

New records, range extensions and nomenclatural innovations for lichens and lichenicolous fungi from Alaska, U.S.A.

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Abstract: DILLMAN, K. L., AHTI, T., BJÖRK, C. R., CLERC, P., EKMAN, S., GOWARD, T., HAFELLNER, J., PÉREZ-ORTEGA, S., PRINTZEN, C., SAVIĆ, S., SCHULTZ, M., SVENSSON, M., THOR, G., TØNSBERG, T., VITIKAINEN, O., WESTBERG, M. & SPRIBILLE, T. 2012. New records, range extensions and nomenclatural innovations for lichens and lichenicolous fungi from Alaska, U.S.A. – *Herzogia* 25: 177–210.

Surveys of lichens and lichenicolous fungi have been taking place in the U.S. state of Alaska for more than 160 years, but until now assessing the full extent of their diversity has been hampered by the lack of a comprehensive and synonymized baseline inventory. In this paper we will begin to redress this by resolving outstanding nomenclatural issues and providing voucher data for a forthcoming catalog of Alaskan lichens, specifically: 1) synonymization and/or resolution of status of species previously reported from Alaska, with emphasis on Alaskan types; 2) species new to the Alaska lichen biota; and 3) biogeographically significant new records from within Alaska. We report 91 species new to the flora of Alaska, including 65 lichens, three saprophytic calicioid fungi and 23 lichenicolous fungi. Of these, we report thirteen species, *Biatora sphaeroidiza*, *Biatorella conspurcans*, *Chaenothecopsis arthoniae*, *Collempsidium foveolatum*, *Dactylospora frigida*, *Halospora discrepans*, *Lecanora bryopsora*, *Opegrapha geographicola*, *Peltigera lyngei*, *Petractis clausa*, *Protoblastenia cyclospora*, *Thelocarpon impressellum* and *Usnea cylindrica* as new to North America. In addition, *Arthonia pruinata* and *Flavocetraria minuscula* are new to Canada and *Adelococcus alpestris* new to the United States. We further place the following five names into synonymy: *Lecania disceptans* (Nyl.) Lyngbe [= *Halecania alpivaga* (Th.Fr.) M.Mayrhofer], *Lecidea pallidella* Nyl. [= *Lecania subfuscata* (Nyl.) S.Ekman], *Lempholemma triptodes* (Nyl.) Zahlbr. (= *Leciophysma finmarkicum* Th.Fr.), *Polyblastia obtenta* (Nyl.) Lyngbe [= *Sporodictyon terrestre* (Th.Fr.) S.Savić & Tibell], and *Verrucaria pernigrata* Nyl. [= *Protothelenella sphinctrinoides* (Nyl.) H.Mayrhofer & Poelt]. We propose restoring the long overlooked taxon *Polyblastia exalbida* (Nyl.) Zahlbr., currently known only from Alaska, to the North American lichen checklist. Finally, we propose the new combination *Puttea caesia* (Fr.) M.Svensson & T.Sprib. to replace *Lecidea symmicitella* Nyl., which becomes a synonym.

Zusammenfassung: DILLMAN, K. L., AHTI, T., BJÖRK, C. R., CLERC, P., EKMAN, S., GOWARD, T., HAFELLNER, J., PÉREZ-ORTEGA, S., PRINTZEN, C., SAVIĆ, S., SCHULTZ, M., SVENSSON, M., THOR, G., TØNSBERG, T., VITIKAINEN, O., WESTBERG, M. & SPRIBILLE, T. 2012. Neufunde, Arealerweiterungen und nomenklatorische Neuerungen für die Flora der Flechten und lichenicolen Pilze von Alaska, USA. – *Herzogia* 25: 177–210.

Seit über 160 Jahren werden Studien über Flechten und flechtenbewohnende Pilze des Bundesstaates Alaska unternommen, doch eine Beurteilung über das Ausmaß ihrer Diversität wird durch das Fehlen einer umfassenden Erfassung und Synonymie bislang erschwert. Dieser Artikel widmet sich den ausstehenden nomenklatorischen Problemen sowie dem Darlegen von wichtigen Funddaten als Beitrag zu einem zukünftigen Gesamtkatalog der Flechten Alaskas. Dabei liegt der Schwerpunkt auf: 1) einer Synonymisierung und Klärung des nomenklatorischen Status von Arten, die bereits aus Alaska bekannt sind, besonders in Bezug auf Typusbelege aus Alaska; 2) Arten, die neu sind für die Biota von Alaska; und auf 3) biogeographisch bedeutsamen Neufunden innerhalb von Alaska. Wir weisen 91 Arten zum ersten

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Mal für die Biota von Alaska nach, darunter 65 Flechten, 3 saprophytische calicioide Pilze und 23 lichenicole Pilze. Dreizehn Arten sind neu für Nordamerika: *Biatora sphaeroidiza*, *Biatorella conspurcans*, *Chaenothecopsis arthoniae*, *Collemopsidium foveolatum*, *Dactylospora frigida*, *Halospora discrepans*, *Lecanora bryopsora*, *Opegrapha geographicola*, *Peltigera lyngei*, *Petractis clausa*, *Protoblastenia cyclospora*, *Thelocarpon impressellum* und *Usnea cylindrica*. *Arthonia pruinata* und *Flavocetraria minuscula* sind gleichzeitig neu für Kanada und *Adelococcus alpestris* neu für die USA. Die folgenden fünf Namen werden als Synonyme eingestuft: *Lecania disceptans* (Nyl.) Lyngé [= *Halecania alpivaga* (Th.Fr.)M.Mayrhofer], *Lecidea pallidella* Nyl. [= *Lecania subfuscula* (Nyl.) S.Ekman], *Lempholemma tripitodes* (Nyl.) Zahlbr. (= *Leciophysma finmarkicum* Th.Fr.), *Polyblastia obtenta* (Nyl.) Lyngé [= *Sporodictyon terrestre* (Th.Fr.) S.Savić & Tibell], und *Verrucaria pernigrata* Nyl. [= *Protothelenella sphinctrinoides* (Nyl.) H.Mayrhofer & Poelt]. Das lange in Vergessenheit geratene Taxon *Polyblastia exalbida* (Nyl.) Zahlbr., das bislang nur aus Alaska bekannt ist, wird in die Nordamerika-Checkliste wieder eingegliedert. Zu aller Letzt schlagen wir vor, dass die neue Kombination *Puttea caesia* (Fr.) M.Svensson & T.Sprib. den Namen *Lecidea symmicetella* Nyl. ersetzt, und dass der letztere Name als Synonym eingezogen wird.

Key Words: Arctic, Ascomycota, Bering Straits, biodiversity, fungi, Klondike, lectotypification, nomenclature, *Puttea*.

Introduction

The growing interest in lichens and lichenicolous fungi as indicators of biodiversity and air quality by government agencies in Alaska has prompted more attention in recent times to these organisms in the remote and largely unexplored regions of northwestern North America (GEISER et al. 1998, TALBOT et al. 2000, 2007, DERR et al. 2007, MCCUNE et al. 2009, SPRIBILLE et al. 2010, ZHURBENKO & DILLMAN 2010). In contrast to more densely populated and industrialized regions of the world, where lichens are increasingly compromised due to habitat fragmentation and air pollution, the comparatively pristine landscapes of Alaska support a rich but still underexplored lichen biota. However, Alaska is not without pressures for development of natural resources in the form of mining, timber harvest, and energy exploration and production. In addition, the cascading ecological effects of climate change are increasingly being witnessed even here (GCRP 2009, OSTERNKAMP 2005, PARSON et al. 1999). Against this background it is increasingly important to document and clarify the taxonomy of Alaskan lichens, an exercise that may further benefit future biogeographical, ecological and evolutionary research.

The only previous attempt at a comprehensive checklist of Alaskan lichens is that of CUMMINGS (1904), who documented 462 species. Our knowledge of Alaskan lichens has steadily grown in the intervening 108 years, and analyses conducted in parallel to the assembly of a new catalog of Alaskan lichens suggest a recent steep increase in the rate of new discovery associated with intensified field work (C. Hampton-Miller, unpublished). In laying the groundwork for this forthcoming catalog, the present paper has two objectives: first to take care of several “loose ends” among older reports of Alaskan lichens, including the exclusion of several species, resolution of synonymies, and proposal of one new combination; and second to provide voucher reports for a further 91 species not previously known or adequately documented from Alaska. Most of the new reports derive from field trips made by G. Thor (1989), T. Tønberg (1991, 1999, 2001), C. Printzen (1999), and J. Hafellner (2010) as well as collecting by KLD and TS over the last decade.

Materials and Methods

Lichen collections were made by the authors of this paper and others in various regions throughout Alaska and studied using standard light microscopic and chromatographic methods as necessary. Saprobic fungi treated by lichenologists are preceded by a plus sign, while a

number sign (#) is used to signify lichenicolous fungi. Each species is followed by the location where collected, substrate, year of collection, collector and collector number (if available) and determiner (if different than collector or authors). The herbarium where each specimen is housed is indicated following Index Herbariorum, the one exception being KLGO, which denotes the herbarium of Klondike Gold Rush National Historical Park in Skagway, Alaska. The various names applied to green alder in Alaska (*Alnus crispa*, *A. sinuata*, *A. sitchensis* and *A. viridis*) are united here in the broad sense under *A. viridis* following FURLOW (1997).

Results

Excluded and resurrected taxa, a new chemotype, and nomenclatural innovations

Cladidium bolanderi excluded

MACOUN (1899), in a short report on lichens of St. Paul, Island in the Bering Sea, summarized a series of collections made by W. Palmer and identified by W. W. Calkins, including a record of *Lecanora thamnitis* Tuck. This species, which is mainly distributed in the coastal fog belt of California and southern Oregon, was later recognized as a synonym of *Cladidium bolanderi* (Tuck.) B.D.Ryan by RYAN (1989). The Palmer specimen and Macoun report are the basis for the later report of *Cladidium bolanderi* from the Bering Sea region by TALBOT et al. (2001) and the inclusion of the species in the Holarctic checklist by KRISTINSSON et al. (2010). In his revision of the genus for North America, RYAN (1989) indicated that he had not seen the specimen behind the Alaskan report but considered it to be “probably erroneous”. Inquiry at several Midwest herbaria revealed the specimen to be held by F. The specimen consists of thick columnar, crustose thalli but not the fruticose growth form of *C. bolanderi*. It is also chemically different than *Cladidium*: thin layer chromatography revealed atranorin, zeorin and several unidentified terpenoids as the main secondary metabolites, confirming that it represents *Lecanora aleutica* H.Magn., a species widespread in that region (BRODO 1984). *Cladidium bolanderi* can be excluded from the Alaskan and Holarctic checklists.

Specimen examined (*Lecanora aleutica*): [U.S.A. Alaska:] St. Paul Island, Bering Sea, W. Palmer s.n. (F-C0061824F).

Cladonia graciliformis excluded

Cladonia graciliformis Zahlbr. has been recognized as present in North America since DEGELIUS (1937) and SANDSTEDTE (1938), based on Sandstede's identification of a specimen from the vicinity of Juneau, Alaska. It was also approved by KROG (1968), who did not add further localities but stated that the material includes two chemotypes, one containing squamatic and the other thamnolic acid. THOMSON (1967) also accepted the species but as a synonym of *C. hookeri* Tuck. A recent report of the species was published by TALBOT et al. (2007) from St. Matthew Island, Alaska. Otherwise *C. graciliformis* is known only from volcanic soils in Japan.

The Juneau collection was recently examined by one of us (TA) and referred to *C. bellidiflora* (Ach.) Schaer. Even the presence of thamnolic acid in part of the material is no obstacle, because this chemotype is frequent in western North America (BRODO & AHTI 1996). The collection is unusual for *C. bellidiflora* in having rather few podetial squamules, but is otherwise not similar to the Japanese material of *C. graciliformis*, which tends to be much taller and branched in apical parts (see photograph in ASAHINA 1971: fig. 49). The specimen from St. Matthew Island was not checked. However, the type material of *C. hookeri* (BM, FH), collected in Newfoundland, was checked and also found to represent *C. bellidiflora* (STENROOS & AHTI 1994). *Cladonia graciliformis* should be excluded from the biota of Alaska and North America.

A new chemotype of *Cladonia pseudoevansii*

The amph-Beringian coastal lichen *Cladonia pseudoevansii* Asahina has been recorded in a number of localities in the Prince William Sound region and along the Aleutians. It normally contains usnic and perlatolic acids. Here we report an infrequent new chemotype that contains only perlatolic acid, which means that the normally yellowish lichen is ash-gray. A similar pigment-deficient chemotype is

Cladonia portentosa (Dufour) Coem. subsp. *pacifica* Ahti f. *decolorans* Ahti, which is locally abundant along the coast of British Columbia, and is also known from Alaska (KROG 1968). We do not propose any new name for the new color variant, which could be confused with *C. wainioi* Savicz because of similarity in color and structure.

Specimens examined: U.S.A. Alaska: Attu Quad.: Attu Island, Coast Artillery Hill, 56 m, *Loiseleuria-Vaccinium uliginosum* mire, 2009, S. & S. Talbot ATT157 (GZU, H); Seward B-2 Quad.: Chugach National Forest, Prince William Sound, W side of Disk Island, 61 m, low-lying *Carex* wetland with *Siphula ceratites* pools, 1993, C. Derr 1673, 2267 (H, TFNS); small islet off Knight Island, 91 m, open *Carex-Sphagnum* wetland on top of rocky knoll, 1993, C. Derr 2099a (H).

A new synonym for *Halecania alpivaga*

Halecania alpivaga (Th.Fr.) M.Mayrhofer, *Herzogia* 7: 391. 1987; *Lecania alpivaga* Th.Fr., *Lichenogr. Scand.* 1: 292 (1871). Type: [Norway. Troms:] Tromsø, Fløjfjeldet, 23.VI.1864, Th. M. Fries (syntype S-L2069!).

= *Lecania disceptans* (Nyl.) Lyngbe, *Rep. Sci. Res. Norweg. Exped. Novaya Zemlya* 1921 43: 188 (1928); *Candelariella disceptans* (Nyl.) Zahlbr., *Cat. Lich. Univ.* 5: 794 (1928); *Lecanora disceptans* Nyl., *Flora* 67: 212 (1884). Type: [Russia. Chukotka Autonomous Okrug:] Sibiria septentrionalis: Sinus Konyam [=Konyam Bay] ad fretum Bering, 64°50' lat. bor., 173° long. occid. (Greenw.). 28.–30.VII.1879, E. Almquist (lectotype S-L2029, here designated; S-L2030, H-NYL 29682, isolectotypes!). **Syn. nov.**

NYLANDER (1884) originally described *Lecanora disceptans* based on Ernst Almquist's collections from Konyam Bay on the Russian side of the Bering Strait and he also reported the species from Almquist's collections at Port Clarence in Alaska. It was included in *Candelariella* by ZAHLBRUCKNER (1928) whereas LYNGBE (1928) assigned it to *Lecania*. Since then the species has never been reported from further localities and has apparently not been included in any revision of *Lecania* or related genera. *Lecania disceptans* is an enigmatic name that is included in the North American checklist (ESSLINGER 2011). There are two syntypes of *Lecanora disceptans* from Konyam Bay deposited at S and the largest and best developed is here selected as the lectotype. Photos of the lectotype can be found at Krypto-S (the botanical database at the Swedish Museum of Natural History): www.nrm.se.

The lichen grows on *Placynthium nigrum* on calcareous rock. The thallus is pale grey sometimes with a brownish tinge and consists of scattered granules to indistinctly lobate areoles. The apothecia are numerous, 0.3–1.3 mm diam., lecanorine with a dark brown disc and a thick, persistent, smooth to weakly crenulate margin. The paraphyses are strongly branched towards the surface and the swollen tips have dark brown pigment caps. The asci are 8-spored and have a tholus uniformly stained blue in KI (*Catillaria*-type). The spores are 2-celled, ellipsoid and have a distinct perispore that swells in K. The thallus is K–, KC–, C– and UV–. The presence of a perispore, the ascus-type and the pigment caps on the paraphyses clearly indicates that the species belongs to *Halecania*. All characters agree with those of *Halecania alpivaga* (see MAYRHOFFER 1987) and comparison with material at S, including a syntype of *Lecania alpivaga*, confirmed this. In addition a syntype in H-NYL was annotated as *Halecania alpivaga* by Bruce Ryan in 1998. The species was also collected in the Koyukuk River drainage of the Brooks Range by Göran Thor in 1989 and Josef Hafellner in 2010.

