LICHENOGRAPHIA THOMSONIANA: NORTH AMERICAN LICHENOLOGY IN HONOR OF JOHN W. THOMSON.
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LICHENS AND ALLIED FUNGI OF SOUTHEAST ALASKA

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ABSTRACT

A checklist of 508 lichen and allied fungal species with regional habitat, distribution and abundance information has been compiled for southeastern Alaska. The lichen flora of this region is a rich mixture of Pacific Northwest temperate rain forest and Arctic components, and is enhanced by topographic and habitat variations within the region. Great expanses of old-growth forests and excellent air quality provide habitat for many lichens elsewhere rare or imperiled. New to Alaska are: *Biatora cuprea, Biatoropsis usnearum, Calicium adaequatum, Candelaria concolor, Cetraria islandica* ssp. *orientalis, Chaenotheca brunneola, Chaenothecopsis pusilla, Cladonia dahliana, Cystocoleus ebeneus, Erioderma sorediatum, Gyalidea hyalinescens, Hydrotheria venosa, Hypocenomyce sorophora, Ionaspis lacustris, Lecanora cateilea, Lecidea albofuscescens, Leptogium brebissonii, Mycoblastus caesius, Nephroma occultum, N. sylvae-veteris, Trapeliopsis pseudogranulosa, Usnea chaetophora, U. cornuta,* and *U. fragilescens.* New to the US are: *Calicium lenticulare, Heterodermia sitchensis, Leptogium subtile,* and *Tremella hypogymniae.*

INTRODUCTION

For this special volume of papers we present an updated checklist of lichens and their habitats in the southeastern region of Alaska, a state long favored by Dr. Thomson's investigations. Although still incomplete, this checklist represents over 100 years of exploration, from early coastal surveyors to modern lichenologists. Like Dr. Thomson, all have appreciated the beauty and diversity of life offered by the Fungal Kingdom in remote Alaska. We hope this checklist will be used as a conservation tool and as a starting point for further additions to the regional lichen flora.

HISTORY OF LICHENOLOGY IN SOUTHEAST ALASKA

Lichenological exploration of the southeastern region of Alaska, known locally as Southeast Alaska, has a relatively short history. In a detailed summary of historic expeditions, outlined here, Krog (1968) credits the earliest botanical collections to A. Kellogg, surgeon to the US Coastal and Geodetic survey party in 1867. Lichens he collected were reported by Tuckerman (1882). Members of later US coastal surveys, W.H. Dall and T.H. Bean (Rothrock 1884) also collected lichens. Grace E. Cooley (1892) and James M. Macoun of the Canadian Geological Survey (1902) made important early collections of vascular plants and lichens (Brodo 1995a). R Reuleaux (Stizenberger 1895), and R.S. Williams (Howe 1911) collected a few lichens at Sitka and Skagway, respectively. In 1904, Cummings reported on collections by W.M. Canby, W.H. Evans, and W. Trelease and other members of the Harriman Expedition. Some of these collections are still unique and are cited in the present report.

Twentieth century investigations include those of McKechnie in Ketchikan (Howe 1913), A.S. Foster, T.C. Frye and D. Waynick (Herre 1919, Magnusson 1932), E. Hultén (Degelius 1937) and W.J. Eyerdam (Thomson 1950). L.D. Stair collected in Yakutat (1947), C.J. Heusser in the Juneau icefield (1954), and H.A. McCullough in the Mendenhall Valley (1965). Of these, several collections identified by Herre, Heusser and McCullough are still unique to the regional flora.

The first modern flora to include Southeast Alaska, *Macrolichens of Alaska,* was prepared by H. Krog (1968). It included species from her forays to 14 different sites in Southeast Alaska during the 1950s, the earlier reports, and previously unreported herbarium specimens. J.W. Thomson's now standard reference, *American Arctic Lichens 1. The Macrolichens*

(1984), mapped the distribution of arctic species in se AK, with many new species and locations since Krog's report. In 1967, J. W. Thomson and T. Ahti collected in Haines and at milepost 33 on the Haines Highway in a *Populus trichocarpa-Picea sitchensis* forest (Thomson & Ahti 1994), adding additional species to the regional flora. In 1997, R. O'Clair, S. Lindstrom and I. Brodo described marine lichens of Southeast Alaska's intertidal, salt spray and splash-influenced zones. T. Tønsberg's visits have also been productive (e.g. 1993 and other species in this list). The 1980's and 90's have seen immense progress toward the solution of regional taxonomic problems by many researchers, especially Irwin Brodo and Trevor Goward in neighboring Queen Charlotte Islands and British Columbia, respectively (see Brodo 1995a and the "Literature Cited" section of this paper). These taxonomic works have been critical and prerequisite to the present inventory of lichens in Southeast Alaska.

Explorations previous to the 1970s emphasized areas near towns in Southeast Alaska, especially Juneau, Sitka, Ketchikan, Haines and Skagway. This was a natural consequence of the roadless condition, rugged terrain, high transportation costs, and general inaccessibility of the region. Beginning in 1980, one of the authors (Stensvold) started collecting lichens in remote areas throughout the region as an ancillary activity to other US Forest Service field work. Between 1989 and 1993 the present authors began a systematic inventory of lichens in forested and alpine habitats throughout se Alaska as part of an air quality study for the Tongass National Forest (Geiser et al. 1994a). Assisted by float plane, helicopter, boat and other resources of the US Forest Service, we were able to investigate many previously unexplored areas and compile comprehensive habitat and distribution data for lichens, emphasizing macrolichens, from about 275 sites (Geiser et al. 1994b). That work increased the regional inventory to 453 species, a little less than half new to se Alaska. The present list adds 58 species collected by us and others since 1994, updates nomenclature, includes voucher numbers for rare and poorly known species, and improves the habitat information provided in the first inventory.

STUDY AREA

Southeast Alaska is a narrow geographic area, about 190 km wide by 900 km long. It is oriented in a northwesterly-southeasterly direction, located between 54°40' and 60°30' N, and between 130° and 140° W (Fig. 1). It is bounded on the west by the Pacific ocean, to the north by the Fairweather Mountain Ranges and to the east by the Coastal Mountain Range. A myriad of mountainous, fjord-cut islands, known as the Alexander Archipelago, dominates Southeast Alaska. Some mainland peaks exceed 3000 m in height, while those on the islands are generally less than 1200 m tall. The surficial landscape reflects a combination of glacial sculpting, tectonic uplift, and isostatic rebound. Common topographic features include steep slopes, deep valleys, fjords, glacial horns, arêtes, U-shaped valleys, moraines, and outwash plains. Most active glaciers are located on the mainland and are retreating. Some reach salt water, creating sea-level arctic-alpine habitats near their termini. The ten major rivers of the region originate in Canada. The Stikine River has the largest drainage area, followed by the Alsek, Taku and Chilkat. In the extreme north, the Yakutat area consists of a foreland of glacial and marine deposits forming a low coastal plain backed by the rugged, glacier-clad St. Elias Mountains. The 6.8 million ha Tongass National Forest encompasses most of the region. The area is sparsely populated with a total population < 55,000; the largest town, Juneau, the state capitol, had a population < 27,000 in 1992 (US Census Bureau).

INFLUENCES OF CLIMATE AND TOPOGRAPHY ON THE LICHEN FLORA

Due to the inland waterways and proximity to the Pacific Ocean, most of Southeast Alaska experiences a hyper-maritime climate: high humidity, high precipitation, considerable cloudiness and small temperature fluctuations. Average annual precipitation ranges from 152 to 508 cm; increasing with elevation (Harris et al. 1974). Average monthly temperatures at sea-level range from -3 to 3° C in January and 10 to 18° C in July (Leslie 1989). While much of Southeast Alaska is covered by rock and ice, below 900 m one finds a lush extension of the temperate rain forest belt of the Pacific Northwest. *Tsuga heterophylla-Picea sitchensis* forests and open peatlands of *Pinus contorta/Sphagnum* dominate the steep and more gentle slopes, respectively. Stands of large *Picea sitchensis* are found in well-drained glacial valley bottoms, riparian areas, and along marine beach fringes, while *Thuja plicata, Chamaecyparis nootkatensis,* and *Tsuga mertensiana* occur in more poorly drained sites. *Populus trichocarpa, Alnus rubra,* and *Salix* spp. are common in river floodplains. Forest vegetation types are classified in DeMeo (1988), Martin et al. (1995), Pawuk & Kissinger (1989) and Shephard (1995). Typical lichen species of the common vegetation types are described in Geiser et al. (1994a). About 1014 vascular plants (Stensvold nee Muller 1982) and 533 bryophyte species (Worley 1972) are known from the region.

The northeast mainland lies in a transition zone between marine and continental climates. Transitional species not found elsewhere occur just 50 km nw of Haines (Thomson and Ahti 1994 site GG) and in the Skagway vicinity, e.g. *Cladina mitis, Collema curtisporum, Collema subflaccidum, Hypogymnia occidentalis, Melanelia exasperatula, M. olivacea, M. septentrionalis, M. stygia, Nephroma expallidum, N. occultum, N. sylvae-veteris* and *Pilophorus cereolus.* A gradient of continental influence, and dispersal of inland species westward by winter wind patterns also affects the flora in mainland river valleys. Normally the Coastal and Fairweather Mountain Ranges form a barrier to most weather from between Southeast Alaska and BC. But in winter, under certain conditions of temperature and pressure gradients, cold air cascades out of Canada through passes and channels such as Glacier Bay, Lynn Canal, Taku Inlet, the Stikine R. valley and the Unuk R. valley at wind speeds of 160 km/h or more. In addition, if the cold air mass over Canada is deep enough, cold air will descend over the Juneau Ice Field, Tracy and Endicott Arms and the Whiting R. valley, all of which have glaciers or ice fields as sources. Species found exclusively in forests of these mainland valleys include: *Cetrelia alaskana, Heterodermia*

speciosa, Leptogium cyanescens, L. furfuraceum, L. saturninum, Leptogium subtile, Leptogium teretiusculum, Lobaria retigera, Lopadium disciforme, Melanelia multispora, Nephroma isidiosum, and *Sticta wrightii.*

The epiphytic macrolichen flora of tiny forested marine islands, or isolated peninsulas, can be spectacularly different or diverse compared to the surrounding forested shorelines. For example, at the Shrine of St. Therese I. near Juneau and Gut I. at the mouth of the Stikine R., a dramatic cover of *Usnea* spp and *Ramalina menziesii* replaces normally abundant *Alectoria sarmentosa.* While we have never found *Pseudocyphellaria rainierensis* to be common, most collections are from small marine islands. Lichens of shore rocks form another interesting element, these are discussed and illustrated in O'Clair et al. 1996.

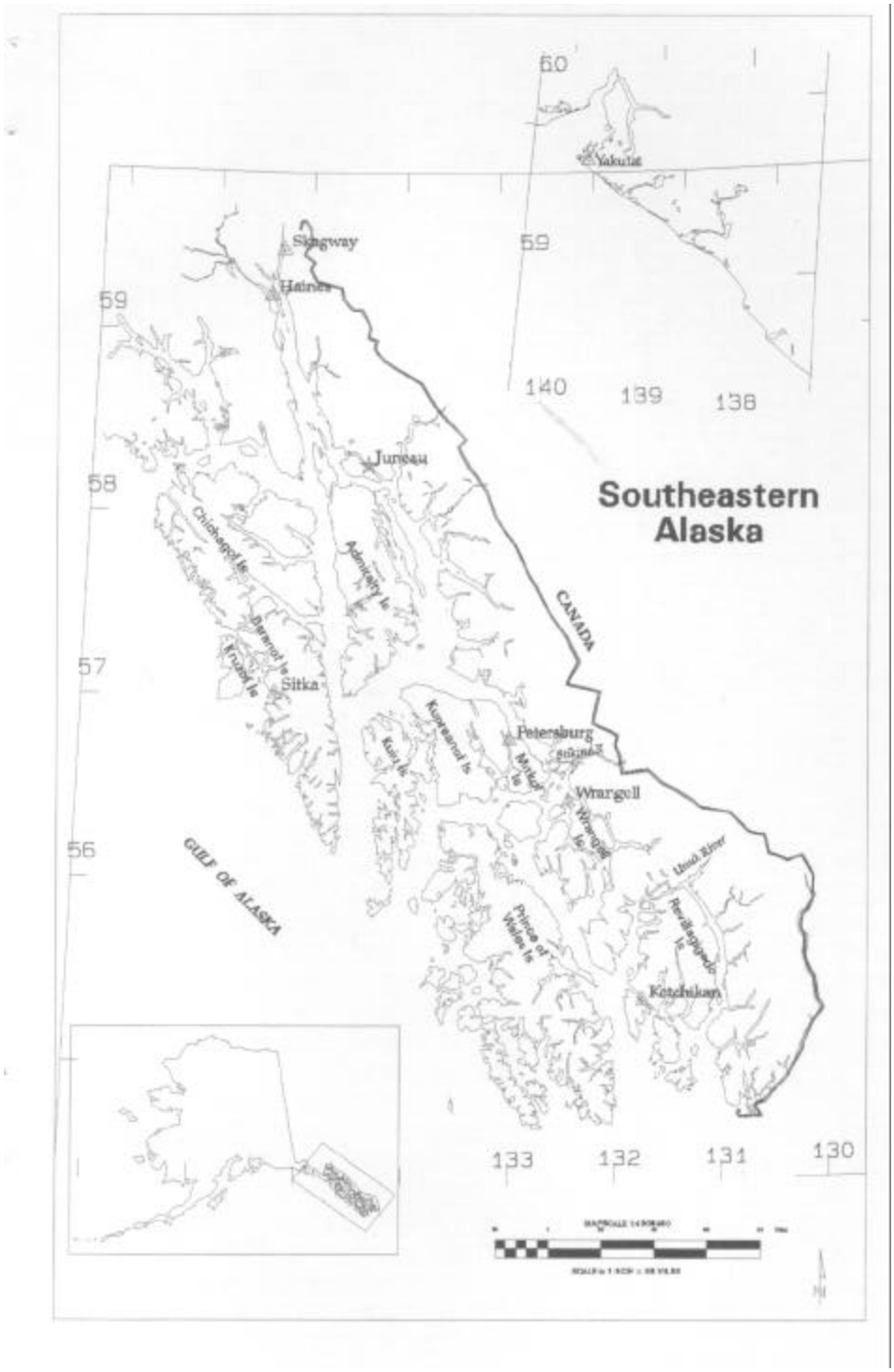

Figure 1. Map of study area

ENDEMISM, DIVERSITY, RARE SPECIES AND CONSERVATION ISSUES

Refugia from glacial episodes during the late Wisconsin period are postulated to account for a regional flora relatively rich in species that are endemic or common in North America only in the Queen Charlotte Islands or in Southeast Alaska. Some show remarkable disjunctions with other regions of the world. Examples include species of *Amygdalaria, Bryoria, Coccotrema, Fuscopannaria, Fuscidea, Micarea, Ochrolechia* and *Rhizocarpon,* among other genera (Brodo 1992b, 1993, 1995). In contrast, much of the Yakutat forelands were glaciated as recently 300 years ago and few endemic species were found there.

