arctic-alpine species. It is common only in the Arctic. A high percentage of the older herbarium specimens are misidentified. Its Northern Hemisphere distribution was mapped by HERTEL (1977b), the arctic American one by THOMSON (1997) and that of Japan by INOUE (1994).

### *Lecidea capensis* Zahlbr.

ZAHLBRUCKNER, Catal. Lich. Univ. 3: 6345 (1925); RAMBOLD, Bibl. Lichenol. 34: 168–172 (1989).

New synonym:

*Lecidea squamifera* Stizenb. var. *bylii* Zahlbr. Annal. Crypt. Exot. 5: 231 (1932). – Type: Republic of South Africa, Kapland [Northern Cape Prov.], Calvinia [31°28'S, 19°46'E], [no date], *van der Byl 772* (W, holotype).

### *Lecidea cerviniicola* de Lesd.

DE LESDAIN, Bull. Soc. Bot. France 102: 231 (1955); HERTEL, Decheniana 127: 63 (1975); HERTEL, Khumbu Himal, Ergebn. Forsch.-Unternehmens Nepal Himalaya 6: 241 (1977); RAM-



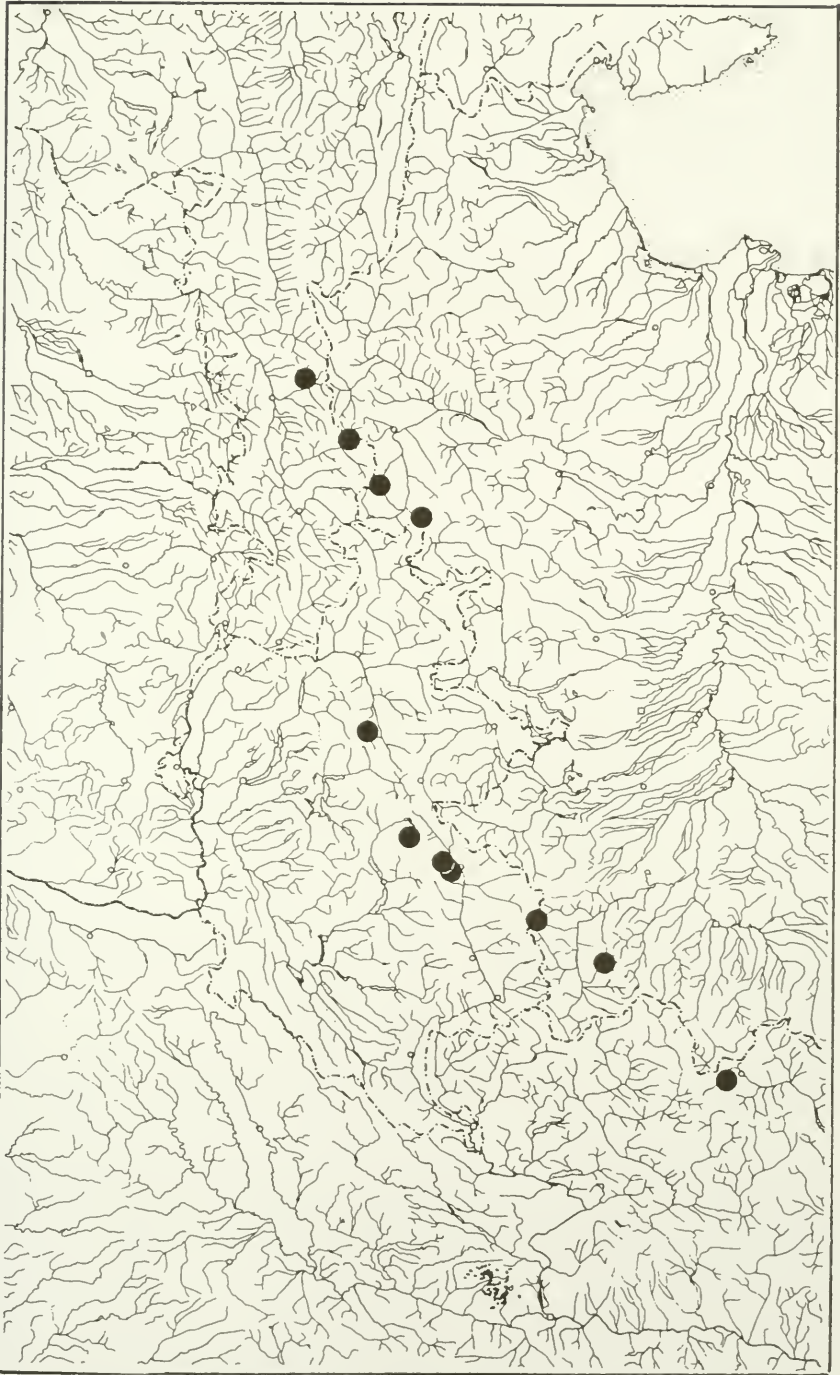


Figure 4: *Lecidea cerviniicola*: Distribution in the Austrian, Italian, Swiss and French Alps. This bipolar species is rarely collected outside the European Alps.

BOLD, *Bibl. Lichenol.* 34: 202–205 (1989); ANDREEV & MYRZAKULOVA, *Bot. Zhurn.* 77(3): 116 (1992); HERTEL, *Bibl. Lichenol.* 58: 155–156 (1995); ANDREEV in ANDREEV, KOTLOV & MAKAROVA (eds.), *Opredel. Lishayn. Rossii* 7: 32 (1998).

New records:

**Austria.** Salzburg: Salzburger Alpen, Hochkönig-Gruppe, Troyboden [47°25'N, 13°08'E], auf der Mitterberger Alm westlich Bischofshofen, vorgeschichtliche Scheidehalden, 1550 m, 19.8.1968, *Teuffert 118b* (M). – Tirol: Ötztaler Alpen, Schneide des Festkogels östlich ober Obergurgl, [46°51'N, 11°03'E], ca. 3000 m, VIII.1879, *Arnold* (M) – Gneisblöcke am Mittagskögele [46°56'N, 10°52'E], bei Mittelberg im Piztal, VIII.1875, *Arnold* (M, as *Lecidea promiscua* Nyl.) – Gneishänge bei Pillberg [46°54'N, 11°03'E], unterhalb Obergurgl, VIII.1955, *Poelt* (M) – Tuxer Voralpen, Schröffelkogel, am Rücken gegen den Bentlstein [47°06'N, 11°32'E], 2200 m, VIII.1960, *Doppelbauer, Poelt & Steiner* (M) – Lechtaler Alpen, Kaiserjoch, nördlich oberhalb Pettneu (47°10'N, 10°20'E), auf Kalkhornstein, 2318 m, 29.8.1892, *Arnold* (M) – Osttirol, Venedigergruppe, Umbaltal oberhalb der Pebell-Alpe [47°01'N, 12°18'E], 1860 m, 29.8.1988, *Schuhwerk 2230* (M).

**Switzerland.** Kanton Wallis: Südseite des Schwarzorns unter der Mischabelhütte bei Saas Fee, 3100 m, 19.8.1971, *Schuhwerk 1871* (M) – Rothhorn [46°01'N, 7°49'E] au dessus de Zermatt, *De Candolle 451* (G–DC, as *Lecidea pilati*).

**France.** Dépt. Hautes Alpes: Col de Granon [44°57'N, 6°37'E], NNW Briançon, 2400 m, 11.7.1970, *Hertel 11891* (M).

**Italy.** Prov. Bozen (Südtirol): Ortler Gruppe, Vordere Schöntaufspitze [46°30'N, 10°37'E] SE von Innersulden, 2400 m, 27.7.1970, *Hertel 11524* (M) – Ötztaler Alpen, Hochschwems [46°46'N, 10°45'E] NW oberhalb Kurzras im Schnalstal, 2500 m, 29.7.1970, *Hertel 11573* (M) – Ostgrat der Muthspitze oberhalb der Zufallshütte im obersten Martelltal [46°29'N, 10°40'E], 2500 m, 31.7.1979, *Hertel 11695* (M). – Prov. Sondrio: *Ad rupes micaceas in alpinis montibusque Bormiensibus* (M; ANZI, Lich. Langob. Exs. 401, as *Lecidea confluens* f. *ecrustacea*). – Prov. Val d'Aosta: River valley, a few kms below Cogne, on streamside boulders, granites and schists, 24.7.1966, *Weber L-43571* (COLO).

**Spain.** Prov. Granada: Sierra Nevada, Gipfelbereich des Mulhacén [37°02'N, 3°18'W], an Glimmerschiefer-Platten, 3350–3470 m, 30.7.1969, *Hertel 11741* (M).

*Lecidea cerviniicola* is a species which is often confused with either *Lecidea auriculata* or *L. promiscens*. Former records from the Alps (Austria, France, Italy) are given by CULBERSON & HERTEL (1972) and from Spain by HERTEL (1975a, 1992). Outside of Europe it is known from alpine localities in the Australian Alps (RAMBOLD 1989).

### *Lecidea cinerata* Zahlbr.

ZAHLBRUCKNER, *Bull. Torrey Bot. Club.*: 644 (1900); MAGNUSON, *Meddel. Göteb. Bot. Trädgård* 10: 38–39 (1936).

New record:

**U.S.A.** California: San Gabriel Range, 1898, *Hasse* (COLO; HASSE, Lich. Southern Calif. 899).

This specimen of HASSE's exsiccata does not contain *Lecidea fuscatoatra* Nyl., as indicated on the label. Besides brown thalli of *Acarospora* and *Rhizocarpon*, there are numerous apothecia of a cryptothalline lichen: *Lecidea cinerata*, a species described from the same area ("San Gabriel Range above Hollywood"). *L. cinerata* is known only from southern California. MAGNUSON's record from Colorado needs confirmation, for MAGNUSON was not aware of the chemical characters (schizopeltic acid and gyrophoric acid, see CULBERSON & HERTEL 1972) which characterize this species.

### *Lecidea confluens* (Weber) Ach.

ACHARIUS, *Method. Lich.*: 14 (1803); SCHWAB, *Mitt. Bot. Staatssamml. München* 22: 314–322 (1986); HERTEL, *Bibl. Lichenol.* 48: 156 (1995); WIRTH, *Flechten Baden-Württembergs* 1: 513 (1995; macrophoto!); THOMSON, *American Arctic Lichens* 2: 338–339 (1997); ANDREEV in ANDREEV, KOTLOV & MAKAROVA (eds.), *Opredel. Lishayn. Rossii* 7: 33–35 (1998).

## Confirmed synonym:

*Lecidea lepadina* Sommerf. – SOMMERFELT, Suppl. Fl. Lapon. 145 (1826); Th. FRIES, Lichenogr. Scand.: 485 (1874); LYNGE, Result. Norske Statsunderst. Spitsbergeneksped. 1(9): 24 (1926); MAGNUSSON, Ark. Bot. 2(2): 120 (1952). – Type: Norvegia, Nordland, in Hekkeltind Skjærstad, VIII.1822, C. Sommerfelt (O, lectotype, selected here). The specimen contains confluent acid (major), 2'-O-methylmicrophyllinic acid, and 2'-O-methylperlatolic acid (both minor). – Already Th. FRIES (loc. cit.) regarded *Lecidea lepadina* as a growing form of *L. confluens*. As stated before (HERTEL 1995) we follow his estimation.

## New records:

**Svalbard. Spitsbergen:** Kongsfjord, Blomstrandhalvøya, Irgensfjellet [78°59'N, 12°09'E], an kleinen, feucht liegenden Steinen am inneren Rand von Steinringen auf Polygonböden, ca. 150 m, 21.7.1975, Hertel 16322 & Ullrich (M). – Further Svalbard records are from Sørkapp Land and Bjørnøya (ELVEBAKK & HERTEL 1996).

**Romania. Hunedoara:** Circa lacum "Zenoga" infra alpem Retezát [ca. 45°20'N, 22°50'E] in Transylvania, ca. 6000', 9.8.1873, *Lojka* 2467 (M, as *Lecidea lapicida*).

**Greece. Bezirk Grevená** [Γρεβενά]: Aufstieg zum Smólikas [Σμόλικας] (von Samarína [Σαμαρίνα] aus) [40°05'N, 20°57'E], NE-Hang, 2150 m, 15.7.1982, *Triebl* 1836 (M).

*Lecidea confluens* is an often misunderstood species; and most of the literature records need reconfirmation.

*Lecidea diducens* Nyl.

NYLANDER, Flora 48: 148 (1865); CULBERSON & HERTEL, Bryologist 75: 372–375 (1972); HERTEL, Khumbu Himal, Ergebn. Forsch.-Unternehmens Nepal Himalaya 6: 243–244 (1977); HERTEL, Mitt. Bot. Staatssamml. München 13: 340, 343–344 (1977 with distribution map), 28: 220 (1989), 30: 307–308 (1991); INOUE, J. Sci. Hiroshima Univ., ser. B, div. 2 (Botany) 18: 30–31 (1982); RAMBOLD, Bibl. Lichenol. 34: 208–210 (1989); INOUE, J. Hattori Bot. Lab. 76: 193–194 (1994); HERTEL, Bibl. Lichenol. 58: 158 (1995); HERTEL, Symb. Bot. Upsal. 32(1): 100 (1997); THOMSON, American Arctic Lichens 2: 340, 343 (1997); ANDREEV in ANDREEV, KOTLOV & MAKAROVA (eds.), Opredel. Lishayn. Rossii 7: 40–41 (1998).

## New records:

**Switzerland. Kanton Uri:** Straße zum Gotthard-Paß südlich oberhalb Hospental [46°35'N, 8°33'E], 1500–1600 m, 10.8.1912, *Lettau* (B). The record was published by LETTAU (1954) as *L. promiscens* Nyl.

**Italy. Prov. Bozen** (Südtirol): Ortler-Gruppe, Vordere Schöntaufspitze [46°30'N, 10°37'E] südöstlich Innersulden, 2400 m, 27.7.1970, *Hertel* 11501 (M) – Ötztaler Alpen, Hochschwems [46°46'N, 10°45'E], NW oberhalb des Gasthofs Kurzras im obersten Schnalstal, 2500 m, 29.7.1970, *Hertel* 11573 (M).

*Lecidea diducens* is a widespread, bipolar taxon, often confused with *Lecidea auriculata* Th. Fr. It shares the C+ red excipulum and small oblong ascospores with *Lecidea cerviniicola*, but it has smaller ascospores and a different chemistry: 2'-O-methylanziaic acid and confluent acid (instead of anziaic and perlatolic acid in *L. cerviniicola*).

*Lecidea fuscoatra* (L.) Ach.

ACHARIUS, Method. Lich.: 44 (1803); HERTEL, Khumbu Himal, Ergebn. Forsch.-Unternehmens Nepal Himalaya 6: 244–248 (1977); BUSCHARDT, Bibl. Lichenol. 10: 186–190 (1979); HERTEL & ZHAO, Lichenologist 14: 147 (1982); ANDREEV & KUDRATOV, Bot. Zhurn. 77: 105 (1992); WONG & BRODO, Syllogeus 69: 50 (1992); HERTEL, Bibl. Lichenol. 58: 158 (1995); THOMSON, American Arctic Lichens 2: 346–347 (1997); ANDREEV in ANDREEV, KOTLOV & MAKAROVA (eds.), Opredel. Lishayn. Rossii 7: 47–49 (1998).

## New records:

**Germany. Bayern:** Bayerischer Wald, Lkr. Cham, Brenntenstein am Kaitersberg (MTB 6843/2), süd-exponierte Steilflächen, 960 m, 24.6.1979, *Schuhwerk* 1795 (M) – Oberbayern: Auf Dachziegeln eines Hauses bei Baierbrunn bei München, X.1888, *Boll* (M, ARNOLD, Lich. Exs. 1442) – Schwaben, Allgäuer



Alpen, Söllereck bei Oberstdorf, auf Glimmerschiefer, 1000 m, *Britzelmayr* (M; BRITZELMAYR, Lich. Exs. 795).