Additional specimens examined: U.S.A. Alaska: Port Clarence, [1879], E. Almquist (H-NYL 29331, paratype!); [Brooks Range,] c. 330 km NNW of Fairbanks, W slope of Sukakpak Mtn, c. 1 km E of Dalton Highway at mile 203.5, 67°38'N/149°45'W, 1989, G. Thor 8978 (S-F175601); Brooks Range, Endicott Mountains, Midnight Dome, lowermost NE-facing slope above secondary dirt road at entrance of valley of Hammond River, 67°28'50"N/150°02'40"W, c. 420 m s. m., moss-covered boulder-bed in stand of *Betula nealaskana*, on boulders of schist with locally low content of calcium, 2010, J. Hafellner 79840 (GZU).

The synonymy of *Lecania subfuscula*

Lecania subfuscula (Nyl.) S.Ekman, *Opera Bot.* 127: 134 (1996); *Lecidea subfuscula* Nyl., *Flora* 48: 604 (1865). *Bacidia subfuscula* (Nyl.) Th.Fr., *Kongl. Sv. Vet.-Akad. Handl.* 7 (2): 35 (1867). – Type: Iceland, “Reikjavik”, 1860, L. Lindsay (H-NYL 17363, holotype, seen by SE).

= [*Biatora venusta* Hepp in herb., nom. inval. (Art. 32.1a, d)]; *Bacidia subfuscula* subsp. *venusta* Hepp ex Th.Fr., *Kongl. Sv. Vet.-Akad. Handl.* 7 (2): 35 (1867). *Lecidea sabuletorum* f. *venusta* (Hepp

ex Th.Fr.) Stizenb., Nov. Actorum Acad. Caes. Leop.-Carol. German. Nat. Cur. 34 (2): 37 (“1867” according to the printed volume but November 1868 according to STAFLEU & COWAN 1986). *Lecidea venusta* (Hepp ex Th.Fr.) Stizenb., Ber. Thätigk. St.-Gallischen Naturwiss. Ges. 1874–75: 229 (1876). – Type: **Switzerland**, Nidwalden, “unter dem Krisiloch auf dem Pilatus”, J. Hegetschweiler (UPS, holotype, seen by SE).

= *Lecidea leucococcoides* Nyl., Flora 52: 296 (1869). *Bacidia leucococcoides* (Nyl.) Arnold, Flora 53: 472 (1870). – Type: **Iceland**, “Reykjavik”, VII.1868, C. Grönlund (UPS, 2 syntypes, seen by SE; 3 syntypes in H-NYL, seen by TA).

= *Bacidia frigida* Th.Fr., Lich. Scand. 2: 378 (1874), nom. inval. (Art. 34.1a). *Bacidia frigida* Th.Fr. in H.Olivier, Bull. Géogr. Bot. 20: 168, 174, 201 (1911), Art. 46.2. – Type: **Norway**, Finnmark, “Wardoe”, 17.IX.1864, Th. M. Fries (UPS L-129400, lectotype designated here; L-129401, isotype; Art. 7.7).

= *Biatora sibiriensis* Willey ex Rothr., Proc. U.S. Natl. Mus. 7 (1): 6 (1884), Art. 46.4. *Bacidia sibiriensis* (Willey ex Rothr.) Zahlbr., Cat. Lich. Univ. 4: 146 (1926). – Type: [**Russia**, Chukotka Autonomous Okrug:] Port Providence, Plover Bay, East Siberia [= Bukhta Provideniya], on bone, 12.IX.1880, T. H. Bean (F, holotype, not seen; FH, isotype, not seen; H-NYL 18427, seen by TA; US, isotype, seen by SE).

= *Lecidea pallidella* Nyl., Flora 68: 443 (1885). – Type: [**Russia**, Kamchatka Oblast: Commander Islands] “Behringinsula” [= Bering Island, Ostrov Beringa], Aug. 1879 [according to Nylander 1885, not on label], E. Almquist (H-NYL 21840, holotype, seen by SE). **Syn. nov.**

A full synonymy of *Lecania subfuscata*, which includes two names used historically in Alaska, has not previously been published, and one name, *Lecidea pallidella* Nyl., reported from St. Lawrence Island, Alaska by NYLANDER (1887), has not been included in any revisionary treatments. The holotype of *L. pallidella* consists of a small, 3 × 3 mm piece of decomposed plant material, which is consistent with Nylander’s remark that it overgrows “herbas destructas”. The lichen is represented by a small, thin, pale-coloured thallus and six biatorine apothecia, which vary from pigment-deficient to partially purplish brown. Paraphyses are club-shaped with apices swollen up to c. 5 µm. Ascospores are narrowly fusiform, sometimes slightly curved, 3-septate, and measure 16–20 × 3.5–4.5 µm. The appearance of the ascospores, paraphyses, and the apothecium pigmentation, including the variation in pigmentation within the same specimen, is typical of *L. subfuscata*. The St. Lawrence Island specimen of *L. pallidella* was not found in S.

Biatora sibiriensis was first synonymized with *L. subfuscata* by EKMAN (1996). There are two specimens in US, only one which seems to have been examined by Willey (as indicated by the annotation that it originates from Willey’s own herbarium). Both specimens overgrow bones on the ground. Apothecia in these specimens are largely pigment-deficient. Ascospores are characteristically 3–5-septate, measuring 15–21 × c. 3 µm.

FLETCHER et al. (2009) describe the thallus in *L. subfuscata* as composed of granules that may coalesce to form a warted crust. Although this is indeed a common appearance, variation in thallus development is considerable, ranging from immersed or filmy, particularly in lignicolous specimens, via discretely granular to thick and warted from fused granules.

A new synonym for *Leciophysma finmarkicum*

Leciophysma finmarkicum Th.Fr., Bot. Not. 1865(5): 102 (1865).

= *Collema triptodes* Nyl., Flora 67: 218 (1884); *Lempholemma triptodes* (Nyl.) Zahlbr., Cat. Lich. Univ. 3: 19 (1925). Type: [**Russia**, Chukotka Autonomous Okrug:] Sibiria septentrionalis: Sinus Konyam ad fretum Bering, 64°50 lat. bor., 173° long. occid. (Greenw.), 28.–30.VII.1879, E. Almquist (lectotype S-L2371, here designated; H-NYL 42405, isolectotype). **Syn. nov.**

Collema triptodes was described by NYLANDER (1884) based on material collected during the Vega Expedition of 1878–79. A type specimen from Siberia with Nylander’s handwriting on it was located in S (L2371). There are five additional Vega Expedition specimens preserved at S, one from Siberia (Waigatsch) and four from Alaska (Port Clarence). All these six specimens are referable to *Leciophysma finmarkicum*. In none of the samples could a species of *Lempholemma* be detected,

though *Leptogium gelatinosum* (With.) J.R.Laundon (det. by Nylander as *Collema scotinum*) was found intermingled in one of the Alaska specimens.

Status of *Polyblastia exalbida*

Polyblastia exalbida (Nyl.) Zahlbr., Cat. Lich. Univ. 1: 143 (1921). *Verrucaria exalbida* Nyl., Flora 68: 603 (1885). Type: [U.S.A. Alaska:] Port Clarence ad fretum Bering, 65°15' lat. bor., 166°30' occid. long. (Greenw.) 21.–26.VII.1879. leg. E. Almquist (H-NYL 2019, S, syntypes!).

This species has long been overlooked in treatments of the Alaskan lichen biota and is not currently listed in any form in the most recent checklist of North American lichens (ESSLINGER 2011). The combination of a thin to moderately thick, farinaceous and whitish thallus, rather small, spherical perithecia (c. 0.2–0.3 mm), and medium-sized spores (27–35 × 16–21 μm) does not match any *Polyblastia* species treated or described in a recently published revision of *Polyblastia* from Northern Europe and the adjacent Arctic (SAVIĆ & TIBELL 2012). Nonetheless, we think the type probably belongs to *Polyblastia* s. str. (SAVIĆ et al. 2009). The name *P. exalbida* should be maintained pending further studies.

A new synonym for *Protothelenella sphinctrinoides*

Protothelenella sphinctrinoides (Nyl.) H.Mayrhofer & Poelt, Herzogia 7(1–2): 53 (1985); *Verrucaria sphinctrinoides* Nyl., Not. Sällsk. Fauna Fl. Fenn. Förh. 4: 6 (1868).

= *Verrucaria pernigrata* Nyl. Flora 68: 604 (1885); *Polyblastia pernigrata* (Nyl.) Zahlbr., Cat. Lich. Univ. 1: 152 (1921). Type: [U.S.A. Alaska:] Port Clarence ad fretum Bering, 65°15' lat. Bor., 166°30' occid. long. (Greenw.) 21.–26.VII.1879, leg. E. Almquist (H-NYL 2410, S, syntypes). **Syn. nov.**

The type specimen of *Verrucaria pernigrata* in S was already identified by Thomson in 1965 as *P. sphinctrinoides* under the name '*Microglæna sphinctrinoides* (Nyl.) Th.Fr.', but the synonymy was to our knowledge never published. Enclosed in the same collection is some material of *Polyblastia bryophila* Lönnr. (written on the same label, det. Nylander).

The case for recognizing *Lecidea symmicrella* as a member of the genus *Puttea*

Puttea caesia (Fr.) M.Svensson & T.Sprib. **comb. nov.**

Basionym: *Agyrium caesium* Fr., Syst. mycol. 2(1): 231 (1823). Type: [Sweden. Småland:] Femsjö par., Elias Fries, Scler. Suec. 279 (UPS F-117724, lectotype! designated here)
Mycobank Accession Number: MB 800960.

Synonym: *Lecidea symmicrella* Nyl., Flora 51: 163 (1868).

The species was originally described as *Agyrium caesium*, but this species epithet is not available in *Lecidea*, as the binomial is preoccupied by *Lecidea caesia* Ach. (1814). Thus, when Nylander included the species in *Lecidea* in 1868, he instated the nomen novum *Lecidea symmicrella* for it (NYLANDER 1868). Due to close morphological and anatomical similarities to *Puttea margaritella*, the type of the genus *Puttea* (STENROOS et al. 2009) it is here transferred to that genus. The original epithet becomes available when the species is transferred to *Puttea*.

As detailed by HOLM & NANNFELDT (1962), Elias Fries's exsiccata Scleromyceti Sueciae was released in two editions, and for lectotypifications of names published in Systema Mycologicum II, care is needed to ensure that the chosen type is from the first edition. According to PRINTZEN (1995), there are five syntypes of *Agyrium caesium* in UPS from which a lectotype could potentially be chosen. However, three of these bear no label and cannot be attributed to any edition of the exsiccatae, while a fourth should be considered as belonging to the second edition using the criteria of HOLM & NANNFELDT (1962). The fifth specimen was found in the bound fascicles which, according to the accompanying schedae, represents the first edition and was chosen as the lectotype.

Puttea caesia is similar to *P. margaritella* (Hulting) S.Stenroos & Huhtinen, with minute, pale, convex apothecia and small, unicellular ascospores. However, *P. caesia* differs in having excipular hyphae that are apically thickened (to 4 μm) and often having brown pigment caps, which then give the apothecia a characteristic dark rim when dry. The ascospores of *P. caesia* are somewhat smaller (3–7 × 1–2.5 μm, n=30) than those of *P. margaritella* (5.3–7.3 × 2.3–3.0 μm, STENROOS et al. 2009). Also, unlike *P. margaritella*, which

grows exclusively on the liverwort *Ptilidium pulcherrimum* (G.Web.) Vain., *P. caesia* grows on lignum. The only additional species in the genus to date is *Puttea exsequens* (Nyl.) Printzen & Davydov, which has larger ascospores (8–11 × 3–4.5 µm), unthickened excipular hyphae (DAVYDOV & PRINTZEN 2012) and in our experience generally occurs on softer and more shaded wood compared to *P. caesia*.

Puttea caesia was only recently reported as new for North America by SPRIBILLE & BJÖRK (2008, as *Lecidea symmetricella*), who cited specimens from Ontario and Montana. We report it here as new for Alaska.

Selected specimens examined (*Puttea caesia*): **Sweden.** Dalarna: Säfsnäs par., June 2009, M. Svensson 1568 (herb. M. Svensson). Södermanland: Dunker par., 1890, O. G. Blomberg (UPS). Ångermanland: Långsele par., 1892, T. Hedlund (UPS). **U.S.A.** Alaska: Fairbanks-North Star Borough: Chena River, 64°53.385'N/146°41.764'W, lignicolous on log, 215 m s. m., 2008, T. Spribille 27466 (GZU).

***Pyrenocarpon thelostomum* excluded**

Pyrenocarpon thelostomum (Ach. ex J.Harriman) Coppins & Aptroot was reported by NYLANDER (1887, as *Collemopsis flotowiana*; syn. *Pyrenocarpon flotowianum*; for discussion of synonymy see COPPINS & APTROOT 2008) from Port Clarence, Alaska, and this is to date the only published report from North America. In order to clarify the status of this species in Alaska, we studied the Vega Expedition material in S. There is one packet from Port Clarence, Alaska annotated by Nylander as “*Collemopsis flotowiana*, *Verrucaria discedens*”. The material consists of a few small, partly soil-encrusted pebbles covered by several lichens and a few bryophytes. Most of the lichen cover is *Staurothele discedens* (Nyl.) Zahlbr. In addition, two cyanolichens are present, though both of them in a rather meager state. One is obviously a *Collema* with rather open, dark red apothecia, and fusiform, 4-celled to submuriform spores and may represent poor *C. crispum* (Huds.) F.H.Wigg. The second one has very small, sessile apothecia with narrow discs, *Nostoc* photobiont, a clearly corticate thallus and seems to be close to *Leptogium biatorinum* (Nyl.) Leight., a short-lived pioneer species not unlikely to occur on pebbles on open ground. No apothecia of *Pyrenocarpon thelostomum* were found and it seems that Nylander mixed the *Staurothele* and *Leptogium* element of this altogether poor material. This mixup is not surprising inasmuch as the identity of *Pyrenocarpon thelostomum* was problematic to 19th century lichenologists. In the five decades after the description of the species as *Verrucaria flotowiana* Hepp in 1853 it was placed in no less than eleven genera by seven authors. If the older, but likewise much confused names *Verrucaria thelostoma* Ach. ex J.Harriman and *Pyrenula umbonata* Ach. with their respective synonyms are included these numbers increase to no fewer than 19 genera and 13 authors.

Pyrenocarpon thelostomum may eventually be recorded from Alaska. So far, North American material has been seen by one of us (M. Schultz) only from Michigan, U.S.A. (leg. R. Hyercyk; dupl. herb. M. Schultz).

A new synonym for *Sporodictyon terrestre*

Sporodictyon terrestre (Th.Fr.) S.Savić & Tibell, Mycol. Res. 112(11): 1311 (2008). *Polyblastia terrestris* Th.Fr., Lichenes Arctoi: 365 (1860).

= *Verrucaria obtenta* Nyl., Flora 68: 602 (1885); *Polyblastia obtenta* (Nyl.) Zahlbr., Cat. Lich. Univ. 1: 152 (1921). Type: [U.S.A. Alaska:] Vega-Exped., Port Clarence, 1879, E. Almquist (lectotype: S; syntypes: H-NYL 2022 and H-NYL 2023). **Syn. nov.**

Verrucaria obtenta was described by NYLANDER (1885) from Port Clarence in northwestern Alaska. The specimens belong however to *Sporodictyon terrestre* (Th.Fr.) S.Savić & Tibell (SAVIĆ et al. 2008; basionym: *Polyblastia terrestris* Th.Fr., Lichenes Arctoi: 365 [1860]). *Verrucaria obtenta* is hence a younger synonym of *S. terrestre*. For a more detailed description and for additional synonyms of *S. terrestre* see SAVIĆ & TIBELL (2009).

The status of *Verrucaria fulva*

Verrucaria fulva Cumm., Harriman Alaska Exped. 5: 71 (1904), nom. illeg.

This species was described by CUMMINGS (1904) based on a specimen collected by William Trelease at Port Wells in Prince William Sound. Based on the description, it obviously refers to some species of *Polyblastia* s. lat. However, the name is a later homonym of *V. fulva* Hoffm. (1796) and hence illegitimate. We have not found the Trelease material. The name should be retained provisionally in the North American checklist until its status can be resolved.