In addition, Southeast Alaska appears to be the population center for rare Pacific Northwest endemics such as *Hypogymnia oceanica, Kaernefeltia californica* and *Hypogymnia duplicata.* Nearly pristine air quality throughout the region combined with the wet, oceanic climate enhances the diversity, biomass and distribution of highly pollution sensitive lichens such as *Usnea longissima* and members of the cyanobacteria-containing genera *Collema* (6 spp), *Leptogium* (12), *Lobaria* (8), *Nephroma* (10), *Pannaria* and *Fuscopannaria* (8), *Peltigera* (22) and *Pseudocyphellaria* (4). These lichens represent an extension of the Pacific Northwest temperate rain forest into coastal Alaska. About 69 species, i.e. 14% of the flora, have not been reported further north in Alaska and apparently reach the northern extent of their range in se AK. These species entries are preceded by a "+" in the list below.

Extensive stretches of virgin forest harbor many old-growth dependent or associated lichens such as *Heterodermia sitchensis, Leptogium brebissonii, Lobaria oregana, Nephroma occultum, N. sylvae-veteris, Pannaria ahlneri, Parmotrema chinense, Pseudocyphellaria rainierensis,* and *Sticta wrightii.* The region is also home to 26 species of *Stereocaulon* and 64 species of *Cladina* and *Cladonia* ca, a strikingly rich diversity within these genera. In all, more than fifty species considered imperiled due to logging, other forest management practices, pollution or development in neighboring British Columbia (Goward 1996) and Oregon and Washington (FEMAT 1993, USDA & USDI 1994) occur in Southeast Alaska.

Most lichens in Southeast Alaska are rare or poorly known. Some rare species are also rare world-wide (see Geiser et al. 1994a, Fig. 6). Of the species with adequate data to determine regional distribution, we have categorized 45 as extremely common, "A", 106 as common, "C", 64 as infrequent, "I", and 69 species as rare, "R". (See KEY below for further explanation of these terms). The remainder, about 225 species (45%), were considered too poorly known to rate. From a conservation viewpoint, less than half the flora has yet been demonstrated to occur even infrequently within the region.

KEY TO SPECIES LIST

A= abundant; large numbers of individuals can be found throughout Southeast Alaska in many habitats or in a few widespread habitats.
C= common; the lichen is widely distributed in Southeast Alaska or is regularly observed within specific, but not common, habitats.
I= infrequent; the lichen is only occasionally observed in the described habitat.
R= rare; the lichen is known from less than five sites due to scarcity of its required habitat or low population.
If no letter appears, the habitat was not sampled sufficiently to make an estimate, or we did not systematically sample the growth form (i.e. crustose lichens).

Regional substrates, habitats and distribution are described for all abundant, common and infrequent species. Distribution maps and extended habitat descriptions for these species can be found in Geiser et al. (1994a & 1994b). For rare and poorly known species we provide specific location data, voucher numbers, and, if available, literature citations. Substrate and habitat from those specific collections, rather than regional generalizations, are given. All species were collected by us and have vouchers in the Tongass National Forest Lichen Herbarium (TNFS) in Petersburg, Alaska, unless otherwise noted. Vouchers have also been distributed to the Canadian Museum of Nature (CANL), University of Alaska, Fairbanks (ALA), Oregon State University (herb. McCune), the Smithsonian Institution (US), and University of Wisconsin (WIS). Collections by others have been included and referenced but not checked. Lichen nomenclature follows Esslinger & Egan (1995).

Most soils in Southeast Alaska have an organic surface horizon. In the species list below, "organic soil" is used somewhat interchangeably with "humic soil" and even "humus" or "soil". Location (forest, peatland, subalpine, alpine) indicates additional soil properties. Soils of peatlands are poorly drained and excessively wet. They are histosols, i.e., strongly acidic (pH 3.5-5), almost entirely organic and continually saturated. Soils of forests drain more freely, usually occur on sloping terrain and tend to become spodosols. Spodosols have a deep, acidic (pH 4-5) surface horizon of organic duff, litter and humus. There is no permafrost in Southeast Alaska. Both soil types also dominate subalpine and alpine areas although soil depth and development decrease with increasing elevation. "Mineral soils", usually the upper horizon of a sandy or gravely entisol or inceptisol, have a low organic content, a higher pH, and are well-drained. Mineral soils and exposed gravels can be found along floodplains of streams and rivers and on recent glacial moraines. Exposed rocks occur on shorelines, subalpine and alpine areas and higher, avalanche chutes, along road cuts, and in rock pits. Elsewhere, unless part of a vertical cliff, most rocks and other mineral materials are buried under a thick layer of organic soil and moss.

Interpreting voucher specimen information: If the specimen was collected and identified by us, only the TNFS voucher number is given. For vouchers not determined by us, the determiner's name follows the voucher number(s). If the specimen was not collected by us, the collector's name precedes the voucher number. Collections by Rita O'Clair and Sylvia and Stephen Sharnoff were determined by Irwin M. Brodo. The latter are part of the Sharnoff private lichen collection now housed in Ottawa and likely to be deposited in CANL. All collections by Dr. Brodo are at CANL. In all other cases if the collection is not at TNFS, then the acronym for the herbarium where it is stored follows the collectors name and number.

Other abbreviations:

AK= Alaska, se AK = Southeast or southeastern Alaska, BC = British Columbia, CA= California, N Am = North America, OR= Oregon, PNW= the Pacific Northwest of N Am, generally northern CA through se AK; QCI= Queen Charlotte Islands; WA= Washington.
e = east, eastern; n = north, northern; s = south, southern; w = west, western I. = Island, Is. = Islands, L. = Lake, Mtn.= Mountain, R. = River.

*= new to AK, **= new to US, + = the only AK records are from se AK.

SPECIES LIST

Alectoria nigricans (Ach.) Nyl. C; on rock and soil; subalpine to alpine.

Alectoria ochroleuca (Hoffm.) Mass. (2) C; on organic soils; subalpine to alpine.

Alectoria sarmentosa (Ach.) Ach. subsp. *sarmentosa.* A; on bark and lignum of coniferous trees and deciduous shrubs; all forested elevations.

-subsp. *vexillifera* (Nyl.) D. Hawksw. R; in subalpine and alpine. Auke L., Juneau (Brodo & Hawksworth 1977).

Allantoparmelia almquistii (Vainio) Essl. On acid rock in exposed subalpine and alpine localities. *823 det. Ryan, 3255,3215*.

Allantoparmelia alpicola (Th. Fr.) Essl. On acid rock in exposed inland subalpine and alpine localities; Mt. Roberts, near Juneau (Krog 1968).

Amandinea coniops (Wahlenb. *in* Ach.). In lee of rocks nw of Haines (Thomson & Ahti 1994).

Amandinea punctata (Hoffm.) Coppins & Scheid. On bark of *Alnus;* beach at Big Bay, w Baranof I. *2094*.

Amygdalaria consentiens (Nyl.) Hertel, Brodo & M. Inoue. C; on alpine rocks and soil. Sheridan Peak, Kupreanof I.; Cosmos Range, Elbow Mtn. and Thunder Mtn., mainland *646 & 3481 det. Ryan, 18, 519 det. Thomson.*

+*Amygdalaria continua* Brodo & Hertel. On subalpine rocks near the waterfalls at Falls L., mainland. Endemic to QCI (Brodo & Hertel 1987) and se AK. *3169 det. Ryan.*

Amygdalaria elegantior (H. Magn.) Hertel & Brodo. On rock; sea level to alpine. LeConte Bay, mainland and Crystal Mtn, Mitkof I. *350,2012*

+*Amygdalaria haidensis* Brodo & Hertel. On rock; shore of Swan L., 421m., mainland *3194 det. Ryan.* Endemic to QCI (Brodo & Hertel 1987) and se AK.

Amygdalaria panaeola (Ach.) Hertel & Brodo. On alpine rocks, to sea level near glacier terminus; Rowan Mtn, Kuiu I. and LeConte Bay, mainland. *351,843*. Also in Yakutat (Gowan 1989).

Amygdalaria pelobotryon (Wahlenb.) Norman. On alpine rocks; Sheridan Pk., Kupreanof I. *3213 det. Ryan.*

Amygdalaria subdissentiens (Nyl.) Mas. Inoue & Brodo. On shoreline rocks in or just above the salt-spray zone, and on exposed alpine ridges (Brodo & Hertel 1987). Bear Claw Mtn, s Kupreanof I. *3151 det. Ryan.*

Arctomia delicatula Th. Fr. R; on *Pinus contorta* and on rock. Possibly overlooked because of its small size. Bold I. s of Ketchikan, *1049 det. Thomson,* and Waterfall Peak, mainland, *3232 det. Ryan.*

Arctoparmelia incurva (Pers.) Hale. On rock in the mainland alpine; w of n fork Bradfield R. *Krieckhaus 3439 det. Ryan.*

Arctoparmelia separata (Th. Fr.) Hale. On beach rocks at Woewodksi I. and at Spurt L., mainland, *404*.

+*Arthonia punctiformis* Ach. On *Alnus* at Augustine Bay, Dall I. (Herre 1919).

Arthonia phaeobaea (Norman) Norman. On beach rocks in the splash zone above the intertidal zone. Rowan Bay, Kuiu Is, 946 *det. Ryan,* and Starrigavan Bay, Sitka (O'Clair et al. 1996).

Arthrorhaphis citrinella (Ach.) Poelt. On humic soils in the high alpine, 1510 m., Juneau Ice Field (Heusser 1954).

Asahinea chrysantha (Tuck.) Culb & C. Culb. On boulders, plant debris and humus, occasionally on soil; Mendenhall Valley (McCullough 1965).

+*Aspicilia gibbosa* (Ach.) Korber. On rocks; Glacier Bay (Cummings 1904).

Bacidia beckhausii KOrber. On trees nw of Haines (Thomson & Ahti 1994).

+*Bacidia nivalis* Follmann. On alpine rocks; Thunder Mtn., *969 det. Thomson.*

Baeomyces placophyllus Ach. On moss on an unnamed alpine peak w of Elbow Mtn. near the BC border, *3284*. Also expected on sandy, clayey and organic soils (Thomson 1967).

Baeomyces rufus (Hudson) Rebent. I; on rocks and a stump above high tide line, on subalpine and alpine rocks; on wood, moss and soil.

Bellemerea cinereorufescens (Ach.) Clauzade & Roux. On alpine rock, Kupreanof I., *3219 det. Ryan.*

**Biatora cuprea* (Sommerf.) Fr. On Gastineau Peak, *Brodo 26356 det. C. Printzen.* Containing argopsin.

Biatora vernalis (L.) Fr. On *Alnus* along beach fringe, *3441 det. Ryan.*

* *Biatoropsis usnearum:* Raslinen. Parasitic on *Usnea filipendula* ; along forested beach of Dog Cove, Dog I., s of Ketchikan, *1881 det. Ryan.* See also Diederich & Christiansen (1994).

Brigantiaea fuscolutea (Dickson) R. Sant. On soil or rock in subalpine and alpine habitats, on mosses and small plants and on lower branches of *Picea,* on lacustrine rocks. Swan L., mainland, *3193 det. Ryan;* at Gastineau Peak, Juneau, *O'Clair s.n;* and nw of Haines (Thomson & Ahti 1994)

Brodoa oroarctica (Krog) Goward. On siliceous alpine rock; Rowan Mtn., Kuiu I., 844 *det. Thomson.*

Bryocaulon divergens (Ach.) Kärnefelt. I; on soil among mosses and other lichens.

Bryocaulon pseudosatoanum (Asah.) Kärnefelt. C; corticolous on *Picea sitchensis, Pinus contorta,* and *Tsuga heterophylla* in open forests; low to subalpine elevations.

Bryoria bicolor (Ehrh.) Brodo & D. Hawksw. C; corticolous on *Pinus contorta, Picea sitchensis,* and *Tsuga heterophylla* in open forests; sea level to subalpine. Once on alpine rock.

Bryoria capillaris (Ach.) Brodo & D. Hawksw. C; corticolous on conifers and deciduous shrubs, particularly in riparian and beach habitats; sea level to subalpine.

+*Bryoria carlottae* Brodo & D. Hawksw. C; primarily on *Pinus contorta* and *Tsuga heterophylla* in low elevation peatlands and open mixed-conifer forests; occasionally subalpine. Endemic to the QCI (Brodo & Hawksworth 1977) and se AK.

+*Bryoria cervinula* Mot. *ex* Brodo & D. Hawksw. I; primarily on open grown *Pinus contorta* and *Tsuga heterophylla* ; low elevations to subalpine. Endemic to BC and se AK (Brodo & Hawksworth 1977).

Bryoria chalybeiformis (L.) Brodo & D. Hawksw. On a totem pole at Chief Shakes I., Wrangell, 1592 *det. Brodo.*

Bryoria friabilis Brodo & D. Hawksw. I; corticolous on conifers and deciduous shrubs in all forest types.

Bryoria fuscescens (Gyelnik) Brodo & D. Hawksw. I; on *Pinus contorta* and *Picea sitchensis* in open forests, low elevations to subalpine.

Bryoria glabra (Mot.) Brodo & D. Hawksw. C; corticolous and lignicolous on conifers and deciduous shrubs in coniferous forests; low elevations to subalpine.

Bryoria lanestris (Ach.) Brodo & D. Hawskw. I; corticolous on *Pinus contorta* and *Picea sitchensis* in open mixed conifer forests.

Bryoria nadvornikiana (Gyelnik) Brodo & D. Hawksw. R; corticolous on conifers; on small marine islands (Dog I. in the far s, 1867 ; Gut I. in the Stikine R flats, 533 ; and the Myriad Islands w of Chichagof 1.2053 *det. Brodo.*

Bryorla nitidula (Th. Fr.) Brodo & D. Hawksw. On rock in the mainland alpine, nw of Skagway and Thunder Mtn vicinity , 33 *det. Thomson.*

Bryoria pseudofuscescens (Gyelnik) Brodo & D. Hawksw. R; on rotting stump at high tide line at Mallard Slough, Stikine R, 3083. Also on conifers near Mendenhall L., Juneau (Krog 1968) and near Skagway (Thomson 1984).

Bryoria subcana (Nyl. *ex* Stizenb.) Brodo & D. Hawksw. R; on *Pinus contorta* in a mid-elevation peatland nw of Sheridan Peak, 770.

Bryoria tenuis (E. Dahl) Brodo & D. Hawksw. C and widespread; corticolous and lignicolous on conifers and *Alnus;* low elevation to subalpine forests; on alpine rocks.