**Italy.** Prov. Napoli: Südhang des Vesuv [40°48'N, 14°25'E], sonnige Lavablöcke, 350 m, 2.5.1951, *M. Steiner* (M).

**Romania.** [Hunedoara:] Supra saxa micaceo-schistosa vallis "Riu mare" infra alpem Retezát in Transsylvania, 1.8.1880, *Lojka* (M; LOJKA, Lich. Regni Hung. Exs. 141).

**Greece, Makedonia:** N.E. Chalkidiki, coastal rocks above the sea near Vouvora [Βουρβουρού, 40°11' N, 23°47'E], Sithonian Peninsula [Σιθωνία], 24.7.1971, *W.A. Weber & P.W. Richards L-54582* (COLO).

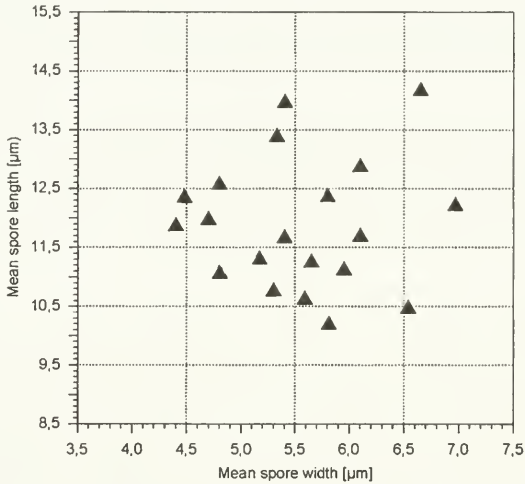


Figure 5: Spore size in *Lecidea fuscoatra* s.str. The diagram shows arithmetic means of measurements of spores. Dots based on series of 20–50 measurements.

**Canada. British Columbia:** Saltspring Island, 1 mile S of Southey Point [48°57'N, 123°36'W], near home of H. Sylvander, on coast near sea level, 27.4.1971, *C.D. Bird & R.D. Bird 25711* (CANL).

**U.S.A. Michigan:** Keweenaw Co., Isle Royale, on a rock on the dry south slope of Mt. Franklin, 48° 08'N, 88°33'W, 25.8.1972, *Thomson 17341* (MIN). – **Oregon:** Deschutes Co., Juniper Wayside, 7 miles E of Sisters, basalt rim-rock, north facing, 900 m, 15.2.1977, *Weber L-64583* (COLO) – Wasco Co., 48 km north of Madras between Shaniko and Antelope along Ward Creek, 44°58'N, 120°48'W, 1150 m, 18.8.1977, *Rossmann 283* (COLO). – **California:** Santa Clara Co., Santa Cruz Mts., Hills near Stanford University [37°25'N, 122°10'W], 60 m, 23.4.1904, *Herre 410* (MIN) – Siskiyou Co., near the Ash Creek Bridge, off Hwy 96, along south shore of Klamath River, north of Yreka, 41°50'N, 122°38'W, 600 m, 26. 8.1989, *Ryan 25658* (ASU). – **Wyoming:** Teton Co., Yellowstone National Park, below Mystic Falls near Biscuit Basin, on north facing slope above stream in lightly burned area with Engelmann spruce, subalpine fir, 44°29'N, 110°53'W, 2410 m, 9.8.1998, *Wetmore 81978* (MIN).

**Argentina. Prov. Río Negro:** Lago Nahuel Huapí, Isla Victoria, en una roca en el pasto cerca de la orilla del lago, 28.I.1950, *Lamb 5852* (M). – New to South America.

*Lecidea fuscoatra* s.str. as circumscribed here is characterized by gyrophoric acid (often along with O-methylgyrophoric acid) as the major lichen substance, and a dark brown to blackish brown hypothecium (seen in sections ca. 15 µm thick).

***Lecidea fuscoatrula* Nyl.**

NYLANDER, Lich. Nov. Zeland.: 106 (1888); RAMBOLD, Bibl. Lichenol. 34: 173–176 (1989);

HERTEL, Mitt. Bot. Staatssamml. München 28: 221 (1989); HERTEL, Symb. Bot. Upsal. 32



(1): 100 (1997); MALCOLM & GALLOWAY, New Zealand Lichens: 21 (1997; black-and-white macrophoto, and colour macrophotos!).

New records:

**South Africa.** Western Cape Prov.: Jonkershoek [33°56'S, 22°13'E], 24.10.1963, *Almborn 83206* (LD; contains 2'-O-methylmicrophyllinic acid).

**New Zealand.** Canterbury: Eastern Bot. Distr., Lake Pukaki Hotel, on non-calcareous boulders in *Festuca novae-zealandiae* tussock at the road side, 12.3.1927, *E. Du Rietz & G. Du Rietz 2094 b* (UPS; contains 2'-O-methylmicrophyllinic acid (major) and norstictic acid).

*Lecidea fuscoatrula* is a Southern Hemisphere taxon (Southern xeric element), known from Australia (RAMBOLD 1989), New Zealand (HERTEL 1989) and South Africa (RAMBOLD 1989; no localities given).

***Lecidea haerjedalica* H.Magn.**

MAGNUSSON, Bot. Notiser 1948: 403–404 (1948); HERTEL, Khumbu Himal, *Ergebn. Forsch.-Unternehmens Nepal Himalaya* 6: 250–251 (1977); HERTEL, *Mitt. Bot. Staatssamml. München* 12: 130–132 (1975), 17: 173 (1981); HERTEL, *Herzogia* 5: 451 (1981); HERTEL, *Bibl. Lichenol.* 58: 160 (1995); HERTEL, *Symb. Bot. Upsal.* 32(1): 100 (1997) with distribution map; THOMSON, *American Arctic Lichens* 2: 347, 349 (1997); ANDREEV in ANDREEV, KOTLOV & MAKAROVA (eds.), *Opredel. Lishayn. Rossii* 7: 51 (1998).

New record:

**Austria.** Salzburg: Lungau, Schladminger Tauern, Lanschitzbachtal, NE der Lasshoferhütte, westlich unter der oberen Bacheralm, S-exponierte Blockschutthalde (MTB 8748/2), an schwermetallhaltigem Silikatgestein, 1560 m. 6.7.1995, *Möslinger (L-561) & Hafellner* (GZU).

***Lecidea lapicida* (Ach.) Ach. var. *lapicida* Ach.**

ACHARIUS, *Method. Lich.* 37 (1803); HERTEL, *Willdenowia* 6: 241 (1971); HERTEL, *Mitt. Bot. Staatssamml. München* 17: 174 (1981), 21: 323–325 (1985), 23: 326–327 (1987), 28: 221–223 (1989), 30: 308–309 (1991); INOUE, *J. Sci. Hiroshima Univ., ser. B, div. 2 (Botany)* 18: 38–39 (1982); HERTEL & ZHAO, *Lichenologist* 14: 148 (1982); HERTEL, *Beih. Nova Hedwigia* 79: 419–420 (1984); HERTEL, *Symb. Bot. Upsal.* 32(1): 100 (1997); THOMSON, *American Arctic Lichens* 2: 356–357 (1997); ANDREEV in ANDREEV, KOTLOV & MAKAROVA (eds.), *Opredel. Lishayn. Rossii* 7: 57–59 (1998).

New records:

**Austria.** Steiermark: Schladminger Tauern, Kleinsölktal, Steinigboden über dem Schwarzensee (MTB 8749/1), an schwermetallhaltigem Gneis, 1400 m, 8.9.1993, *Möslinger L-662, Hafellner & Wilfling* (GZU).

**Switzerland.** Kanton Bern: Schwarzhorn [46°41'N, 8.04'E] über der Großen Scheidegg, nahe unter dem Gipfel, 2900 m, 20.7.1928, *Frey 324* (M) – Gipfel des Finsteraarhorns [46°32'N, 8°06'E], 4275 m, 10.8.1920, *Frey s.n.* (G; infected by *Muellerella pygmaea*, associated with *Sporastatia testudinea*). – Kanton Wallis: Aux Alpes du Mt. Rose sur Zermatt, 1854, *DeCandolle* (G-DC, as *Lecidea pilati*) – Val d'Hérens, Grande Dent de Veisivi [46°03'N, 7°32'E], Gneisgipfel, 3425 m, 4.8.1929, *Frey 448* (G, M).

**Cyprus.** Troodos-Gebirge, Chionistra (Mt. Olympos), 34°56'N, 32°58'E, 1850 m, Blöcke in schütteren *Pinus nigra* ssp. *pallasiana*-*Juniperus foetidissima*-Wald, 4.10.1994, *Hertel 38463* (M). – According to LITTERSKI & MAYRHOFER (1998) *Lecidea lapicida* var. *lapicida* was not yet recorded from the island of Cyprus.

**Canada.** Newfoundland: In spruce scrub barren above St. Anthony [51°22'N, 55°35'W], ca. 75 m, 22.6.1953, *Lamb 7379* (M).

**New Zealand.** Central Otago: Old Man Range, SW of Alexandra, summit plateau near Hyde Rock, 45°21'S, 169°12'E, schist stones on ground in alpine tundra, 1610–1670 m, 3.2.1985, *Hertel 30386, Child & Mayrhofer* (M). – Already recorded from Otago (HERTEL 1985).

*Lecidea lapicida* s.str. is a very widespread and locally common taxon; HERTEL (1985) maps its world distribution and HERTEL (1997) its extra-holarctic distribution.

***Lecidea lapicida* (Ach.) Ach. var. *maungahukae* Hertel var. nov.**

Holotype: New Zealand. South Island, Westland: Mt. Haast, Col between West Peak and Middle Peak, 2955 m, 10 January 1967, *Cunninghame* (CANU, herb. Fineran 2487; published as *Lecidea durietzii* H. Magn. by FINERAN & DODGE 1973).

Ethymology: *maunga huka* (Maori) = snowy mountain (REED 1982).

Diagnosis: Differt a *Lecidea lapicida* var. *pantherina* apotheciis minoribus (0.2–0.4–0.65 mm in diam.), areolis thalli minoribus, dispersis, stramineis et hypothecio brunneo.

Description: **Thallus:** Small, 3–12 mm in diam. Areolae roundish, 0.2–0.8 mm in diam., up to 0.15 mm tall, straw-coloured to beige, subbullate, with a shiny, smooth surface (due to an epinecrotic cortex layer ca. 20  $\mu\text{m}$  thick), dispersed on a conspicuous, black, thin prothallus. Medulla I+ intense violet, K+ red (norstictic acid). – **Apothecia:** 80–120 per  $\text{mm}^2$ , mean diameter ca. 0.4 mm, maximum diameter 0.6(–0.8) mm, well constricted at base, with a well-developed black, shiny margin (ca. 70  $\mu\text{m}$  wide) and a dull black, epruinose, flat to slightly convex disc. Internal structure as in *Lecidea lapicida*. – **Hymenium:** 55–60–63  $\mu\text{m}$  tall, unpigmented, except an 9–13  $\mu\text{m}$  wide, greenish upper part (epihymenium). – **Subhymenium:** 27–34–40  $\mu\text{m}$  tall, unpigmented. – **Hypothecium:** 40–70  $\mu\text{m}$  tall, dark brown (seen in sections 16  $\mu\text{m}$  wide). – **Ascospores:** broadly ellipsoid, 7.0–8.4–8.8–10.5  $\times$  4.0–4.5–5.2–6.3  $\mu\text{m}$ , length-width-index: 1.6–1.8. – **Pycnidia:** immersed in thallus,  $\pm$  globular, with bacilliform, apically formed conidia, 7–10  $\times$   $\pm$  1.0  $\mu\text{m}$ .

Anatomically this new variety is closely related to *Lecidea lapicida* var. *pantherina*. In terms of its gross morphology it is quite distinctive. Since *Lecidea lapicida* is a rather variable species, we are not yet absolutely sure whether this variety is a merely a morphodeme of high-altitude sites. On the other hand, we have studied many collections of *L. lapicida* from extreme altitudes and latitudes, but never before encountered such a morphology, which is identical in all three collections studied.

Additional specimens:

**New Zealand. Westland:** type locality, *Cunninghame* (herb. Fineran 2488 & 2495) (CANU; both labeled “*L. durietzii*”) – Mt. Haidinger, Main Divide Ridge, 2925 m, on broken rock outcrop on western side of ridge, 7.1.1967, *Fineran 2519* (CANU; published by FINERAN & DODGE 1973 as *Lecidea pallidolatra* Nyl.) and *Fineran 2520* (CANU; published by FINERAN & DODGE 1973 as *Lecidea triangularis* H. Magn.).

***Lecidea lapicida* (Ach.) Ach. var. *pantherina* Ach.**

ACHARIUS, Kongl. Svenska Vetenskapsakad. Handl.: 232 (1808); HERTEL, Mitt. Bot. Staats-samm. München 28: 223 (1989), 30: 309 (1991); HERTEL, Bibl. Lichenol. 58: 162 (1995); WIRTH, Flechten Baden-Württembergs 1: 515 (1995; macrophoto!); HERTEL, Symb. Bot. Upsal. 32(1): 101, 103 (1997); ANDREEV in ANDREEV, KOTLOV & MAKAROVA (eds.), Opredel. Lishayn. Rossii 7: 59 (1998); THOMSON, American Arctic Lichens 2: 352, 355–356 (1997).

New synonym:

*Lecidea deagostinii* Sambo, I licheni della Terra del Fuoco: 25 (1926). – Typus: [Argentina] Tierra del Fuego, sue sassi a Río del Fuego, 1910, *Tonelli* (FI, holotype; a very small specimen; thallus areolated, grey, K+ red, I+ intensely violet, Hymenium 60–70  $\mu\text{m}$ , epihymenium olive green, subhymenium 15–30  $\mu\text{m}$ , hypothecium dark brown, spores 11–13  $\times$  5.5–6.5  $\mu\text{m}$ ).

New records:

**Russia. Respublika Kabardino-Balkaria:** Caucasus Centralis, distr. Tyrnauz, regio montis Elbrus, vicinitatis lacus Donguzorumkoel, in declivibus occid. montis Cheget, 2400–2600 m, 20.6.1980, *Vašák s.n.* (M).

**Canada. Northwest Territories:** [Mackenzie district:] Central Mackenzie Mts., Keele River Region, Tigonankweine Region, 63°40'N, 127°52'W, 1680 m, 8.8.1971, *Scotter 16176* (WIS). – **Nunavut:** Hood River, Wilberforce Falls area, 1 mile upstream of fall along the west bank of the Hood River, south facing, 10° inclined slope, 67°04'N, 108°46'W, 140 m, 16.8.1990, *Gould 1769* (MIN). – **Alberta:** Jasper National Park: Ridge opposite Angel Glacier on Mt. Edith Cavell [52°40'N, 118°03'W], 1980 m, 16.7.1950, *Imshaug 6993* (MSC, beside *Carbonea vorticosa* and *Tremolecia atrata* (Ach.) Hertel). – **Newfoundland:** Avalon Peninsula, on bedrock along shore, Williams Cove, Bay Bulls, 47°18'N, 52°47'W, 21.11.1978, *D.P. Weber* (MICH).

**New Zealand. Canterbury:** Summit of Mt. Peel, 43°51'S, 171°09'E, 1750 m, 16.1.1985, *Hertel 29574*, *Mayrhofer, Meurk & Molloy* (M). – **Otago:** Hyde Rock, Old Man Range, 45°19'–23'S, 169°12'E, 1610–1670 m, 3.2.1985, *Hertel 30359*, *Child & Mayrhofer* (M) – Mt. Maungatua, 45°54'S, 170°08'E, SW of Dunedin, 850–890 m, 31.1.1985, *Hertel 30050*, *Mark & Mayrhofer* (M).