Species New to Alaska

#*Abrothallus peyritschii* (Stein) Kotte – A widespread fungus obligately associated with *Vulpicida pinastri* in boreal regions, previously reported from North America from Alberta (TRIEBEL et al. 1991).

Specimens examined: Fairbanks-North Star Borough, Chena River State Recreation Area, along Chena River, 64°53.385'N/146°41.764'W, lichenicolous on *Vulpicida pinastri* over leaning base of spruce at river's edge, 215 m s. m., 2008, T. Spribille 27464 (GZU); *ibid.*, 64°53.594'N/146°41.180'W, on *V. pinastri* on *Alnus* bark, 293 m s. m., 2008, T. Spribille 27598 (GZU).

#*Acarospora rugulosa* Körb. s. lat. – A saxicolous species on siliceous rocks with iron or copper minerals, reported from Europe and North America.

Specimen examined: 390 km E Anchorage, 10 km NNE McCarthy, Wrangell-St. Elias National Preserve, Bonanza Copper mine, 61°31'N/142°50'W, alt. 1800 m, on exposed rocky outcrops, 1989, G. Thor 8742 (S, det. M. Westberg 2011).

#*Adelococcus alpestris* (Zopf) Theiss. & P.Syd. – New to the U.S.A. In North America the species was so far known only from Greenland and Mexico.

Specimen examined: Brooks Range, Endicott Mountains, Sukakpak Mountain, foothills on the W side, 67°35'35"N/149°46'00"W, c. 580 m s. m., boulders of calcareous sandstone in open boreal forest, on boulders of sandstone, on *Acarospora glaucocarpa* (thallus, apothecia), 2010, J. Hafellner 79936 (GZU).

#*Arthonia excentrica* Th.Fr. – This species was first reported for continental North America by HAFELLNER et al. (2002) from Oregon.

Specimens examined: Brooks Range, Philip Smith Mountains, Atigun Pass, gentle slopes E above the James Dalton Highway (Alaska Hwy 11), 68°07'45"N/149°28'40"W, c. 1450 m s. m., arctic-alpine tundra with snow bed in boulder field, on soil, on *Lepraria neglecta* agg. (thallus), 2010, J. Hafellner 79857 (GZU); Denali Borough, Alaska Range, 9.6 airkm NE of Cantwell, base of Panorama Mountain, 63°27'55"N/148°48'05"W, c. 680 m s. m., south-facing boulder scree of paleozoic greenstone between patches of *Alnus* sp., on thin layers of soil over boulders, on *L. neglecta* agg., 2010, J. Hafellner 79967 (GZU).

#*Arthonia ilicina* Taylor – Previously reported in western North America from California and British Columbia (BRODO 1971, NOBLE 1982, GRUBE 2007).

Specimen examined: Alexander Archipelago, Warren Island, 55.8788°N/133.8691°W, on *Alnus* branch at beach, K. L. Dillman 2005-134 (TNFS).

#*Arthonia leucopellaea* (Ach.) Almq. – A corticolous species in humid forests, reported from Europe and North America.

Specimen examined: 240 km ESE Anchorage, 0.7–2.0 km NE Cordova, along the trail close to the ski-lift on Tripod hill (Ski hill), 60°33'N/145°44'W, 150–250 m, on *Tsuga heterophylla* in dense forest with high humidity dominated by *Tsuga heterophylla*, 1989, G. Thor 8664 (S, det. R. Sundin).

#*Arthonia molendoi* (Heufl. ex Frauenf.) R.Sant. – First reported from North America from near Kamloops, British Columbia by ALSTRUP & COLE (1998) and subsequently from Arizona (HAFELLNER et al. 2002).

Specimen examined: Brooks Range, Philip Smith Mountains, E of Galbraith Lake, W-facing slopes of hill S of Atigun River 2, 68°26'50"N/149°21'10"W, c. 900 m s. m., inclined banks of siliceous rocks with variable content of calcium in arctic tundra, on subvertical rock faces, on *Xanthoria elegans* (thallus, apothecia), 2010, J. Hafellner 79847 (GZU).

#*Arthonia phaeophysciae* Grube & Matzer – This species was reported from British Columbia and California by HAFELLNER et al. (2002).

Specimen examined: Brooks Range, Endicott Mountains, Midnight Dome, lowermost NE-facing slope above secondary dirt road at entrance of valley of Hammond River, 67°28'50"N/150°02'40"W, c. 420 m s. m., moss-covered boulder-bed in stand of *Betula neolaskana*, on boulders of schist with locally low content of calcium, on *Phaeophyscia* sp. (thallus), 2010, J. Hafellner 79994 (GZU).

#*Arthonia pruinata* (Pers.) A.L.Sm. – A species with a Mediterranean-western North American distribution, previously reported in North America from coastal California (SPARRIUS 2004: 91, GRUBE 2007) and also known from coastal Washington [B. Ryan, pers. comm. 2002; specimens in BG (see below)] and Canada, British Columbia (from where it is here reported new to Canada). It belongs to a small group of southern thermophilous fog belt species that barely reach southern Alaska on outer coastal islands and headlands [including e.g. *Niebla cephalota* (Tuck.) Rundel & Bowler and *Ramalina menziesii* Taylor].

Specimens examined: **Canada.** British Columbia. Vancouver Island, Victoria, Beacon Hill Park, alt. 10m, 48°24.9'N/123°21.7'W, corticolous at base of leaning, old, solitary *Quercus garryana*, 2000, T. Tønsberg 28794 (BG; UBC). **U.S.A.** Alaska. Alexander Archipelago, DeLong Island, 54.9699°N/131.0027°W, on *Picea sitchensis* trunk at beach, K. L. Dillman 2001-287 (TNFS). Washington, San Juan Co., Shaw Island, Univ. of Washington Biological Preserve, alt. 0–10m, 48°33.0'N/122°57.6'W, corticolous on the shaded, dry underside of leaning trunk of *Pinus contorta*, 2000, T. Tønsberg 28726 (BG); corticolous on *Juniperus scopulorum*, 2000, T. Tønsberg 28739 (BG).

Aspicilia contorta (Hoffm.) Kremp. [syn. *Circinaria contorta* (Hoffm.) A.Nordin, S.Savič & Tibell] – A species on calcareous rocks, reported from Europe and North America (OWE-LARSSON et al. 2007) and Asia (Russia, Chukotka: KRISTINSSON et al. 2010).

Specimen examined: 330 km NNW Fairbanks, W slope of Sukakpak Mtn, 1 km E of Dalton highway at mile 203.5, 67°38'N/149°45'W, 550–900 m, on calcareous rocks, 1989, G. Thor 8967 (S, det. A. Nordin 2011).

Bacidia reagens Malme – *Bacidia reagens* was described from Brazil and is a neotropical species until now not known to occur north of Florida, Louisiana and southern California (EKMAN 1996). Its occurrence in Alaska represents a spectacular range extension and echoes the disjunct occurrence here of other tropical species such as *Coccocarpia erythroxyli* (Sprengel) Swinscow & Krog and, in the adjacent Yukon, *Gyalideopsis mexicana* Tretiach, Giralt & Vězda (LENDEMER 2011).

Specimen examined: Fairbanks-North Star Borough, Chena River State Recreation Area, along Chena River, 64°53.385'N/146°41.764'W, corticolous on *Picea* branch, 215 m s. m., 2008, T. Spribille 27481 (UPS).

Bacidia rosellizans S.Ekman – *Bacidia rosellizans* is a recently described species with pink apothecia that was long confused with *B. rosella* (EKMAN 2009). It was heretofore known from Europe and eastern North America (Ontario, Michigan). We report it here as new to western North America from Alaska and the Yukon.

Specimens examined: **Canada.** Yukon Territory: La Biche River, 60°09.223'N/124°04.468'W, on *Picea* twigs, 371 m s. m., 2008, T. Spribille 28496 (CANL); *ibid.*, 60°09.110'N/124°04.737'W, on *Populus balsamifera* bark, 373 m s. m., T. Spribille 28522 (UPS); *ibid.* 60°09.227'N/124°04.468'W, on twig of *Picea mariana*, 2008, C. Printzen 10750a (FR); **U.S.A.** Alaska: Fairbanks-North Star Borough, Chena River State Recreation Area, along Chena River, 64°53.594'N/146°41.180'W, 293 m s. m., corticolous on *Picea* branch, 2008, T. Spribille 27574 & C. Hampton-Miller (UPS).

Biatora chrysantha (Zahlbr.) Printzen – Widespread in northwestern North America (PRINTZEN & TØNSBERG 1999) but until now not reported north of Wells Gray Provincial Park, British Columbia.

Specimens examined: Borough of Juneau, Mendenhall Glacier, East Glacier Trail, c. 0.5 km E of Visitor Center, 58°25'04"N/134°32'10"W, 50 m s. m., bark of young *Alnus viridis*, 1999, C. Printzen 5111 (FR); Alexander Archipelago, Frederick Sound, Sukoi Islets, the easternmost island, 56°53.22'N/132°54.43'W, alt. 0–10 m, muscicolous on trunk of *Tsuga heterophylla*, 2003, T. Tønsberg 32489 (BG).

Biatora sphaeroidiza (Vain.) Printzen & Holien – *Biatora sphaeroidiza* is a widespread species of little disturbed spruce forests, but until now has not been known from outside of Europe; it is new to North America. Its minutely warted thallus and pale grayish to orange brown apothecia make it similar in outward appearance to the common *Micarea peliocarpa* (Anzi) Coppins & R.Sant. but it has much smaller, non-septate ascospores and instead of gyrophoric acid produces the C⁺ orange xanthonic thiophanic acid and asemone. *Biatora helvola* Körb. ex Hellb. (see section “confirmations and noteworthy range extensions”) is another similar species also known from southeastern Alaska, in which the hymenium is interspersed with POL⁺ crystals of gyrophoric acid (C⁺ rose). It also has broader ascospores of 3–5 µm as opposed to 2.5–3.5 µm in *B. sphaeroidiza*.

Specimens examined: **Canada.** Newfoundland, Avalon Peninsula, Ferryland District, Bay Bulls S of St. Johns, between Rd. 10 and Long Pond at N end of Pond, 47°21'06"N/52°48'28.3"W, dense stand of *Abies balsamea*, *Betula* and *Picea mariana*, c. 50 m, on bark of *Abies balsamea*, 2000, C. Printzen 5495 (BG); *ibid.*, Burin Peninsula, Placentia West District, 14 km WSW of Swift Current along Rd. 210 to Marysville, 47°50'45.7"N/54°23'31.3"W, narrow strip of *Abies balsamea* forest between Rd. 210 and Pond, 190 m, on bark of *Abies balsamea*, 2000, C. Printzen 5631 (BG); **U.S.A.** Alaska. Borough of Juneau, Douglas Island, Douglas Rd. on N side of Island, 58°18'42"N/134°39'51"W, *Picea sitchensis* and *Alnus rubra* near HWM, on bark of *Alnus rubra*, 1999, C. Printzen 5068a (FR); *ibid.*, mainland, Bridget Cove, plot 04/02H, corticolous on fine twigs of *Tsuga heterophylla*, 2010, S. Taurer s.n. (GZU).

Biatorrella conspurcans Norman – A boreal to subalpine, corticolous species with minute apothecia, 0.1–0.3 mm in diameter. It was earlier reported from Europe. New to North America.

Specimen examined: 330 km NNW Fairbanks, W slope of Sukakpak Mtn, 1 km E of Dalton highway at mile 203.5, 67°38'N/149°45'W, 550–900 m, on *Alnus* sp. at small stream, 1989, G. Thor 8944b (S).

Caloplaca fulvolutea (Arnold) Jatta – This species was described from Scandinavia. Outside of Europe, the species has been reported from western Greenland (HANSEN et al. 1987) as well as more recently from Kamchatka (KHODOSOVTSSEV et al. 2004) and Wyoming (WETMORE 2009).

Specimens examined: 390 km E of Anchorage, 10 km NNE of McCarthy, Wrangell-St. Elias National Preserve, Bonanza copper mine, 61°31'N/142°50'W, 1800 m, exposed rocky outcrops, 1989, G. Thor 8723 (S, det. U. Arup); *ibid.*, along the trail from Kennicott to Bonanza copper mine, c. 500 m from the mine, 61°30'N/142°50'W, 1700 m, exposed rocky outcrops, 1989, G. Thor 8769 (UPS, det. U. Arup).

Calvitimela melaleuca (Sommerf.) R.Sant. – This species is well known in Scandinavia and differs from the widespread *C. armeniaca* in its more often concave areoles and the presence of psoromic acid (FOUCARD 2001). Interestingly, a recent molecular phylogeny that included *C. melaleuca* (SPRIBILLE et al. 2011) did not resolve it as reciprocally monophyletic from *C. armeniaca* but did indicate deep divergence in the complex. Species boundaries in the *C. armeniaca* complex require more work and it is possible that three or more taxa are involved. The inclusion of two Alaskan specimens by SPRIBILLE et al. (2011) was the first report of *C. melaleuca* for North America but the present note is necessary to make clear that this also accounts for the putatively new, psoromic acid-containing species *Calvitimela* sp. S26952 published by SPRIBILLE et al. (2010).

Candelaria pacifica M. Westb. & Arup – A species reported from both Europe and North America. As it was long confused with *Candelaria concolor*, earlier reports of *C. concolor* from Alaska should be rechecked.

Specimen examined: 390 km E Anchorage, 5 km NNE McCarthy, along the road from Kennicott to McCarthy 1 km from Kennicott, 61°28'N/142°52'W, 600 m, on deciduous tree in dense deciduous forest, 1989, G. Thor 8788 (UPS).

Candelariella efflorescens R.C.Harris & W.R.Buck – The polysporous *Candelariella* species in western North America were treated by WESTBERG (2007), who reported *C. efflorescens* from across the western United States north to Washington. However, he did not report on material from north of the 49th parallel.

Specimens examined (all BG specimens det. M. Westberg 2007): Alexander Archipelago, Baranof Island, Old Sitka, Starrigavan Bay, the small island, 57°07.8'N/135°22.4'W, 0–5 m, on *Picea sitchensis* twigs, 1991, T. Tønsberg 16443 (BG); on *Rubus spectabilis*, 1999, T. Tønsberg 27701 (BG); City and Borough of Juneau, Mendenhall Lake SE, along trail near Steep Cr. just SW of the Visiting Centre, 58°24.9'N/134°32.8'W, 30 m, corticolous on *Salix* sp., 1999, T. Tønsberg 27535 (BG); Douglas Island NW, just W of the point W of the small cove 1.5 km NE of Outer Point, 58°18.7'N/134°40.2'W, 5–10 m, corticolous on twigs of maritime *Picea sitchensis* near upper edge of beach, 1999, T. Tønsberg 27434 (BG); City and Borough of Yakutat, ESE of village Yakutat, at end of Dangerous River Rd., near the bridge, 59°25.1'N/139°01.4'W, 20–30 m, corticolous and lignicolous on trunk of *Populus*, 2001, T. Tønsberg 29939 (BG); Kodiak Island, S of Kalsin Bay, bank of Myrtle Cr., 57°36'N/152°24'W, 0–10 m, corticolous on *Populus*, 1991, T. Tønsberg 15464 (BG); Kalsin Bay SW, bank of Dead Man Cr., 57°36'N/152°29'W, corticolous on trunk of *Populus*, 1991, T. Tønsberg 15371 (BG); along Anton Larsen Bay Rd, between the road and Buskin Lake NW, 57°47'N/152°33.6'W, 30 m, corticolous on *Populus* sp., 2001, T. Tønsberg 29352 (BG); Prince of Wales Island, El Capitan area, old logging camp near docks, [corticolous on] *Salix* branches, 2001, K. L. Dillman 2001-214 (TNFS).

#*Carbonea intrudens* (H.Magn.) Hafellner – This species, described from northern Sweden, was first reported from North America from Alberta as *Lecidea intrudens* H.Magn. (BEDER & OGLIVIE 1967) and is currently incorrectly listed by ESSLINGER (2011) as a synonym of *Miriquidica intrudens* (H.Magn.) Hertel & Rambold (basonym: *Lecanora intrudens* H.Magn.). For a discussion of its characteristics and taxonomy see HAFELLNER (2006), who also reported a specimen from Greenland.