Bryoria trichodes (Michaux) Brodo & D. Hawksw. subsp. *americana* (Mot.) Brodo & D. Hawksw. and subsp. *trichodes.* A; corticolous on conifers; low elevation to subalpine. About 85% of our collections were subsp. *americana.* The remainder were subsp. *trichodes* or intermediates between the two. Subsp. *americana* was recently elevated to species level, *B. americana* (Holien 1997).

Buellia alboatra (Hoffm.) Th. Fr. On lacustrine rock, low elevation sites; Spurt L., mainland, *391 det. Thomson,* Harvey L., Woewodski I., and s Kupreanof I. along Petersburg Ck.

Buellia erubescens Arnold. On young *Alnus rubra* at forest edge along tidal mud flats at Mallard Slough, n arm Stikine R., *3064 det. Ryan.*

Buellia papillata (Sommert:) Tuck. On exposed shore rocks in LeConte Bay, *352 det. Thomson.*

+*Buellia spuria* (Schaerer) Anzi. On beach rocks at Rowan Bay, Kuiu I., *949 det. Thomson.*

Bunodophoron melanocarpum A. Massal. R; on *Tsuga heterophylla* at Dall I., *Kreikhaus 3368.*

**Calicium adaequatum* Nyl. On *Alnus rubra*; beach at Mallard Slough, Stikine R., *3075 det. Ryan.* This species possibly restricted to *Alnus* worldwide (Tibell 1975).

****Calicium lenticulare** Ach. On snag in forest near Ess L., mainland, *3351 det. Ryan.* Otherwise known in the w hemisphere only as far n as Mexico (Tibell 1992).

+Calicium viride Pers. On trunks of conifers and dead limbs of trees; Zarembo I. (Herre 1919).

+Caloplaca atrosanguinea (G. K. Merr.) Lamb. On *Salix* (Thomson & Ahti 1994).

Caloplaca citrina (Hoffm.) Th. Fr. C; on vertical or overhanging rocks in the salt spray zone. Occasionally on wood. See also (Arup 1993, O'Clair et al. 1996).

Caloplaca ferruginea (Huds.) Th. Fr. On bark or wood of conifers and deciduous woody plants; Mendenhall Valley (McCullough 1965).

Caloplaca flavogranulosa Arup. Strictly maritime; on horizontal rocks in the salt spray zone beneath bird perches, also on vertical rocks and driftwood (Arup 1993, O'Clair et al. 1996).

Caloplaca holocarpa (Hoffm. *ex* Ach.) M. Wade. On driftwood; w Lynn Canal near Skagway, *Sharnoff 1488.05*.

Caloplaca litoricola Brodo. On beach rocks at or just above high tide line. Common at Sitka; endemic to BC and se AK (Arup 1995, O'Clair et al. 1996).

Caloplaca pollinii (Massal.) Jatta. On *Populus* along the Unuk R., 2 km from BC border, *1145 det. Thomson.*

Caloplaca verruculifera (Vainio) Zahlbr. In the salt spray zone beneath bird perches on Aaron I. in Lynn Canal; not strictly maritime (O'Clair et al. 1996).

***Candelaria concolor** (Dickson) Stein. R; on twigs of *Picea sitchensis* on beach at Kadin I., mouth of Stikine R, *3442 det. Ryan.*

Candelariella aurella (Hoffm.) Zahlbr. On sandstone on Heceta I. (Herre 1919).

Candelariella canadensis H. Magn. On humic soils in the Mendenhall Valley near Juneau (McCullough 1965).

Cavernularia hultenii Degel. A; on twigs of conifers and deciduous shrubs; low elevation to subalpine forests.

Carbonea vorticosa (Flörke) Hertel. On rock near Visitors Center, Mendenhall Glacier, Juneau, *Brodo 25982*.

Cavernularia lophyrea (Ach.) Degel. A; on twigs of conifers, rarely on deciduous shrubs; low to mid elevation forests. PNW endemic.

Cetraria aculeata (Schreber) Fr. C; on organic soils in open *Pinus contorta* peatlands and other open forests.

Cetraria ericetorum Opiz. I; on humic soils in subalpine and alpine habitats; Thunder Mtn, mainland, *499*, Crystal Mtn, Mitkof I., *2014 det. McCune,* ridge on sw Etolin I., *1192 det. McCune.*

Cetraria islandica (L.) Ach. subsp. *islandica.* C; on humic soils with other lichens and mo sses, sometimes in rock crevices. In low elevation peatlands but more common in subalpine and alpine habitats.

-subsp. *crispiformis* (Räsänen) Karnefelt. I.

***** -subsp. *orientalis* (Asah) Kärnefelt. On mineral soils in deciduous shrub habitat on the Patters on R, mainland, *2469*, and the Mendenhall Glacier moraine trail, *2797 det. Brodo*; in humic soil in a *Pinus contorta* peatland along Ward Ck, near Ketchikan, *2788 det. Brodo.*

Cetraria muricata (Ach.) Eckfeldt I; on organic soil in open lowland peatland at Cape Fanshaw, mainland, *1147*.

Cetraria nigricans: Nyl. I; on rock in alpine habitats; Hall Peak, Kupreanof I., *3363 & 3383 det. Ryan,* and Thunder Mtn., mainland, *526*.

Cetrariella delisei (Bory *ex* Schaerer) Kärnefelt & Thell. On ground at Mt Roberts, Juneau (Krog 1968).

Cetrella alaskana (C. Culb. & Culb.) Culb. & C. Culb. R; on *Alnus* along the Stikine R. *1361 det. Thomson.*

Cetrelia cetrarioides (Duby) Culb. & C. Culb. C; on deciduous trees and shrubs and *Picea sitchensis* along freshwater and marine beaches.

***Chaenotheca brunneola** (Ach.) Müll. Arg. On bark and wood of *Picea sitchensis.* One collection along Indian R. Trail, Sitka, in hollow created by ax, *3313*.

Chaenotheca chrysocephala (Turner *ex* Ach.) Th. Fr. On bark of *Picea sitchensis* along uplifted beach at Cape Fanshaw, *2524* and on *Taxus brevifolia,* Dog I. s of Ketchikan.

+Chaenotheca stemonea (Ach.) Müll. Arg. On conifer bark in a 125 yr. old *Picea sitchensis* stand on Mitkof I., *1342 det. Thomson.*

***Chaenothecopsis pusilla** (Ach.) A.F.W. Schmidt In hollow of a *Picea sitchensis* snag, Indian R. Trail, Sitka, *3314 det. Ryan.*

Chrysothrix candelaris (L.) J.R. Laundon. In vertical swaths on the trunks of *Picea sitchensis* along uplifted beach at Cape Fanshaw, *2525*.

Cladina arbuscula (Wallr.) Hale & Culb. subsp. *beringiana.* A; on organic soils; peatlands of all elevations.

Cladina ciliata (Stirton) Trass var. *tenuis* (Flörke) Ahti & M.J. Lai. but widespread; on organic soils; peatlands of all elevations.

Cladina mitis (Sandst) Hustich. R; on sand and gravel in open areas with continentally influenced climates. In glacial outwash of the Mendenhall Glacier terminal moraine, *2798 det. Brodo*, and near Skagway, *Sharnoff 1487.01*.

Cladina portentosa (Dufour) Follmann. C; on organic soils with other lichens and mosses; mainly in low elevation peatlands but not uncommon in subalpine and alpine elevations. Most collections not identified to subspecies.

-subsp. *pacifica* (Ahti) Ahti. Jamboree Bay, w Baranof I., *3104*.

Cladina pseudoevansii (Asah.) Hale & Culb. R; on organic soil at Nichols Bay (Krog 1968).

Cladina rangiferina (L.) Nyl. A; on organic soils in peatlands and open grown forest stands from low to subalpine and alpine elevations.

Cladina stellaris (Opiz) Brodo. I; on organic soils in peatlands and open forest types; sea-level to alpine.
-var. *aberrans* (Abbayes) Ahti (1) I-R; Pike Lakes, Yakutat, *2448*.

Cladina stygia (Fr.) Ahti. C; on organic soils in peatlands of all elevations. Often overlooked; distinguished fium C. *rangiferina* by its black stereome and red pycnidial jelly (Ahti & Hyvönen 1985).

Cladonia alaskana A. Evans. On moss-covered alpine rocks and humic soils; Crystal Mtn, Mitkof I., *890 det. Thomson*, Horn Cliffs and unnamed peak e of Thunder Mtn, mainland, *3346 & 965 det. Ryan*.

Cladonia albonigra Brodo & Ahti. C; in peatlands and open forests on organic soils among mosses, logs, rocks, and trunks or low branches of conifers, especially *Pinus contorta;* low elevation to alpine. Both grayanic positive and deficient strains. PNW endemic (Brodo & Ahti 1996).

Cladonia amaurocraea (Flörke) Schaerer. C and widespread; on organic soils in peatlands and open forests; sea-level to alpine.

Cladonia asahinae J.W. Thomson. R; on trunk of *Alnus* and moss-covered *Picea sitchensis* branches; Yakutat lowlands, *2815, 3299, 3301 det. Brodo*. Protolichesterinic acid chemotype found only as far n as QCI (Brodo & Athi 1996).

Cladonia bacilliformis (Nyl.) Glück. R; on rotting wood; forested coast of Tebenkoff Bay, Kuiu I., *2290 det. Thomson*.

Cladonia bellidijlora (Ach.) Schaerer. A; corticolous and lignicolous on bases and sometimes lower branches of conifers in most forest types. Common on soil, rarely on rock. Low elevation to alpine.

Cladonia borealis S. Stenroos. A; corticolous on conifers in forested habitats, on rocks and humic soils in open better drained habitats. Low elevation to alpine.

Cladonia cariosa (Ach.) Sprengel. I; on humic soils with other lichens and mosses.

Cladonia carneola (Fr.) Fr. C and widespread; on lower conifer trunks and branches, and on rocks. Forested and alpine elevations.

Cladonia cenotea (Ach.) Schaerer. One collection fium a decomposing beach log, the other on ground in a *Picea sitchensis* forest near Skagway; *2690, 205 det. Thomson*.

Cladonia cervicornis (Ach.) Flotow subsp. *verlicillala* (Boffin.) Ahti. On sandy soils, rock outcrops, on thin humic soils, and old rotten logs (Thomson 1984). On Mt. Roberts near Juneau and Deer Mtn. near Ketchikan (Krog 1968) and unnamed peak w of Elbow Mtn, mainland, *3283*.

Cladonia chlorophaea (Flörke *ex* Sommerf.) Sprengel. C; mainly on bark and lignum of conifers and deciduous shrubs in forested habitats. On rocks and humic soils in open better drained habitats. Low elevation to subalpine forests; also in alpine habitats.

Cladonia coniocraea (Flörke) Sprengel. A; primarily on bark of conifers, rarely on deciduous shrubs. Low elevation to subalpine forests.

Cladonia cornuta (L.) Hoffin. A; on bark of conifers (except *Pinus contorta)* and deciduous shrubs in many forest types. Also in humus with other lichens and mosses, sometimes in rock crevices, in open areas.

Cladonia crispata (Ach.) Flotow var. *crispata*. C; mainly on coniferous bark in *Pinus contorta* and mixed conifer open forests. Also found in humic soils with other lichens and mosses, and on rock. Low elevation to alpine.

Cladonia cryptochlorophaea Asah. I; on bark and lignum of conifers and deciduous shrubs in forested habitats. On humic soils among mosses in better drained habitats. Gut I., mouth of Stikine R.; Thimbleberry L. trail, Sitka; trail to Harlequin L., Yakutat *539, 2251, 1612*.

Cladonia cyanipes (Sommerf.) Nyl. On thin humic layer with other lichens and mosses over glacial moraine; terminus of Herbert Glacier, n of Juneau, *2841 det. Brodo*.

**Cladonia* cf. *dahliana* Kristinsson. On rocky alpine cliff e of Horn Mtn, mainland, *3366 det. Ryan*. With atranorin and psoromic acid, basal squamules small, lacking podetia. Known from Iceland, Greenland, Baffin I. (Kristinsson 1974) and the PNW (Hammer 1995).

Cladonia deformis (L.) Hoffin. I; on bark of conifers, also on rocks and humic soils; low elevation to subalpine forests.

Cladonia ecmocyna Leighton subsp. *intermedia* (Robbins) Ahti. C; usually in humic soils with other lichens and mosses. More frequent in subalpine and alpine habitats and over thin humus on glacial moraines, but also found in low elevation peatlands.

Cladonia fimbriata (L.) Fr. A; on bark and lignum of conifers, usually on bases of trunks or lower branches. Also corticolous on deciduous shrubs and once found on rock. In most forest types, low elevations to subalpine.

Cladonia furcata (Hudson) Schrader. A; mainly on humus in low elevation open *Pinus contorta,* mixed conifer, *Picea sitchensis* and *Tsuga heterophylla* forests. Also on bark of conifers (bases of trunks or lower branches) and mossy rocks.

Cladonia gracilis (L.) Wild. subsp. *turbinata* (Ach.) Ahti and subsp. *vulnerata* Ahti and subsp. *elongata.* (Jacq.) Vainio. A; most common in open areas in better drained sites with other lichens and mosses; peatlands, open forests, subalpine and alpine.

Cladonia granulans Vainio. R; on soil; 5 records in N Am noted by Thomson (1984),3 from se AK on Douglas I., Harbor Mtn. near Sitka, and Saxon Village near Ketchikan (Krog 1968).

Cladonia homosekikaica Nuno. On moss-covered rock, terminus of Herbert Glacier, n of Juneau, *3293 det. Brodo.*

Cladonia humilis (With.) J.R. Laundon. R; on soil and rotting logs; in the Juneau vicinity and n Kuiu I. (Thomson 1984).

Cladonia kanewskii Oksner. I; on humic soils among mosses; subalpine. Also collected in the Juneau vicinity, *Imshaug 28641, 28876, 28979, 28935, H and MSC.*

Cladonia macilenta Hoffin. R; along Loop Rd. in Juneau, Ward L. near Ketchikan and the Indian R. Trail near Sitka (Krog 1968).

Cladonia macilenta var. *bacillaris* (Nyl.) Glück. R; On old logs, tree bases, earthen banks and humus in forested locations; along the Indian R. Trail near Sitka (Krog 1968) and n Kuiu I. (Thomson 1984).

Cladonia mocrophylla (Schaerer) Stenh. I; on soil, moss-covered rock and conifer trunks, sea level to alpine elevations; Goose Cove, n Baranof I. and Crystal Mtn., Mitkof I., *2663 & 912 det. Thomson;* Shakes Slough, Stikine R, *1413 det. Brodo.*

Cladonia macrophyllodes Nyl. I; on rock, moss-covered soil and rock crevices, Thunder and Elbow Mtns., mainland, *527, 656, 3276*.