*Lecidea lapicida* var. *pantherina* is a bipolar taxon. In arctic and subarctic regions of the Northern Hemisphere it seems to be common. ANDREEV (1998) mentions it from “Northern Kavkas”. Its extra-holarctic distribution (including localities in Tierra del Fuego) is mapped by HERTEL (1997).

### *Lecidea leprosolimbata* (Arnold) Lettau ex Poelt

POELT, Mitt. Bot. Staatssamml. München 3: 578 (1960); CLAUZADE & ROUX, Bull. Soc. Linn. Provence 27: 42–43 (1974); HERTEL, Bibl. Lichenol. 58: 162–163 (1995); ANDREEV in ANDREEV, KOTLOV & MAKAROVA (eds.), Opredeľ. Lishayn. Rossii 7: 60–61 (1998) = *Lecidea atrobrunnea* var. *leprosolimbata* Arnold, Verh. Zool.-Bot. Ges. Wien 39: 264 (1889); HERTEL, Beih. Nova Hedwigia 24: 115–117 (1967); HERTEL, Herzogia 1: 33 (1968); KILIAS, Hoppea, Denkschr. Regensb. Bot. Ges. 37: 119 (1978).

New record:

**Austria. Tirol:** [Tuxer Voralpen] Ostgrat des Mieslkopfes [47°09'N, 11°32'E] bei Navis östlich Matriei am Brenner, 2450 m, 10.9.1971, *Schuhwerk 754* (M).

*Lecidea leprosolimbata* is an alpine, calciphilous species, normally starting its life-cycle as a lichenicolous species on the thallus of *Bellemerea subcandida* (Arnold) Hafellner & Cl. Roux (soon becoming independent, but very often found next to this host). Morphologically it is closely related to *Lecidea syncarpa* Zahlbr., a rather widespread taxon of the *Lecidea atrobrunnea* complex exclusively colonizing acid rocks. Both lichens have norstictic acid as the major lichen substance. *L. leprosolimbata* is known from the Alps, Pyrenees, and the Cordillera Cantabrica (HERTEL 1995). For plant-geographical and ecological reasons, we doubt the record of Morocco (WERNER 1974 – “Volcan de l’Ari Hebbri, sur basalte dans le Cedretum, 2000–2100 m”) as well as that of Corsica (WERNER & DESCHARTES 1974 – “Mte. Cinto, 1400 m, sur rochers dioritiques”).

### *Lecidea leucothallina* Arnold var. *leucothallina*

ARNOLD, Verhandl. Zool.-Bot. Ges. Wien 29: 382 (1879); HERTEL, Mitt. Bot. Staatssamml. München 12: 133–134 (1975); ANDREEV & ANTONOVA, Novit. Syst. Plant. non Vascul. 26: 97 (1989); HERTEL, Bibl. Lichenol. 58: 163 (1995); THOMSON, American Arctic Lichens 2: 358, 360 (1997).

New records:

**Austria. Tirol:** Ötztaler Alps, Ittsee [46°53'N, 11°01'E] über Obergurgl, 2675 m, an niedrigem Block im Polytrichetum sexangularis, 14.7.1982, *Schuhwerk 827/10* (M).

From the Alps this lichen acid deficient variety was mainly reported by ARNOLD (1879, 1886, 1887, 1889). In M the following collections are preserved:

**Austria. Tirol:** Kühkampeiseck [46°51'–52'N, 11°02'–03'E, ridge W of Mt. Festkogel, 2500 m] östlich ober Gurgl, an Glimmerblöcken, VIII.1878, Arnold (M) – Im kahlen Gehänge östlich ober Gurgl, ca. 2400 m, an Glimmerblöcken, 7.8.1879, Arnold (M; ARNOLD, Lich. Exs. 760 b) – Oberhalb des Schwar-



zensteinses [47°02'N, 11°50'E, ca. 2600–2700 m] im obersten Zillertal, an Glimmerschieferblöcken, VIII.1887, *Arnold* (M) – Am Wege zu den Finstertaler Seen [47°12'N, 11°01'E, ca. 2100 m] bei Kühthei, an Gneisblöcken, VII.1884, *Arnold* (M).

**Italy.** Prov. Trento: Kahle Felswüste rechts ober dem Col Briccon (46°17'N, 11°45'E, ca. 2700 m] bei Paneveggio, an Porphyrfelsen, 29.8.1883, *Arnold* (M; ARNOLD, Lich. Exs. 760c) – Val Maor, Übergang nach Caoria [Forcella di Valmaggiore, 46°16'N, 11°40'E, 2180 m], an Porphyr, VII.1880, *Arnold* (M) – Gipfel der Vocche [Cima di Bocche, 46°21'N, 11°45'E, 2745 m] nördlich ober Paneveggio, VIII.1884, *Arnold* (M; two specimens).

***Lecidea leucothallina* Arnold var. *kujalae* (Räsänen) Hertel**

HERTEL, Bibl. Lichenol. 58: 164 (1995); ANDREEV in ANDREEV, KOTLOV & MAKAROVA,

Opredel. Lishayn. Rossii 7: 62 (1998) = *Lecidea kujalae* Räsänen, Ann. Bot. Soc. Zool.-Bot.

Fenn. Vanamo 18(1): 76 (1943).

New records:

**Iceland.** Eyjafjarðarsýsla: Klaengsholl-Kargletscher im Skiðalur, W Eyjafjord, ca. 25 km NW Akureyri, 65°47'N, 19°35'W, 700–800 m, 1983, *H.-H. Meyer* (M).

**U.S.A.** Colorado: Routt Co., W slope of Hahn's Peak [40°51'N, 106°56'W], 2745 m, 3 miles E of Columbine, on shaded talus blocks, 22.6.1965, *Weber* (WEBER, Lich. Exs. Colo. 155; GZU, W – as *Lecidea atrobrunnea*). – Montana: Deer Lodge Co., Storm Lake [46°04'N, 113°16'W], Deer Lodge National Forest, Continental Divide south of Georgetown and Anaconda, 2380 m, on granite boulders at base of talus in open *Picea-Abies*-forest, 1./2.8.1976, *Weber & Lackschewitz* (M; WEBER, Lich. Exs. Colo. 525, as *Lecidea atrobrunnea*).

In North America, *Lecidea leucothallina* (s.l.) is known from alpine localities in Alberta, Colorado, Montana, and Washington (ANDERSON 1965; see also map in HERTEL 1975b). All these records may belong to var. *kujalae*, for ANDERSON (loc.cit.) notes: “thallus ... P+ weak yellow-orange”. This colour reaction is due to pannarin which is deposited in a thin layer (30–50 µm thick) within the thallus cortex. Microscopically, this pannarin-containing layer is of an opaque, milky brownish colour and gives (microscopically controlled) an intense P+ orange reaction. – New to America.

***Lecidea leucothallina* Arnold var. *subdiscrepans* Rambold & Hertel in Hertel**

HERTEL, Bibl. Lichenol. 58: 163 (1995).

New record:

**Austria.** Tirol: Ötztaler Alpen, Gipfel der Kreuzspitze [46°49'N, 10°52'E] bei Vent, 3455 m, 22.8.1877, *Arnold* (M).

Known from Norway and Austria (HERTEL 1995).

***Lecidea lygomma* Nyl. in Cromb.**

CROMBIE, J. Bot. (London) 13: 334 (1875); HERTEL, Mitt. Bot. Staatssamml. München 23: 327–329 (1987), 28: 223–224 (1989); RAMBOLD, Bibl. Lichenol. 34: 214–219 (1989); HERTEL, Symb. Bot. Upsal. 32(1): 103–104 (1997) = *Zosterodiscus lygomma* (Nyl.) Hertel, Beih. Nova Hedwigia 79: 425–426 (1984).

New records:

**Uganda.** District Toro: Ruwenzori. Zentrale Gipfelgruppe, 4480 m, an Felsbrocken zwischen *Poa* und *Helichrysum*, VI.1984, *Schmitt* (M). – New to Africa.

**New Zealand.** Gisborne: East Cape, Mt. Hikurangi [37°55'S, 178°03'E], ca. 1200 m, 19.12.1982, *Bartlett* (M). – Nelson: Tasman Mts., Lonely Lake, ca. 1270 m, 20.12.1983, *Bartlett* 26998 (M) – Owen Range, schist soil area, ca. 1130 m, 16.12.1982, *Bartlett* 27031 (M) – Upper Cobb Valley, headwaters of Burgoo Stream, ca. 1180 m, 16.12.1983, *Bartlett* 26969a (M). – Canterbury: Arthur's Pass National Park, Temple Basin, 42°54'S, 171°35'E, 1500 m, 23.1.1985, *Hertel* 29843 (M). – Otago: Old Man Range, SW of Alexandra, summit plateau, between Hyde Rock and Obelisk, 45°19'–23'S, 169°12'E, 1665 m, on loose schist plates in alpine situation, near to the stand of *Cetraria delisei*, 3.2.1985, *Hertel* 30324, *Child*



& *Mayrhofer* (M) – Mt. Maungatua, SW of Dunedin, 45°54'S, 170°08'E, rocks at swampy summit plateau, 890 m, 31.1.1985, *Hertel* 30069, 30074, 30075, *Mark & Mayrhofer* (M) – Arrowtown [44°56'S, 168°49'E], ca. 1000 m, 15.9.1976, *Bartlett* 27036, 27046 (M). – **Auckland Islands**: Auckland Island, summit ridge SE of Mt. Easton, NW of Lake Hinemoa, 550 m, 17.12.1972, *Imshaug* 56494 (MSC). – In New Zealand, *Lecidea lygomma* var. *lygomma* is the most common species of the genus *Lecidea*. In that respect, it plays a similar part there as *Lecidea lapicida* does in the Alps.

*Lecidea lygomma* Nyl. in Croub. var. *crassilabra* (Müll.Arg.) Hertel & Rambold

HERTEL & RAMBOLD in HERTEL, Symb. Bot. Upsal. 32(1): 104 (1997) = *Lecidea crassilabra* Müll.Arg., Hedwigia 32: 127 (1893); RAMBOLD, Bibl. Lichenol. 34: 205–207 (1989).

New records:

**New Zealand.** **Nelson**: Cobb Valley, schist saddle leading to Mt. Aorere [41°01'S, 172°29'E], 1850 m, 8.12.1981, *Bartlett* 22832b (M). – **Otago**: Rock and Pillar Range, summit rocks [45°23'S, 170°08'E], 1430–1445 m, 28.1.1985, *Hertel* 32266, *Mayrhofer & Mark* (M) – Obelisk Range, Old Man Range SW of Alexandra, 45°19'–23'S, 169°12'E, 1610–1640 m, 3.2.1985, *Hertel* 30341, *Child & Mayrhofer* (M). – The Remarkables, around Lake Alta, 45°04'S, 168°48'E, 1805 m, 5.2.1985, *Hertel* 30451, 30453, 30454 & *Mayrhofer* (M) – Double Cone above Lake Alta, 45°04'S, 168°48'E, 2250–2280 m, 5.2.1985, *Hertel* 30421 & *Mayrhofer* (M) – Mt. Maungatua, SW of Dunedin, 45°54'S, 170°08'E, rocks at swampy summit plateau, 850–890 m, 31.1.1985, *Hertel* 30073, 30088, *Mark & Mayrhofer* (M).

*Lecidea lygomma* var. *crassilabra* is also known from Australia (RAMBOLD 1989) and Patagonia (HERTEL 1997). Formerly there was only a single record for New Zealand (HERTEL 1992) from Central Otago (Old Man Range).

*Lecidea plana* (J. Lahm in Körb.) Nyl.

NYLANDER, Flora 55: 552 (1872); HERTEL, Khumbu Himal, Ergebn. Forsch.-Unternehmens Nepal Himalaya 6: 268–269 (1977); CULBERSON & HERTEL, Bryologist 82: 189–197 (1979); INOUE, J. Sci. Hiroshima Univ., ser. B, div. 2 (Botany) 18: 41–43 (1982); RAMBOLD, Bibl. Lichenol. 34: 222–224 (1989); HERTEL Bibl. Lichenol. 58: 166 (1995); WIRTH, Flechten Baden-Württembergs 1: 507 (1995; macrophoto!); THOMSON, American Arctic Lichens 2: 371–373 (1997); ANDREEV in ANDREEV, KOTLOV & MAKAROVA (eds.), Opredel. Lishayn. Rossii 7: 71–72 (1998).

New records:

**Germany.** **Baden-Württemberg**: Südschwarzwald, Gfällfelsen bei Oberried, 8.3.1977, *Schuhwerk* 1287 (M). – **Bayern**: Niederbayern, Bayerischer Wald, Plöckenstein-Gebiet, bei Riedelsbach (MTB 7248 /2), 4.8.1985, *Schuhwerk* 1787-1 (M).

**Slovakia.** **Carpati**: Tatra Magna, montes Belanské Tatry, in convalle Predné Med'odoly, 1700 m, 18.8.1958, *Vězda* (M); VĚZDA, Lich. Bohemoslov. Exs. 255, as *Lecidea promiscua*.

**New Zealand.** **Central Otago**: Old Man Range, SW of Alexandra, summit plateau, between Hyde Rock and Obelisk, 45°19'–23'S, 169°12'E, 1665 m, on loose schist plates in alpine situation, near to the stand of *Cetraria delisei*, 3.2.1985, *Hertel* 30325, *Child & Mayrhofer* (M). – *Lecidea plana* seems to be a rare lichen in New Zealand, with only two records previously published (HERTEL 1984).

“*Lecidea*” *polycocca* Sommerf.

SOMMERFELT, Suppl. Fl. Lappon. 147–148 (1826); HERTEL, Herzogia 2: 495 (1973); THOMSON, American Arctic Lichens 2: 373 (1997).

= *Lecidea dissipata* H.Magn. – MAGNUSSON, Ark. Bot. ser. 2, 2: 115 (1952); HERTEL, Beih. Nova Hedwigia 24: 75–76 (1967); HERTEL, Herzogia 2: 235–236 (1971).

New record:

**Svalbard.** **Spitsbergen**: Haakon VII Land, Grøhuken, 79°47'N, 14°30'W, summer 1977, *Sweet* (COLO L-65995).

“*Lecidea*” *polycocca*, a member of Lecanoraceae, is a tiny calcicolous, arctic-alpine lichen. It is known from Scandinavia (FRIES 1874, MAGNUSSON 1952, HERTEL 1968, 1970), from the

Alps (HERTEL 1971a), and arctic Canada (HERTEL 1981). MAKAROVA & al. (1988) report it from Kotelnyi Island (Novosibirsk Isl.). From Svalbard it was known from a single collection (Kongsfjord area – HERTEL 1991).

### *Lecidea promiscens* Nyl.

NYLANDER, *Flora* 55: 358 (1872); HERTEL, *Herzogia* 2: 244–248 (1971); HERTEL, *Khumbu Himal*, *Ergebn. Forsch.-Unternehmens Nepal Himalaya* 6: 272–274 (1977); RAMBOLD, *Bibl. Lichenol.* 34: 224–226 (1989); HERTEL, *Mitt. Bot. Staatssamml. München* 13: 346–348 (1977), 30: 312 (1991); HERTEL, *Bibl. Lichenol.* 58: 167 (1995); HERTEL, *Symb. Bot. Upsal.* 32(1): 106–107 (1997); THOMSON, *American Arctic Lichens* 2: 373, 375 (1997); ANDREEV in ANDREEV, KOTLOV & MAKAROVA (eds.), *Opredel. Lishayn. Rossii* 7: 77 (1998).