Specimen examined: Brooks Range, Philip Smith Mountains, Atigun Pass, gentle slopes E of and above the James Dalton Highway (Alaska Hwy 11), 68°07'45"N/149°28'40"W, c. 1450 m s. m., arctic-alpine tundra with boulder strips of siliceous sandstone, on boulders, on *Rhizocarpon geographicum* aggr. (thallus), 2010, J. Hafellner 79868 (GZU).

#*Carbonea supersparsa* (Nyl.) Hertel – This species, lichenicolous on species of the *Lecanora polytropa* group, was first reported for North America by DIEDERICH (2003) from Isle Royale, Michigan.

Specimen examined: Klondike Gold Rush National Historical Park, W side of White Pass, 59°37.049'N/135°09.768'W, lichenicolous on *Lecanora* sp. over rock in alpine heaths, 1019 m, 2008, S. Pérez-Ortega s.n. (MA).

Catillaria contristans (Nyl.) Zahlbr. – A widespread species reported from Europe and the northern part of Greenland (KRISTINSSON et al. 2010), North America, Australia (Tasmania), the subantarctic islands and Antarctica (FLETCHER & COPPINS 2009). The species is found on mosses and soil rich in humus in exposed habitats. It was earlier reported from Maine in the U.S.A. (MILLER et al. 2005).

Specimen examined: 230 km SSW Fairbanks, 100–300 m S of Denali Highway at milepost 13 (= 20 km WNW of Paxson), 63°06'N/145°50'W, 900 m, exposed hill in alpine heath, 1989, G. Thor 8863 (S).

#*Chaenothecopsis arthoniae* Tibell – This is the correct name for *Chaenothecopsis* sp. 25008, a species colonizing the apothecia of *Arthonia arthonioides*, reported by SPRIBILLE et al. (2010). It is new for North America; previously known from Patagonia (TIBELL 1998). Specimens are cited in SPRIBILLE et al. (2010).

+*Chaenothecopsis nana* Tibell – A widespread species in the northern hemisphere including North America, but the previous record for Alaska was uncertain (SPRIBILLE et al. 2010).

Specimen examined: Denali Borough, Summit Lake along Parks Hwy., on *Picea* twigs, 63°20.485'N/149°04.748'W, 741 m s. m., 2008, T. Spribille 27744 (UPS, det. L. Tibell).

#*Chaenothecopsis ochroleuca* (Körb.) Tibell & K. Ryman – This distinctive species grows as a parasite or commensalist on an undescribed leprose species of *Cliostomum* and was first reported from North America from Alberta, British Columbia and New York State by SELVA & TIBELL (1999); further reports are provided by TITOV (2006). We report it here as new to Alaska and Montana.

Specimens examined (all det. L. Tibell): **Canada.** British Columbia. Helen Lake on Alaska Hwy, 2007, T. Spribille 25109 (UPS); **U.S.A.** Alaska. Denali Borough, below mouth of Tok Glacier, Tokositna River, 62°38.947'N/150°47.590'W, 264 m s. m., 2008, T. Spribille 27862 (ALA); Montana: Lake Co., Jocko River drainage, Pistol Creek, 47°12'0.86"N/113°56'59.08"W, on *Abies lasiocarpa* twigs, 1220 m s. m., 2012, T. Spribille s.n. & T. Wheeler (GZU).

+*Chaenothecopsis pusiola* (Ach.) Vain. – A widespread species in the boreal zone of Eurasia and North America and also known from New Zealand. The species is saprophytic or growing on *Chaenotheca* spp.

Specimen examined: 240 km ESE Anchorage, 0.7–2.0 km NE Cordova, along the trail close to the ski-lift on Tripod hill (Ski hill), 60°33'N/145°44'W, 150–250 m, on *Tsuga heterophylla* in dense forest with a high humidity dominated by *Tsuga heterophylla*, 25 July 1989, G. Thor 8555 (S, det. L. Tibell 1991).

+*Chaenothecopsis tasmanica* Tibell – Previously reported from North America from British Columbia (GOWARD 1999, SELVA & TIBELL 1999).

Specimen examined: Alexander Archipelago, Sukoi Isl., 56.8893°N/132.9103°W, on *Picea sitchensis*, 1992, C. Derr s.n. (TNFS).

Cliostomum griffithii (Sm.) Coppins – A widespread circumboreal species common in coastal western North America (e.g., EKMAN 1997) as far north as Haida Gwaii, British Columbia (BRODO et al. 2001). In Alaska the species is a common epiphyte in beach fringe areas of the south-central and southeastern coasts, but has remarkably not been reported to date.

Specimens examined: Alexander Archipelago, Cleveland Peninsula, Lake McDonald, 55.97400°N/131.83780°W, on *Amelanchier florida* twigs, K. L. Dillman 2000–110 (TNFS); Frederick Sound, Sukoi Islets, the easternmost island, 56°53.17'N/132°54.55'W, 0–10 m, corticolous on trunk of *Picea sitchensis* near upper edge of rocky beach, 2003, T. Tønsberg 32478 (BG); Coronation Island, Egg Harbor, 55°55.48'N/134°19.73'W, 0–10 m, corticolous on trunk of *Picea sitchensis* at upper edge of rocky beach, 2003, T. Tønsberg 32656 (BG); Coronation Island, Windy Bay, 55°52.99'N/134°18.00'W, corticolous on trunk of *Picea sitchensis* at upper edge of rocky beach, 2003, T. Tønsberg 32598 (BG); Kodiak Island, Ft. Abercrombie State Historic Park, NE of Gjertrude Lake, 57°50'N/152°21'W, 0–5 m, on driftwood, 1991, T. Tønsberg 15576 (BG); Denali Borough, wetlands on W side of Chulitna River, 62°49.220'N/150°07.173'W, lignicolous on *Picea* twigs, 312 m s. m., Aug. 2008, T. Spribille 28093 (ALA).

Coenogonium luteum (Dicks.) Kalb & Lücking – A widespread species of humid temperate forests, in western North America previously reported from e.g. British Columbia (NOBLE 1982); see also map in BRODO et al. (2001, sub *Dimerella lutea*).

Specimens examined: Alexander Archipelago Frederick Sound, Sukoi Islets, the easternmost island, 56°53.22'N/132°54.43'W, 0–10 m, muscicolous on trunk of *Tsuga heterophylla*, 2003, T. Tønsberg 32488 (BG); Kruzof Island, 57.01283°N/135.68927°W, on branches of *Picea sitchensis* at beach, K. L. Dillman 2010-21 (TNFS).

Collema occultatum Bagl. var. ***occultatum*** – *Collema occultatum* is a distinctive species with near-cubic muriform ascospores. In North America, both the typical var. *occultatum* (Massachusetts: DEGELIUS 1954) and var. *populinum* (Th.Fr.) Degel. (Alabama, Arizona and California: DEGELIUS 1974) have been reported.

Specimen examined: Municipality of Anchorage, Alyeska, near Winner Creek Trailhead, 60°58.2'N/149°05.6'W, 90–100 m, corticolous on trunk of *Alnus viridis*, 2001, T. Tønsberg 29616 (BG).

Collemopsidium elegans (R.Sant.) Grube & B.D.Ryan – The only previous record of a *Collemopsidium* species from Alaska was of *C. halodytes* (Nyl.) Grube & B.D.Ryan from Kodiak Island (TALBOT 1998) and the Aleutians (TALBOT et al. 1997, both as *Pyrenocollema*). However, this name has been broadly applied in the past to multiple *Collemopsidium* species and the individual specimens warrant checking in light of recent revisions (MOHR et al. 2004). Other reports of *C. elegans* come from northwestern Europe and along the Pacific coasts of South and North America (California; SANTESSON 1992).

Specimen examined: Alexander Archipelago, Mitkof Island, Sumner Straits, E of Ernie Haugen Day Use Area, 56.54577°N/132.66168°W, saxicolous in lower intertidal (*Fucus*) zone, 2012, S. Pérez-Ortega s.n. (TNFS).

Collemopsidium foveolatum (A.L.Sm.) F.Mohr – New to North America; described from Yorkshire, U.K. and subsequently reported from Ireland and Norway (MOHR et al. 2004), this species is easily recognized on account of its superficial thallus with carbonaceous ridges.

Specimen examined: Alexander Archipelago, Mitkof Island, Sumner Straits, E of Ernie Haugen Day Use Area, on intertidal rocks on barnacle above *Fucus* zone, 56.54577°N/132.66168°W, 2012, S. Pérez-Ortega s.n. (TNFS).

Collemopsidium sublitorale (Leight.) Grube & B.D.Ryan – This species has been reported from the American Pacific coast by GRUBE & RYAN (2002) as well as Ireland, Norway and the U.K. by MOHR et al. (2004).

Specimen examined: Alexander Archipelago, Mitkof Island, Sumner Straits, E of Ernie Haugen Day Use Area, on intertidal rocks on barnacle above *Fucus* zone, 56.54577°N/132.66168°W, 2012, S. Pérez-Ortega s.n. (TNFS).

Cresponea chloroconia (Tuck.) Egea & Torrente – *Cresponea chloroconia* is a trentepohlioid lichen found in North America primarily around the Great Lakes and in New England, with disjunct outliers in southern California (EGEA & TORRENTE 1993). Its discovery in Alaska represents a major range extension.

Specimen examined: Fairbanks-North Star Borough, Chena River State Recreation Area, Chena River, 64°53.385'N/146°41.764'W, corticolous at base of *Picea*, 215 m s. m., 2008, T. Spribille 27497 (GZU).

Cyphelium pinicola Tibell – A widespread, circumboreal species usually occurring on *Pinus* wood.

Specimen examined: Valdez-Cordova Census Area, c. 44 km W of Glennallen along Glenn Hwy, 62°05.425'N/146°18.398'W, lignicolous on decorticated *Picea* branches, elev. 766 m s. m., 2010, T. Spribille s.n. & C. Hampton-Miller (GZU).

#*Dactylospora frigida* Hafellner – So far known from Northern Europe, Arctic Asia, southern South America and New Zealand, and herewith new for North America.

Specimen examined: Brooks Range, Philip Smith Mountains, Atigun Pass, gentle slopes E above the James Dalton Highway (Alaska Hwy 11), 68°07'45"N/149°28'40"W, c. 1450 m s. m., arctic-alpine tundra with snow bed in boulder field, on plant remnants, on *Brigantiaea fuscolutea* (thallus), 2010, J. Hafellner 79850 (GZU).

#*Echinothecium reticulatum* Zopf – As *Sphaerellothecium* is likely to represent a heterogenous assemblage of ascomycetes we prefer not to follow ETAYO (2008) who treated this as a synonym of *Sphaerellothecium*.

Specimens examined: Brooks Range, Endicott Mountains, Midnight Dome, lowermost NE-facing slope above secondary dirt road at entrance of valley of Hammond River, 67°28'50"N/150°02'40"W, c. 420 m s. m., moss-covered boulder-bed in stand of *Betula neoalaskana*, on boulders of schist with locally low content of calcium, on *Parmelia saxatilis* (thallus), 2010, J. Hafellner 79795 (GZU); Denali Borough, Alaska Range, 9.6 air km NE of Cantwell, base of Panorama Mountain, 63°27'55"N/148°48'05"W, c. 680 m s. m., south-facing boulder scree of paleozoic greenstone between patches of *Alnus* sp., on boulders, on *Parmelia fraudans* (thallus), 2010, J. Hafellner 79965 (GZU).

#*Endococcus macrosporus* (Hepp ex Arnold) Nyl. – First reported from North America from Arizona (HAFELLNER et al. 2002).

Specimens examined: Brooks Range, Endicott Mountains, S below Atigun Pass, N of Chandalar Station, E-facing slopes W above the James Dalton Highway (Alaska Hwy 11), 68°06'30"N/149°32'15"W, c. 1120 m s. m., dwarf shrub tundra with low outcrops of siliceous schist, on loose pebbles, on *Rhizocarpon* sp. (*geographicum* group) (thallus), 2010, J. Hafellner 79888 (GZU); *ibid.*, on boulders, on *Rhizocarpon* sp. (*geographicum* group)(thallus), J. Hafellner 79880 (GZU).

Endohyalina insularis (Arnold) Giralt, van den Boom & Elix – This is an obligately lichenicolous lichen with highly reduced thallus only recently reclassified from *Rinodina* (GIRALT et al. 2010). It is confined to species of the *Lecanora rupicola* group. Its distribution is known to include Europe, Australasia, and North and South America (GIRALT et al. 2010). The only previous North American records are from Arizona and British Columbia (SHEARD 2010: 211–212, as *Rinodina i.*).

Specimen examined: Along James Dalton Highway (Alaska Hwy 11), Finger Mountain, 66°21'30"N/150°27'50"W, c. 730 m s. m., heads of granitic rock (tors) in subarctic-alpine vegetation, on subvertical rock faces, on *Lecanora bicincta* (thallus), 2010, J. Hafellner 79786 (GZU).

Fissurina* aff. *insidiosa C.Knight & Mitten – Previously recorded from Canada from Haida Gwaii, British Columbia, as *Graphis insidiosa* (BRODO 1995). Further taxonomic work is needed to resolve whether our material corresponds to the type, which is from New Zealand (HAYWARD 1977).

Specimens examined: Alexander Archipelago, Coronation Isl., Egg Harbor, 55.90342°N/134.31589°W, on snag of *Picea sitchensis* at beach, K. L. Dillman 2005-176 (TNFS); *ibid.*, 55.9034°N/134.3138 °W, on *Picea sitchensis* snag, 2005, L. Geiser s.n. (TNFS); *ibid.*, Windy Pass, 55.8889°N/134.3004°W, on *Tsuga heterophylla* snag, K. L. Dillman 2005-145(TNFS).

Fulgensia bracteata (Hoffm.) Räsänen subsp. ***deformis*** Poelt – This infraspecific taxon has so far not been distinguished in Alaska, but can be recognized by the presence of schizidia which develop in the absence of any apothecia.

Specimen examined: Brooks Range, Philip Smith Mountains, E of Galbraith Lake, W-facing slopes of hill S of Atigun River 2, 68°26'50"N/149°21'35"W, c. 850 m s. m., arctic tundra over Mississippian limestone, on soil over low outcrops of limestone, 2010, J. Hafellner 79833 (GZU).

Fuscidea pusilla Tønsberg – First published for North America from New York (TØNSBERG 1993). Several localities in Alaska were indicated by FRYDAY (2008: map page 310) who mentioned Kodiak Island as the northernmost locality in the Pacific Northwest (based on material in BG), but no specimens were cited.

Selected specimens examined: City and Borough of Juneau, N of Dotsons Landing, N bank of Herbert River, just W of the Hwy, 58°31.5'N/134°47.8'W, 10 m, corticolous on *Alnus* sp., 1991, T. Tønsberg 16219b (BG). Kenai Peninsula Borough, S of Sunrise, Sixmile Cr. Valley, 60°49'N/149°26'E, 80–100 m, corticolous on *Betula*, 1991, T. Tønsberg 15793 (BG); S of fjord Turnagain Arm, along the road between Sunrise and Hope, just W of Sunrise Creek, 60°54'N/149°26'W, 10–20 m, 1991, T. Tønsberg 15828 (BG); Kodiak Island Borough, Kodiak Island E, along road to Buskin Lake, 0.6 miles along road from Chiniak Hwy junction, 57°46'N/152°31'W, 10 m, corticolous on *Alnus*, 1991, T. Tønsberg 15189 (BG); Kodiak Island E, Middle Bay S, 1.5 miles (along the road) E of Felton Cr., 57°39'N/152°29'W, 20 m, corticolous on *Betula*, 1991, T. Tønsberg 15358 (BG).

Gyalecta jenensis (Batsch) Zahlbr. – A widespread species in Eurasia, North and Central America, Africa and Australia (Tasmania). In Alaska, it was found on slightly calcareous rocks in humid and shaded habitats.

Specimens examined: 240 km ESE Anchorage, c. 4.5 km NE Cordova, along the shore around Crater Lake, 60°34'N/145°42'W, 450 m, on rocks in the stream at the outlet, 1989, G. Thor 8592 (S); 290 km E Anchorage, 5 km N Chitina, N end of Threemile Lake, 100 m E of the highway, 61°33'N/145°29'W, alt. 200 m, shaded vertical rocks, 1989, G. Thor 8805 (S).