Cladonia maxima (Asah.) Ahti. A; in organic soil in raised hummocks in peatlands; from low elevation to alpine, where it can occur on rocks. *C. gracilis* ssp. *vulnerata* can also grow very long podetia in humid coastal conditions; our collections may be that species.

Cladonia merochlorophaea Asah. I; on moss-covered alpine rock, Sheridan Pk, Kupreanof I., *224 det. Ryan;* on dwarf *Tsuga mertensiana,* subalpine sw Etolin I., *1197 det. Thomson;* Harlequin L. trail, Yakutat lowlands, *1612*.

Cladonia metacorallifera Asah. I but widespread; on bark or wood of conifers in open forests to subalpine; on beach logs; on rock, soil or moss in non-forested and alpine habitats.

Cladonia nipponica Asah. R; on boulders and on soils near Mendenhall L. and Mt. Roberts near Juneau, Harbor Mtn. near Sitka (Krog 1968) and the Ketchikan vicinity (Thomson 1984).

Cladonia norvegica Tønsberg & Holien. R-I; corticolous and lignicolous at the bases or moss-covered branches of conifers, occasionally on decaying logs. Tom's L., Prince of Wales I., *3297 det. T. Ahti;* Juneau vicinity, and the Indian R. Trail near Sitka (Tønsberg & Goward, 1992).

Cladonia ochrochlora Flörke. A; on bark and lignum of coniferous trees and deciduous shrubs. Common to most forest types but not occurring in the subalpine or alpine.

Cladonia phyllophora Hoffm. I; moss-covered or bare sand, gravel or rock. Mendenhall Glacier terminal moraine and Patterson R., mainland, *2805 & 2443 det. Brodo;* and on *Picea sitchensis* in Brotherhood Park, Juneau, *1571*.

Cladonia pleurota (Flörke) Schaerer. C; on soil or rocks, occasionally on bark. Occurring at low elevations on the mainland, notably the Stikine R.; primarily a subalpine and alpine species on the islands.

Cladonia pocillum (Ach.) Grognot. R-I; on a large outcrop of shore rocks, with other lichens and mosses; Windham Bay, mainland, *2685 det. Thomson.*

Cladonia pyxidata (L.) Hoffm. I; primarily on soil or rocks, occasionally on lower branches or bases of conifer trunks. In forested and open habitats, sea level to subalpine.

Cladonia ramulosa (With.) J.R Laundon. On *Picea sitchensis* at Cannon Beach, Yakutat, *3445 det. Ryan.*

Cladonia rei Schaerer. I; Mendenhall L. vicinity, Juneau (Krog 1968).

Cladonia scabriuscula (Delise) Nyl. C; primarily on organic soils, also on moss- covered rock and bark of conifers (low branches, crotches and bases of trunks). Most common in mixed conifer forests and open *Tsuga heterophylla/Thuja* or *Tsuga mertensiana* forests. Not found in subalpine, alpine, *Pinus contorta* peatlands or deeply shaded *Picea sitchensis/Tsuga heterophylla* forests.

Cladonia schofieldii Ahti & Brodo. R; on fully exposed soil or rock, mainly in high elevations. Thunder Mtn, mainland, *656 det. Brodo.* Endemic to BC and AK (Brodo & Ahti 1996).

Cladonia squamosa Hoffm. A; on bark and lignum of conifers, where it grows on lower branches, crotches and trunk bases. Also occurring on soil and rocks. Common to all coniferous forest habitats; low elevation to subalpine.
-var. *subsquamosa* (Nyl. *ex* Leighton) Vainio. C; on mossy logs and rocks, on trunks, snags and stumps of conifers.

Coccotrema pocillarium (Cummings) Brodo. On bark, logs or trees in coastal forests usually at the beach edge. W Chichigof and Baranof Islands, *3312 det. Ryan.* The type collection is from Faragut Bay in se AK. W N Am endemic, AK to OR (Brodo 1973).

Collema curtisporum Degel. On *Populus trichocarpa* nw of Haines (Thomson & Ahti 1994).

Collema fecundum Degel. C; on acidic and moss-covered rocks in the salt spray zone (O'Clair et al. 1996).

Collema furfuraceum (Arnold) Du Rietz. C; on bark of *Populus trichocarpa* in riparian areas at lower elevations.

Collema nigrescens (Hudson) DC. C; on bark of *Populus trichocarpa* in riparian areas at lower elevations.

Collema subflaccidum Degel. On rock at high tide line, Kadin I., Stikine R., *3447 det. Ryan.* On *Populus* near Haines (Thomson & Ahti 1994).

Collema tenax (Sw.) Ach. On soil, usually calciferous (Thomson 1984). Reported by Herre (1919).

Cornicularia normoerica (Gunn.) Du Rietz. Expected on well- lit, siliceous rocks, boulders and cliffs in wind-swept, alpine or glacially influenced areas (Thomson 1984). Known from Muir Glacier in Glacier Bay National Park (Krog 1968).

**Cystocoleus ebeneus* (Dillwyn) Thwaites. On *Pinus contorta* twigs and wood; near Petersburg, *T. Tønsberg 16577 BG.*

Dactylina arctica (Richardson) Nyl. In humic soils; subalpine and alpine of ne mainland only. Mendenhall Glacier Trail (Krog 1968) ; Goat L. ne of Skagway, *3503*.

Dactylina beringica C.D. Bird & J.W. Thomson. On humus in the subalpine and alpine; Juneau area (Thomson 1984).

Dactylina ramulosa (Hook.) Tuck. Subalpine and alpine; Mt. Roberts near Juneau (Krog 1968).

Dendriscocaulon intricatulum (Nyl.) Henssen. I; on bark of *Picea sitchensis, Alnus,* and *Salix.* At low elevations on the mainland; one island site, in subalpine. Collected nw of Haines (Thomson & Ahti 1994).

Dermatocarpon intestiniforme (KOrber) Hasse. On calcareous rock below mean high tide line, Naukati Bay, Prince of Wales I., *2566*.

Dermatocarpon luridum (With.) J.R Laundon. On seasonally inundated rock in open waterways from low elevation to alpine in BC (Goward et al. 1994b). Howkan Bay, near Ketchikan (Krog 1968).

Dermatocarpon miniatum (L.) W. Mann. On rock in the supralittoral zone. *Dermatocarpon rivulorum* (Arnold) Dalla Torre & Samth. R; on rocks in alpine stream bed, Elbow Mtn, mainland, *3266*.

Diploschistes muscorum (Scop.) R Sant. subsp. *muscorum.* On moss-covered alpine rocks; Hall Peak, Kupreanof I., *3332*.

Ephebe lanata (L.) Vainio. On rock; ridge above Ward Ck., Ketchikan area, *2792,* and terminal moraine of Herbert Glacier *2852*.

Epilichen scabrosus (Ach.) Clem. *ex* Hafellner. On *Baeomyces rufus* in a Juneau icefield nunatak (McCullough 1965).

+Erioderma mollissimum (Samp.) Du Rietz. R; on conifer bark in open forest, Almalga Trail, n of Juneau, *2369 det. Brodo.*

**Erioderma sorediatum* D.J. Galloway & P.M. J0rg. R; on twigs in *Picea sitchensis/Tsuga heterophylla* forest along beach.

Euopsis pulvinata (Schaerer) Nyl. On Gastineau Peak near Juneau *Brodo 26317*.

Farnoldia jurana (Schaerer) Hertel. On rock; beach at Yakutat, and Cosmos Range and Thunder Mtn., mainland alpine; *659 det. Thomson, 3174 & 3181 det. Ryan.*

Flavocetraria cucullata (Bellardi) Kärnefelt & Thell. I; on ground in alpine sites.

Flavocetraria nivalis (L.) Kärnefelt & Thell. I; in humic soils with other lichens and mosses; subalpine and alpine. Thunder Mtn., and unnamed peak w of Elbow Mtn., mainland, *502 & 3286*.

+Fuscopannaria ahlneri (P.M. Jørg.) P.M. Jorg. R on *Picea sitchensis* in the Yakutat lowlands, *1618*.

Fuscopannaria laceratula (Hue) P.M. Jørg. I; hypermaritime on beach rock, conifers, and *Alnus*; on Kadin I. near mouth of Stikine R., *3465 & 3466 det. Ryan,* Sokoi Is. near Petersburg, *39 det. Thomson,* Table Bay, s Kuiu I., *1890* and Yakutat lowlands, *1595 & 1656*.

Fuscopannaria leucophaea (Vahl) P.M. Jørg. On *Populus trichocarpa* or over other lichens. So far found only on the coastal mainland in Yakutat and the Unuk R. valley.

Fuscopannaria leucostictoides (Ohlsson) P .M. Jørg. I; on conifers and deciduous trees, especially bases of trees, or over other lichens in open forests, *1157 det. Ryan, 1017 & 2833*. Rare endemic, se AK to n CA with disjuncts in ID (McCune & Geiser, 1997).

Fuscopannaria maritima (Ohlsson) P.M. Jørg. On thin moss and rock above the upper tide line in the salt spray zone. Aaron I. in Lynn Canal *Brodo 26010, 26074, 26393* and Starrigavan Bay, Sitka, *O'Clair 3383*. Endemic, se AK to n WA (O'Clair et al. 1996).

Fuscopannaria praetermissa (Nyl) P.M. Jørg. With moss on thin soil overlying rock; on beaches within splash zone at sw Chichagof I. and Sokoi Is., and in mainland subalpine at Swan L., *2772 det. Thomson, 2619 det. Ryan.*

Fuscopannaria saubinetii (Mont.) P.M. Jørg. I; on rock with mosses and/or humus; on conifers and deciduous trees in various forest types; low elevation to subalpine.

Graphis scripta (L.) Ach. C; on bark and trunks of *Alnus* and *Acer* in hardwood stands and beach edges.

**Gyalidea hyalinescens* (Nyl.) Vezda. On rocky outcrop in subalpine forest, on rocks in creeks at low and mid elevations; Kupreanof I., and Muddy R. drainage, mainland. *3333, 3348, 3338 det. Ryan.*

***Heterodermia sitchensis* Goward and Noble. R; on *Alnus;* floodplains, lower Stikine R., *2563 det. T. Goward.* A rare coastal epiphyte known from BC (Goward 1984).

Heterodermia speciosa (Wulfen) Trevisan. C; on deciduous trees and conifers, especially *Populus trichocarpa* and *Picea sitchensis.* All records are from mainland river valleys. *O'Clair 3464 det. Ryan, 3382, 1014, 1737.*

Hymenelia epulotica (Ach.) Lutzoni. On rocks subject to inundation or flushing; in the mainland alpine. Elbow Mtn. *3274 det. Ryan.*

**Hydrotheria venosa* J.L. Russell. On rock in streams shaded by forest, n of Portage Bay, Kupreanof I. *3358, 3360 det. Ryan.*

Hyperphyscia adglutinata (Flörke) H. Mayrh. & Poelt. On hardwoods in Glacier Bay (Cummings 1904).

Hypocenomyce leucococca R Sant. On *Pinus contorta* near Petersburg, *T. Tønsberg 16579 BG.*

**Hypocenomyce sorophora* (Vainio) P. James & Poelt. On *Pinus contorta.* wood. Near Petersburg, *T. Tønsberg 16581 BG.*

Hypogymnia apinnata Goward & McCune. A; on trees, especially conifers in all forest types, sea-Ievel to subalpine. PNW endemic (Goward & McCune 1993). Most easily differentiated from *H. enteromorpha* by its PD- reaction.

Hypogymnia duplicata (Ach.) Rass. A; on trees, especially conifers, in *Pinus contorta* peatlands and mixed conifer forests; sea level to subalpine.

Hypogymnia enteromorpha (Ach.) Nyl. A; on trees, especially conifers in all forest types; sea level to subalpine.

Hypogymnia inactiva (Ach.) Nyl. C; on conifers, especially *Pinus contorta,* in open peatlands.

Hypogymnia occidentalis L. Pike. R except in ne mainland in continental transition zone; on *Picea* and other trees. Burro Creek near Skagway, *K. Glew 810728-11 WTU,* and near Haines (Thomson & Ahti 1994).

Hypogymnia oceanica Goward. C; on trunks and branches of open-grown *Pinus contorta;* also corticolous on *Picea sitchensis* and *Tsuga heterophylla* in other forest types, and on *Alnus* and *Malus* in the beach-forest ecotone. Low elevations. PNW endemic; rare in BC and southward (Goward 1988, McCune & Geiser 1997).

Hypogymnia physodes (L.) Nyl. C; on conifers and deciduous shrubs. Most common on trees along marine beaches and riparian areas. Occurring sporadically in mixed conifer and *Pinus contorta* open forests and other open stands. Low elevations.

Hypogymnia tubulosa (Schaerer) Hav. C; on conifers and deciduous shrubs in open forests throughout, particularly on beach or freshwater edges.

Hypogymnia vittata (Ach.) Parrique. C; on conifers and deciduous shrubs in most forest types. Low elevation to subalpine.

Hypotrachyna sinuosa (Sm.) Hale. C; on trees and shrubs in open *Picea sitchensis* and mixed *P. sitchensis/Alnus* forests at lower elevations.

Icmadophila ericetorum (L.) Zahlbr. A; on bark and lignum of conifers, particularly on bases of trunks and on rotting snags.

Imshaugia aleurites (Ach.) S.F. Meyer. R; on tree branches at Cape Fanshaw, mainland.

**Ionaspis lacustris* (With.) Lutzoni. On rocks in creek bed in alpine and subalpine habitat on Waterfall Peak, mainland, *3236 det. Ryan.*

+Kaernefeltia californica (Tuck.) Thell & Goward. I; on *Pinus contorta,* in open peatland forests at low elevation, hypermaritime localities. PNW endemic; se AK to CA.

**Lecanora cateilea* (Ach.) A. Massal. On *Salix;* nw of Haines, *Ahti 21423, 21427 H.*

Lecanora cinereofusca H. Magn. On *Alnus* along beaches. Kadin I. and Mallard Slough, Stikine R.; Rowan Bay, n Kuiu I; and Banana Pt., s Mitkof I. *3355, 3442, 3472, 3070 det. Ryan.*

Lecanora circumborea1is Brodo & Vitik. On bark of deciduous trees and shrubs, low elevations; Unuk R., *451.*

Lecanora contractula Nyl. On beach rocks. Our single collection pale, C-, lacking well developed lobes, *946 det. Ryan.* Also collected on the vertical sides of a shaded rock, sea cliff at top of Sunshine Cove, Auke Bay, *Brodo 26018.*

Lecanora epibryon (Ach.) Ach. On rock in second growth forest, Port Camden, n Kuiu I., *876.*

Lecanora expallens Ach. On beach log at high tide line, se Mitkof I., *3357 det. Ryan.*

Lecanora fuscescens (Sommerf) Nyl. On beach edge *Alnus rubra* at Goose Cove, n Baranof I., *2659 det. Ryan.* In BC also in subalpine and alpine habitats (Goward et al. 1994a).