New records:

**Austria.** Tirol: Ötztaler Alpen, Nördliche Seitenmoräne des Rotmoosferners [46°50'N, 11°03'E] südlich Obergurgl, Glimmerschiefer-Block, 2600 m, 13.7.1982, *Schuhwerk* (M) – Tuxer Voralpen, Geierspitze südlich Wattens bei Innsbruck, 47°08'N, 11°38'E, 2850 m, 28.8.1968, *Hertel 8974* (M).

**Switzerland.** Kanton Wallis: Penninische Alpen, Gipfel der La Ruinette [45°59'N, 7°24'E] über dem Val de Chanrion, 3875 m, 7.8.1976, *Schuhwerk 1016* (M).

**Greece.** Évia [Euboea]: am Berg Ohi [Ochi], 38°03'N, 24°27'E, NW von Káristos, an windverfegtem Grat, 1200 m, 14.6.2000, *Stuhrmann* (M). – Pilion-Gebirge: NW der Straße von Portaria, 11 km nach Portaria, [39°24'N, 23°02'E], 1000–1200 m, 24.7.1972, V. & G. *Melzheimer* (M).

**Spain.** Prov. Granada: Sierra Nevada, Gipfel des Mulhacén [37°02'N, 3°18'W], 3350–3470 m, 30.7.1969, *Hertel 11744* (M).

### *Lecidea rapax* Hertel

HERTEL, *Herzogia* 1: 426–427 (1970); HERTEL, *Bibl. Lichenol.* 58: 169 (1995); ANDREEV in ANDREEV, KOTLOV & MAKAROVA (eds.), *Opredel. Lishayn. Rossii* 7: 80 (1998).

New records:

**Austria.** Tirol: Silvretta-Gruppe, im oberen Jamtal oberhalb Galtür, Gneisblock auf einer Almwiese etwas unterhalb der Betonbrücke über den Jambach unterhalb des Zollhauses [46°53'N, 10°11'E], ca. 2000 m, 15.8.1983, *Hertel 25273* (M).

**Switzerland.** Kanton Wallis: Penninische Alpen, bei Pierracarrot [45°59'N, 7°23'E] im Val de Chanrion, 2400 m, an niedrigen Blöcken, 8.8.1976, *Schuhwerk* (M).

### *Lecidea sarcogynoides* Körb.

KÖRBER, *Syst. Lich. Germ.* 252 (1855); HERTEL, *Decheniana* 127: 56, 72 (1975); BUSCHARDT, *Bibl. Lichenol.* 10: 198–200 (1979); HERTEL, *Mitt. Bot. Staatssamml. München* 21: 422 (1984), 28: 224 (1989); RAMBOLD, *Bibl. Lichenol.* 34: 185–189 (1989); HERTEL, *Bibl. Lichenol.* 58: 169–170 (1995); ANDREEV in ANDREEV, KOTLOV & MAKAROVA (eds.), *Opredel. Lishayn. Rossii* 7: 81–82 (1998).

New records:

**France.** [?]: “La Passionnière”, 16.2.1885, *F. Hy* (MSC).

**Italy.** Prov. Savona: Mte. Bignone über Alassio, IV.1960, *Poelt* (M) – Spotorno, Tosse, 21.12.1955, *Sbarbaro 18* (M), *Sbarbaro 19* (M). – Prov. Livorno: Isle d’Elba, Valle della Permonte, IV.1984, *Pietschmann 319* (M).

**Algeria.** [Aurès:] Constantine, *Flagey* (H-Nyl 15661). A typical specimen, correctly identified by NYLANDER.

### *Lecidea speirodes* Nyl.

Nova Hedwigia 24: 41–43 (1967); HERTEL, *Herzogia* 2: 48 (1970).

New record:

**France.** Dépt. Hautes Alpes: Aiguille de Chambeyron [44°32'N, 6°51'E], NE oberhalb St. Paul, am Col de Vars, 3300 m, 11.9.1996, *Schauer* (M).

*Lecidea speirodes* is a rare, calciphilous lichen, known from the Alps, Pyrenees (HERTEL 1967, HOUMEAU & ROUX 1991, van den BOOM & al. 1995), Cordillera Cantabrica (KILIAS

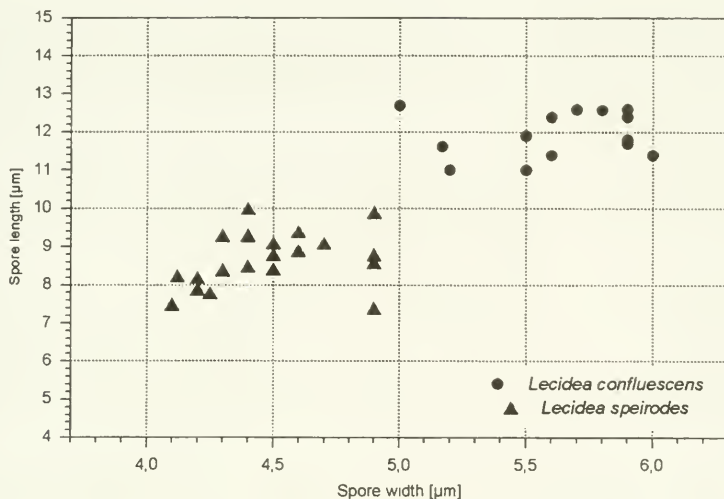


Figure 6: Spore size in *Lecidea speirodes* and *Lecidea confluescens*, two related taxa, which easily can be confused without using chemical characters (excipulum C+ red in *L. speirodes*, C- in *L. confluescens*). The diagram shows arithmetic means of measurements of spores. Dots based on series of 20–50 measurements.

1978), and the Tatra Mtns. (VĚZDA 1998), and is characterized e.g. by its C+ red exciple (2'-O-methylanziaic acid; see CULBERSON & HERTEL 1972). The somewhat similar *Lecidea confluescens* Nyl., often collected together with *L. speirodes*, differs in its C-negative exciple and larger spores (fig. 6).

#### *Lecidea terrena* Nyl. in Cromb.

CROMBIE, J. Linn. Soc. London, Bot. 15: 177 (1876); RAMBOLD, Bibl. Lichenol. 34: 189–196 (1989).

#### New synonym:

*Lecidea subsquamifera* Zahlbr., Annal. Crypt. Exot. 5: 231–232 (1932). – Type: Africa meridionalis, Gouritzrivier [= Gourits R., Little Karroo, ca. 33°20'–34°08'S, 21°45'E, South Africa, Western Cape Prov.], ad saxa arenaria, van der Byl 828 (W, holotype).

*Lecidea terrena* is a rather variable species (RAMBOLD 1989). VAN DER BYL's collection shows ascospores [ $n = 40$ ] of  $13.0 \times 7.5 \mu\text{m}$  size, short bacilliform conidia ( $6.0\text{--}7.3\text{--}8.5 \times 0.7\text{--}1.0 \mu\text{m}$ ) and confluent acid (with traces of 2'-O-methylperlatolic, and 2'-O-methylmicrophyl-lic acid) as lichen substances. ZAHLBRUCKNER placed his new species next to *Lecidea squamifera* Stizenb. [= *L. terrena* – see RAMBOLD loc.cit.] because of supposedly larger spores and smaller thallus areoles.

#### *Lecidea umbonata* (Hepp) Mudd

MUDD, Manual Brit. Lich. 204 (1861); HERTEL, Beih. Nova Hedwigia 24: 37–40 (1967); HERTEL, Herzogia 1: 51–52 (1970), 2: 249–251 (1971), 2: 497–499 (1973), 4: 379, 398 (1977);

HERTEL, Mitt. Bot. Staatssamml. München 12: 140 (1975), 28: 225 (1989), 30: 315 (1991); THOMSON, American Arctic Lichens 2: 386, 388–389 (1997); ANDREEV in ANDREEV, KOTLOV & MAKAROVA (eds.), Opredeľ. Lishayn. Rossii 7: 95–96 (1998).

New records:

**France.** Dépt. Hautes Alpes: Aiguille de Chambeyron [44°32'N, 6°51'E], NE oberhalb St. Paul, am Col de Vars, 3300 m, 11.9.1996, Schauer (M). – Dépt. Basses Alpes: Col de Bonette (le Restefond), ESE Barcelonnette, 2820 m, 10.9.1996, Schauer (M). – Dépt. Hautes Pyrénées: Pic du Midi de Bigorre, Ramond (W, as *Lecidea turgida*). The collection was mentioned by SCHAEERER (1850) as *Lecidea turgida* (= *Stenhammarella turgida* (Ach.) Hertel).

**Italy.** Prov. Bozen (Südtirol): Gipfelbereich des Sass Söngher [46°34'N, 11°52'E] nördlich Colfuschg, 2650 m, 29.8.1981, Feuerer 12159 (M). – Piemonte, Prov. Torino: Alta Valle di Susa, ca. 10 km NE of Bardonecchia, Vallone di Rochemolles, surroundings of the lake at the mountain refuge "Rifugio Scarfiotti", 45°08'N, 6°48'E, 2180 m, 20.8.1995, Triebel & Rambold 6284 (M).

*Lecidea variegatula* Nyl.

NYLANDER, Flora 48: 6 (1865); HERTEL, Beih. Nova Hedwigia 24: 112–113 (1967); JOHN, Beitr. Landespflege Rheinland-Pfalz 13: 60 (1990; macrophoto!); HERTEL, Bibl. Lichenol. 58: 176 (1995); HERTEL, Symb. Bot. Upsal. 32(1): 109 (1997); ANDREEV in ANDREEV, KOTLOV & MAKAROVA (eds.), Opredeľ. Lishayn. Rossii 7: 96–97 (1998).

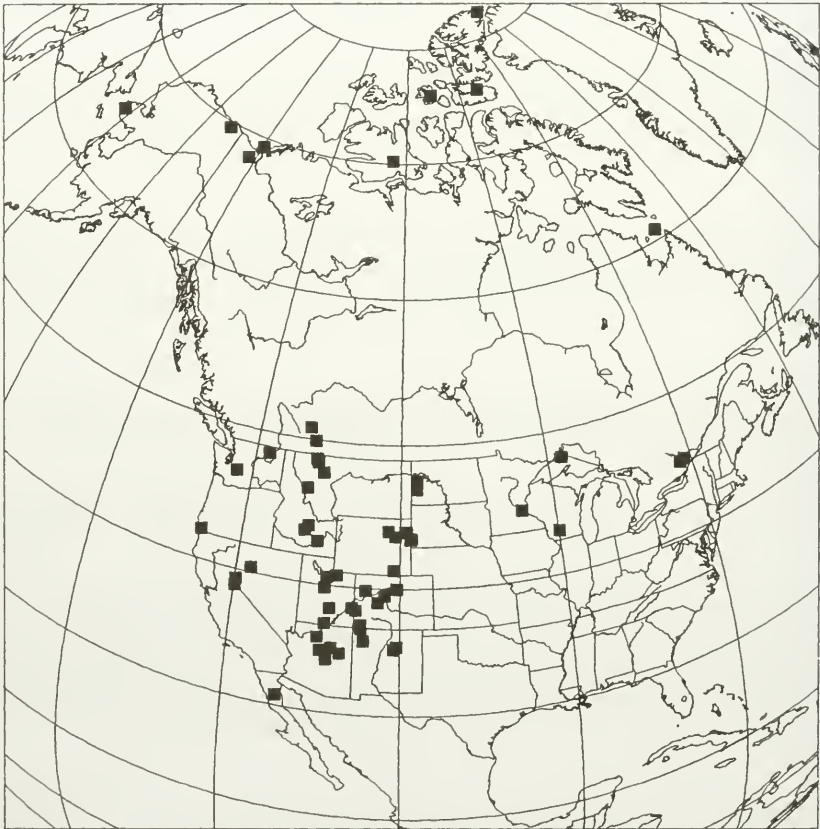


Figure 7: Distribution of *Lecidella pataviana* in North America. (Based on specimens seen and on data presented by KNOPH & LEUCKERT 1994).



## New record:

**Poland.** [Bezirk Opole]: Oberschlesien, Basaltblöcke an Wegrändern bei Ujest [= Ujazd, 50°23'N, 18°20'E], VIII.1890, *Eitner* (M).

*Lecidea variegatula* is one of the smallest species of the genus and is probably often overlooked. The species is only known from low altitudes (plains to lower montane belts) and seems to be a pioneer on siliceous pebbles in humid climates. It is also reported from South America (HERTEL 1997, with distribution map). Other recent European records are from Austria (BERGER & PRIEMETZHOFFER 2000), the Czech Republic (VĚZDA 1995), and from the Netherlands (BRAND & SPIER 1996).

***Lecidella pataviana*** (A.Massal.) Knoph & Leuckert

KNOPH & LEUCKERT, *Bibl. Lichenol.* 36: 116–129 (1990); HERTEL, *Mitt. Bot. Staatssamml. München* 30: 315 (1991); ANDREEV & KUDRATOV, *Bot. Zhurn.* 77: 108–109 (1992); TÜRK & WUNDER, *Nationalpark Berchtesgaden Forschungsber.* 42: 61 (1999 – colour-macrophoto). = *Lecidella inamoena* (Müll.Arg.) Hertel, *Willdenowia* 6: 249 (1971); THOMSON, *American Arctic Lichens* 2: 398–400 (1997).

## New records:

**Svalbard.** Spitsbergen: Kongsfjord, Brøggerhalvøya. Vorland nördlich des Zeppelinfjellet (südlich Ny Ålesund) [78°55'N, 11°59'E], über Kalk, 12.7.1975, *Hertel 17582, 17591* (M) – Vorland zwischen Lovenbreen I und Lovenbreen II [78°54'N, 12°06'E], SE Ny Ålesund, Dolomit-Rippen, 12.7.1975, *Hertel 17596* (M). – Well known from various areas in Spitsbergen (ELVEBAKK & HERTEL 1996).

**Switzerland.** Kanton Graubünden: Samnaun, Alp-Trida-Sattel [46°59'N, 10°21'E], oberhalb Compsch, westlich oberhalb der Bergstation der Seilbahn, 2500 m, über Kalk, 27.7.2000, *Albertshofer* (M).

**France.** Dépt. Hautes Alpes: Aiguille de Chambeyron [44°32'N, 6°51'E], NE oberhalb St. Paul, am Col de Vars, 3300 m, 11.9.1996, *Schauer* (M). – Dépt. Basses Alpes: Col de Bonette (le Restefond) [44°24'N, 6°53'E], ESE Barcelonnette, 2820 m, 10.9.1996, *Schauer* (M).

**Russia.** Krasnojarsk Territory: Center of Taimyr Peninsula, Byrranga Mtns, northern extremity of Levinson-Lessing Lake, by the Skalistyi stream valley, 74°33'N, 98°26'E, 180 m, 26.8.1995, *Zhurbenko 95120* (M, tiny accompanist of *Sporastatia testudinea*).

**Algeria.** [Aurès] Constantine: Sahara-Atlas, Dj. Tuggurt [= Djebel Tougar, 35°33'N, 6°01'E], Gipfel des Pic des Cèdres, 2000 m, 6.8.1954, *Doppelbauer 134* (M). – Already known from Algeria (KNOPH 1990).

**Greenland.** N. Greenland: Jørgen Brønlund Fjord, Pyramideplateauet, 82°12'N, 29°53'W, 27.6.1988, *Hansen* (M, Lich. Groenl. Exs. 333; tiny accompanist of *Sporastatia testudinea*).