Gyalidea asteriscus (Anzi) Aptroot & Lücking – A terricolous, variable species on dry calcareous soil in areas with a ± continental climate. It is reported from few distant localities in Eurasia and North and South America; the nearest known localities in North America may be the calcareous loess habitats of Jasper National Park, Alberta (P. Williston, pers. comm.).

Specimen examined: 330 km NNW Fairbanks, W slope of Sukakpak Mtn, 1 km E of Dalton highway at mile 203.5, 67°38'N/149°45'W, 550–900 m, on calcareous schist, 1989, G. Thor 8888 (S).

#*Halospora discrepans* (J.Lahm ex Arnold) Hafellner – New to North America; no North American specimen was seen by HAFELLNER (2010) who monographed the genus.

Specimen examined: Brooks Range, Philip Smith Mountains, E of Galbraith Lake, W-facing slopes of hill S of Atigun River 2, 68°26'50"N/149°21'35"W, c. 850 m s. m., arctic tundra over Mississippian limestone, on low outcrops of limestone, on *Protoblastenia incurstans* (thallus, apothecia), 2010, J. Hafellner 79816 (GZU).

Hypogymnia wilfiana Goward, T.Sprib. & Ahti – A fertile species and recent segregate from the *H. metaphysodes* group previously reported from western Canada and the Pacific Northwest (GOWARD et al. 2010).

Specimens examined: Skagway area, near White Pass and Canadian border, 59.57035°N/135.15169°W, on *Abies lasiocarpa*, 400 m, K. L. Dillman 2009-247 (KLGO; det. K. Glew and T. Goward); *ibid.*, Laughton Glacier Trail, 59.55225°N/135.11986°W, on *Abies lasiocarpa*, 300 m, K. L. Dillman 2009-265 (TNFS).

Lecania dubitans (Nyl.) A.L.Sm. – This is a common species of *Populus tremuloides* bark in western Canada and the inland Pacific Northwest (REESE NAESBORG 2008) and occurs as well in northern Europe.

Specimen examined: Mile marker 336, Parks Hwy, SW of Fairbanks, 64°45.338'N/148°22.921'W, corticolous on *Populus tremuloides*, 278 m s. m., 2008, T. Spribille 27382 (GZU).

Lecania naegelii (Hepp) Diederich & van den Boom – A widespread species in western North America previously reported from British Columbia (NOBLE et al. 1987).

Specimen examined: Kodiak Island, Anton Larsen Bay SW, 1.6 miles along the road from the head of the bay, 57°52'N/152°38'W, 10 m, corticolous on trunk of *Picea sitchensis*, 1991, T. Tønsberg 15304 (BG, det. S. Ekman 2001).

Lecanora bryopsora (Doppelb. & Poelt) Hafellner & Türk – This is a segregate of *Lecanora epibryon* (POELT 1964, as variety), characterized by the presence of soralia formed of yellowish soredial masses. It is known from alpine habitats in Central Europe, mostly growing on plant debris over calcareous schist or superficially decalcified limestone. New to North America.

Specimens examined: Brooks Range, Philip Smith Mountains, E of Galbraith Lake, W-facing slopes of hill S of Atigun River 2, 68°26'50"N/149°21'35"W, c. 850 m s. m., arctic tundra over Mississippian limestone, on plant remnants over low outcrops of limestone, 2010, J. Hafellner 79824 (GZU); Brooks Range, Endicott Mountains, Sukakpak Mountain, foothills on the W side, 67°35'35"N/149°46'00"W, c. 580 m s. m., boulders of calcareous sandstone in open boreal forest, on plant remnants, 2010, J. Hafellner 79942 (GZU, ALA).

Lecanora perpruinosa Frøberg – A species originally described from Sweden and widespread in North America on calcareous rocks. For a detailed description see ŚLIWA (2007).

Specimen examined: 330 km NNW Fairbanks, W slope of Sukakpak Mtn, 1 km E of Dalton highway at mile 203.5, 67°38'N/149°45'W, 550–900 m, on calcareous rocks, 1989, G. Thor 8965 (S, det. L. Frøberg).

Leioderma sorediatum D.J.Galloway & P.M.Jørg. – In western North America previously reported from British Columbia (GOWARD et al. 1994) and the Pacific Northwest (MCCUNE & GEISER 2009).

Specimens examined: Alexander Archipelago, DeLong Island, Foggy Bay, 54.96883°N/131.00212°W, on *Picea sitchensis* at beach, K. L. Dillman 2003-270 (TNFS); Kanagunut Island, Lincoln Channel, 54.74937°N/130.70968°W, on branch of *Picea sitchensis* at beach, K. L. Dillman 2003-425 (TNFS).

Lempholemma cladodes (Tuck.) Zahlbr. – This species was described by TUCKERMAN (1872) from limestone rocks in New York State, and in North America it has otherwise been reported from Arizona (SCHULTZ 2004). It is illustrated by GILBERT et al. (2009).

Specimen examined: Juneau area, behind Mendenhall Visitor's Centre, trail along pond just before Visitor's Centre, vertical rock face with seepage track, 2010, T. Spribille s.n. (GZU).

Leptogium imbricatum P.M.Jørg. – A species found on bare soil and mosses over soil. It is reported from Europe, North America (localities not specified: JØRGENSEN 1994) and Asia (Russia: Chukotka; KRISTINSSON et al. 2010).

Specimen examined: 390 km E Anchorage, 10 km NNE McCarthy, Wrangell-St. Elias National Preserve, Bonanza Copper mine, 61°31'N/142°50'W, 1800 m, exposed rocky outcrops, 1989, G. Thor 8749 (S, det. P. M. Jørgensen 1992).

Leptogium tacomae P.M.Jørg. & Tønsberg – Previously known from the type specimen from Mt. Rainier National Park, Washington (U.S.A.), where it was collected on *Alnus rubra* (JØRGENSEN & TØNSBERG 1999), and a subsequent report from Oregon (CURTIS 2003).

Specimen examined: Kodiak Island, N of Kodiak Airport, S of and near Buskin River, downstream from the highway bridge, 57°45.4'N/152°30.9'W, 0–20 m, corticolous on *Populus* sp., 2001, T. Tønsberg 29373 (BG, conf. P. M. Jørgensen 2001).

#*Lichenostigma cosmopolites* Hafellner & Calatayud – This is a cosmopolitan lichenicolous fungus on *Xanthoparmelia* species and has previously been reported from sites across North America (HAFELLNER & CALATAYUD 1999).

Specimen examined: Brooks Range, Philip Smith Mountains, E of Galbraith Lake, W-facing slopes of hill S of Atigun River 2, 68°26'50"N/149°21'10"W, c. 900 m s. m., inclined banks of siliceous rocks with variable content of calcium in arctic tundra, on inclined rock faces, on *Xanthoparmelia stenophylla* agg. (thallus), 2010, J. Hafellner 79843 (GZU).

#*Lichenostigma maureri* Hafellner – The type species of the genus (HAFELLNER 1982), this is an arthonian lichenicolous fungus reported from Europe and North America.

Specimen examined: 300 km NNW Fairbanks, 400 m E of Dalton highway at mile 180.2, 50–300 m N of Marion Creek, 67°19'N/150°09'W, 370 m, on *Evernia divaricata* and *Usnea* sp. on *Picea* sp. twigs, 1989, G. Thor 9091 (S).

#*Lichenostigma semiimmersa* Hafellner – A lichenicolous fungus on members of the *Buellia epigaea*-group, described in detail by CALATAYUD et al. (2002). For etymology and gender of species name, often incorrectly given as *semiimmersum*, see NAVARRO-ROSINÉS & HAFELLNER (1996).

Specimen examined: Brooks Range, Endicott Mountains, Sukakpak Mountain, close to intermittent cascade at base of vertical W-facing wall, 67°35'40"N/149°45'35"W, c. 600 m s. m., mineral soil over calcareous sandstone, on soil, on *Buellia elegans* (thallus), 2010, L. Muggia, herb. Hafellner 79810 (GZU).

Mycobilimbia epixanthoides (Nyl.) Vitik. et al. – This is a widespread circumboreal species that has been reported from scattered localities in the Great Lakes region of eastern North America (WONG & BRODO 1990) but is likely more common in western North America than the few records indicate.

Specimen examined: Borough of Juneau, Pack trail N of Herbert River, c. 1.5 km W of Herbert Glacier, 58°32'06"N/134°43'05"W, c. 30 m, bark of *Tsuga heterophylla*, 1999, C. Printzen 5162 (FR).

Myochroidea rufofusca (Anzi) Printzen, T. Sprib. & Tønsberg [syn. *Lecidea rufofusca* (Anzi) Nyl.] – An alpine species on mosses and plant debris on the ground in Europe including Novaya Zemlya (KRISTINSSON et al. 2010) and North America (in the cordillera north to British Columbia: PRINTZEN et al. 2008).

Specimens examined: 230 km SSW Fairbanks, 100–300 m S of Denali highway at milepost 13 (= 20 km WNW Paxson), 63°06'N/145°50'W, 900 m, exposed hill in alpine heath, 1989, G. Thor 8839 (UPS); 330 km NNW Fairbanks, W slope of Sukakpak Mtn, 1 km E of Dalton highway at mile 203.5, 67°38'N/149°45'W, 550–900 m, on bryophytes on calcareous rocks, 1989, G. Thor 9019 (S).

Niebla cephalota (Tuck.) Rundel & Bowler – A major northward range extension for this species of the coastal fog belt. Previously reported from California, Oregon, and Washington (BRODO et al. 2001), the nearest known records are from Vancouver Island (T. Goward, unpubl.). Our record comes from the extreme southern tip of Alaska.

Specimen examined: Alexander Archipelago, DeLong Isl., Foggy Bay, 54.97030°N/131.00290°W, on sheltered side of *Picea sitchensis* at beach, K. L. Dillman 2001-285 (TNFS).

Opegrapha fumosa Coppins & P. James – A sorediate, usually sterile species in Alaska found corticolous on *Alnus viridis*, *Picea sitchensis* and *Vaccinium* spp. Previously recorded in North America from Canada, British Columbia and Washington (TØNSBERG 1998).

Selected specimens examined: Alexander Archipelago, Coronation Island, Windy Bay, S side, 55°52.28'N/134°17.56'W, 0–5 m, corticolous on *Alnus viridis* at upper edge of beach, 2003, T. Tønsberg 32546 (BG); 55°52.31'N/134°17.44'W, 0–5 m, corticolous on *Vaccinium* sp. near upper edge of beach, 2003, T. Tønsberg 32551, 32553 (BG); N side, 55°52.98'N/134°18.09'W, 0–5 m, corticolous on *Picea sitchensis* at upper edge of beach, 2003, T. Tønsberg 32600 (BG); with *Cliostomum griffithii*; 55°52.99'N/134°18.00'W, 0–5 m, corticolous on *Picea sitchensis* at upper edge of beach, 2003, T. Tønsberg 32592 (BG); Kuiu Island, Table Bay, 56°08.83'N/134°12.47'W, 0–5 m, corticolous on *Alnus viridis* at upper edge of rocky beach, 2003, T. Tønsberg 32683 (BG). Kodiak Island Borough, Kodiak Island E, Ft. Abercrombie State Historic Park, NE of Gjertrude Lake, 57°50'N/152°21'W, 40 m, corticolous on *Picea sitchensis*, dry cave at base of trunk, 1991, T. Tønsberg 15587 (BG).

#*Opegrapha geographicola* (Arnold) Hafellner – This species is found on members of the *Rhizocarpon geographicum* group developing ascomata in the thalline areoles of the host, resulting in an appear-

ance recalling *Rhizocarpon lecanorinum*. Previously recorded only from the Alps and the Carpathian Mountains in Central Europe, Spain, Siberia and New Zealand. New to North America.

Specimen examined: Brooks Range, Endicott Mountains, S below Atigun Pass, N of Chandalar Station, E-exposed slopes W above the James Dalton Highway (Alaska Hwy 11), 68°06'30"N/149°32'15"W, c. 1120 m s. m., dwarf shrub tundra with low outcrops of siliceous schist, on boulders, on *Rhizocarpon geographicum* (thallus), 2010, J. Hafellner 79881 (GZU).

Opegrapha herbarum Mont. – A fertile species found mainly on dry twigs in rain-sheltered situations; on the American Pacific coast previously reported from Haida Gwaii (BRODO 1976) and Vancouver Island (NOBLE 1982).

Specimen examined: Southeast Alaskan Mainland, Cleveland Peninsula, Lake McDonald, 55.97400°N/131.83730°W, on dead hardwood twigs under cliff, K. L. Dillman 2000-121 (TNFS).

#*Opegrapha thelotrematis* Coppins – Lichenicolous on *Thelotrema lepadinum*. Previously reported for North America from the Olympic Peninsula, Washington (U.S.A.) and from Vancouver Island (TØNSBERG 1998). It appears to be rare in Alaska, the only known records coming from Coronation Island.

Specimens examined: Alexander Archipelago, Coronation Island, Windy Bay, S side, 55°52.28'N/134°17.56'W, 0–5 m, corticolous on *Alnus viridis* at upper edge of beach, 2003, T. Tønberg 32547 (BG); *ibid.*, corticolous on *Vaccinium parvifolium* at upper edge of beach, 2003, T. Tønberg 32554 (BG).

Peltigera hymenina (Ach.) Delise – Previously tentatively reported from British Columbia ('south to B.C.') as *P. lactucifolia* (GOWARD et al. 1995). See VITIKAINEN (1994).

Specimen examined: Aleutians, Attu Isl., Sn's Valley [sic; Sidden's?], 1945, R. M. Hardy 23 p.p. (S).

Peltigera lyngei Gyeln. – This species, which exhibits similarities to *Peltigera malacea*, was described from Spitzbergen by GYELNIK (1932). It was reported by KALLIO & KÄRENlampi (1966) from Labrador (as *P. malacea* var. *lyngei*) but that record is based on *P. malacea*. We report the first verified specimens here as new to North America. See VITIKAINEN (1994) for a description.

Specimens examined: Aleutian Islands, Amchitka Isl., 2.6 mi SW of Crown Reefer Point, 1962, R. J. Reich 257 (OULU, as *P. malacea*); *ibid.*, Amchitka Isl., Kirilov Wharf, Contantine Harbor, 1962, R. J. Reich 18 (OULU, as *P. malacea*).

Pertusaria multipunctoides Dibben – Although it is common in eastern North America (DIBBEN 1980), this species is rare in the west; it has previously been reported from British Columbia (APTROOT 1996).

Specimen examined: Alexander Archipelago, Gravina Island, Bostwick Inlet, 55.26080°N/131.76600°W, on wood of old beach log, upper high tide, K. L. Dillman 1999-06 (TNFS).

Petractis clausa (Hoffm.) Kremp. – A distinctive species of calcareous rocks in Europe and evidently new for North America.

Specimen examined: Brooks Range, Endicott Mountains, Sukapak Mountain, foothills on the W side, 67°35'35"N/149°46'00"W, c. 580 m s. m., on boulders of calcareous sandstone in open boreal forest, 2010, J. Hafellner 79932 (GZU).

Physciella chloantha (Ach.) Essl. – A widespread species in Europe and central and eastern North America (ESSLINGER 1986) as well as the Far East (MOBERG 1995). Also widespread in semi-arid portions of southern British Columbia (T. Goward, unpubl. data).

Specimens examined: Alexander Archipelago, Foggy Bay, Very Inlet, 56.96540°N/130.96180°W, on twigs of *Picea sitchensis* at beach, K. L. Dillman 2003-678 (TNFS); *ibid.*, Mitkof Island, Ideal Cove, 56.67478°N/132.64598°W, on *Picea sitchensis* twigs at beach, K. L. Dillman 2003-698 (TNFS, all det. T. Esslinger).

Placynthium subradiatum (Nyl.) Arnold – Previously reported from Arizona (HENSSSEN 1963) and British Columbia (GOWARD et al. 1994).

Specimen examined: Alexander Archipelago, Prince of Wales Island, Virginia Peak, 56.5635°N/133.5491°W, on limestone rock in alpine environment, K. L. Dillman 2005-127 (TNFS, det. A. Fryday).

#*Plectocarpon peltigerae* Zhurb. et al. – This conspicuous species was described by ERTZ et al. (2003) from British Columbia and western Russia.