Lecanora leptacina Sommerf. On mossy rock in alpine; Sheridan Peak, Kupreanof I. and Cosmos Range, mainland, *3249 & 3173 det. Ryan.*

Lecanora muralis (Schreber) Rabenh. C; on beach rocks exposed to salt spray above the intertidal zone. Thalli of coastal AK and BC material are often unusually thick. On Aaron I. in the Lynn Canal it occurs on shoreline rocks below bird perches (O'Clair et al. 1996).

Lecanora orae-frigidae R. Sant. C; strictly maritime, occurring only on driftwood, frequently alongside *L. xylophila* and *Xylographa opegraphella* (O'Clair et al. 1996).

Lecanora poliophaea (Wahlenb.) Ach. C; on rock in the salt spray zone (O'Clair et al. 1996).

Lecanora polytropa (Hoffm.) Rabenh. C; on rock in subalpine and alpine habitats. *Lecanora pulicaris* (Pers.) Ach. On bark of *Alnus; 2876 det. Ryan.* Also reported from a Juneau icefield nunatak (McCullough 1965).

Lecanora salicicola Magnusson. On *Salix* nw of Haines (Thomson & Ahti 1994).

Lecanora straminea Ach. Strictly maritime; on beach rocks in the salt spray zone and beneath bird perches (O'Clair et ai. 1996); at Washington Bay, Kuiu I., *Eyerdam 1003 G, MIN, Eyerdam 1155 COLO, G; and Eyerdam 4026 G, UPS;* on Baranof I., June 13, 1880, *Bean s.n. (in packet of L. muralis) US* (Ryan, 1997).

+Lecanora strobilina (Sprengel) Kieffer. On *Alnus;* Unuk R., mainland, *458 det. Thomson.*

Lecanora symmicta (Ach.) Ach. On rotting beach log, False I., se Chichagof I., *2660 det. Thomson;* on *Alnus rubra* along LeConte Bay, *927 det. Ryan;* and nw of Haines (Thomson & Ahti 1994).

Lecanora xylophila Hue. C; on stabilized driftwood, bark and trees along marine beaches. See also O'Clair et al. (1996).

Lecanora zosterae (Ach.) Nyl. On driftwood. Near Skagway, w side of Lynn Canal, *Sharnoff 1488.01*.

**Lecidea albofuscescens* Nyl. On bark of *Picea sitchensis,* at beach fringe; Kadin I., Stikine R., *3451 det. Ryan.*

Lecidea atromarginata H. Magn. On calcareous rock (Thomson 1979); Mendenhall Valley (McCullough 1965).

Lecidea efflorescens (Hedl.) Erichsen. On *Alnus, Populus* and *Salix.* Bank of Herbert R., n of Juneau and Yakutat (Tønsberg 1993).

Lecidea erythrophaea Flörke *ex* Sommerf. On *Picea* nw of Haines (Thomson & Ahti 1994).

Lecidea lapicida (Ach.) Ach. On rocks near a stream outlet at Baranof I. where it was locally abundant and probably intermittently submerged, *2753 det. Thomson.* Also on rock at visitors center, Mendenhall Glacier, Juneau, *Brodo 25982*.

Lecidea limosa Ach. On bare soil in meadow, Twin Creeks area, Mitkof I., *3365 det. Ryan.*

Lecidea praenubila Nyl. On rock near Visitors Center, Mendenhall Glacier, Juneau, *Brodo 25982*.

Lecidea roseotincta Coppins & Toosberg. On *Alnus, Picea sitchensis* and *Salix* especially along river banks. Yakutat, Sitka, and Juneau vicinities (Tønsberg 1993).

Lecidea silacea Ach. On rocks in a marine bay of Prince of Wales I. (Herre 1919). There is a rust colored morph of *L. lapicida* which can be misidentified as *L. silacea.* This lichen has undergone several taxonomic revisions since 1919 and its inclusion in this inventory is tentative.

Lecidella asema (Nyl.) Knoph & Hertel s. lato.

Lecidella effugiens (Nilson) Knoph & Hertel. On rocks near beach, sea cliff at top of Sunshine Cove, Auke Bay, *Brodo and others 26024B.*

Lecidella euphorea (Flörke) Hertel. On dead *Alnus sinuata* branch overhanging beach; Glass Peninsula, Admiralty I., *2701 det. Thomson.*

Lecidella stigmatea (Ach.) Hertel & Leuckert. On acidic or calcareous rocks in the salt spray zone; Sunshine Cove in the Lynn Canal (O'Clair et al. 1996); Mirror Harbor, Chichigof I., *1 det. Thomson.* Can grow on old bones. Also on alpine rocks, Bear Claw Mtn, s Kupreanof I., *3156 det. Ryan.*

+Lecidella subincongrua (Nyl.) Hertel & Leuckert. Vertical rock surfaces in the salt spray zone near Sitka (O'Clair et al. 1996).

Lecidoma demissum (Rutstr.) Gotth. Schneider & Hertel. C; on rock and soil in rock crevices in subalpine and alpine habitats; Thunder Mtn, *661.*

Lepraria cacuminum (Massal.) Lohtander. On acid, mossy rocks, and acid bark, soil and other lichens; Bear Claw Mtn., s Kupreanof I., *3141 det. Ryan.*

+Lepraria lobificans Nyl. On bark and detritus; Auke Bay, Juneau, *Atwood 18219, 18211a det. L. St. Clair.*

Lepraria neglecta (Nyl.) Erichsen. On rock; Klondike Gold Rush Park, n of Skagway and Waterfall Ridge above Thomas Bay, mainland, *3235*.

Leprocaulon subalbicans (Lamb) Lamb & Ward. On soil or on soil on rocks or in crevices of rocks (Thomson 1984); Mt. Roberts near Juneau (Krog 1968).

Leproloma membranaceum var. *chrysodectoides* J.R. Laundon. Single collection from rocky cliff, high elevation mainland.

Leproloma vouauxii (Hue) J.R Laundon. On rock near low elevation road cut. Subalpine and alpine in BC (Goward et al. 1994a). Also known to occur on stone and bark (especially deciduous), bare surfaces, mosses, liverworts, soil and mountain rocks (Purvis et al. 1992).

* *Leptogium brebissonii* Mont. On tree branches at Petroglyph Beach, Wrangell, J. Jordan *3390 det. Ryan.* Known in N Am from BC (Goward et al. 1994a), OR and WA (McCune et al. 1997).

Leptogium burnetiae Dodge. C; primarily on bark of deciduous trees and shrubs, more rarely on *Picea sitchensis,* in deciduous or *P. sitchensis*/deciduous forests at low elevations.

Leptogium californicum s. lato. On sea cliff at top of Sunshine Cove, Auke Bay, *Brodo 26013*. This morph is close to *I. lichenoides* but has flattened, laminal "isidia".

Leptogium corniculatum (Hoffm.) Minks. C and widespread; on thin soil on rock in open coastal sites at lower elevations, especially in crevices, on beach rock in the splash zone, once on *Alnus.* See also O'Clair et al. (1996).

Leptogium cyanescens (Rabenh.) Körber. I-C; corticolous; mainly on deciduous shrubs *(Alnus* and *Salix)* but also on *Picea sitchensis.* Collected only in the Unuk and Stikine R. valleys, these rivers originating in the BC interior.

+Leptogiumfurfuraceum (Harm.) Sierk. R; on bark of *Alnus*; Unuk and Stikine R. valleys, mainland, *468 det. Thomson.*

Leptogium hirsutum Sierk. I-R; on bark of deciduous trees and decaying logs along Loop and Granite Basin Roads in Juneau (Krog 1968).

Leptogium lichenoides (L.) Zahlbr. I-R; on *Populus* along river edge, 15 Mile I., Stikine R, *3206 det. Ryan* and on rock in splash zone, Naukati Bay, Prince of Wales I.,*2569*. On s Kuiu I. (Thomson 1984).

Leptogium saturninum (Dickson) Nyl. C; on bark of deciduous trees and shrubs *(Alnus, Populus* and *Salix).* Collected only on major, mainland river valleys (Unuk and Stikine) and from the Yakutat lowlands.

***Leptogium subtile* (Schrader) Torss. R; on *Populus* along river edge, 15 Mile I., Stikine R., *3206*. The only other N Am reports are from BC (Goward & Ahti 1992).

Leptogium tenuissimum (Dickson) Körber. R; on *Populus trichocarpa* in the Unuk valley on the mainland and Kadin I. at s end of Kupreanof I., *469 det. Thomson.*

+Leptogium teretiusculum (Wallr.) Arnold. R; on twig of *Picea sitchensis* along the Stikine R., *1370 det. Thomson.*

Lobaria hallii (Tuck.) Zahlbr. C; on deciduous trees and shrubs *(Populus, Alnus and Salix)* and *Picea sitchensis* in low elevation stands; especially in river valleys.

Lobaria kurokawae Yoshim. R; among mosses on soil and rocks (Thomson 1984). Mendenhall L., Mendenhall Glacier and Herbert Glacier, all near Juneau (Jordan 1973).

Lobaria linita (Ach.) Rabenh. A; on the bases, trunks and branches of conifers and deciduous trees and shrubs; low to subalpine elevations; also common on mossy subalpine and alpine rocks. Not in low elevation peatlands or *Pinus contorta* forests. Our collections are mostly var. *tenuior,* i.e. large, reticulately ribbed, fertile and growing on trees. Var. *linita,* found in alpine habitats, tends to be smaller, reticulately wrinkled and sterile (Jordan 1973).

Lobaria oregana (Tuck.) Müll. Arg. A; mainly on branches and trunks of conifers and on deciduous shrubs in forested stands at low elevations. Sometimes found on *Alnus* but usually yellow in color in such cases. Not found in open mixed-conifer forests or *Pinus contorta* peatlands.

Lobaria pseudopulmonaria Gyelnik. R; on soil and among mosses, sometimes on rocks (Thomson 1984). Known from Mendenhall L. area (Jordan 1973).

Lobaria pulmonaria (L.) Hoffm. C; most commonly associated with stands of deciduous shrubs or *Populus/Picea sitchensis* forest. On bark of coniferous and deciduous trees, and shrubs. Low to subalpine elevations. Not found in *Tsuga heterophylla* or *Pinus contorta* forests.

Lobaria retigera (Bory) Trevisan. R; on branches of *Picea sitchensis* and *Alnus;* major river valleys (Stikine and Unuk) originating in interior BC and the Patterson R., mainland. *2433 det. Brodo, 481 det. McCune, 1292, I I 13, 764, 333*.

Lobaria scrobiculata (Scop.) DC. C; on bark. Most frequent in low elevation riparian habitats of deciduous shrubs or *Populus trichocarpa/ Picea sitchensis.* Not in *Tsuga heterophylla* or *Pinus contorta* forests.

Lopadium disciforme (Flotow) Kullhem. Corticolous on *Picea sitchensis* trunk in old growth forest and alpine habitats. Kadin I., mouth of Stikine R., *3469 & 3468 det. Ryan.* On *Salix* in Haines (Thomson & Ahti 1994).

Loxosporopsis corallifera Brodo, Henssen & Imshaug. C; on *Pinus contorta,* especially lower surfaces of branches in open *P. contorta* peatlands. Also on *Thuja plicata, Picea sitchensis, Tsuga heterophylla.* PNW endemic (Brodo & Henssen 1995).

Massalongia carnosa (Dickson) Körber. I; on alpine, moss-covered rocks. Sheridan Peak, Kupreanof I. and Cosmos Range and Elbow Mtn., mainland, *3248, 3188 & 3280 det. Ryan;* Skagway, *Sharnoff 1486.19.*

Melanelia commixta (Nyl.) Thell. C; on rock in coastal localities, subalpine and alpine.

Melanelia exasperatula (Nyl.) Essl. R; on trees nw of Haines (Thomson & Ahti 1994).

Melanelia fuliginosa (Fr. *ex* Duby) Essl. R; on twigs of *Picea sitchensis,* Kadin I., mouth of Stikine R, *3442 det. Ryan.* Shipley Bay, Kosciusko I. (Herre 1919).

Melanelia hepatizon (Ach.) Thell. C; on alpine rocks.

Melanelia multispora (A. Schneider) Essl. R; on *Alnus* and other deciduous trees and shrubs. Mallard Slough, Stikine R., 3080 *det. Ryan,* Mendenhall L. area (Krog 1968) and nw of Haines (Thomson & Ahti 1994).

Melanelia olivacea (L.) Essl. R; on *Alnus* nw of Haines (Thomson & Ahti 1994).

Melanelia septentrionalis (Lynge) Essl. R; on hardwoods nw of Haines (Thomson & Ahti 1994).

Melanelia sorediata (Ach.) Goward & Ahti. On rock at LeConte Bay, mainland, *442*. Also occurs on bark (Thomson 1984).

Melanelia stygia (L.) Essl. On rock. On AB Mountain Trail near Skagway, *Sharnoff 1486.04*.

Melanelia subaurifera (Nyl.) Essl. I-R; on trees in open to somewhat sheltered low elevation forests in BC (Goward et al. 1994b). Indian R Trail near Sitka and Saxman Village near Ketchikan (Krog 1968).

+*Menegazzia terebrata* (Hoffin.) A. Massal. C; on deciduous trees and shrubs, especially *Alnus,* in low elevation, riparian habitats.

Micarea assimilata (Nyl.) Coppins. On rocks or moss-covered rock in subalpine and alpine habitats; Crystal Mtn. Mitkof I., Swan L., mainland, and s Prince of Wales I., *892 det. Thomson.*

Micarea incrassata Hedl. On alpine soils and rock; Thunder Mtn, mainland, *9,22, 23, & 662 det. Thomson.*

Mycobilimbia berengeriana (Massal.) Heffellner & V. Wirth. On exposed soil in an open mixed conifer forest.; Spurt L., mainland, *83*.

Mycobilimbia tetramera (De Not.) W. Brunnbauer. On soil, alpine summit, 1040m, Gastineau Peak near Juneau, *Brodo 26356*.

Mycoblastus affinis (Schaerer) Schauer. Corticolous in forests, also on beach logs; Myriad Is., w of Chichigof I., *6931, 23391, 1257, & 1375 det. Ryan;* and near Petersburg, *Tønsberg 16583 BG.*

**Mycoblastus caesius* (Coppins & P. James) Tønsberg. On *Pinus contorta;* near Petersburg, *Tønsberg 16580 BG.*

Mycoblastus sanguinarius (L.) Norman. C; widespread on all conifers and all major deciduous trees and shrubs in most forest types; low elevation to subalpine.

+*Neofuscelia subhosseana* (Essl.) Essl. R; single collection growing under a colony of *Stereocaulon* on rock covered by a thin layer of humus; LeConte Bay, mainland, *365 det. Thomson.*

Nephroma arcticum (L.) Torss. I; on moss and mossy rocks, and moss-covered conifer trunks, sea level to alpine.