**U.S.A.** Arizona: Coconino Co., upper end of Oak Creek Canyon, ca. 23 km SW of Flagstaff, 35°02'N, 111°51'W, 2000–2025 m, 11.6.1998, *Hertel 40334, 40336* (M) – Gila Co., East Verde River Canyon, up-river from where it intersects with the Houston Mesa Rd., ca. 14 km NNE of Payson, 34°21'N, 111°17'W, 1440–1510 m, 30.5.1998, *Hertel 39708* (M) – Gila Co., vicinity of Whispering Pines, along the Houston Mesa Road, 16 km NNE of Payson, 34°21'N, 111°17'W, 1540–1600 m, 30.5.1998, *Hertel 39736* (M). – California: Alpine Co./Eldorado Co., subalpine area on summit of Freel Peak, [38°51'N, 119°53'W], 3320 m, 25.7.1955, *Imshaug 18275b* (MSC). – Colorado: Gunnison Co., summit ridge of White Rock Mt., Elk Mts., 38°59'N, [106°58'W], 3900 m, 13.7.1952, *Imshaug 10979* (MSC) – Virginia Basin, Elk Mts., 38°59'N, [106°58'W], 3660 m, 5.7.1952, *Imshaug 10616* (MSC) – Gunnison Co., summit of Gothic Mt., Elk Mts., 38°57'N, 3855 m, 1.7.1952, *Imshaug 10396* (MSC). – Idaho: Custer Co., Leatherman Pass, Lost River Range, 44°05'N, 113°45'W, 3280 m, 29.7.1954, *Imshaug 16549* (MSC) – Custer Co./Blaine Co., Hyndman Pass, Pioneer Mts., 43°45'N, [114°03'W], 3200 m, 31.7.1954, *Imshaug 16636* (MSC). – Montana: Glacier Co., Glacier National Park, Siyeh Pass, 48°43'N, [113°38'W], 2500 m, 17.8.1950, *Imshaug 8950, 9014, 9027* (MSC) – Glacier National Park, summit of Goat Mt., [48°42'N, 113°35'W], 2680 m, 5.7.1950, *Imshaug 6548* (MSC) – Glacier National Park, Dawson Pass [48°29'N, 113°28'W], 2290–2440 m, 13.8.1950, *Imshaug 8617* (MSC). – Nevada: Washoe Co., summit of Mt. Rose, 39°20'N, [109°54'W], Carson Range, Sierra Nevada, 3284 m, 26.7.1955, *Imshaug 18259* (MSC). – Utah: Juab Co., summit of Mt. Nebo, Wasatch Mts., 39°49'N, [111°46'W], 3618 m, 14.8.1954, *Imshaug 16842* (MSC) – Salt Lake Co./Utah Co., Divide NE of Mt. Timpanogos, Wasatch Mts., 40°34'N, [111°

38°W], 3307 m, 9.8.1954, *Imshaug 16669* (MSC) – San Juan Co., summit of Mt. Mellenthin, La Sal Mts., 38°28'N, [109°14'W], 3929 m, 18.8.1954, *Imshaug 16913* (MSC) – Utah Co., summit of Mt. Timpanogos, Wasatch Mts., 40°23'N, [118°38'W] 3655 m, 9.8.1954, *Imshaug 16683, 16700* (MSC). – Washington: Pierce Co., Burroughs Mt., Mt. Rainier National Park, Middle Cascade Mts., 46°55'N, [121°41'W] 2210 m, 6.9.1954, *Imshaug 17372* (MSC).

**Argentina.** Prov. Tucuman: Valle de Tafí, western slope of Cumbre Poderillo, 3300 m, on schist rock, 24.11.1947, *Lamb 5407* (UPS). – It is a typical specimen with an inspersed hymenium, reduced thallus and with traces of atranorin & zeorin ('chemotype I' of KNOPH & LEUCKERT 1994). – New to Argentina. Chemotype I was not previously reported south of Mexico.

***Lecidella stigmatea* (Ach.) Hertel & Leuckert**

HERTEL & LEUCKERT, *Willdenowia* 5: 375 (1969), 6: 251 (1971); HERTEL, *Herzogia* 2: 56–57 (1970), 2: 256 (1971); HERTEL, *Khumbu Himal, Ergebn. Forsch.-Unternehmens Nepal Himalaya* 6: 334–337 (1977); HERTEL, *Mitt. Bot. Staatssamml. München* 13: 349–350 (1977), 17: 181–182 (1981), 21: 325 (1985), 28: 226–227 (1989), 30: 315–316 (1991); KNOPH, *Bibl. Lichenol.* 36: 139–150 (1990); ANDREEV & KUDRATOV, *Bot. Zhurn.* 77: 109 (1992); THOMSON, *American Arctic Lichens* 2: 400–402 (1997).

New records:



Figure 8: Distribution of *Lecidella stigmatea* in North America. (Based on specimens seen and on data presented by KNOPH & LEUCKERT 1994).

**Iceland.** Arnesýsla: Reykjafjall, unmittelbar E von Hveragerði, 64°00'N, 21°11'W, 200–215 m, 30.6.1979, *Hertel 21246* (M). – Austur-Barðastrandarsýsla: Reykjanesfjall-Halbinsel, Staður, 65°29'N, 21°23'W, küstennahe Basaltklippe, 1 m, 19.7.1979, *Hertel 23050* (M). – Rangárvallasýsla: Thorsmörk, Krossá-Tal, zwischen den Einmündungen des Langadalur und Litlaendagil, 63°41'N, 19°29'W, 240–290 m, 3.7.1979, *Hertel 21298* (M; infected by *Arthonia intexta* Almqu.), *21303* (M) – Talende des Krossá-Tals, unmittelbar vor der Gletscherzunge des Krossajökulls (Myrdalsjökull), 3.7.1979, *Hertel 21363* (M) – Stakkholtsgjá (von einem Nebenfluß der Krossá durchströmte Schlucht), 63°40'N, 19°33'W, 200 m, 2.7.1979, *Hertel 21272* (M). – Suður Þingeyjarsýsla (Zentral-Island): Bei Fossgilmosar, 65°06'N, 17°37'W, 680 m, 14.7.1979, *Hertel 21769* (M) – Seljadalur, NNW Reykjahlíð, 65°41'N, 16°56'W, 320–370 m, 11.7.1979, *Hertel 21658* (M) – W-Hang des Tungnafellsjökull, Anstieg zum Gipfel Háhyrna, 64°44'N, 18°01'W, 1050 m, 15.7.1979, *Hertel 21836* (M).

**Greece.** Crete: Bezirk Heraklion, Ida-Gebirge, Gipfel des Voulomenon [ca. 35°13'N, 24°46'E], über Kieselkalk, 2150 m, 24.9.1982, *Feuerer & Höhne 12608* (M). – Already mentioned for Crete by HERTEL (1970).

**Canada.** Alberta: Banff National Park, near Upper Victoria Glacier (near Lake Louise) [51°24'N, 116°14'W], 13.7.1950, *Imshaug 6919* (MSC, beside *Lecanora marginata*). – Newfoundland: Northern Peninsula section, between Route 73 and shore of Deer Cove, 10 miles south of River of Ponds, west side of Northern Peninsula, 21.7.1967, *R.M. Taylor 1806* (MSC). – Quebec: Gaspé-Est Co., Cap Bon Ami [48°47'N, 64°12'W], [on limestone], VIII.1960, *Imshaug 26451* (MSC).

**U.S.A.** Arizona: Coconino Co. / Gila Co. (boundary), edge of Mogollon Rim, along AZ 260, 34°18'N, 110°54'W, 2310 m, 9.6.1998, *Hertel 40243* (M) – Gila Co., Tonto National Forest, steep cliffs at the first crossing of the East Verde River above the Flowing Springs Road, 34°18'N, 111°21'W, 1450 m, 9.6.1998, *Hertel 40257* (M) – Greenlee Co., Apache National Forest, Bear Wallow Wilderness, along trail 63, 33°36'N, 109°25'W, 2600–2680 m, 7.6.1998, *Hertel 40107* (M). – Pima co., Santa Catalina Mtns, Marshal Gulch area, 32°26'N, 110°45'W, 2280–2340 m, 3.6.1998, *Hertel 40017, 40018* (M). – Colorado: Gunnison Co., summit ridge above Cottonwood Pass, Sawatch Mts., 38°51'N, 106°25'W, 3870 m, 31.7.1952, *Imshaug 11641* (MSC) – Gunnison Co., ridge of Avery Peak, Elk Mts., 38°59'N, [106°58'W], 3765 m, 5.7.1952, *Imshaug 10567, 10577* (MSC) – Lake Co., meadow on Mt. Massive, Sawatch Mts., 39°11'N, [106°28'W], 3885 m, 2.8.1952, *Imshaug 11917* (MSC) – Pitkin Co., meadow at Independence Pass, Sawatch Mts., near Aspen, 39°07'N, [106°34'W] 3690 m, 29.7.1952, *Imshaug 11548* (MSC) – Summit Co./Park Co., Hoosier Ridge, Park Range, 39°22'N, [106°00'W], 8.7.1956, 3960 m, *Imshaug 19039, 19047, and 4050 m, Imshaug 19054* (MSC) – San Miguel/Dolores Co., summit of Black Face, San Miguel Mts., 37°50'N, [107°55'W], 3688 m, 24.8.1954, *Imshaug 17179* (MSC). – Idaho: Benewah Co., Plummers Point, Chatcolet Lake, [47°21'N, 116°45'W], 2.5.1954, *Imshaug 16453* (MSC). – Montana: Powell Co., summit of Mt. Powell, Flint Creek Range, 3113 m, 28.8.1955, *Imshaug 18798* (MSC). – New Mexico: Taos Co., summit of Gold Hill, Sangre de Cristo Range, 36°38'N, [105°27'W], 3860 m, 10.8.1952, *Imshaug 12344, 12353, 12365* (MSC). – Utah: Duchesne Co., Uinta Mts., bench near summit of Bald Mt., 40°42'N, [110°54'W], 3445 m, 11.8.1954, *Imshaug 16797* (MSC, next to *Lecidea atrobrunnea*) – Duchesne Co./Summit Co., summit of Bald Mt., Uinta Mts., 3640 m, 11.8.1954, *Imshaug 16728* (MSC) – Juab Co., summit of Mt. Nebo, Wasatch Mts., 39°49'N, 3618 m, 14.8.1954, *Imshaug 16830* (MSC) – Uintah Co., summit of Marsh Peak, Uinta Mts., 40°43'N, [109°49'W], 3724 m, 29.8.1954, *Imshaug 17290* (MSC) – Uintah Co., summit of Leidy Peak, Uinta Mts., 40°46'N, [109°50'W], 3660 m, 28.8.1954, *Imshaug 17197* (MSC). – Wyoming: Albany Co., summit of Medicine Bow Peak, [41°21'N, 106°19'W], Medicine Bow Mts., 3660 m, 4.7.1956, *Imshaug 18899* (MSC) – Teton Co., Grand Teton National Park, summit of Static Peak, [43°40'N, 110°48'W], 3440 m, 28.8.1950, *Imshaug 9357* (MSC) – Teton Co., Grand Teton National Park, S end of Leigh Lake [43°49'N, 110°44'W], 2100 m, 25.8.1950, *Imshaug 9073* (MSC) – Park Co., Yellowstone National Park, summit of Mt. Washburn, 48°58'N, 110°25'W, 3140 m, 31.8.1950, *Imshaug 9451, 9455* (MSC) – Sublette Co., ridge of Mt. Lester [43°03'N, 109°37'W] above Seneca Lake, Wind River Range, 3565 m, 14.7.1956, *Imshaug 19095* (MSC). – Not mentioned for Utah by KNOPH & LEUCKERT (1994), in contrast to ST. CLAIR et al. (1991).

**Argentina.** Provincia de Mendoza: Campo El Alamo, 20 km E Los Molles, 69°55'W, 35°13'S, on acid rock, 1500 m, 16.3.1989, *Nash 27544* (ASU). – Not mentioned for the province of Mendoza by KNOPH & LEUCKERT (1994).



***Miriquidica deusta* (Stenh.) Hertel & Rambold**

HERTEL & RAMBOLD, Mitt. Bot. Staatssamml. München 23: 380, 383 (1987) = *Lecidea deustata* Zahlbr., Catal. Lich. Univ. 3: 754 (1925) nom. nov.; Massé, Rev. Bryol. Lichenol. 39: 175–180 (1973) = *Semilecanora deusta* (Stenh.) Motyka, Porosty (Lichenes), tom II, rodzina Lecanoraceae: 322 (1996).

New records:

**New Zealand.** Westland: Two Thumbs Peak, 43°07'S, 170°13'E, Rangitata Valley, stable broken rock at summit of high peak, 2542 m, 8.4.1966, *Fineran 3034* (CANU, in small thalli beside *Lecidea lapicida* and *Tremolecia atrata*; published by FINERAN & DODGE (1970) as *Lecidea atrofuscula* Dodge). Already recorded for New Zealand (FRYDAY 2000).

**U.S.A.** Nevada: Washoe Co., 2.5 miles south of Pyramid Lake on Nev. 33, 44°04'N, 119°34'W, 1340 m, 14.6.1967, *Wetmore 16698* (MIN). – New to U.S.A. For America there was only a record (based upon a “cf.”-determination) by AHTI et al. (1973) for the Northwest Territories (Canada).

***Miriquidica garovaglii* (Schaer.) Hertel & Rambold**

HERTEL & RAMBOLD, Mitt. Bot. Staatssamml. München 23: 384 (1987); HERTEL, Mitt. Bot. Staatssamml. München 30: 316–317 (1991); ANDREEV & MYRZKULOVA, Bot. Zhurn. 77: 118 (1992); WIRTH, Flechten Baden-Württembergs 2: 591 (1995; macrophoto!) = *Lecidea garovaglii* Schaer., Enum. Crit. Lich. Eur. 109 (1850); HERTEL, Khumbu Himal, Ergebn. Forsch.-Unternehmens Nepal Himalaya 6: 309–310 (1977); THOMSON, American Arctic Lichens 2: 347–348 (1997).

New records:

**Switzerland.** Ad saxa micacea in summis Alpium cacuminibus (W; SCHAERER, Lich. Helvet. Exs. 444, as *Lecidea atro-brunnea*).

**France.** [Dépt. Haute Savoie]: Aux Rousselettes b. Contaminès, 28.8.1856, *Müller Argoviensis* (G).

**Italy.** Prov. Sondrio: Ad rupes graniticas alpium (M, W; ANZI, Lich. Rar. Langob. Exs. 111, as *Psora atro-brunnea*).

**Poland.** Ad saxa gneissacea in cacumine montis Schneekoppe Sudetorum, 1863, *Körber* (W; KÖRBER, Lich. Sel. Germ. 281 as *Lecidella atrobrunnea*) – In monte Schneekoppe Sudetorum, *Körber* (W) – Schneekoppe, VIII.1866, *Stein* (W, sub “*Lecidella atrobrunnea*”).

**Slovakia.** Tatra: In valle “Neffitzerka” prope Podbánszko com. Liptó in Hungaria, *Lojka 4438* (W, as *Lecidea atrobrunnea*) – In cacumine alpis Kriván, com. Liptó in Hungaria, *Lojka 4612* (W, as *Lecidea atrobrunnea*).

**Romania.** In alpis Pareng prope Petroseny, com. Hunyad in Transsylvania, *Lojka 3930* (W), *Lojka 3931*, *Lojka 3933* (W; all under *Lecidea atrobrunnea*). – In cacumine “Sleveju mare” alpis Pareng prope Petroseny, com. Hunyad in Transsylvania, *Lojka 3311* (W, as *Lecidea atrobrunnea*). – In montibus Pirgului, infra alpem Retezát, com. Hunyad, 31.7.1872, *Lojka 1775* (W, as *Lecidella atrobrunnea*).

**Canada.** Nunavut: N. Baffin Island, site C-3, 72°34'N, 82°09'W, 370 m, summer 1982, *Scotter 68474* (CANL; as *Lecidea atrobrunnea*).

Within North America *Miriquidica garovaglii* is known from Arctic Canada (THOMSON & al. 1969, THOMSON 1970, THOMSON & SCOTTER 1983, HERTEL 1991), Colorado and Wyoming (ANDERSON 1962, 1964). From Baffin Island (“Eclipse Sound”) it was earlier mentioned by HALE (1954).