Specimen examined: Brooks Range, Endicott Mountains, Midnight Dome, lowermost NE-facing slope above secondary dirt road at entrance of valley of Hammond River, 67°28'50"N/150°02'40"W, c. 420 m s. m., moss-covered

boulder-bed in stand of *Betula neoalaskana*, over plant remnants and bryophytes on *Peltigera* sp. (*aphthosa* group) (thallus), 2010, J. Hafellner 79801 (GZU).

#*Polycoccum pulvinatum* (Eitner) R.Sant. – This is a widespread, gall-inducing species occurring on Physciaceae first reported from North America by TRIEBEL et al. (1991) from Mexico, under the synonym *P. galligenum* Vězda.

Specimen examined: Brooks Range, Philip Smith Mountains, E of Galbraith Lake, W-facing slopes of hill S of Atigun River 2, 68°26'50"N/149°21'10"W, c. 900 m s. m., inclined banks of siliceous rocks with variable content of calcium in arctic tundra, on inclined rock faces, on *Physcia caesia* (thallus), 2010, J. Hafellner 79844 (GZU, ALA).

Protoblastenia cyclospora (Hepp ex Körb.) Poelt – A widespread but rarely reported species of calcareous rocks reported from Europe and Asia (Russia: Chukotka, KRISTINSSON et al. 2010). New to North America.

Specimens examined: 330 km NNW Fairbanks, W slope of Sukakpak Mtn, 1 km E of Dalton highway at mile 203.5, 67°38'N/149°45'W, 550–900 m, on calcareous rocks, 1989, G. Thor 8957 (S, conf. R. Santesson 1992), G. Thor 8968 (S).

Protoblastenia incrustans (DC.) J.Steiner – *Protoblastenia incrustans* is a distinctive calcicole first reported for North America from British Columbia and the Northwest Territories (BRODO et al. 1987) and since reported also from eastern North America (Newfoundland: LENDEMER 2009).

Specimens examined: Brooks Range, Philip Smith Mountains, E of Galbraith Lake, W-facing slopes of hill S of Atigun River 2, 68°26'50"N/149°21'35"W, c. 850 m s. m., arctic tundra over Mississippian limestone, on low outcrops of limestone, 2010, J. Hafellner 79813 (GZU); Brooks Range, Philip Smith Mountains, E of Galbraith Lake, W-facing slopes of hill S of Atigun River 2, 68°26'50"N/149°21'10"W, c. 900 m s. m., inclined banks of siliceous rocks with variable content of calcium in arctic tundra, on inclined rock faces, 2010, J. Hafellner 79841 (GZU, ALA).

Protoparmelia atriseda (Fr.) R.Sant. & V.Wirth – *Protoparmelia atriseda* shows a preference for habitats with an oceanic microclimate. It is so far only recorded from several countries in Europe and Asia, including Norway (Svalbard), and Russia (the Altai mountains in Siberia). POELT & LEUCKERT (1991) in their monograph of the species group did not see any specimens from North America. The only two previous North American records are from Arizona (RYAN et al. 2004).

Specimens examined: Fairbanks-North Star Borough, Eagle Summit, just E of summit on ridge, 65°29'16.72"N/145°23'21.23"W, saxicolous, parasitic on *Aspicilia* sp., 1170 m, 2011, T. Spribille & F. Fernández-Mendoza s.n. (GZU, herb. Wheeler; TLC: norstictic acid); Gates of the Arctic National Park and Preserve, Summit Lake, 68.051203°N/150.541556°W, saxicolous on quartzite, parasitic on *Lecidea* sp. and *Rhizocarpon*, 1360 m, T. Wheeler s.n. (herb. Wheeler; K+ red needles in section).

Protoparmelia cupreobadia (Nyl.) Poelt – The species was so far known in North America from few high altitude localities in Colorado (POELT & LEUCKERT 1991) and Arizona (RYAN et al. 2004), and in the east, from Maine (HINDS et al. 2010) and New Hampshire (FRYDAY 2010).

Specimen examined: Along James Dalton Highway (Alaska Hwy 11), Finger Mountain, 66°21'30"N/150°27'50"W, c. 730 m s. m., heads of granitic rock (tors) in subarctic-alpine vegetation, on inclined rock faces, 2010, J. Hafellner 79773 (GZU; TLC: norstictic acid, fatty acid).

Pseudocyphellaria perpetua McCune & Miadl. – This species, described from Oregon and Washington by MIADLIKOWSKA et al. (2002), has since been found to be common in the Russian Far East. It is thus not surprising that it has also been found in Alaska. It appears to be more common in humid spruce-birch forests of south-central Alaska (the Matanuska-Susitna region, southern Denali Park) than coastal rainforests, where it is largely replaced by *P. crocata*. Subsequent visits to the Chena River locality, in the Tanana Uplands of interior Alaska, have failed to relocate *P. perpetua* but were successful in finding further populations of *Sticta limbata* (Sm.) Ach. (see sections “confirmations and noteworthy range extensions”) and other humidity-loving species rare in interior Alaska.

Specimens examined: Big Delta Quadrangle: Chena River Valley, Chena R., Chena Hot Springs Road c. 70 km NE of Fairbanks, white spruce/black spruce stand LAV #TSS, 64°53'N/146°43'W, on bark of leaning *Picea mariana*, 1994, L. A. Viereck 11125 (ALA-L16858, det. T. Spribille Aug. 2008; mixed with *Sticta limbata*); Alexander Archipelago, DeLong Island, Foggy Bay, 54.97030°N/131.0029°W, on branches of *Picea sitchensis* at beach, K. L. Dillman 2001-313 (TNFS); Clarence Str., Blashke Isl., 56.13457°N/132.92372°W, on twigs of *Tsuga heterophylla* at beach, K. L. Dillman 2008-618 (TNFS); Alaska Peninsula, Naknek Lake, Dumpling Mt., 58.5686°N/155.7937°W, on *Betula* in forest, K. L. Dillman 2005-188 (TNFS).

Psora vallesiaca (Schaer.) Timdal – A rare species on calcareous soil reported from Europe, Greenland (KRISTINSSON et al. 2010), North America and Asia (TIMDAL & ZHURBENKO 2004).

Specimen examined: 330 km NNW Fairbanks, W slope of Sukakpak Mtn, 1 km E of Dalton highway at mile 203.5, 67°38'N/149°45'W, 550–900 m, on calcareous schist, 1989, G. Thor 8886 (S, det. E. Timdal 1990).

Ramalina subleptocarpa Rundel & Bowler – Described from California, this species was previously known from as far north as Haida Gwaii (RUNDEL & BOWLER 1976).

Specimens examined: Alexander Archipelago, DeLong Island, Foggy Bay, 54.96883°N/131.00212°W, on twigs of *Picea sitchensis* at beach, K. L. Dillman 2003-336 (TNFS), Kodiak Island Archipelago, Afognak Island, Blue Fox Bay, 58.42514°N/152.72275°W, on *Picea sitchensis* at beach, K. L. Dillman 2008-322 (ALA).

Rhizoplaca subdiscrepans (Nyl.) R.Sant. – A widespread species in eastern North America and the southern Rocky Mountains (BRODO et al. 2001: map and photo) also reported from northern Wyoming (WETMORE 2009), but until now not reported from northwestern North America.

Specimen examined: Along James Dalton Highway (Alaska Hwy 11), Finger Mountain, 66°21'30"N/150°27'50"W, c. 730 m s. m., heads of granitic rock (tors) in subarctic-alpine vegetation, on inclined rock faces, 2010, J. Hafellner 79776 (GZU).

Rinodina polyspora Th.Fr. – Recently treated for North America by SHEARD (2010) who for the western parts recorded specimens as far north as British Columbia. The following specimen was erroneously reported by SHEARD (2010: 184) under *R. sheardii* (J. Sheard, pers. comm.).

Specimen examined: Haines Borough, NW of Haines, E of Chilkat River, along Haines Hwy (Hwy 7), just S of Katkwaahltu, 59°22.21'N/135°49.89'W, 30–40 m, corticolous on *Alnus viridis*, 2003, T. Tønberg 33052 (BG; det J.W. Sheard 2004).

#*Sphaerellothecium parmeliae* Diederich & Etayo – Previously known from Europe, Siberia and California (DIEDERICH 2003).

Specimen examined: Along James Dalton Highway (Alaska Hwy 11), Finger Mountain, 66°21'30"N/150°27'50"W, alt. c. 730 m s. m., heads of granitic rock (tors) in subarctic-alpine vegetation, on inclined rock faces, on *Parmelia omphalodes* (thallus), 2010, J. Hafellner 79780 (GZU).

#*Stigmidium pumilum* (Lettau) Matzer & Hafellner – *Stigmidium pumilum* is an obligate lichenicolous ascomycete of various *Physcia* species, most frequently recorded on *P. caesia* and *P. dubia*. It was reported as new to North America from Minnesota by COLE & HAWKSWORTH (2001), who also provided illustrations.

Specimen examined: Brooks Range, Endicott Mountains, Sukakpak Mountain, foothills on the W side, 67°35'35"N/149°46'00"W, c. 580 m s. m., boulders of calcareous sandstone in open boreal forest, on *Physcia caesia* (thallus), 2010, J. Hafellner 79937 (GZU, ALA).

#*Stigmidium tabacinae* (Arnold) Triebel – *Stigmidium tabacinae* is lichenicolous on *Toninia*, in North America mostly on *T. tristis* (syn. *Psora tabacina* DC.). It was described from central Europe and first reported from North America from Arizona and New Mexico by TRIEBEL et al. (1991).

Specimens examined: Brooks Range, Philip Smith Mountains, E of Galbraith Lake, W-facing slopes of hill S of Atigun River 2, 68°26'50"N/149°21'35"W, c. 850 m s. m., arctic tundra over Mississippian limestone, on soil over low outcrops of limestone, on *Toninia tristis* agg. (thallus), 2010, J. Hafellner 79839 (GZU); Brooks Range, Endicott Mountains, Sukakpak Mountain, foothills on the W side, 67°35'35"N/149°46'00"W, alt. c. 580 m s. m., boulders of calcareous sandstone in open boreal forest, on soil, on *Toninia tristis* (thallus), 2010, J. Hafellner 79938 (GZU).

Thelocarpon impressellum Nyl. – This species has been reported from various countries in central and northern Europe (SALISBURY 1966, as *Ahlesia impressella*) and was recently reported as new to Asia and the Arctic by ZHURBENKO (2009a). New to North America.

Specimen examined: Brooks Range, Endicott Mountains, Midnight Dome, lowermost NE-facing slope above secondary dirt road at entrance of valley of Hammond River, 67°28'50"N/150°02'40"W, c. 420 m s. m., on mineral soil at edge of secondary dirt road, 2010, J. Hafellner 79798 (GZU, ALA).

Thelopsis melathelia Nyl. – A species occurring on living or dead mosses and on plant debris which is reported from Europe, North America and Asia (Taimyr, Novosibirskie Islands and Chukotka, KRISTINSSON et al. 2010).

Specimens examined: 330 km NNW Fairbanks, W slope of Sukakpak Mtn, 1 km E of Dalton highway at mile 203.5, 67°38'N/149°45'W, alt. 550–900 m, on calcareous schist, 1989, G. Thor 8902, 8920 & 8923 (S).

Toninia tristis (Th.Fr.) Th.Fr. subsp. *scholanderi* (Lyngé) Timdal – TIMDAL (1992) reported this taxon from a wide variety of sites across the northern hemisphere, including, in western North America, from Alberta and Colorado.

Specimen examined: Alexander Archipelago, Coronation Island, 55.92187°N/134.32660°W, muscicolous over limestone rock above high tide, K. L. Dillman 2009-217 (TNFS, det. C. R. Björk).

Usnea cylindrica P.Clerc – This species was recently described from Finland, Norway and Sweden (CLERC 2011) and is similar to *U. dasypoga* (Ach.) Nyl. in possessing a thickened central chord and thin medulla, but differs in having filamentose ramifications of long, parallel, cylindrical branches (as opposed to dichotomous branching). New to North America.

Specimens examined: Alexander Archipelago, Coronation Island, Nation Point outside Egg Harbor, beach forest, K. L. Dillman 2009-225 (TNFS, as *U. chaetophora*); Craig Cemetery Island, on *Menziesia ferruginea*, K. L. Dillman 2009-262 (TNFS, as *U. cavernosa*); *ibid.*, Misty Fiords Wilderness, Kanagunut Island, Lincoln Channel, on *Menziesia ferruginea*, K. L. Dillman 2003-426 (TNFS, as *U. chaetophora*); southeast Alaskan mainland, Stikine River flats, S end of Gut Island, on *Picea sitchensis*, 2004, L. Geiser s.n. (TNFS, as *U. scabrata*).

Usnea glabrescens (Nyl. ex Vain.) var. *fulvorangeans* Räsänen – This appears to be a rare taxon in Alaska and was found only once in the reviewed material. CLERC (2011) can be consulted for a detailed description.

Specimen examined: Southeast Alaskan Mainland, Chilkat Peninsula, Excursion Inlet, Homeshore Creek, on *Picea sitchensis*, K. L. Dillman 2002-1198 (TNFS, as *U. fragileszens*).

Usnea pacificana Halonen – Previously reported from Oregon, Washington State and British Columbia (HALONEN 2000).

Specimens examined: Alexander Archipelago, Baranof Island Sitka, Sitka National Historical Park, W side of Indian River, on small spruce, 2005, K. LaBounty s.n. (TNFS); *ibid.*, Gravina Isl., Dall Bay, on *Picea sitchensis*, K. L. Dillman 2003-222 (TNFS, as *U. madeirensis*); *ibid.*, Kruzof Island, Sitka Sound, almost directly across from St. Lazaria Island, on *Picea sitchensis*, K. L. Dillman 2010-14 (TNFS); *ibid.*, Kuiu Island, Kell Bay, N shore, on *Tsuga heterophylla*, K. L. Dillman 2003-992 (TNFS, as *U. madeirensis*); *ibid.*, Kuiu Island, Sorefinger Bay, on alder twigs, 1949, W. J. Eyerdam s.n. (ASU, as *U. ceratina*); *ibid.*, Misty Fiords Wilderness, DeLong Island, entrance of Foggy Bay, on *Picea sitchensis*, K. L. Dillman 2003-315 (TNFS, as *U. filipendula*, with *U. dasypoga*).

Verrucaria bryoctona (Th.Fr.) Orange – A terricolous species on basic soil and dead mosses. The small perithecia, 0.1–0.3 mm in diameter, are easily overlooked. It has been reported from Europe and southeastern North America (BREUSS 2002).

Specimen examined: 330 km NNW Fairbanks, W slope of Sukakpak Mtn, 1 km E of Dalton highway at mile 203.5, 67°38'N/149°45'W, 550–900 m, on calcareous schist, 1989, G. Thor 9004 (S).

Confirmations and noteworthy range extensions

Here we report specimens that constitute range extensions or additional records of rarely reported species within Alaska. We restrict our reports to cases where records either a) confirm the presence of a species in Alaska (e.g., vouchers of important species that have been casually reported from Alaska in treatments without any specific specimen reports to date), or b) so significantly extend the range of a species in Alaska that this warrants documentation.

#*Bachmanniomyces uncialicola* (Zopf) D.Hawksw. – From Alaska so far only recorded from two localities by ZHURBENKO & ALSTRUP (2004).

Specimen examined: Brooks Range, Endicott Mountains, Midnight Dome, lowermost NE-facing slope above secondary dirt road at entrance of valley of Hammond River, 67°28'50"N/150°02'40"W, c. 420 m s. m., moss-covered boulder-bed in stand of *Betula nealaskana*, over plant remnants and bryophytes on *Cladonia uncialis* (podetia), 2010, J. Hafellner 79918 (GZU).

Biatora helvola Körb. ex Hellb. – *Biatora helvola* is a mainly Eurasian species excluded from the lichen biota of North America by PRINTZEN & TØNSBERG (1999) but later verified based on fresh specimens by SPRIBILLE et al. (2010). We report here the second recent record for North America.

Specimen examined: Borough of Juneau, trail from Juneau to Gastineau Peak along Gold Creek, N of Mt. Maria, 58°18'27"N/134°24'15"W, c. 80 m, bark of *Sorbus aucuparia*, 1999, C. Printzen 5100a (FR, with *B. toensbergii*).