Nephroma belIum (Sprengel) Tuck. A; on fine branches of most conifers and deciduous trees and shrubs in open to somewhat shaded forests at low elevations. Most frequent along beach fringes.

Nephroma expallidum (Nyl.) Nyl. R; on moss-covered soil on AB Mountain Trail near Skagway. *Sharnoff 1485.36*.

Nephroma helveticum Ach. A; on branches of *Picea sitchensis* and deciduous trees and shrubs in open forests at lower elevations, particularly beach fringes.

+-subsp. *helveticum 3392 & 3394 det. Ryan, 312*.

-subsp. *sipeanum* (Gyelnik) Goward & Ahti.

Nephroma isidiosum (Nyl.) Gyelnik. I; on branches of *Picea sitchensis* and deciduous trees and shrubs *(Alnus, Populus* and *Salix);* along mainland river valleys originating in the BC interior (Unuk and Stikine Rivers), the Patterson R, mainland and in the Yakutat lowlands.

Nephroma laevigatum Ach. R; on branches of *Picea sitchensis* and on deciduous shrubs from the Stikine R. valley and Cape Fanshaw on the mainland, Harvey L. trail, Woewodski I., *620,* and the Myriad Islands on the outer w coast. Also at Faragut Bay (Kincaid 1899).

**Nephroma occultum* Wetmore. On *Picea sitchensis;* Chilkoot L. State Recreation Area, *Sharnoff* 1393.32. A rare; old growth dependent lichen known ftom BC s to W A and OR. The ecological epicenter of this lichen is considered to be the transition zone between oceanic and humid continental climates (Goward 1995, Wetmore 1980).

Nephroma parile (Ach.) Ach. C; mainly on deciduous trees and shrubs *(Alnus, Populus* and *Salix)* but also on *Picea sitchensis* at low elevations.

Nephroma resupinatum (L.) Ach. C; mainly on deciduous trees and shrubs *(Alnus, Populus* and *Salix)* and *Picea sitchensis* at low elevations.

**Nephroma sylvae-veteris* Goward & Goffinet. R; on *Picea sitchensis* at Chilkoot L. State Recreation Area, *Sharnoff 1390.28*. A rare lichen thought to be exclusively associated with old growth forests and occurring in habitats transitional between the oceanic coast and the continental interior. Known from BC and n WA (Goward & Goffinet 1993). The taxonomic status of this species is uncertain, some consider it a rare form of *Lobaria oregana*.

Nodobryoria oregana (Tuck.) Common & Brodo. R; corticolous on *Pinus contorta;* in low elevation open *Pinus contorta* peatlands. Old Tom's Creek drainage, Prince of Wales I. *1666 det. Brodo.*

Normandina pulchella (Borrer) Nyl. I; on mosses on branches of trees and shrubs, or on other lichens; low elevations to subalpine. Easily over-looked due to its small size.

Ochrolechia androgyna (Hoffm.) Arnold. On deciduous and coniferous tree bark, wood, rocks and on mosses and vegetation. In humid, forested habitats especially along lake shores and peatlands (Brodo 1991). Yakutat lowlands, *1592*.

Ochrolechia arborea (Kreyer) Almb. On bark and wood of conifers and deciduous trees and shrubs. In open forests or along beaches, e.g. *Pinus contorta* and *Picea sitchensis* stands (Brodo 1991). Big Bay, w Baranof I., *2107*.

Ochrolechia frigida (Sw.) Lynge. C; on soil and mosses in subalpine and alpine habitats.
-f. *thelephoroides* (Th. Fr.) Lynge. C; primarily on subalpine and alpine rocks or soil, but also on bark or lignum in open forests at lower elevations.

+*Ochrolechia juvenalis* Brodo. C; on conifer bark or lignum, and on *Alnus;* low elevation conifer forests. Big Bay, w Baranof I. *2141 det. Brodo;* Bear Ck, Mitkof I. *1846 det. Thomson;* LeConte Bay *267*. Known from BC s to CA (Brodo 1991).

Ochrolechia laevigata (Räsänen) Vers. *ex* Brodo. C; smooth-barked, deciduous trees like *Alnus,* but also *Picea sitchensis, Pinus contorta* and *Tsuga heterophylla.* Mostly lowland *P. sitchensis/Alnus* stands but also in many coniferous forest types, especially along streams and beaches at low elevations.

Ochrolechia oregonensis H. Magn. C; on *Picea sitchensis* and *Pinus contorta* bark or lignum; rarely on *Alnus. P. contorta* and deciduous/*P. sitchensis* forests; sea level to alpine.

+*Ochrolechia subpallescens* Vers. C; on bark of *Populus, Alnus* and conifers; sea level to subalpine. Known from QCI s through CA in N Am (Brodo 1991).

Ochrolechia subplicans (Nyl.) Brodo. Formerly *Pertusaria subplicans* and *P. hultenii.* See Brodo (1987) for discussion of the taxonomy, chemistry and ecology of this species.
-subsp. *subplicans* On alpine rocks; Gastineau Peak near Juneau, *Brodo 26328*.
-subsp. *hultenii* (Erichsen) Brodo. On shoreline rocks; Aaron I. near Juneau, *Brodo 26399*.

Ochrolechia szatalaënsis Vers. On bark or wood. Nw of Haines (Thomson & Ahti 1994) and Juneau, *Imshaug 28449A MSC.* See also Brodo (1991).

Ochrolechia tartarea (L.) A. Massal. On rock at Port San Antonio, Baker I.; Heceta I.; and Shipley Bay, Kosciusko I. (Herre 1919). These reports need to be confirmed as *Ochrolechia* growing on rock were routinely grouped under the name *0. tartarea* until recently.

Ochrolechia xanthostoma (Sommerf.) K. Schmitz & Lumbsch. On rocky soil in alpine and on *Salix* in riparian zone; Tawa Ck., Yakutat lowlands, *3396 det. Ryan.*

Omphalina husdoniana (H.S. Jenn.) H.E. Bigelow. On a root wad on a peatland forest edge in the Windham Bay area at 400m, *Krieckhaus 3438 det. Ryan.*

+*Opegrapha rupestris* Pers. On shore rocks, Prince of Wales I. (Herre 1919). Usually associated with moist limestone or calcareous schists (Purvis et al. 1992).

Ophioparma lapponica (Räsänen) Hafellner & R. W. Rogers. C; on rocks in alpine habitats. Elbow Mtn, Thunder Mtn and near glacier terminus on shore rocks in LeConte Bay, mainland; Crystal Mtn., Mitkof I. *361, 3265, 3271, 972, 2030*.

Pannaria pezizoides (Weber) Trevisan. C; on bark of deciduous trees and shrubs *(Alnus, Malus* and *Populus)* and *Picea sitchensis,* and mossy rocks; sea level to alpine.

Parmelia hygrophila Goward & Ahti. C; on trees *(Alnus, Picea sitchensis, Pinus contorta* and *Populus)* in most low elevation forest types; also rare on base-rich rock. PNW endemic (Goward & Ahti 1983).

Parmelia omphalodes (L.) Ach. On siliceous rock in open sites; Saxman village near Ketchikan (Krog 1968).

Parmelia pseudosulcata Gyelnik. C; on conifers and *Populus* in most forest types; sea-level to subalpine.

Parmelia saxatilis (L.) Ach. A; on rock in open sites; beaches to alpine. Also common on bark and lignum of conifers and deciduous shrubs *(Alnus, Malus)* in many forest types, particularly *Pinus contorta* peatlands and forest edges.

Parmelia squarrosa Hale. C; on conifers and deciduous trees and shrubs, occasionally on rock; beaches and riparian habitats at lower elevations.

Parmelia sulcata Taylor. A; on trees throughout, also infrequent on acid rock.

Parmeliella triptophylla (Ach.) MUll. Arg. I; on deciduous trees and shrubs *(Alnus* and *Populus);* riparian. Unuk and Stikine R. *1024, 456, 1757.*

Parmeliopsis ambigua (Wulfen) Nyl. C; same substrates and habitats as *P. hyperopta* but not as common and not as strongly associated with *Pinus contorta* peatlands.

Parmeliopsis hyperopta (Ach.) Arnold. A; on coniferous and deciduous trees and shrubs, especially *Pinus contorta* peatlands and in mixed-conifer, deciduous riparian, and subalpine forests. Not common in *Tsuga heterophylla* or *Picea sitchensis* forest communities. Low elevation to subalpine.

Parmotrema arnoldii (Du Rietz) Hale. I; on branches of conifers along marine beaches.

Parmotrema chinense (Osbeck) Hale & Ahti. R; on branches of conifers along marine beaches. Sokoi Is., near Petersburg, *38, 2596*.

Peltigera aphthosa (L.) Willd. C; on soil, rocks, logs and stumps, and trunk bases of conifers and deciduous shrubs, often associated with mosses; sea level to alpine. Found most frequently on the mainland.

Peltigera britannica (Gyelnik) Holt-Hartw. & Tønsberg. A; on soil, rocks, logs, stumps, and trunk bases of conifers and deciduous shrubs, often associated with mosses; in most forest types, except *Pinus contorta* open peatlands; low elevation to alpine.

-cyanobacterial phototype. I; on moss-covered logs, or bark of conifers in open to shady forests. Also collected on the AB Mountain Trail near Skagway, *Sharnoff 708.02*. See Goward et al. 1995) and Tønsberg & Holtan-Hartwig (1983) for differentiating phototypes of *Peltigera.*

Peltigera canina (L.) Willd. I; occasionally seen in drier parts of the region. *P. membranacea.*, a related, oceanic species, is much more common.

+*Peltigera cinnamomea* Goward. I; on moss and mossy rocks and logs in open to somewhat sheltered inland forests in BC. Largely restricted to foothills and mountain habitats with long-Iasting snow cover (Goward et al. 1995) Very similar to *P. membranacea* and possibly overlooked.

Peltigera collina (Ach.) Schrader. A; primarily on trunks and branches of deciduous trees and shrubs (especially *Alnus),* also on mossy rocks and soil humus in deciduous or mixed *Picea*/deciduous forests in riparian zones; low elevations.

Peltigera degenii Gyelnik. I; on soil humus, mossy rocks and mossy logs in open to somewhat sheltered forest sites at lower elevations. In mixed deciduous stands and mixed conifer stands. Not found in open peatlands or *Pinus contorta* forests.

Peltigera didactyla (With.) J.R Laundon. I; on soil, moss, logs, or trees in open sites.

Peltigera elisabethae Gyelnik. R; on soil and mossy rock in open forests, also on *Alnus* at beach fringe and on beach logs.

Peltigera horizontalis (Hudson) Baumg. R; on moss-covered ground or shrubs. Hugh Smith L., Misty Fjords National Monument; Kadin I., mouth of Stikine R. *3473 det. Ryan, 1985 det. Brodo.*

Peltigera lepidophora (Vainio) Bitter. R; on moss-covered rock in a mixed conifer forest, nw Revilla. I., *788 det. Thomson;* on young *Alnus,* Ohmer Ck., Mitkof I. In BC this species occurs on soil and moss in open sites and is more common in interior arid lands and wet interior forests (Goward et al. 1994b).

Peltigera leucophlebia (Nyl.) Gyelnik. C; usually found growing with moss on soil or rock; in alpine habitats and near glacier termini.

Peltigera malacea (Ach.) Funck. R; on soil and moss in open, drier forests, alpine ridges (Goward et al. 1994b) and shrubby vegetation. Yakutat (Thomson 1984).

Peltigera membranacea (Ach.) Nyl. A; usually growing with mosses on soil (on the forest floor or open peatlands), rock, stumps and logs; most common in low elevation *Picea sitchensis, Tsuga heterophylla* and *Populus* forests.

Peltigera neckeri Hepp *ex* Mall. Arg. I; with mosses on soils (mostly sandy) and mossy logs in forested habitats.

Peltigera neopolydactyla (Gyelnik.) Gyelnik. A; on logs and stumps (usually associated with mosses), mossy rock, on humus on the forest floor, occasionally on bases of trunks or branches of conifers; primarily *Tsuga heterophylla* forests. Subalpine to alpine.

Peltigera pacifica Vitik. I; on logs and stumps (usually associated with mosses), mossy rock, on humus on the forest floor, occasionally on bases of trunks or even branches of conifers. In various forest types at low elevations.

Peltigera polydactylon (Necker) Hoffm. C; on logs and stumps (usually associated with mosses), mossy rocks or with humus in rock crevices, on humus on the forest floor, occasionally on bases of trunks or even branches of conifers and deciduous shrubs. Primarily found in *Picea sitchensis, Tsuga heterophylla* and mixed deciduous forests; sea-level to alpine. Widespread, but most common on the mainland.

+*Peltigera ponojensis* Gyelnik. I; with mosses on glacial outwash, Mendenhall Glacier trail, *2809 det. Brodo.* On soil on the AB Mountain Trail near Skagway, *Sharnoff 1489.16.* In subalpine and alpine habitats in BC (Goward et al. 1994b).

Peltigera praetextata (Flörke *ex* Sommerf.) Zopf. I; on soil (ftom humus to sand) or logs, with or without moss, in open forests and near marine beaches and mainland rivers. Low elevations.

Peltigera rufescens (Weis) Humb. I; in BC on soil or moss in open, often somewhat exposed sites (Goward et ai. 1994b). Granite Basin, near Juneau (Krog 1968); Sitka and Ketchikan (Thomson 1984).

Peltigera scabrosa Th. Fr. A; on mossy logs, stumps and rocks, humus, occasionally on tree bases and conifer branches; primarily *Tsuga heterophylla* forests, sea level to alpine.

Peltigera venosa (L.) Hoffin. I; on cut bank along Stikine R.; on liverwort-covered lava, Unuk R.; on moss-covered log, shore of Petersburg L.; at base of *Picea sitchensis* on the beach, 3375, 2560, 3197, 753; along road cuts.

Pertusaria amara (Ach.) Nyl. Corticolous on hardwoods and conifers; infrequently saxicolous. Bear Ck, Mitkof I., 1850.

Pertusaria borealis Erichsen. C; on bark of *Picea sitchensis* and *Alnus* near beach edges and inland. Near Mendenhall Glacier, Juneau, *Viereck 8658 W1S;* on *Pinus contorta,* Petersburg, *Tønsberg 16578 BG;* and nw of Haines (Thomson & Ahti 1994).

Pertusaria cf. *bryontha* (Ach.) Nyl. On wood in alpine; Elbow Mtn., mainland, *3264 det. Ryan.* This species is usually muscicolous, but our specimen keys here in Dibben (1980).

Pertusaria dactylina (Ach.) Nyl. On rock, moss and *Tsuga mertensiana;* subalpine to alpine, *509 & 510 det. Ryan.*

Pertusaria flavocorallina Coppins & Muhr. On *Alnus* and *Populus*, sea level to 30 m. Bank of Herbert R. n of Juneau and Yakutat (Tønsberg 1993).