***Miriquidica lulensis* (Hellb.) Hertel & Rambold**

HERTEL & RAMBOLD, Mitt. Bot. Staatssamml. München 23: 387–388 (1987); HERTEL, Mitt. Bot. Staatssamml. München 30: 317–320 (1991) = *Lecidea lulensis* Hellb., Vetensk. Akad. Förhandl. 463 (1866); THOMSON, American Arctic Lichens 2: 362–363 (1997).

= *Lecidea circumnigrata* H.Magn. var. *reagens* H.Magn. – MAGNUSSON, Bot. Notiser: 410 (1948).

New records:

**Svalbard.** Spitsbergen: Amsterdamøya, Abbruchkante des Hochplateaus der Insel zum SW-Kap, 79°



46°N, 10°40'E, 260–280 m, 16.7.1975, *Hertel 16132 & Ullrich* (M). – Isfjord: Hotellneset, NW Longyearbyen, Schotterfluren südlich des Flugplatzes [78°14'N, 15°28'E], 20 m, 2.8.1975, *Hertel 16419 & Ullrich* (M). – Kongsfjord: Blomstrandhalvøya, Peirsonhamna [78°58'N, 12°04'E], Vorland an der Küste, 10–50 m, an losen Steinchen, 23.6.1975, *Hertel 16544, 16702 & Ullrich* (M) – Gipfel des Irgensfjellet [78°59'N, 12°09'E], Blomstrandhalvøya, 21.7.1975, *Hertel 16606 & Ullrich* (M) – Vorland SE von Ny Ålesund, zwischen den Gletschern Lovenbreen I und Lovenbreen II [78°54'N, 12°06'E], 12.7.1975, *Hertel 17613* (M).

**Iceland.** Suður Þingeyjarsýsla: Mývatn, Þrengslaburgir, 65°33'N, 16°51'W, 380 m, 11.7.1979, *Hertel 21650* (M).

**Canada.** Northwest Territories: Banks Island, [Aulavik National Park], 73°13'N, 119°32'W, 50–55 m, 21.–24.7.1979, *Scotter 30458* (M); accompanist of *Sporastatia testudinea* – Thelon River, 62°36'N, 104°50'W, 26.6.1964, *Scotter 3869* (WIS); collection published by SCOTTER & THOMSON 1966 as *Lecidea atromarginata* H.Magn.). – Nunavut: Hood River, Wilberforce Falls area, 1 mile upstream of fall along the west bank of the Hood River, south facing slope of 10°, 67°04'N, 108°46'W, 140 m, 16.8.1990, *Gould 1769* (MIN).

**U.S.A.** Alaska: At Franklin Bluffs on the Sagavanirktok River, 69°50'N, 148°15'W, 30.7.1958, *Thomson 10860, Shushan & Korunda* (M); tiny accompanist of *Sporastatia testudinea*). Already mentioned for Alaska by HERTEL (1991).

*Miriquidica lulensis* is an arctic, circumpolar species, in North America extending into the Rocky Mountains (Colorado, ANDERSON & CARMER 1974). Its circumpolar distribution is mapped by HERTEL (1991), where various revised specimens from the Northwest Territories are cited.

### *Miriquidica pulvinatula* (Arnold) Hertel & Rambold

HERTEL & RAMBOLD, Mitt. Bot. Staatssamml. München 23:389 (1987) = *Lecidea pulvinatula* Arnold, Verh. Zool.-Bot. Ges. Wien 29: 382 (1879).

= *Lecidea circumnigrata* H.Magn. var. *circumnigrata* – MAGNUSSON in DEGELIUS, Bot. Notiser 403 (1945); MAGNUSSON, Ark. Bot. 2(2): 113 (1952); HERTEL, Herzogia 2: 39–40 (1970); THOMSON, American Arctic Lichens 2: 335, 337 (1997).

New records:

**Iceland.** Suður Þingeyjarsýsla (Zentral-Island): Kiðagilsdrög, Schuttflächen an der Piste nach Sprengisandur, 65°03'N, 17°44'W, 780 m, 14.7.1979, *Hertel 21790* (M). – New to Iceland.

**Switzerland.** Kanton Wallis: Augstbordhorn [46°15'N, 7°49'E] ob Bürchen-Visp, Abhänge zum Ginzensee, über eisenschüssigem Gneis, 2880 m, 2.9.19... [sic!], *Frey 1513* (G). – From Switzerland presently only known from the Aletschwald area (HERTEL 1970).

### *Orphniospora moriopsis* (A.Massal.) D.Hawksw.

HAWKSWORTH, Lichenologist 14: 135 (1982); HERTEL, Mitt. Bot. Staatssamml. München 30: 321 (1991); THOMSON, American Arctic Lichens 2: 441–442 (1997).

New record:

**Canada.** Nunavut: Hood River, 1 km W of Hood, near the mouth, area of raised beaches consisting of angular cobbles of red quartzite, 67°25'N, 108°55'W, 30 m, 5.8.1991, *Gould 2122* (MIN).

### *Poeltiaria corralensis* (Räsänen) Hertel

HERTEL, Beih. Nova Hedwigia 79: 431 (1984); HERTEL, Mitt. Bot. Staatssamml. München 21: 310–312 (1985), 23: 330 (1987), 28: 230 (1989); RAMBOLD, Bibl. Lichenol. 34: 268–271 (1989) = *Lecidea corralensis* Räsänen, Revista Univ. (Santiago de Chile) 22: 211 (1937).

New records:

**Argentina.** Prov. Río Negro: Cenda desda Lago Fria hacia el Ventisquero Frias, en piedras al lado del camino por el bosque, 13.2.1950, *Lamb 6030* (MSC). – Isla Grande (Tierra del Fuego): Cut-over and grazed area at base of cliffs on W side of Río Olivia valley (W of Monte Olivia), along Ruta Nac. No. 3, 54°45'S, 68°13'W, 120 m, 26.11.1971, *Imshaug & Ohlsson 55272* (MSC) – *Nothofagus* forest at S end

of Laguna Escondida, SW side of Hostería Petrel, 54°42'S, 67°46'W, 110 m, 22.11.1971, *Imshaug & Ohlsson 54652* (MSC). Already reported from Argentina by HERTEL (1984, 1987).

**Chile. XII Región de Magallanes y de la Antártica Chilena.** Prov. de Magallanes, Punta Arenas, Cerros Mina Rica. On stones in naked mineral-soil (solifluction), 550 m, 4.3.1941, *Santesson 6142* (S) – Strait of Magellan, fringe of mossy forest, S shore B. Pond, 53°53'S, 71°51'W, 8.10.1969, *Imshaug & Ohlsson 45335* (MSC) – Brunswick Peninsula, Seno Otway, *Nothofagus* and *Drimys* forest at Bahía Camden, 20.12.1967, *Imshaug & Harris 39076* (MSC). – *Poeltiaria corralensis* is a temperate Southern Hemisphere species, in Chile formerly known only from the provinces of Talca (HERTEL 1970) and Valdivia (type), and from the Juan Fernández Archipelago (HERTEL 1989).

*Poeltiaria turgescens* (Körb.) Hertel

HERTEL, Beih. Nova Hedwigia 79: 431–432 (1984); HERTEL, Mitt. Bot. Staatssamml. München 21: 326–327 (1985), 28: 230 (1989); RAMBOLD, Bibl. Lichenol. 34: 272–274 (1989).

New record:

**New Zealand.** Auckland: Kawakawa Bay E of Auckland, Papanui Point, coastal rocks, 36°56'S, 175°13'E, 8.1.1985, *Mayrhofer 5900 & Samuels* (GZU). – *Poeltiaria turgescens* is a rather common lichen in the North Island of New Zealand.

*Poeltidea perusta* (Nyl.) Hertel & Hafellner in Hertel

HERTEL, Beih. Nova Hedwigia 79: 463 (1984); HERTEL, Mitt. Bot. Staatssamml. München, 23: 330–331 (1987), 28: 230 (1989); RAMBOLD, Bibl. Lichenol. 34: 275–277 (1987) = *Lecideia perusta* Nyl. in Crombie, J. Bot. (London) 13: 334 (1875).

New records:

**Chile. XII Región de Magallanes y de la Antártica Chilena.** Prov. de Magallanes: Strait of Magellan, moorland at ridge, W side of B. Borja, 53°32'S, 72°30'W, 7.10.1969, *Imshaug & Ohlsson 45213* (MSC, as *Rhizocarpon simplicisporum* Imshaug nom. ined.). New to Chile.

**Argentina.** Isla de los Estados: Puerto Cook, alpine summit of mountain at SE corner of bay, 54°46'S, 64°01'W, 23.10.1971, *Imshaug & Ohlsson 51541, 51558* (MSC) – Puerto Vancouver, summit of ridge E of Monte Tres Puntas, 54°47'S, 64°06'W, 29.10.1971, *Imshaug & Ohlsson 52239* (MSC) – Puerto Celular, subalpine summit of peak on N side of cove, 54°47'S, 64°18'W, 490 m, 31.10.1971, *Imshaug & Ohlsson 52579* (MSC) – Puerto Alexander, alpine summit of sea cliffs opposite Islote Alexander, 54°51'S, 64°24'W, 520 m, 2.11.1971, *Imshaug & Ohlsson 52788* (MSC) – Bahía Capitan Canepa, rock outcrop on ridge at head of N arm of bay, 54°49'S, 64°27'W, 4.11.1971, *Imshaug & Ohlsson 53148* (MSC) – Bahía Flinders, exposed rock with small *Nothofagus antarctica* on ridge summit at head of W part of bay, 54°49'S, 64°36'W, 210 m, 7.11.1971, *Imshaug & Ohlsson 53431* (MSC) – Puerto Parry, subalpine summit of Monte Fitton, on W side of entrance to inner bay. 54°47'S, 64°23'W, 456 m, 10.11.1971, *Imshaug & Ohlsson 53875* (MSC). New to Isla de los Estados. – Isla Grande (Tierra del Fuego): Alpine region on summit of mountain to the E of Monte Olivia, 54°43'S, 68°07'W, Sierra de Sorondo, 970 m, 28.11.1971, *Imshaug & Ohlsson 55587, 55606* (MSC) – Barren alpine region on summit of mountain between Monte Cornu & Paso Garibaldi, Sierra Lucas Bridges, 54°42'S, 67°45'W, 900 m, 27.11.1971, *Imshaug & Ohlsson 55397* (MSC) – Bahía Buen Suceso, alpine region of summit of mountain behind bay, 54°48'S, 65°17'W, 600 m, 12.10.1971, *Imshaug & Ohlsson 49998* (MSC) – Bahía Valentín, krummholz area at summit of mountain behind bay, 54°53'S, 65°32'W, 500 m, 15.10.1971, *Imshaug & Ohlsson 50282* (MSC). Already reported from Tierra del Fuego (HERTEL 1987, 1989).

**Falkland Islands (= Islas Malvinas).** All the specimens mentioned in the following for the Falkland Islands were correctly recognized by H.A. Imshaug, who provisionally named this taxon "*Lecideocarpon perustum* (Nyl.) Imshaug", as he early and independently realized its unique taxonomic position. Unfortunately his results were never published.

West Falklands: Mt. Adam, feldmark at summit ridge, [51°35'S, 60°09'W], 2200–2297 ft, 25.1.1968, *Imshaug & Harris 41060, 40168, 41088a* (MSC) – Mt. Adam, outcrops on summit of southernmost peak, 685 m, 25.1.1968, *Imshaug & Harris 41095, 41099* (MSC) – Hill Cove, on summit of Mt. Fegen, UTM, 21F TC 7289, 1100–1181 ft, 26.1.1968, *Imshaug & Harris 41209* (MSC) – Port Howard, feldmark and outcrop at summit of Mt. Maria [51°37'S, 59°25'W], 658 m, 28.1.1968, *Imshaug & Harris*

41315, 41316, 41371a, 41372b, 41380, 42190 (MSC) – Port Howard, outcrops on pass SW of Mt. Maria summit, 610 m, 28.1.1968, *Imshaug & Harris* 42190 (MSC) – Port Howard, stone-run at E base of Mt. Maria, 381 m, 28.1.1968, *Imshaug & Harris* 41415a (MSC) – Port Howard, large outcrops, Freezers

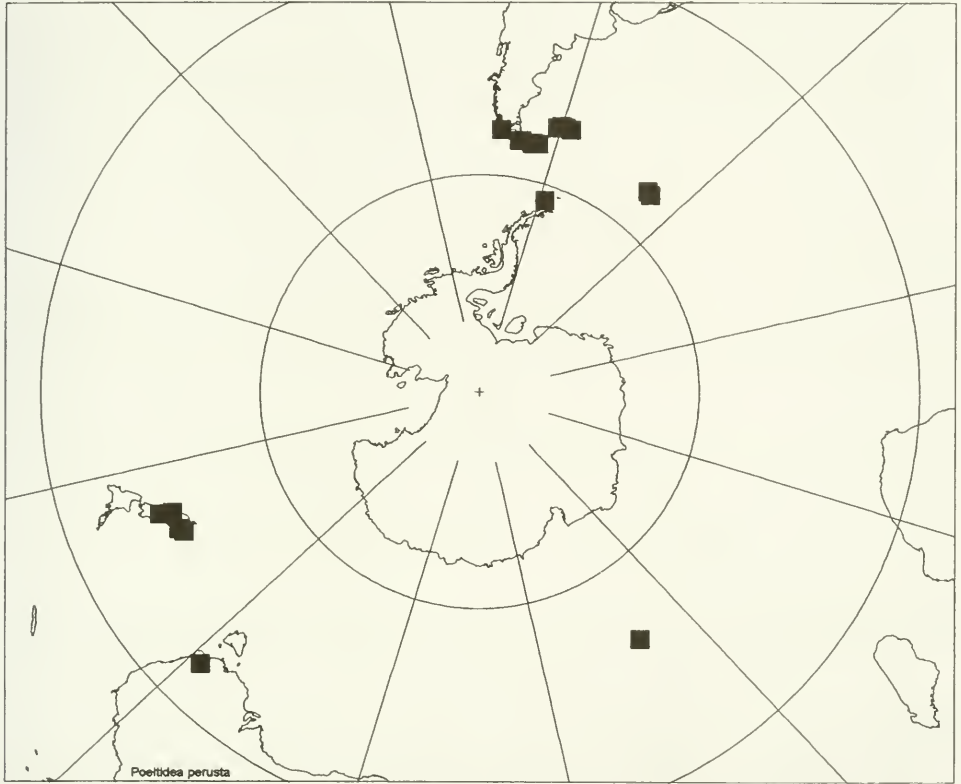


Figure 9: Distribution of *Poeltidea perusta*. Map based on studied specimens (except records from South Shetland Islands, Antarctica, published by OLECH 1989 and INOUE 1993).