***Buellia griseovirens* (Sm.) Almb.** – A common species on *Alnus*, *Betula*, *Populus*, *Salix*, and *Picea sitchensis*, also lignicolous on driftwood; known from coastal British Columbia (NOBLE et al. 1987), but only once previously reported for Alaska, by SPRIBILLE et al. (2010). We provide records to vouch for its widespread occurrence in coastal and interior Alaska.

Selected specimens examined: City and Borough of Juneau, mainland NW of Juneau city, along Glacier Hwy, bank of Cowee Creek, 58°39.1'N/134°54.8'W, 10–20 m, on *Alnus rubra*, 1991, T. Tønsberg 16285 (BG); Douglas Island N, N of Douglas Hwy at Fish Cr., 58°19.8'N/134°35.6'W, 10 m, T. Tønsberg 16191a (BG); Kodiak Island Borough, Kodiak Island E, Kalsin Bay S, along the road 0.7 miles NE of Frank Cr., 0–10 m, corticolous on *Alnus*, T. Tønsberg 15421 (BG); Fairbanks-North Star Borough, Chena River State Recreation Area, Chena River near Granite Tors trailhead, 64°54.031'N/146°21.700'W, corticolous on *Alnus*, 296 m s. m., 2008, T. Spribille 27637 & C. Hampton-Miller (GZU); Valdez-Cordova Census Area, along Alaska Hwy. 1, 4.5 km NE of Gakona, just W of confluence of Copper and Sanford Rivers, 62°19.376'N/145°12.277'W, 568 m s. m., 2008, T. Spribille 29501 (GZU); Mile Marker 1338 Alaska Highway, W of Tok, 63°23.089'N/143°43.802'W, corticolous on *Salix*, 513 m s. m., 2008, T. Spribille 28872 (GZU, sub *Lecanora* sp.).

***Caloplaca flavovirescens* (Wulfen) Dalla Torre & Sarnth.** – Previously only recorded once for Alaska, without precise locality data, by THOMSON (1997).

Specimens examined: Brooks Range, Endicott Mountains, Midnight Dome, lowermost NE-facing slope above secondary dirt road at entrance of valley of Hammond River, 67°28'50"N/150°02'40"W, c. 420 m s. m., moss-covered boulder-bed in stand of *Betula neoalaskana*, on boulders of schist with locally low content of calcium, 2010, J. Hafellner 79802 (GZU); Brooks Range, Philip Smith Mountains, E of Galbraith Lake, W-facing slopes of hill S of Atigun River 2, 68°26'50"N/149°21'10"W, c. 900 m s. m., inclined banks of siliceous rocks with variable content of calcium in arctic tundra, 2010, J. Hafellner 79841 (GZU); Brooks Range, Endicott Mountains, Sukakpak Mountain, foothills on the W side, 67°35'35"N/149°46'00"W, c. 580 m s. m., boulders of calcareous sandstone in open boreal forest, 2010, J. Hafellner 79931 (GZU).

***Caloplaca nivalis* (Körb.) Th.Fr.** – Only one recent record from the Chilkoot Trail by SPRIBILLE et al. (2010).

Specimens examined: 240 km ESE Anchorage, c. 3.5 km NE Cordova, the top of Mt. Eyak, 60°34'N/145°42'W, 760 m, on exposed rocks, 1989, G. Thor 8620 (UPS, det. U. Arup); Brooks Range, Philip Smith Mountains, Atigun Pass, gentle slopes E above the James Dalton Highway (Alaska Hwy 11), 68°07'45"N/149°28'40"W, c. 1450 m s. m., arctic-alpine tundra with snow bed in boulder field, on plant remnants, 2010, J. Hafellner 79848 (GZU).

#*Cercidospora epipolytropa* (Mudd) Arnold – Second record from Alaska. Previously recorded only from White Pass by SPRIBILLE et al. (2010).

Specimen examined: Brooks Range, Philip Smith Mountains, Atigun Pass, gentle slopes E above the James Dalton Highway (Alaska Hwy 11), 68°07'45"N/149°28'40"W, c. 1450 m s. m., arctic-alpine tundra with boulder strips of siliceous sandstone, on boulders, on *Lecanora polytropa* (thallus, apothecia), 2010, J. Hafellner 79869 (GZU).

***Chrysothrix chlorina* (Ach.) J.R.Laundon** – Second record from Alaska, the previous record having come from the Skagway area (SPRIBILLE et al. 2010).

Specimens examined: 210 km NW Fairbanks, 25–150 m E and W Dalton highway at mile 98.2, 66°29'N/150°40'W, 610 m, on exposed rocks in alpine heath, 1989, G. Thor 9069 (S); Alaska Peninsula, Tuxedni River, 60.30128°N/152.99791°W, on rock under granite overhang, K. L. Dillman 2003-1216 (TNFS, det. C. R. Björk) and K. L. Dillman 2003-1230 (TNFS, det. K. Glew).

***Cladonia farinacea* (Vain.) A.Evans** – In North America, this is a northeastern species (BRODO et al. 2001), rarely recorded from the west. Earlier only reported from Kotzebue (KROG 1968). However, being widespread in the Russian Far East, including Kamchatka and also present in Greenland (HANSEN & AHTI 2011), it is expected to be found in further localities in western Alaska. It is distinguished from *C. scabriuscula* by having distinctly farinose sorediate patches and lacking podetial squamules; it actually more closely resembles *C. cornuta* but tends to be branched once or twice. One more locality is reported here.

Specimen examined: Survey Pass Quad., Gates of the Arctic National Park, NW side of Walker Lake, 200–300 m, 67°11'N/154°31'W, *Picea glauca*–*Alnus viridis* forest, 1996, P. Neitlich & L. Hasselbach 1887 (ALA).

***Cladonia jacutica* Ahti** – This mainly Asian species was recorded as new to North America from Noatak Preserve by McCUNE et al. (2009); some new specimens have since been detected.

Specimens examined: Bendeleben Quad., Seward Peninsula, Quartz Creek camp, 60 m, 1992, M. Andreev 922211 (ALA); Survey Pass Quad., Upper Read River, 7 km S of Angiak Pass, 850 m, 67°24'N/155°03'W, 1997, P. Neitlich & L. Hasselbach 2205c (ALA).

Cladonia nitens Ahti – This primarily Asian species was recorded as new to North America by AHTI (2007) from Bering Land Bridge National Preserve and it was also reported from Noatak Preserve by McCUNE et al. (2009).

Specimens examined: Seward Pen., King Mtn., 300–1000 ft., 1957, H. Krog 4376 (ALA), 1 mi. SW of Lava Lake, Lost Jim Lava Flow, 365 ft., 1973, C. H. Racine 207, 613 (ALA), *ibid.*, 122–183 m, 1992, M. Andreev 921825 (ALA); Fielding Lake, 3100–3960 ft., 63°12'N/145°40'W, 1967, J. W. Thomson 20572 & T. Ahti, J. W. Thomson 20586 & T. Ahti (ALA, as *C. subcervicornis*); Anaktuvuk Pass, 2300 ft., 68°08'N/151°45'W, 1976, T. Moser & T. Nash 13143 (ALA, as *C. lepidota*).

Cladonia pseudalcicornis Asahina – Previously reported in Alaska from Prince William Sound (AHTI 2007). See also note under “corrections to the lichens of the Klondike” (below).

Specimen examined: Kodiak Island Archipelago, Afognak Island, Blue Fox Bay, 58.40869°N/152.69269°W, humus in boggy area, K. L. Dillman 2008-166 (ALA, det. T. Ahti).

Cladonia uliginosa (Ahti) Ahti – A mainly Asian species. In addition to the very few earlier Alaska records (AHTI 1998, McCUNE et al. 2009) the following specimens were noted.

Specimens examined: 6 mi NW of Nome, Shake River, 50 ft. elev., 1966, R. Pegau 78 (ALA); Survey Pass Quad., Gates of the Arctic NP, Reed River, 3–18 km N of Akurekvik Pass, 450–600 m, 1997, P. Neitlich & L. Hasselbach 2176b (ALA); Cantwell, Broad Pass, 2200–3500 ft., 1926, A. E. Porsild & R. T. Porsild 26, 43, 45 (CANL).

Coenogonium pineti (Ach.) Lücking & Lumbsch – This common boreal species of tree bases was surprisingly not reported from Alaska until SPRIBILLE et al. (2010) found it in Klondike Gold Rush National Historical Park. We confirm its presence in central Alaska with two specimens from the Alaska Range.

Specimens examined: Denali Borough, wetlands on W side of Chulitna River, 62°42.168'N/150°19.565'W, on *Betula nealaskana* scar, 250 m s. m., 2008, T. Spribille 27939 (ALA); *ibid.*, 62°49.220'N/150°07.173'W, corticolous on *Betula nealaskana* trunk, 312 m s. m., 2008, T. Spribille 28118 (ALA).

Collema flaccidum (Ach.) Ach. – Previously reported from Ogotoruk Creek drainage (DEGELIUS 1974, THOMSON 1984).

Specimen examined: Alexander Archipelago, St. Lazaria Island., 56.98664°N/135.71241°W, on basalt cliffs near gull perch, K. L. Dillman 2008-503 (TNFS, det. D. Stone).

Diplotomma nivale (Bagl. & Carestia) Hafellner – Previously known from the Pitmegea River (THOMSON 1979) and St. Paul Island (SCHINDLER 1990).

Specimen examined: Brooks Range, Philip Smith Mountains, E of Galbraith Lake, W-facing slopes of hill S of Atigun River 2, 68°26'50"N/149°21'10"W, c. 900 m s. m., inclined banks of siliceous rocks with variable content of calcium in arctic tundra, on subvertical rock faces, on *Xanthoria elegans* (thallus, apothecia), 2010, J. Hafellner 79845 (GZU, ALA).

Evernia prunastri (L.) Ach. – Previously reported from Stampede (HOWARD 1958), this common western temperate species known from California to British Columbia (BRODO et al. 2001) is surprisingly rare in Alaska.

Specimen examined: Alexander Archipelago, Revillagigedo Island, Mountain Pt., 55.2932°N/131.5392°W, on twig of *Picea sitchensis* at beach, K. L. Dillman 2002-18 (TNFS).

Flavocetraria minuscula (Elenkin & Savicz) Ahti, Poryadina & Zhurb.– This mainly Asian species, which is similar to *Flavocetraria cucullata* but is diminutive even when well developed, was first reported for Alaska by ZHURBENKO et al. (2005) from Denali National Park and the Chena River and appears to be widespread in interior Alaska. We report it from new locations farther east as well as new to Canada.

Specimens examined: Canada. Northwest Territories. Nahanni National Park, by Virginia Falls, 61°36'N/125°43'W, alt. 450–500 m, in mesic spruce woods, 1977, T. Ahti 31966 (H); *ibid.*, vic. Glacier (Brintnell) Lake, 62°05'N/127°35'W, bank of small stream, 4300 ft., 1939, L. C. Raup 3114 (FH, H, SASY). U.S.A. Alaska. Southeast Fairbanks Borough, along Alaska Hwy at mile marker 1249, 90 km ESE of Tok, near Deadman Lake Campground, 62°53.197'N/141°30.573'W, terricolous on sandy eskers, 560 m s. m., 2008, T. Spribille 29512, 29513, C. Printzen & C. Hampton-Miller (GZU); *ibid.*, near Delta Junction, Gerstle River, c. 4 km N of State Hwy.

2 along gravel road, 63°50'44.78"N/144°53'13.38"W, terricolous on sandy soils in open conifer woodland, elev. 380 m s. m., 2010, T. Spribille, F. Fernández-Mendoza & K. Gobroski s.n. (GZU).

#*Graphium aphthosae* Alstrup & D.Hawksw. – A hyphomycetous fungus with conidiophores borne on distinctive short synnemata. Third record from Alaska.

Specimen examined: Brooks Range, Endicott Mountains, Midnight Dome, lowermost NE-facing slope above secondary dirt road at entrance of valley of Hammond River, 67°28'50"N/150°02'40"W, c. 420 m s. m., moss-covered boulder-bed in stand of *Betula neoalaskana*, over plant remnants and bryophytes on *Peltigera* sp. (*aphthosa* group) (thallus), 2010, J. Hafellner 79913 (GZU).

Lecanora bicincta Ramond – Second record from Alaska. Previously only recorded from White Pass by SPRIBILLE et al. (2010) but possibly not distinguished from *Lecanora rupicola* by other authors publishing on Alaskan lichens.

Specimen examined: Along James Dalton Highway (Alaska Hwy 11), Finger Mountain, 66°21'30"N/150°27'50"W, c. 730 m s. m., heads of granitic rock (tors) in subarctic-alpine vegetation, on subvertical rock faces, 2010, J. Hafellner 79782 (GZU).

Lecanora cavicola Creveld – Second record from Alaska. Previously only recorded from White Pass by SPRIBILLE et al. (2010).

Specimen examined: Along James Dalton Highway (Alaska Hwy 11), Finger Mountain, 66°21'30"N/150°27'50"W, c. 730 m s. m., heads of granitic rock (tors) in subarctic-alpine vegetation, on overhanging rock faces, 2010, J. Hafellner 79787 (GZU).

Lecanora cenisia Ach. – Second record from Alaska. So far only one historical record from St. Lawrence Island by NYLANDER (1887, as *Lecanora atrynea* f. *cenisea*; specimen H-NYL 27104 seen by TA).

Specimen examined: Brooks Range, Endicott Mountains, Midnight Dome, lowermost NE-facing slope above secondary dirt road at entrance of valley of Hammond River, 67°28'50"N/150°02'40"W, c. 420 m s. m., moss-covered boulder-bed in stand of *Betula neoalaskana*, on boulders of schist with locally low content of calcium, 2010, J. Hafellner 79804 (GZU).

Lecanora leptacinella Nyl. – This is a distinctive muscicolous species described from Finland containing alectorialic (C+ pink) and barbatolic acid in the thallus and with a *Lecidella*-type ascus (described in detail and illustrated by OBERMAYER & POELT 1994, who also report specimens from Austria and Sweden). The specimen reported here represents the third and southernmost known site in Alaska; the previous records were from ZHURBENKO et al. (1995) and ZHURBENKO (2009b).

Specimen examined: Brooks Range, Endicott Mountains, Midnight Dome, lowermost NE-facing slope above secondary dirt road at entrance of valley of Hammond River, 67°28'50"N/150°02'40"W, c. 420 m s. m., moss-covered boulder-bed in stand of *Betula neoalaskana*, on *Polytrichum* sp. over boulders of schist with locally low content of calcium, 2010, J. Hafellner 79791 (GZU, ALA).

Lecanora swartzii (Ach.) Ach. – Second record from Alaska. So far only one historical record by NYLANDER (1885, as *L. subradiosa*).

Specimen examined: Along James Dalton Highway (Alaska Hwy 11), Finger Mountain, 66°21'30"N/150°27'50"W, c. 730 m s. m., heads of granitic rock (tors) in subarctic-alpine vegetation, on overhanging rock faces, 2010, J. Hafellner 79788 (GZU).

#*Lichenonium pyxidatæ* (Oudem.) Petr. & Syd. – Second record from Alaska. Previously recorded only from Prudhoe Bay by ZHURBENKO & ALSTRUP (2004).

Specimens examined: Brooks Range, Endicott Mountains, Midnight Dome, lowermost NE-facing slope above secondary dirt road at entrance of valley of Hammond River, 67°28'50"N/150°02'40"W, c. 420 m s. m., moss-covered boulder-bed in stand of *Betula neoalaskana*, over plant remnants and bryophytes on *Cladonia chlorophaea* agg. (podetia), 2010, J. Hafellner 79914 (GZU).

Loxospora elatina (Ach.) A.Massal. – This common boreal species, which in western North America is primarily coastal, was previously reported from Alaska only from the Chilkoot Trail (SPRIBILLE et al. 2010). It is widespread in coastal southern Alaska.