Pertusaria oculata (Dickson) Th. Fr. Among mosses on a vertical rock face, LeConte Bay shoreline, mainland, *371*. Subalpine and alpine in BC (Goward et al. 1994b).

Pertusaria ophthalmiza (Nyl.) Nyl. C; on branches of *Alnus* at low elevations near rivers or marine beaches.

Pertusaria sommerfeltii (Flörke *ex* Sommerf.) Fr. Typicallyon hardwoods in N Am (Dibben 1980). Mendenhall Valley (McCullough 1965).

Pertusaria subambigens Dibben. C; on twigs and branches of *Picea sitchensis* and *Alnus* at low elevations, mainly near water edges, but also in mixed conifer and *Pinus contorta* open forests.

Phaeophyscia ciliata (Hoffm.) Moberg. Usually on deciduous trees, also on conifers and rocks; Glacier Bay (Thomson 1963).

Phaeophyscia endococcina (Körber) Moberg. On rocks and among mosses on rocks, rarely on tree bases; n Kuiu I. (Thomson 1984).

+Phaeophyscia hirtella Essl. On *Alnus rubra* in riparian corridor; Unuk R., mainland, *470 det. Thomson.*

Phaeophyscia orbicularis (Necker) Moberg. On beach logs above high tide line in the lower salt spray zone. Wrangell Narrows, Mitkof I., *3371 det. Ryan,* and Aaron I. in Lynn Canal (O'Clair et al. 1996).

Phylliscum demangeonii (Moug. & Mont.) Nyl. On rocks at high tide mark at Zarembo Bay, Zarembo I. (Herre 1919).

Physcia adscendens (Fr.) H. Olivier. R; on twigs of *Picea sitchensis.*

Physcia aipolia (Ehrh. *ex* Humb.) Fürnr. var. *aipolia.* I; on *Populus* and *Salix* in low elevation, riparian habitats.

Physcia caesia (Hoffin.) Fürnr. C; on rock and bark in open to somewhat sheltered sites from sea level to alpine habitats. One of the most common shoreline lichens, especially on rocks beneath bird perches (O'Clair et al. 1996).

Physcia dubia (Hoffin.) Lettau. On base-rich rock in open sites in BC (Goward et al. 1994b). Juneau area (Krog 1968).

Physcia stellaris (L.) Nyl. On deciduous and coniferous trees and shrubs, occasionally on rock or wood (Thomson 1963); Glacier Bay (Cummings 1904). This record should be checked as *P. stellaris* can be easily confused with the much more common *P. aipolia* (Thomson 1963). *P. stellaris* has also been reported from intermontane BC, where it is considered rare (Goward et al. 1992).

Physcia tenella (Scop.) DC. On deciduous trees and shrubs Stikine R valley, mainland, *3337*.

Physconia muscigena (Ach.) Poelt. On rock and *Populus* bark along mainland river valleys and near salt water. Calciphilous; below bird perches and on limestones.

Pilophorus acicularis (Ach.) Th. Fr. C; on siliceous rock outcrops, occasionally on wood or bark, in open to sheltered forests and shorelines; sea-level to subalpine.

Pilophorus cereolus (Ach.) Th. Fr. R; on rock on AB Mountain Trail near Skagway, *Sharnoff 1489.05*.

Pilophorus clavatus Th. Fr. I; on rocks; along lake edges, in open to sheltered forests and in subalpine and alpine habitats. *511, 1224, 3337*.

Pilophorus nigricaulis Sat6. I; on siliceous rock; low to subalpine and alpine elevations.

Pilophorus robustus Th. Fr. R; on rock in n facing subalpine bowl among melting snow patches. Crystal Mtn., Mitkof I. *903*.

Placopsis gelida (L.) Lindsay. A; on native rock, road fill and asphalt; sea level to alpine.

+Placopsis roseonigra Brodo. Sitka and Juneau; *Brodo 26110* and *Ennis s.n.* Endemic to QCI and se AK (Brodo 1995b).

Placynthium nigrum (Hudson) Gray. On calcareous rock; Waterfall Peak, mainland, *3235 det. Ryan.*

Platismatia glauca (L.) Culb. & Culb. A; on conifers, less often on deciduous shrubs, in most forest types; low to subalpine elevations.

Platismatia herrei (Imshaug) Culb. & C. Culb. A; on conifer trunks and branches in most forest types; low to, infrequently, subalpine elevations.

Platismatia lacunosa (Ach.) Culb. & C. Culb. A; on branches of conifers and deciduous shrubs, in most forest types below the subalpine.

Platismatia norvegica (Lynge) Culb. & C. Culb. A; on conifers and occasionally *Alnus* from low elevations to (infrequently) subalpine.

+Plectocarpon lichenum (Sommerf.) D. Hawksw. Parasitic on *Lobaria pulmonaria.* (Thomson & Ahti 1994).

+Polychidium dendriscum (Nyl.) R; on bark of conifers and deciduous shrubs.

Polychidium muscicola (Sw.) Gray. On rock in splash zone. Staney I., near Prince of Wales I., *2582 det. Ryan.*

Porpidia carlottiana Gowan. On rock. Usually exposed; along waterways in mountains or on seashore rocks. Pacific nw N Am endemic, common to hypermaritime localities on the w coast from OR to s central AK (Gowan 1989).

Porpidia flavocaerulescens (Homem.) Hertel & A.J. Schwab. C; on rock; in splash zone of marine beaches to alpine peaks.

Porpidia lowiana Gowan. On rock on cliffs shaded by the forest canopy, on lake cliffs, on boulders in open slide area, low to mid elevations. Baranof I., Kupreanof I. and the mainland. *3115, 3171,3364, 3354 & 3339 det. Ryan.*

Porpidia speirea (Ach.) Kremp. On alpine rock. Thunder Mtn., mainland, *669 det. Thomson.*

Porpidia thomsonii Gowan. C and widespread; on exposed rock; marine shorelines and low elevation peatlands to subalpine and alpine habitats.

Pseudephebe minuscula (Nyl. *ex* Arnold) Brodo & D. Hawksw. C; on rock and soil or moss-covered rock. Thunder Mtn, mainland and Crystal Mtn., Mitkof I. alpine; terminal moraine of Herbert Glacier, *2038 det. McCune, 3215*.

Pseudephebe pubescens (L.) Choisy. C; on alpine rocks and exposed glacial moraines.

Pseudocyphellaria anomala Brodo & Ahti C; on tree branches (especially *Picea sitchensis* and *Populus)* and shrubs along marine beaches and mainland rivers.

Pseudocyphellaria anthraspis (Ach.) H. Magn. I; on branches of *Picea sitchensis* and deciduous shrubs *(Alnus, Salix* and *Vaccinium)* along rivers or marine beaches. *Pseudocyphellaria crocata* (L.) Vainio. C; on branches of coniferous and deciduous trees and shrubs along rivers or marine beaches. Especially *Picea sitchensis* and *Alnus*, but also on *Populus, Malus, Tsuga heterophylla* and others.

+*Pseudocyphellaria rainierensis* Imshaug. R; corticolous and lignicolous on coastal *Picea sitchensis, Tsuga mertensiana, Alnus* and *Malus*. On small marine islands: Sokoi Is., near Petersburg; Baird I., sw of Chichigof I.; Kadin I., mouth of Stikine R., *460, 2767, 3454*. A rare endemic, OR to AK.

Psora decipiens (Hedwig) Hoffm. On alpine soils; Elbow Mtn., mainland, *3263 det. Ryan.*

Psoroma hypnorum (Vahl) Gray. C; on rock, soil or bark *(Salix, Tsuga heterophylla* and *Vaccinium)* in open sites; low to subalpine and alpine elevations. At lower elevations, usually near fresh or saltwater beaches.

Pyrrhospora cinnabarina (Sommerf.) Choisy. C; on fine branches of conifers in most forested areas; low elevations to subalpine.

Ramalina cf. *almquistii* Vainio. Infrequently collected amphi-Beringian species of the high arctic and Aleutian Is. (Thomson 1984); *O'Clair 3381*. Small specimen.

Ramalina dilacerata (Hoffm.) Hoffm. I; on *Alnus rubra* along the Mendenhall R. *1568*. On *Alnus* branch at Brotherhood Park in Juneau, *Sharnoff 742.24*.

Ramalina farinacea (L.) Ach. C; on trunks and branches of *Picea sitchensis* and deciduous shrubs *(Alnus, Malus)* along marine beaches; rarely along rivers or on rock.

+*Ramalina inflata* (Hook. f. & Taylor) Hook f. & Taylor subsp. *inflata*. I; on trunks and branches of *Alnus* along fresh and salt water beaches; at low elevations. These and other collections may be large sized *R. dilacerata*.

+*Ramalina* cf. *leptocarpha* Tuck. R; on *Menziesia ferruginea* along the beach on Dog I. s of Ketchikan, *1879 det. Brodo*. This is a coastal w N Am species which may reach the n extent of its range in se AK.

Ramalina menziesii Taylor. I; pendent from *Picea sitchensis* branches along salt water beaches, especially on peninsulas or small marine islands. Although this lichen occurs infrequently, when it does occur it is profuse, other *Ramalina* and *Usnea* may be present, and *Alectoria* will be absent. Hood Bay, Admirality I.; Shrine of St. Therese, Juneau; Cape Fanshaw, mainland; Table Bay, Kuiu I.; Schooner I. and Kah Sheets Bay, Kupreanof I. *1067, 1906, 2552, 2722, 3258*.

Ramalina roesleri (Hochst. *ex* Schaerer) Hue. C; corticolous on trunks and branches of *Picea sitchensis*, other conifers, *Alnus* and *Salix* along marine beaches.

Ramalina Ihrausta (Ach.) Nyl. C; on bark of tree trunks and branches, especially *Picea sitchensis*, along marine beaches.

Rhizocarpon badioatrum (Flörke *ex* Sprengel) Th. Fr. On acid, alpine rocks. Thunder Mtn., mainland, *673 det. Thomson.*

Rhizocarpon copelandii (Körber) Th. Fr. On exposed rock in splash zone just above high tide line at Kelp Bay on Baranof I. and the Wrangell Narrows. On alpine rock on Bear Claw Mtn., s Kupreanof I. and Cosmos Range and Elbow Mtn., mainland, *3134, 3256, 3270 det. Ryan.*

Rhizocarpon disporum (Naegeli. *ex* Hepp) Müll. Arg. On rock above the trimline of the Taku Glacier in the Juneau Ice Field (Heusser et al. 1954). Occurring on acid or calcareous rocks in strong light (Thomson 1979).

Rhizocarpon eupetraeoides (Nyl.) Blomb. & Forss. On acid rock. Unnamed peak w of Elbow Mtn., mainland, 3269 *det. Ryan.*

Rhizocarpon geminatum Körber. C; on acidic rocks, low to alpine elevations. Frequently on shoreline rocks in the salt spray zone (O'Clair et al. 1996).

Rhizocarpon geographicum (L.) DC. C; on alpine rocks.

+*Rhizocarpon hensseniae* Brodo. On alpine rocks; Gastineau Peak, 670 m elevation. Endemic to QCI and se AK (Brodo 1990).

Rhizocarpon hochstetteri (Körber) Vainio. C; on acidic or basic rock; on shore rocks on w Baranof I. and just above tidal mud flats of the Stikine R; in alpine habitats in the Cosmos Range, mainland and Bear Claw Mtn, s Kupreanof I; *318, 31586, 3470 det. Ryan.* Also on Aaron I. in Lynn Canal (O'Clair et al. 1996).

Rhizocarpon obscuratum (Ach.) A. Massal. On acidic rocks; in an open scrub forest at the Wam1 springs by Baranof R., *3132 det. Ryan.* More common inland (O'Clair et al. 1996).

+Rhizocarpon praebadium (Nyl.) Zahlbr. R; on alpine rocks. Thunder Mtn., n of the Stikine R., *521 det. Thomson.*

Rhizocarpon superficiale (Schaerer) Vainio. On exposed, usually acidic, rocks (Thomson 1979). Klondike Goldrush National Historic Monument, near Skagway.

Rinodina gennarii Bagl. C; strictly maritime, on acidic rocks in the salt spray zone (O'Clair et al. 1996).

Rinodina sheardii Tønsberg. On trunks of *Alnus* on river banks; Herbert R. and Dotson Landing, Juneau vicinity (Tønsberg 1992).

Schaereria corticola Muhr & Tønsberg. On *Alnus.* Bank of Herbert R., n of Juneau (Tønsberg 1993).

Siphula ceratites (Wahlenb.) Fr. A; widespread in muskeg pools; lowlands to subalpine.

Solorina bispora Nyl. R; on soil and rock on Mt. Roberts and Granite Basin in the Juneau area (Krog 1968).

Solorina crocea (L.) Ach. C; on soil in seepage sites below late-lying snow patches at subalpine and alpine elevations.

Solorina saccata (L.) Ach. I; on soil; low elevation to alpine.

Solorina spongiosa (Ach.) Anzi. In BC this lichen is found on moist calcareous soil and moss in exposed subalpine and alpine localities (Goward et al. 1994b). Yakutat Bay (Cummings 1904).

Sphaerophorus fragilis (L.) Pers. C; on alpine rocks.

Sphaerophorus globosus (Hudson) Vainio and var. *gracilis* (MUll. Arg.) Zahlbr. A; on soil and bark (mainly conifers but also on *Populus* and deciduous shrubs) in all forest types from low elevation to alpine. S. *globosus* was the most frequently observed macrolichen in se AK forests. The var. *gracilis* intergrades completely with var. *globosus.*

Stereocaulon alpinum Laurer. *ex* Funck. C; on moss and humus on gravel, on bare rock and on decomposing wood in exposed areas; low elevation (glacier termini) to alpine.

Stereocaulon apocalypticum Nyl. On alpine rock; Cosmos Range, mainland, *3183 det. McCune.*

Stereocaulon arenarium (Savicz) Lamb. C; on rock in exposed areas, in soil, and on other mosses and lichens; low elevation (glacier termini) to alpine. Also on lava flows.

Stereocaulon botryosum Ach. C; on rock with or without mosses and on rock covered with thin layer of humus; in exposed areas sea level to alpine. On lava flows.

Stereocaulon capitellatum H. Magn. On alpine rocks. Bear Claw and Sheridan Peaks, Kupreanof I. *3137, 3140, 3220 det. Ryan.*

Stereocaulon condensatum Hoffin. On rock in alpine n of Stikine R, near BC border.

Stereocaulon coniophyllum Lamb. C; on rock, with or without mosses. Our collections near mainland glacier termini at low elevations.

Stereocaulon dactylophyllum Flörke. On mossy rock face along beach; Kruzof I., near Sitka, *2738 det. Thomson.*

Stereocaulon glareosum (Savicz) H. Magn. On alpine rock; Horn Cliffs, near Petersburg, *3328 & 3329 det. Ryan.* On bare soil, frost boils and among mosses on acid soils; Skagway area (Thomson 1984).