Rocks, UTM 21F UC 2279, 320 m, 28.1.1968, *Imshaug & Harris* 41345 (MSC) – Weddell Island, *Empe trum* heath at summit of Mt. Weddell, 383 m, 6.2.1968, *Imshaug & Harris* 41932, 41949 (MSC) – Weddell Island, stone-run at top of stream in Waterfall Valley, W of settlement, 245 m, 5.2.1968, *Imshaug & Harris* 41909 (MSC) – Weddell Island, rock dome at summit of peak NE of Mt. Weddell [51°56'S, 60°52'W], 335 m, 6.2.1968, *Imshaug & Harris* 41971 (MSC) – Fox Bay, outcrops on ridge NE of Sullivan House, 150 m, 11.2.1968, *Imshaug & Harris* 42344 (MSC). – East Falklands: Mt. Osborne [51°42'S, 59°49'W], stone-run below The Gap, 90 m, 8.1.1968, *Imshaug & Harris* 40053 (MSC) – Mt. Usborn, feldmark on windward side of Mt. Usborne-1 summit, 700 m, 7.1.1968, *Imshaug & Harris* 39968b (MSC) – Mt. Usborn, feldmark on leeward side of Mt. Usborne-1 summit, 700 m, 7.1.1968, *Imshaug & Harris* 39920, 39921, 39932, 39938a, 39947b (MSC) – Mt. Osborne, sheltered cliffs with seepage on ridge between Mt. Usborne-1 and Mt. Usborne-2, 685 m, 7.1.1968, *Imshaug & Harris* 39988, 39991, 39999 (MSC) – Mt. Osborne, outcrops on summit of Table Rock, 549 m, 9.1.1968, *Imshaug & Harris*, 40071, 40079, 40086b, 40125 (MSC) – Stanley, cliffs on rock dome at summit of Mt. Kent [51°41'S, 58°07'W], 460 m, 14.1.1968, *Imshaug & Harris* 40428, 40454a, 40490 (MSC) – Stanley, outcrops on summit ridge of N peak of Two Sisters, 800–950 ft, 13.1.1968, *Imshaug & Harris* 40328, 40396b, 40409 (MSC) – Stanley, outcrops on summit of ridge of Mt. Harriet, 850–900 ft, 30.1.1968, *Imshaug & Harris* 41546 (MSC).



**Îles de Kerguelén.** Péninsule Courbet, summit of Mt. du Milieu, 740 m, 5.3.1971, *Imshaug 48845* (MSC). The species is described from Îles de Kerguelén.

***Porpidia albocaerulescens* (Wulfen) Hertel & Knoph ssp. *albocaerulescens***

HERTEL, Beih. Nova Hedwigia 79: 433–434 (1984); HERTEL & KNOPH, Mitt. Bot. Staatssamml. München 20: 467–485 (1984); RAMBOLD, Bibl. Lichenol. 34: 278–281 (1989); GOWAN, Bryologist 92: 35–38 (1989); WIRTH, Flechten Baden-Württembergs 2: 767 (1995; colour macrophoto!); MALCOLM & GALLOWAY, New Zealand Lichens: 53 (1997; black-and-white macrophoto); MAKAROVA in ANDREEV, KOTLOV & MAKAROVA (eds.), Opredel. Lishayn. Rossii 7: 142–143 (1998) = *Huilia albocaerulescens* (Wulfen) Hertel, Herzogia 3: 373 (1975); HERTEL, Khumbu Himal, Ergebn. Forsch.-Unternehmens Nepal Himalaya 6: 204–210 (1977); INOUE, J. Jap. Bot. 58: 120–124 (1983).

New records:

**Russia.** Забайкальская област [Trans-Baikal region:], Акшинский уезд [district Akshinsk], окрестности посёлка Букукупсаго [surroundings of Bukukun, 49°27'N, 111°07'E], 1910, *Mikhno* (W). – **Far East, Primorje District:** Chasan, in the vicinity of the station of ТИБОУ, on seashore rocks, 30.9.1983, *Randlane 308* (M) – Road from Yasnaje to Lazo (5 km from Lazo), on a mossy rock, 20.9.1983, *Randlane 187* (M). From Asian parts of Russia *Porpidia albocaerulescens* was reported from Baykalskiy Khrebet (MAKAROVA 1998) and from Sakhalin (HERTEL 1977, MAKAROVA 1998).

Outside of Europe (map: HERTEL & KNOPH 1984) *Porpidia albocaerulescens* s.str. is very widespread and locally very common in mild to warm and humid climates. GOWAN (1989) mapped its distribution in North America, INOUE (1983, 1994) in Japan, HERTEL (1985) in New Zealand, RAMBOLD (1989) in Australia and HERTEL (1987) in Australasia.

***Porpidia grisea* Gowan**

GOWAN, Bryologist 92: 48 (1989); THOMSON, American Arctic Lichens 2: 493 (1997); MAKAROVA in ANDREEV, KOTLOV & MAKAROVA (eds.), Opredel. Lishayn. Rossii 7: 147–148 (1998).

New record:

**Canada.** Nunavut: Cornwallis Island, eastern shore, Resolute Bay, 74°43'N, 94°34'W, on calcareous sandstone, 21.8.1947, *Innes-Taylor 105* (CANL). – The record was published by THOMSON (1960) under the name *Lecidea confluens*.

*Porpidia grisea* is known from arctic and boreal North America (GOWAN 1989), from the Alps (HERTEL 1992), Fennia and adjacent parts of Russia (GOWAN & AHTI 1993).

***Porpidia nadvornikiana* (Vězda) Hertel & Knoph**

HERTEL & KNOPH in HERTEL, Beih. Nova Hedwigia 79: 437 (1984); SÁNCHEZ-BIEZMA & LÓPEZ DE SILANES, Lichenologist 31:637–639 (1999) = *Haplocarpon nadvornikianum* Vězda, Preslia 44: 209–212 (1972).

Rediscovered material:

**Czech Republic.** Moravia *septentrionalis*: Ad rupes serpentinicas prope Raškov apud Šumberk, 450 m, VIII.1921, *Suza* (W).

This collection, labelled “*Lecidea isidiata*” by SUZA (a name which remained unpublished), is from the original locality of *Haplocarpon nadvornikianum*. VĚZDA (1972) already studied material, which was collected by SUZA from this very locality (in 1931), however this material deposited in Prague (PR), was fragmentary and poor. The collection in W, however, is a very fine and typical specimen.

***Porpidia speirea* (Ach.) Kremp. s.str.**

KREMPELHUBER, Denkschr. Bayer. Bot. Ges. 4(2): 210 (1861); GOWAN, Bryologist 92: 51–53 (1989); GOWAN & AHTI, Ann. Bot. Fennici 30: 69 (1993); THOMSON, American Arctic



Lichens 2: 496–497 (1997) = *Lecidea speirea* (Ach.) Ach., HERTEL, Beih. Nova Hedwigia 24: 51–55 (1967); HERTEL, Herzogia 3: 386–397 (1975); INOUE, J. Sci. Hiroshima Univ., ser. B, div. 2 (Botany) 18: 43–45 (1982); MAKAROVA in ANDREEV, KOTLOV & MAKAROVA (eds.), Opredel. Lishayn. Rossii 7: 152–154 (1998).

New record:

**Norway.** Sör-Trøndelag: Dovrefjell, Vinstradal SE Driva Kro, Gem. Oppdal, Abbrüche schwach kalkhaltiger Schiefer nördlich Ryphusseter, 1030 m, 4.9.1976, *Buschardt & Poelt* (GZU).

In Scandinavia *Porpidia speirea* s.str. is not often collected. It is reported from Dovrefjell by HERTEL (1967).

***Porpidia zeoroides* (Anzi) Knoph & Hertel**

KNOPH & HERTEL in HERTEL & KNOPH, Mitt. Bot. Staatssamml. München 20: 477 (1984); GOWAN, Bryologist 92: 56–57 (1989); GOWAN & AHTI, Ann. Bot. Fennici 30: 72–73 (1993); THOMSON, American Arctic Lichens 2: 499–501 (1997); MAKAROVA in ANDREEV, KOTLOV & MAKAROVA (eds.), Opredel. Lishayn. Rossii 7: 156–157 (1998).

= *Lecidea macrocarpa* var. *trullisata* (Arnold) Migula; HERTEL, Beih. Nova Hedwigia 24: 65–67 (1967); HERTEL, Mitt. Bot. Staatssamml. München 13: 338–339 (1977).

New record:

**Switzerland.** Kanton Graubünden: Samnaun, Alp-Trida-Sattel [46°59'N, 10°21'E], oberhalb Compatsch, westlich oberhalb der Bergstation der Seilbahn, 2500 m, über Kalk, 27.7.2000, *Albertshofer* (M).

***Psorinia conglomerata* (Ach.) Gotth. Schneider**

SCHNEIDER, Bibl. Lichenol. 13: 130–133 (1979); THOMSON, American Arctic Lichens 2: 513–514 (1997) = *Lecidea conglomerata* Ach., Lichenogr. Univ. 210 (1810) = *Toninia conglomerata* (Ach.) Boistel, Nouv. Fl. Lich. 2: 105 (1902); LAMB, Rhodora 56: 137–139 (1956); TIMDAL, Opera Bot. 110: 27, 122 (1991).

New records:

**U.S.A.** Arizona: San Francisco Mts., Coconino Co., summit of Agassiz Peak, 35°20'N, [111°40'W], 3760 m, 7.7.1955, *Imshaug 17882* (MSC) – Mt. Humphreys, south side, [35°20'N, 111°40'W], 3720 m, 10.7.1973, *Nash 8398* (COLO).

Both specimens were misidentified as *Lecidea atrobrunnea*, thus indicating that they represent morphodemes with a somewhat atypical gross morphology. THOMSON & NASH (1976) reported *Toninia conglomerata* as new to North America. The record was based upon a duplicate collection of “*Nash 8398*”; the specimen in COLO however remained without a revision-label. Later THOMSON & SCOTTER (1992) added a first record for Canada (Cape Parry, NWT). So, in contrast to its occurrence in the Alps, *Psorinia conglomerata*, which prefers cool and humid regions (POELT & VÉZDA 1981), seems to be a rare lichen in North America.

***Rhizocarpon bolanderi* (Tuck.) Herre**

HERRE, Proc. Washingt. Acad. Sci. 12: 106 (1910); FEUERER, Bibl. Lichenol. 39: 72–74 (1991); THOMSON, American Arctic Lichens 2: 525–526 (1997).

New records:

**Canada.** Alberta: Jonas Rockslide, 47 miles south of Jasper on Hwy. 93, Icefield Parkway, 52°25'N, 117°23'W, 1600 m, 17.7.1985, *Marsh 1083* (CANL, beside *Lecidea atrobrunnea*). Already reported from Jonas Rockslide by JOHN (1989). – British Columbia: Mt. Cain just N of Schoen Lake, 1800 m, above timber-line on exposed rock, 50°12'N, 126°19'W, 9.8.1969, *Ohlsson 1613* (MSC).

**U.S.A.** California: Fresno/Inyo Co., Sierra Nevada, above Piute Pass, 37°15'N, 118°41'W, 3660 m, 14.7.1955, *Imshaug 18068* (MSC) – Mariposa Co., Yosemite National Park, above Tenaya Lake [37°49'N, 119°27'W] near Tioga Pass. Among rock ledges in burned pine-juniper forest, elev. 8500 ft (2590 m) 24.6.1966, *Wetmore 14828* (MIN) 14842 (MIN) – Mono Co., Near Devils Gate Pass (12 miles north of Bridgeport) along US 395, 2290 m, 15.6.1967, *Wetmore 16716* (MIN) – San Diego Co., West of Anza-

Borrego State Park on county highway S2 between Calif. 79 and Calif. 78, on gentle north facing slope, 915 m, 22.6.1967, *Wetmore 16932* (MIN) – At campground 1 mile NW of Descanso [32°51'N, 116°36'W], north of US 80, on south facing hillside, 1040 m, 23.6.1967, *Wetmore 16974b* (MIN). – **Colorado**: Moffat Co., Blue Mt., just south of Yampa Bench road. North facing slope, in Sec. 25, T6N, R101W, on sandstone, 2005 m, 17.7.1960, *MacLeod* (COLO L–33143, as *Lecidea atrobrunnea*—this specimen has many well-developed semiglobular, black pycnidia of 60–100 µm diam., partially immersed in the prothallus, with bacilliform conidia, 8–10.3–12 × ± 1 µm; neither FEUERER (1991) nor GELTING (1954) mentioned pycnidia). – **Nevada**: Washoe Co., 2.5 miles south of Pyramid Lake on Nev. 33, on rock outcrop with sage brush at base, 1220 m, on slightly calcareous volcanic rock, 14.6.1967, *Wetmore 11681, 16687* (MIN). – **Oregon**: Baker Co., Magpie Peak, 44°55'N, 117°40'W, ca. 20 km NE of Baker, 1986, *Palmer 22048* (ASU, adjacent *Lecidea atrobrunnea*). – **Washington**: Mt. Rainier National Park: Rocky area from saddle to summit of Eagle Peak, 1700–1815 m, 1.8.1948, *Imshaug 946* (MSC).

### *Rhizocarpon dinothetes* Hertel & Leuckert

HERTEL & LEUCKERT, *Herzogia* 5: 27–35 (1979); HAUGAN, *Graphis Scripta* 3(1): 25 (1990); HAFELLNER, *Herzogia* 8: 374 (1990).

New record:

**Austria**. **Salzburg**: Radstätter Tauern, Mt. Wurmwand, north of the village Obertauern, SE ridge, above the pass Seekarscharte, 47°16'N, 13°34'E, ca. 2100 m, on *Protoparmelia badia*, 14.8.1994, *Hertel 38259* (M). – Not mentioned in TÜRK & WITTMANN's (1987) catalogue of the lichens of Salzburg.

### *Rhizocarpon pusillum* Runem.

RUNEMARK, *Opera Bot.* 2(1): 63–64 (1956); HERTEL, *Herzogia* 2: 59 (1970), 4: 386 (1977);

HERTEL, *Mitt. Bot. Staatssamml. München* 12: 146–149 (1975); TÜRK & HAFELLNER, *Carinthia II* 103: 739 (1993; photo!); THOMSON, *American Arctic Lichens* 2: 596–547 (1997).

New records:

**Svalbard**. **Spitsbergen**: Haakon-VII-Land, Germaniahelvøya, orographisch rechte Seitenmoräne des Lernerbreen an der Südküste des Liefdefjord, kleiner Vogelblock am Kamm der älteren Moräne, ca. 250 m, 13.8.1991, *Schuhwerk 91/935* (M, on *Sporastatia testudinea* beside *Lecidea atrobrunnea*). – There is only a small number of Svalbard records of this tiny, lichenicolous species (HERTEL & ELVEBAKK 1996), although the species in the Liefdefjord area is not rare (F. Schuhwerk, pers. comm.).

**Switzerland**. **Kanton Tessin**: Val Piora (NE oberhalb Piotta bei Airolo), kleiner Felsrücken südlich unterhalb des Piz Curnera, zwischen Lago di dentro und Lago Scuro, [46°34'N, 8°42'E], 2450 m, 31.8.1984, *Hertel 25756* (M, on *Sporastatia testudinea*). – **Kanton Wallis**: Gornegrat ridge [45°59'N, 7°47'E], 3110 m, 20.7.1961, *Thomson 9375 & Frey* (on *Sporastatia testudinea*, WIS).

**U.S.A.** **Arizona**: Coconino Co, San Francisco Peaks, scree slope high above crossing of Abineau Trail and old secondary road, 35°21'N, 111°41'W, 3500 m, 12.6.1998, *Hertel 40010* (M). Already reported from San Francisco Peaks by NASH & al. (1998). – **Colorado**: Summit of West Spanish Peak, Sangre de Cristo Range, 37°23'N, [104°59'W], 4152 m, 6.8.1952, 8.8.1952, *Imshaug 12069* (on *Sporastatia testudinea* beside *Tephromela armeniaca* (DC.) Hertel & Rambold, MSC) – Gunnison Co., summit ridge of White Rock Mt., Elk Mts., 38°59'N, [106°55'W], 3960 m, 13.7.1952, *Imshaug 11000* (MSC, a tiny infection on thallus of *Sporastatia testudinea*). – **Wyoming**: Park Co., Beartooth Pass, [44°58'N, 109°28'W], between Red Lodge and Cooke City, 3350 m, 1.9.1950, *Imshaug 9661* (MSC, small thallus on *Sporastatia testudinea*).