Stereocaulon grande (H. Magn.) H. Magn. C; on rock, usually associated with mosses. Broad habitat range includes rock faces, lava flows, crushed rock road base, beach logs and soil; sea level to alpine.

Stereocaulon groenlandicum (E. Dahl) Lamb. On rock in road cut; Blue L. Rd, Sitka, *2212*; on lava, Blue R. lava flow, mainland, *748 det. Thomson.*

Stereocaulon intermedium (Savicz) H. Magn. C; on rock, moss-covered rock or on thin humus layers over rock; splash zone of marine shorelines, open forests, alpine habitats.

Stereocaulon myriocarpum Th. Fr. Granite Basin and the Shrine of St. Therese in the Juneau area (Krog 1968). Closely related to S. *tomentosum,* but with thinner, smoother tomentum and more developed cephalodia (Lamb 1977).

Stereocaulon octomerum Müll. Arg. On moss-covered rock in subalpine habitats. Crystal Mtn, Mitkof I., *896 det. Thomson.*

Stereocaulon paschale (L.) Hoffm. C; on bare rock or soil; can be associated with mosses; lowlands, subalpine and alpine.

Stereocaulon pileatum Ach. On bedrock among mosses at LeConte Bay, mainland, *379 det. Thomson.*

Stereocaulon rivulorum H. Magn. On ground, rock and moss-covered rock. Shore of Falls L., mainland; Cosmos Range alpine, mainland; Sheridan Peak, Kupreanof I.; *3178 & 3222 det. Ryan, 3172*. This species is usually found below permanent snow banks and along flood banks of streams (Thomson 1984).

Stereocaulon sasakii var. *sasakii* Lamb and var. *tomentosoides* Lamb. On soil and rocks. On basalt rock outcrop at Gallagher Ck., Chichagof I., *LaBounty 3331 det. Ryan.* On a gravel road near Petersburg, *Sharnoff 742.36,* in an open peatland near Juneau and a subalpine area on Harbor Mtn, Sitka; *Brodo 26182 & 26085*; *O 'Clair 26085 & 26182*. Also found near Hyder by E.G. Mayer. Similar in appearance to *S. tomentosum* but containing lobaric acid instead of stictic acid.

Stereocaulon saviczii Du Rietz. On rock, on lava flows. LeConte Bay and Blue R. lava flow, mainland. *380 & 746 det. Thomson.*

Stereocaulon saxatile H. Magn. C; on rock; low elevations to alpine.

Stereocaulon spathuliferum Vainio. On organic soil and on beach rocks. Dry Pass, nw Chichagof I. and shore of Plotnikof L., s Baranof I.; *2159 & 2077 det. Wong.*

Stereocaulon sterile (Savicz) Lamb *ex* Krog. On rock and moss-covered rock. Beach at Kanga Bay, w Baranof I.; shoreline of LeConte Bay, mainland. *382 det. Thomson, 2144 det. Wong.*

Stereocaulon subcoralloides (Nyl.) Nyl. On exposed rock face in splash zone above high tide line, near mouth of Kennel Cr., e Chichagof I. , *2778 det. Thomson.*

Stereocaulon symphycheilum Lamb. On rock, soil, on lava flows; low elevations to alpine. LeConte Bay and Blue R. lava flow, mainland Crystal Mtn., Mitkof I., *383 & 749 det. Thomson, 2045*.

Stereocaulon tomentosum Fr. I; in soil among mosses. Meadow at Pogibshi Anchorage, n Baranof I.; second growth *Tsuga* forest, trail to Petersburg L., Kupreanof I., *882, 2759*.

Stereocaulon vesuvianum Pers. C; on rock and soil on lava flows, along lake shorelines and in alpine habitats.

Sticta arctica Degel. R; intermingled with moss and other lichens on Mt. Roberts, Juneau area (Krog 1968).

Sticta fuliginosa (Hoffm.) Ach. C; on *Populus, Alnus, Malus* and *Picea sitchensis* along beaches and rivers, especially on the mainland. Low elevations.

Sticta limbata (Sm.) Ach. R; along beaches of small marine islands on conifers, hardwoods and shrubs (e.g. *Tsuga, Alnus, Malus).* Staney I., near Prince of Wales I.; small I. e of Pt. Vandeput, mainland; Sukoi Is. near Petersburg. *59, 2587, 2615*.

Sticta weigelii (Ach.) Vainio s. lato. C; on *Alnus, Malus, Picea sitchensis* and *Thuja plicata* branches along beaches, lakes, streams and rivers; widespread at low elevations.

Sticta wrightii Tuck. I; on *Picea sitchensis, Alnus, Populus* and *Salix* in *P. sitchensis* and mixed *Picea*/deciduous stands in floodplains of mainland rivers. (e.g. Patterson, Stikine, Unuk and Arnklen). *1016, 1025, 1642, 3349*.

Tephromela aglaea (Sommerf.) Hertel & Rambold. C; on acidic or slightly basic rocks, ranging from the salt spray zone on exposed beach rocks near Sitka (O'Clair et al. 1996) to alpine habitats.

Thamnolia subuliformis (Ehrh.) Culb. C; on humus with other lichens and mosses; subalpine and alpine.

Thamnolia vermicularis (Sw.) Ach. *ex* Schaerer. I; on humus with other lichens and mosses; subalpine and alpine.

Thelotrema lepadinum (Ach.) Ach. On bark of hardwoods and conifers. *Picea/Tsuga* forest inland of Half Moon Bay, mainland; *Picea/Alnus* riparian area along Indian R. Trail, near Sitka; *Picea/Tsuga/Alnus* beach fringe at Blind Slough, Mitkof I. *1088, 3093, 3315 det. Ryan.*

Toninia tristis (Th. Fr.) Th. Fr. On alpine soils. Thunder Mtn., mainland, *520 det. Thomson.*

Trapelia (Choisy) sp. On rock outcrop in subalpine forest in the Missionary Range of Kupreanof I., *3334 det. Ryan.* Close to *T. coarctata* but with black, smaller apothecia.

Trapeliopsis flexuosa (Fr.) Coppins & P. James. On slate rock. near Wrangell, AK (Herre 1919). Expected also on wood, plant debris and sandstone rocks (Purvis et al. 1992).

* *Trapeliopsis pseudogranulosa* Coppins & P. James. On *Tsuga heterophylla* bark. *Picea/Tsuga* forest inland of Half Moon Bay, mainland, *3089 det. Ryan.*

***Tremella hypogymniae* Diederich. Lichenicolous fungus on *Hypogymnia physodes;* nw of Haines, *Ahti 21415 det. Diederich (H).* Previously reported in N Am from Ontario (Diederich 1996).

Tremolecia atrata (Ach.) Hertel. On rock in the mainland alpine. Unnamed peak w of Elbow Mtn, mainland, *3259 det. Ryan.*

Tuckermonnopsis chlorophylla (Willd.) Hale. A; on coniferous and deciduous trees and shrubs in low elevation stands near water (beaches, lakes, rivers, streams).

Tuckermannopsis subalpina (Imshaug) Kärnefelt. C; on shrubs and lower branches of *Tsuga mertensiana* in subalpine forests; on humic soils in high elevation peatlands and alpine habitats.

Umbilicaria angulata Tuck. C; on rock; shorelines and lowland peatlands to alpine habitats. Hall Peak, n Kupreanof I.; Warm Springs Bay, w Baranof I.; LeConte Bay, mainland. *2755, 3362, 385 det. Ryan.*

Umbilicaria arctica (Ach.) Nyl. On subalpine and alpine rocks. Crystal Mtn, MitkofI., *2048 det. McCune;* Bear Claw Mtn, s Kupreanof I., *3144*.

Umbilicaria cylindrica (L.) Delise *ex* Duby. On rock; Mt. Roberts, near Juneau (Krog 1968).

Umbilicaria deusta (L.) Baurng. On acid rock in subalpine and alpine sites, especially in water channels on rock faces (Thomson 1984). Rowan Mtn., n Kuiu I. and edge of Swan L., mainland, *841, 3198*.

Umbilicaria havaasii Llano. On rock in the mainland alpine; w of n fork Bradfield R., *Krieckhaus 3440 det. Ryan.*

Umbilicaria hirsuta (Sw. *ex* Westr.) Hoffm. On exposed acid rock (Thomson 1984); Muir Glacier area (Cummings 1904).

Umbilicaria hyperborea (Ach.) Hoffm. C; on rock; alpine and subalpine, to sea-level on moraines at glacial termini.

Umbilicaria polyphylla (L.) Baumg. On exposed rock on Mt. Riley Trail, se of Haines, *Sharnoff 1389.26*.

Umbilicaria proboscidea (L.) Schrader. C; on rock; alpine and lower elevations on fresh glacial moraines.

Umbilicaria rigida (Du Rietz) Prey. On acid rock and bird perches (Thomson 1984). Known from Mendenhall Valley (McCullough 1965).

Umbilicaria torrefacta (Lightf.) Schrader. C; on alpine rock but to sea-level near glacier termini.

Umbilicaria vellea (L.) Hoffm. On open or shaded cliffs; Granite Basin near Juneau (Krog 1968).

Umbilicaria virginis Schaerer. On alpine rocks. Crystal Mtn., Mitkof I., *2051 det. McCune.*

Usnea cavernosa Tuck. On *Picea* nw of Haines (Thomson and Ahti 1994).

**Usnea chaetophora* (Halonen et al. 1997). On *Picea sitchensis, Tsuga heterophylla* and small deciduous trees and shrubs along beach fringe, Staney I. near Prince of Wales I., and Shrine of St. Therese, Juneau. *2554 & 2589 det. Halonen.*

**Usnea* cf. *cornuta* Körber. On beach fringe trees and shrubs; Staney I. near Prince of Wales I., *2590 det. Ryan.* Small specimens.

Usnea filipendula Stirton. I; on coniferous trees and deciduous shrubs, especially along beaches. *1883 det. Ryan, 724 det. Halonen.*

* *Usnea fragilescens* var. *mollis* (Vainio) Clerc. I; on *Pinus contorta* in peatland on Dog I., s of Ketchikan, on trees along beach fringe at w Staney I. near Prince of Wales I. and at Cape Fanshaw, mainland. *2534, 2588 & 1865 det. Halonen.*

Usnea glabrata (Ach.) Vainio. R; coastal forests. Known from Sitka National Monument (Krog 1968). This collection and those of the following two species should be re-examined. In the inland and maritime regions of BC, but not the hypermaritime (Halonen et. al. 1997) as here.

Usnea glabrescens (Nyl. *ex* Vainio) Vainio. R; on trees. Sitka National Monument (Krog 1968). A hypermaritime and maritime species in BC (Halonen et al. 1997).

Usnea hirta (L.) F.H. Wigg. R; on trees; Indian R Trail, Sitka (Krog 1968). A southern intennontane species in BC (Halonen et al. 1997).

Usnea lapponica Vainio. I-R on *Alnus.* Brotherhood Park, Juneau, *1554 det. Halonen;* and Sitka National Monument (Krog 1968).

Usnea longissima Ach. A; pendant on branches of conifers and deciduous shrubs; in deciduous stands, *Picea sitchensis*/ldeciduous stands, *Picea sitchensis,* mixed conifer or *Pinus contorta* stands; most common along beaches and riparian habitats.

Usnea scabrata Nyl. s. lato. On *Picea sitchensis* and *Alnus rubra* on small marine islands and peninsulas dominated by *Usnea; Alectoria* usually conspicuously absent. Collections include "Usnea prostrata" morphs. Shrine of St. Therese, Juneau; Pleasant Bay, Admirality I.; Gut I., mouth of Stikine R *58, 2704, 2555 det. Halonen.*

Usnea substerilis Stirton. On *Alnus rubra* in Brotherhood Park, Juneau, *1553 det. Halonen.* Also on *Picea* nw of Haines (Thomson & Ahti 1994).

+*Usnea trichodea* Ach. Pendent from coniferous trees, especially *Picea sitchensis,* and deciduous shrubs along the boundaries of lakes or along beaches. Hugh Smith L., Misty Fjord NM and Plotnikof L., Admiralty I. *1987, 2183 & 2184 det. Ryan.* Some collections with red axes.

+*Verrucaria degelii* R. Sant. On littoral rock on sea cliff at top of Sunshine Cove, Auke Bay, *Brodo 26018*.

Verrucaria epimaura Brodo. On littoral rock, characteristically overgrowing *V. maura.* W side Lynn Canal, *Sharnoff 1487.16*. Recently described from coastal BC and Alaska (Brodo & Santesson 1997).

Verrucaria maura Wahlenb. A; on seashore rocks as a black band from the high intertidal and splash zones to lower salt spray zone. The most abundant maritime lichen in se AK (O'Clair et al. 1996).

Verrucaria muralis Ach. On calcareous rock at the Calder quarry, Prince of Wales I. (Herre 1919).

+*Verrucaria schofieldii* Brodo. On littoral rock; *Brodo 26366C.* Recently described; endemic to QCI and se AK (Brodo & Santesson 1997).

Vestergrenopsis elaeina (Wahlenb.) Gyelnik. R; near the tenninus of the Mendenhall glacier on rock deglaciated about 25 years earlier, *Sharnoff 761.36*; Mendenhall V. (McCullough 1965); Glacier V, 20 km n of Juneau, O *'Clair 3387 det. Wong.*

Vestergrenopsis isidiata (Degel.) E. Dahl. On moss-covered rocks. Herbert Glacier terminus; Cosmos Peak, mainland; Sheridan Peak, Kupreanof I. *3246 & 3450 det. Ryan, 2860 det. Brodo;* and Mendenhall Valley (McCullough 1965).

Xanthoria candelaria (L.) Th. Fr. C; on rocks in the salt spray zone and on bark of trees along beaches (esp. *Picea sitchensis).* Best developed on shoreline rocks fertilized by bird droppings (O'Clair et al. 1996).

Xanthoria elegans (Link) Th. Fr. On beach rocks in the salt spray zone to alpine habitats, especially in high nitrogen environments beneath bald eagle and peregrine falcon nests, or rocks used as lookouts by marmots (O'Clair et aI1996).

Xanthoria fallax (Hepp) var. *fallax* Arnold s. lato. R; on bark in riparian zone. Klondike Goldrush National Historic Park, *Atwood 18371a*.

Xanthoria polycarpa (Hoffm.) Rieber. I; on twigs of *Picea sitchensis, Populus* and deciduous shrubs along beaches up to 200m.

Xanthoria sorediata (Vainio) Poelt. On beach rocks; Gambier Bay, Admiralty I., *2541*.

Xylographa opegraphella Nyl. *ex* Rothr. Strictly maritime, on stabilized driftwood and other wood exposed to the sea, often nitrogenized (Brodo 1984, 1992a). Eagle Beach, Lynn Canal (O'Clair et al. 1996).

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