### *Rimularia impavida* (Th.Fr.) Hertel & Rambold

HERTEL & RAMBOLD, *Mitt. Bot. Staatssamml. München* 23: 391 (1987); *Bibl. Lichenol.* 38:

176–179 (1990) = *Lecidea impavida* Th.Fr., *Kongl. Svenska Vetensk. Handl.* 7: 42 (1867);

THOMSON, *American Arctic Lichens* 2: 352, 354 (1997).

New records:

**Russia**. **Western Chukotka**: Middle stream of the river Rau-Chua near the settlement Baraniha [68°29'N, 168°14'E], in stone field of a montane slope, 17.7.1971, *Makarova 71100* (M, beside *Sporastatia testudinea*). Already mentioned for Chukotka by HERTEL & RAMBOLD (1990).

**Canada.** Nunavut: [Melville Peninsula]: Repulse Bay, 66°32'N, 86°15'W, 2–10 m, on granite pebble, 5.8.1984, *Scotter 76776* (M, beside *Rhizocarpon inarense*). – Already mentioned for Nunavut (THOMSON & SCOTTER 1983, HERTEL & RAMBOLD 1990).

***Rimularia insularis* (Nyl.) Rambold & Hertel**

RAMBOLD & HERTEL in HERTEL, *Lecideac. Exs.*, fasc. VIII, no. 159 (1985); HERTEL, *Mitt. Bot.*

*Staatssamml. München* 21: 314-316 (1985); RAMBOLD, *Bibl. Lichenol.* 34: 304-307 (1989).  
New records:

**Canada.** Saskatchewan: Lake Athabaska, 5 miles east of Poplar Pt., South Shore, First Camp, 59°30' N, 107°41'W, 24.7.1935, *Raup 2046* (M, on *Lecanora rupicola* s.l.; filed under *Schaereria fuscocinerea*).

**U.S.A.** Alaska: 10 miles N of Jago Lake at Jago River, 69°45'N, 143°42'W, 300 m, crest of ridge of sandstone outcrop (possibly nunatak), 31.7.1957, *Cantlon & Gillis 57-1711* (MSC). New to Alaska. –

Arizona: Apache Co., White Mtns, Mt. Baldy Wilderness, East Fork of Little Colorado River, along trail no. 95 from Phelps's Cabin to Mt. Baldy, 33°56'N, 109°30'W, 2960 m, 8.6.1998, *Hertel 40171, 40182* (M) – Cochise Co., Chiricahua Mtns, Coronado National Forest, between Barfoot Park and Buena Vista Peak, 31°55'N, 109°16'30"W, 2580 m, 4.6.1998, *HERTEL 40034* (M) – Coconino Co., summit of Agassiz Peak, San Francisco Mts., 35°20'N, [111°40'W], 3760 m, 27.8.1952, *Imshaug 12729* (MSC) – Coconino Co. (at Gila Co. boundary), edge of Mogollon Rim along AZ 260, 34°18' N, 110°54' W, 2310 m, 9.6.

1998, *Hertel 40209* (M) – Gila National Forest, upper end of Pine Canyon, 34°26'N, 111°24' W, 2235 m, 10.6.1998, *Hertel 40273, 40287, 40295* (M). – Montana: Glacier National Park: Lake McDonald by Fish Creek, [47°25'N, 113°59'W], 975 m, 6.8.1950, *Imshaug 8219* (MSC). – Washington: [Pierce Co.], Mt.

Rainier National Park, Mt. Wow, [46°46'N, 121°54'W], 1830 m, 21.8.1948, *Imshaug 1885* (MSC).



Figure 10: Southern hemisphere distribution of *Rimularia psephota*. Map based on studied specimens.



***Rimularia psephota* (Tuck.) Hertel & Rambold**

HERTEL & RAMBOLD in HERTEL, Mitt. Bot. Staatssamml. München 23: 334 (1987); HERTEL & RAMBOLD, Bibl. Lichenol 38: 183–185 (1990) = *Lecidea psephota* Tuck., Proc. Amer. Acad. Arts 12: 181 (1877) = *Lambiella psephota* (Tuck.) Hertel, Beih. Nova Hedwigia 79: 460 (1984).

New records:

**Argentina.** Isla de los Estados: Cabo San Bartolome, littoral zone on N side of peninsula, 54°54'S, 64°42'W, 5.11.1971, *Imshaug & Ohlsson 53186* (MSC) – Bahía Primera, littoral zone on Cabo Kendall peninsula, 54°49'S, 64°07'W, 30.10.1971, *Imshaug & Ohlsson 52320* (MSC).

**Falkland Islands (= Islas Malvinas).** West Falklands: Hill Cove, cliffs along sea at Point Settlement, UTM Grid 21F TC 8390 [51°30'S, 60°07'W], 27.1.1968, *Imshaug & Harris 41260* (MSC) – Westpoint Island, coastal rocks along NE shore adjacent to Cape Terrible, UTM Grid 21F TD 4006 [51°20'S, 60°41'W], 21.1.1968, *Imshaug & Harris 40776* (MSC) – Weddell Island, coastal rocks along E side of Ottos Bay, UTM Grid 21F TC 3243 [51°54'S, 60°53'W], 7.2.1968, *Imshaug & Harris 42037* (MSC).

*Rimularia psephota* is a bipolar lichen, which was known from Chile (Prov. de Magallanes; type locality and HERTEL 1989, HERTEL & RAMBOLD 1990), Argentina (Tierra del Fuego; HERTEL 1989), Antarctic Peninsula (HERTEL 1989, HERTEL & RAMBOLD 1990), New Zealand (North and South Island; e.g. HERTEL 1985, 1989), Australia (A.C.T.: RAMBOLD 1989; Tasmania: HERTEL & RAMBOLD 1990), Îles de Kerguelen (HERTEL 1984), Macquarie Island (HERTEL 1987), South Georgia (HERTEL 1989), and arctic Europe (Iceland: HERTEL & RAMBOLD 1990; Spitsbergen, Iceland, Sweden, Novaya Zemlya: HERTEL 1991).

***Schaereria fuscocinerea* (Nyl.) Clauzade & Cl. Roux**

CLAUZADE & ROUX, Bull. Soc. Centre-Ouest, N.S., Numéro Spécial, 7: 829 (1985); RAMBOLD, Bibl. Lichenol. 34: 310–313 (1989); WIRTH, Flechten Baden-Württembergs 2: 849 (1995; macrophoto!)

= *Schaereria tenebrosa* (Flot.) Hertel & Poelt in HAWKSWORTH, JAMES & COPPINS, Lichenologist 12: 107 (1980); THOMSON, American Arctic Lichens 2: 583–584 (1997).

= *Schaereria endocyanea* (Stirt.) Hertel & Gotth. Schneider in Gotth. Schneider, Bibl. Lichenol. 13: 239 (1979); THOMSON, American Arctic Lichens 2: 582–583 (1997).

New records:

**Iceland.** Suður Þingeyjarsýsla: Myvatn, Umgebung von Skútustaðir, 65°34'N, 17°02'W, 10.7.1979, *Hertel 21636* (M). – Suður Múlasýsla: Felsküste bei Berufjörður, 10 km NW von Djupivogur, 64°44'N, 14°24'W, 30 m, 8.7.1979, *Hertel 21502* (M) – Ca. 1.5 km NW von Djupivogur, 64°40'N, 14°19'W, 20–40 m, 8.7.1979, *Hertel 21516* (M) – Paßhöhe Breiðdalsheiði, an der Straße von Breiðdalsvik nach Þingmúli, 64°54'N, 14°37'W, 500 m, 9.7.1979, *Hertel 21552* (M). – Mýrasýsla: Am Paß Brekkumuli, 64°52'N, 21°31'W, 390–440 m, 18.7.1979, *Hertel 21960* (M).

**Switzerland.** Kanton Bern: Guttannen, ober Platti, 1300 m, 12.10.1919, *Frey 269* (G) – Aarboden, 1860 m, 23.7.1918, *Frey 344* (G) – Hochgant, Blockhalde am Südhang über dem Aelgäu, 2000 m, 21.10.1943, *Frey 1603* (G). – Kanton Graubünden: Scarl, Vallatscha, 2200 m, 1.8.1928, *Frey 317 m* (G) – Fluchthorn Südpfjel [46°53'N, 10°14'E, at the Austrian border], 3399 m, 9.4.1969, *Schuhwerk 927* (M) – Arosa, Weisshorn [46°47'N, 9°38'E], Gipfel, 2640 m, 3.7.1961, *Frey 27304* (G). – Kanton St.Gallen: Molseralp, Ziger [47°04'N, 9°15'E] westlich von Prochamm, 2070 m, 14.7.1965, *Frey 28373* (G). – Kanton Tessin: Val Piora, Bergrücken “Motta” SE oberhalb Alpe Tom (zwischen Lago di Tom und Lago Ritóm), [46°33'N, 8°41'E], 2100 m, 1.9.1984, *Hertel 25806* (M). – Kanton Wallis: Konkordiahütte am Aletschgletscher, 2850 m, 14.7.1921, *Frey* (G).

**France.** Dépt. Hautes Alpes: Dauphiné, La Béarde, Vall. des Entançons, 1840 m, 12.8.1932, *Frey 1124 & Schmidt* (G). – Dépt. Lozere: Mont Aigoual, Serre de la Lusette, 1380 m, 27.9.1931, *Frey* (G).

**Canada.** Alberta: Jasper National Park: Ridge opposite Angel Glacier on Mt. Edith Cavell [52°40'N, 118°03'W], 1980 m, 16.–17.7.1950, *Imshaug 7008, 7059* (MSC, beside *Lecidea lapicida* and *Tremolectia atrata*). – Saskatchewan: Lake Athabaska, 5 miles east of Poplar Pt., South Shore, First Camp, 59°30'N, 107°41'W, 24.7.1935, *Raup 2046* (M).



**U.S.A. Arizona:** Cochise Co., Chiricahua National Monument, “Heart of Rocks” area, 32°00'N, 109°19'W, 2060 m, 5.6.1998, *Hertel 40066, 40073* (M) – Gila Co., East Verde River Canyon, upriver from where it intersects with the Houston Mesa Road, ca. 14 km NNE of Payson, 1440–1510 m, 30.5.1998, *Hertel 39704* (M). – **Colorado:** Larimer Co., Big Thompson River Canyon, from 3 miles W. of Loveland west to Estes Park, 1675–2135 m, VIII.1959, *Fahrenbruch S-24549* (M).

**South Africa. Western Cape Prov.:** Distr. Wellington: Bains Kloof [33°37'S, 19°06'E], on sandstone rocks, 20.9.1953, *Almborn 5131* (LD). – New to Africa.

*Schaereria fuscocinerea* is widely distributed in both hemispheres. In the Southern Hemisphere, it was reported from South Georgia (HERTEL 1984) and Australia (RAMBOLD 1989).

*Sporastatia polyspora* (Nyl.) Grumm.

GRUMMANN, Catal. Lich. Germ. 23 (1963); THOMSON, North American Arctic Lichens 2: 587–588, 590 (1997).

New record:

**U.S.A. Alaska:** Juneau Icefield, summit ridge of Mt. Moore (cirque wall above Camp 8), knife-edge talus slope at 7000 ft elevation, 26.7.1962, *Imshaug 29066* (MSC).

According to the map given by THOMSON (1997) there is, beside a locality on Attu Island (westernmost Aleutian Islands – TALBOT & al. 1991) no record for Alaska.

*Trapelia coarctata* (Turner ex Sm. & Sow.) M.Choisy

CHOISY in WERNER, Bull. Soc. Sci. Maroc 12: 160 (1932); THOMSON, American Arctic Lichens 2: 620–621 (1997).

New record:

**Chile. XII Región de Magallanes y de la Antártica Chilena. Prov. de Magallanes:** Península de Brunswick, Punta Arenas, *Nothofagus* woods E of Mina Loreto on S side of Río de las Minas, 215 m, 18.12.1967, *Imshaug & Harris 38932* (MSC).

*Tremolecia atrata* (Ach.) Hertel

HERTEL, Khumbu Himal, Ergebn. Forsch.-Unternehmens Nepal Himalaya 6: 351–353 (1977); THOMSON, American Arctic Lichens 626–628 (1997).

New records:

**U.S.A. Alaska:** 4 miles S of Okpilak Lake, granite talus, 69°22'N, 144°04'W, 915 m, *Canton & Gillis 57-2374, 57-2378* (MSC) – Juneau Icefield, summit ridge of Mt. Moore (cirque wall above Camp 8), knife-edge talus slope at 7000 ft [2133 m], 26.7.1962, *Imshaug 29050* (MSC) – Mt. Juneau [58°19'N, 134°24'W], (vicinity of Juneau), alpine summit area, 1090 m, 15.7.1962, *Imshaug 28688* (MSC). – **Washington:** Mt. Rainier National Park, Mt. Wow, 21.8.1948, *Imshaug 1929* (MSC).

**Argentina. Isla Grande** (Tierra del Fuego): Bahía Buen Suceso, alpine region at summit of mountain behind bay, 54°48'S, 65°17'W, 600 m, 13.10.1971, *Imshaug & Ohlsson 50010* (MSC) – Alpine region with occ. cushion plants near summit of mountain between Monte Cornu and Paso Garibaldi, Sierra Lucas Bridges, 54°42'S, 67°45'W, 790 m, 27.11.1971, *Imshaug & Ohlsson 55431* (MSC) – Cut-over and grazed area at base of cliffs on W side of Río Olivia valley (W of Monte Olivia), along Ruta Nac. no. 3, 54°45'S, 68°13'W, 120 m, 26.11.1971, *Imshaug & Ohlsson 55289* (MSC). – **Isla de los Estados:** Puerto Celular, 54°47'S, 64°18'W, subalpine summit of peak on N side of cove, 490 m, 31.10.1971, *Imshaug & Ohlsson 52565* (MSC) – Puerto Hoppner, wet heath with groves of prostrate *Nothofagus*, on summit of hill behind inner bay, 54°47'S, 64°24'W, 150 m, 9.11.1971, *Imshaug & Ohlsson 53813* (MSC) – Puerto Roca, summit of peak S of bay, 54°46'S, 64°15'W, 360 m, 21.10.1971, *Imshaug & Ohlsson 51132* (MSC) – Puerto Cook, alpine summit of mountain at SE corner of bay, 54°46'S, 64°01'W, 23.10.1971, *Imshaug & Ohlsson 51545* (MSC, a tiny thallus beside *Rhizocarpon* spec.)

**Falkland Islands (= Islas Malvinas). West Falklands:** Fox Bay, outcrops on ridge NE from Sullivan House, UTM Grid 21F TC 8952, 150 m, 11.02.1968, *Imshaug & Harris 42351* (MSC) – Port Howard, feldmark and outcrop on summit ridge of Mt. Maria, UTM Grid 21F UC 2078–2079 [51°37'S, 59°25'W], 610–655 m, 28.01.1968, *Imshaug & Harris 41372* (MSC, small thallus beside *Poeltidea perusta*). – **East Falklands:** Stanley, cliffs on rock dome at summit of Mt. Kent, UTM Grid 21F VC 2374, 460 m, 14.01.

1968, *Imshaug & Harris 40477* (MSC) – Stanley, outcrop on Sapper Hill, UTM Grid 21F VC 3871 [51° 43'S, 57°53'W], 135 m, 4.01.1968, *Imshaug & Harris 39737* (MSC).

Îles de Kerguelen. Péninsule Courbet, E summit of Mt. du Milieu, 740 m, 5.3.1971, *Imshaug 48819, 48822* (MSC).



Figure 11: Subantarctic distribution of *Tremolecia atrata* (based on specimens seen).

*Tremolecia atrata* is tiny but usually easily recognizable species. It is not yet known from continental Antarctica, Bouvet Island, Macquarie Island, Campbell and Auckland Islands and from the North Island of New Zealand. *Tremolecia atrata*, an alpine element, seems to be confined to areas with a humid climate.

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