Selected specimens examined: Alexander Archipelago, Mitkof Island W, S of Petersburg, between Mitkof Hwy and Blind Slough SE, NW of Blind Slough River bridge, 56°36.9'N/132°49.2'W, 0–10 m, corticolous on trunk of *Tsuga heterophylla*, 2001, T. Tønberg 30222 (BG); 56°36.9'N/132°49.4'W, 0–5 m, corticolous on trunk of *Alnus rubra* in swamp with *Lysichiton americanum* on bank of slough, 2001, T. Tønberg 30352 (BG). City and Borough

of Juneau, along Glacier Hwy, just N of Herbert River, 58°31.5'N/134°47.8'W, 10 m, corticolous on *Alnus rubra* in a humid, mixed deciduous forest with *Alnus* and *Salix*, 1999, T. Tønsberg 27640 (BG); Haines Borough, NW of Haines, Chilkat Peninsula, along and E of the main road to Chilkat State Park, at Mount Riley Trail trailhead, 59°11.78'N/135°25.22'W, 60–70 m, corticolous on *Picea*, 2003, T. Tønsberg 33201 (BG). Cordova, between Copper River Hwy and Euak River, near Eyak boat launch, 60°31.8'N/145°38.3'W, 10–20 m, corticolous on the underside of leaning trunk of *Picea sitchensis*, 2001, T. Tønsberg 29818 (BG). Kodiak Island Borough, Kodiak Island, Ft. Abercrombie State Historic Park, NE of Gjertrude Lake, 57°50'N/152°21'W, 0–10 m, corticolous on ± mossy trunk of *Picea sitchensis*, 1991, T. Tønsberg 15527 (BG); S of Isthmus Bay, bank of Roslyn Cr., 57°37'N/152°19.4'W, 0–10 m, on *Picea sitchensis*, trunk, 1991, T. Tønsberg 15479a (BG).

#*Muellerella lichenicola* (Sommerf.: Fr.) D.Hawksw. – Second and third records from Alaska, and probably common. Previously recorded only from Caribou-Poker Creeks Research Watershed north of Fairbanks on *Lecanora pulicaris* by ZHURBENKO & LAURSEN (2003).

Specimens examined: Brooks Range, Endicott Mountains, Midnight Dome, lowermost NE-facing slope above secondary dirt road at entrance of valley of Hammond River, 67°28'50"N/150°02'40"W, c. 420 m s. m., moss-covered boulder-bed in stand of *Betula neoalaskana*, on boulders of schist with locally low content of calcium, on *Caloplaca flavovirescens* (ap.), 2010, J. Hafellner 79808 (GZU); Brooks Range, Endicott Mountains, Sukakpak Mountain, foothills on the W side, 67°35'35"N/149°46'00"W, c. 580 m s. m., boulders of calcareous sandstone in open boreal forest, on *Caloplaca flavovirescens* (thallus, apothecia), 2010, J. Hafellner 79939 (GZU, ALA).

Parmotrema crinitum (Ach.) M.Choisy – Previously reported from Alaska only from Seldovia on the Kenai Peninsula (HEDRICK 1936, as *Parmelia perlata* var. *ciliata*), a location over 1400 km NW of the nearest verified locality on the outer coast of Haida Gwaii in British Columbia (GOWARD et al. 1994). The present report confirms the species for Alaska.

Specimen examined: Alexander Archipelago, DeLong Isl., Foggy Bay, 54.96883°N/31.00212°W, on branch of *Picea sitchensis* at beach, K. L. Dillman 2003-339 (TNFS).

Peltigera evansiana Gyeln. – This distinctive species was only recently reported as new to Alaska, from the Kenai Peninsula (WATERS 2011). It appears to be infrequent but widespread in nutrient-rich stands of boreal forest.

Specimens examined: Fairbanks-North Star Borough, Chena River State Recreation Area, along Chena River, 64°53.385'N/146°41.764'W, lignicolous on a fallen log, 215 m s. m., 2008, T. Spribille 27468 (GZU); *ibid.*, near Granite Tors trailhead, 64°54.031'N/146°21.700'W, on fallen spruce log, 296 m, 2008, T. Spribille 27633 (GZU); Matanuska-Susitna Borough, Talkeetna, confluence of Susitna River and Talkeetna River, on W end of railroad bridge, 62°19.595'N/150°07.250'W, over suspended mossy log in alluvial *Populus balsamifera* forest, 134 m s. m., 2010, T. Spribille s.n. (GZU).

Peltigera gowardii Lendemer & O'Brien – This is a recent segregate of *Peltigera hydrothyria* (syn. *Hydrothyria venosa*) found in western North America. The present reports bridge the large gap between the previously reported northernmost locality, in Denali Park, and the type locality in south-central British Columbia (LENDEMER & O'BRIEN 2011).

Specimens examined: Southeast Alaskan Mainland, Thunder Mountain, 56.82168°N/132.59229°W, 600 m, on rocks in alpine stream, 2005, L. Geiser s.n. (TNFS, det. L. Geiser); Alexander Archipelago, Kupreanof Island, 56.91670°N/133.25000°W, 160 m, rocks in snowfed stream, K. L. Dillman 1227 (TNFS; det. B. Ryan as *Hydrothyria venosa* in 1997).

Physcia alnophila (Vain.) Loht. et al. [syn. *Physcia aipolia* (Ehrh.) Ach. var. *alnophila* (Vain.) Lyngje] – A boreal species on smooth bark of deciduous trees, reported from Europe, Asia and North America. The species has been overlooked until recently and is probably common. THOMSON & AHTI (1994) noted that probably all their material of *P. aipolia* belongs to var. *alnophila*.

Specimen examined: 230 km NW Fairbanks, 25–150 m E of Dalton highway at mile 114, at Fish Creek, 66°32'N/150°46'W, 260 m, on *Populus* sp. in dense mixed deciduous/coniferous forest, 1989, G. Thor 9045 (S).

#*Plectocarpon cladoniae* R.Sant. – Second and third records from Alaska. Previously recorded from only two localities in the Klondike Gold Rush National Historic Park by SPRIBILLE et al. (2010).

Specimens examined: Brooks Range, Endicott Mountains, Midnight Dome, lowermost NE-facing slope above secondary dirt road at entrance of valley of Hammond River, 67°28'50"N/150°02'40"W, c. 420 m s. m., moss-covered boulder-bed in stand of *Betula neoalaskana*, over plant remnants and bryophytes on *Cladonia pyxidata* agg. (squamules and podetia), 2010, J. Hafellner 79800 (GZU); Denali Borough, Alaska Range, 9.6 air km NE

of Cantwell, base of Panorama Mountain, 63°27'55"N/148°48'05"W, c. 680 m s. m., south-facing boulder scree of paleozoic greenstone between patches of *Almus* sp., on plant remnants and mosses, on *Cladonia* sp., 2010, J. Hafellner 79966 (GZU).

Psoroglaena biatoretella (Arnold) Lücking – Second record from Alaska. Previously only recorded from Noatak National Preserve by McCUNE et al. (2009, as *Leucocarpia b.*).

Specimen examined: Brooks Range, Endicott Mountains, S below Atigun Pass, N of Chandalar Station, E-facing slopes W above the James Dalton Highway (Alaska Hwy 11), 68°06'30"N/149°32'15"W, c. 1120 m s. m., dwarf shrub tundra with low outcrops of siliceous schist, on plant remnants, 2010, J. Hafellner 79904 (GZU).

Pycnothelia papillaria (Ehrh.) Dufour – First reported from Alaska from St. Paul Island [MACOUN 1899, as *Cladonia papillaria* (Ehrh.) Hoffm.], this record has been considered “a dubious report as it is only known from eastern North America and Europe” (THOMSON 1984) and because of the chronic unreliability of locality reports in the publications of John Macoun. The species was however later reported from Alaska by ZHURBENKO et al. (2005) from two additional localities. The records reported here, including one from the known glacial refugium Coronation Island in southeastern Alaska, confirm the presence of this species and begin to paint a picture of an enigmatic distribution that should be examined in light of Beringian distributional elements.

Specimens examined: Alexander Archipelago, Coronation Island, Egg Harbor, 55.90342°N/34.31589°W, muscicolous over limestone rocks at beach, K. L. Dillman 2005-175 (TNFS); Steese Highway, hilltop W of Eagle Summit parking area, 65.48241°N/145.42496°W, on soil in sparse alpine tundra, 1207 m, 2011, R. Rosentreter 17338 & B. McCune (H, Herb. Rosentreter).

Ramalina obtusata (Arnold) Bitter – Previously reported in KROG (1968) from Eagle River and the Kenai Peninsula.

Specimen examined: Alexander Archipelago, Cleveland Peninsula, Lake McDonald, 55.97400°N/131.83730°W, on rock at lake edge, K. L. Dillman 2000-120 (TNFS).

Ramalina scoparia Vain. – The mainly Eurasian species was previously reported in Alaska only from the western islands (e.g., KROG 1968); our records extends this considerably southwards and eastwards.

Specimen examined: Alexander Archipelago, St. Lazaria Island, 56.98664°N/135.71241°W, on basalt outcrops near gull nests, K. L. Dillman 2008-510 (TNFS).

#*Rhymbocarpus neglectus* (Vain.) Diederich & Etayo – Second record from Alaska. Previously recorded only from White Pass by SPRIBILLE et al. (2010).

Specimen examined: Brooks Range, Philip Smith Mountains, Atigun Pass, gentle slopes E above the James Dalton Highway (Alaska Hwy 11), 68°07'45"N/149°28'40"W, c. 1450 m s. m., arctic-alpine tundra with snow bed in boulder field, on soil, on *Lepraria neglecta* agg. (thallus), 2010, J. Hafellner 79859 (GZU).

Schaereria brunnea Björk, T. Sprib. & T.B. Wheeler – A distinctive species described by SPRIBILLE et al. (2009) from rainforests in British Columbia and recently found in southeastern Alaska by SPRIBILLE et al. (2010), until now only known from *Tsuga heterophylla* twigs. The collection reported here, 875 km NW of the nearest known locality, also extends the species to another substrate (*Picea*) and a much different forest type (*Betula neolaskana*-*Picea glauca*) than known for the species until now.

Specimen examined: Denali Borough, wetlands on W side of Chulitna River and c. 4 km E of mouth of Ruth Glacier, 62°42.251'N/150°19.573'W, corticolous on *Picea* twigs, 222 m s. m., 2008, T. Spribille 28043 (ALA).

Schaereria parasemella (Nyl.) Lumbsch – This is a common lichen of wood and conifer bark in western North America (see SPRIBILLE et al. 2009) and was long believed to be lichenicolous based on the ecology of the type specimen (lichenicolous on *Biatora subduplex*). It appears to establish on other lichens but quickly develops an autonomous thallus. Previously known from only a single record in Alaska, from the Okpilak Valley, on the north slope of the Brooks Range (COPPINS 1981) and otherwise from Asia and Europe.

Specimen examined: Kenai Peninsula, Russian River, 60°28.970'N/149°56.631'W, lignicolous on log, 133 m s. m., 2008, T. Spribille 27356 (GZU).

Sticta limbata (Sm.) Ach. – This species is generally thought to be restricted to coastal rainforest regions in western North America and inland localities are rare. Here we report a major range extension of *S. limbata* into the interior Tanana Uplands of central Alaska.

Specimens examined: Big Delta Quadrangle: Chena River Valley, Chena River, Chena Hot Springs Road c. 70 km NE of Fairbanks, white spruce/black spruce stand LAV #TS5, 64°53'N/146°43'W, on bark of leaning *Picea mariana*, 1994, L. A. Viereck 11125 (ALA-L16858, det. T. Spribille 2008; mixed with *Pseudocyphellaria perpetua*); Fairbanks-North Star Borough, Chena River State Recreation Area, along Chena River, 64°54.383'N/146°32.438'W, corticolous/licnicolous on *Picea* branch, 219 m s. m., 2008, T. Spribille 27546 (GZU).

***Tetramelas pulverulentus* (Anzi) A.Nordin & Tibell** – This is an obligately lichenicolous lichen with endothalline thallus confined to foliose Physciaceae, usually *Physconia muscigena*. In Alaska, the species was previously known from only one locality in the northwest (HAFELLNER 1979).

Specimens examined: Brooks Range, Philip Smith Mountains, E of Galbraith Lake, W-facing slopes of hill S of Atigun River 2, 68°26'50"N/149°21'35"W, c. 850 m s. m., arctic tundra over Mississippian limestone, on plant remnants over low outcrops of limestone, on *Physconia muscigena* (thallus), 2010, J. Hafellner 79829 (GZU); Brooks Range, Endicott Mountains, Sukakpak Mountain, foothills on the W side, 67°35'35"N/149°46'00"W, c. 580 m s. m., boulders of calcareous sandstone in open boreal forest, on *Physconia muscigena* (thallus), 2010, J. Hafellner 79948 (GZU, ALA).

***Toninia verrucarioides* (Nyl.) Timdal** – From Alaska so far only recorded without precise locality data by TIMDAL (1992).

Specimens examined: 330 km NNW Fairbanks, W slope of Sukakpak Mtn, 1 km E of Dalton highway at mile 203.5, 67°38'N/149°45'W, 550–900 m, on calcareous rocks, 1989, G. Thor 9013 (S, det. E. Timdal); *ibid.*, on calcareous schist, 1989, G. Thor 9039 (S, det. E. Timdal); Brooks Range, Philip Smith Mountains, E of Galbraith Lake, W-facing slopes of hill S of Atigun River 2, 68°26'50"N/149°21'35"W, c. 850 m s. m., arctic tundra over Mississippian limestone, on low outcrops of limestone, on *Placynthium* sp. (thallus), 2010, J. Hafellner 79814 (GZU).

#*Tremella hypogymniae* Diederich & M.S.Christ. – Second record from Alaska. Previously recorded only from the surroundings of Haines by GEISER et al. (1998). *Hypogymnia bitteri* is reported as a host species for the first time.

Specimen examined: Brooks Range, Endicott Mountains, Midnight Dome, lowermost NE-facing slope above secondary dirt road at entrance of valley of Hammond River, 67°28'50"N/150°02'40"W, c. 420 m s. m., moss-covered boulder-bed in stand of *Betula neolaskana*, on dead wood (logs), on *Hypogymnia bitteri* (thallus), 2010, J. Hafellner 79926 (GZU).

***Usnea barbata* (L.) F.H.Wigg.** (syns. *U. chaetophora* sensu auct. p. p.; *U. scabrata* Nyl.; *U. scabiosa* Motyka; *U. prostrata* Vain. ex Räsänen; see CLERC 2011) – Previously reported in Alaska under *Usnea scabrata* Nyl. and *U. scabiosa* Motyka, the present records confirm its presence in Alaska.

Selected specimens examined: Alexander Archipelago, Admiralty Island, W shore of Seymour Canal, fallen on ground, M. C. Muller 4478 (TNFS, as *U. scabrata*); Coronation Island, Egg Harbor, on *Picea sitchensis*, K. L. Dillman 2003-925, 2003-922 (TNFS, as *U. chaetophora* and *U. filipendula*); Gravina Island, Dall Head, on *Thuja plicata*, K. L. Dillman 2003-182 (TNFS as *U. filipendula*); Kuiu Island, Kell Bay, on *Tsuga heterophylla*, K. L. Dillman 2003-1051 (TNFS, as *U. cornuta*); southeast Alaskan mainland, Juneau, Shrine of St. Therese, on *Picea sitchensis*, L. Geiser 6410 (TNFS, as *U. scabrata*); Maurelle Island Wilderness, San Lorenzo Island, on *Tsuga heterophylla*, 2009, K. L. Dillman s.n. (TNFS, as *U. scabrata*); Misty Fiords Wilderness, Kah Sheets Island, Boca de Quadra, on *Tsuga heterophylla*, K. L. Dillman 2003-459 (TNFS, as *U. chaetophora*); NNW of Skagway, N of Dyea, W of Taiya River, lignicolous on fence, T. Tønsberg 32929 (BG); Stikine River Flats, S end of Gut Island, on *Picea sitchensis*, 2004, K. L. Dillman s.n. (TNFS, as *U. scabrata*).

***Usnea cornuta* Körb.** – In Alaska, previously reported by GEISER et al. (1998). We confirm that specimen (leg. Derr) and report three additional, new records.

Selected specimens examined: Alexander Archipelago, West Stoney Island, Prince of Wales Island, on *Menziesia ferruginea*, C. Derr 3671 (TNFS, as *U. cf. cornuta*); *ibid.*, Coronation Island, Windy Bay, on *Tsuga heterophylla*, T. Tønsberg 32574 (BG); Gravina Island, Dall Head, on *Tsuga heterophylla*, K. L. Dillman 2003-184 (TNFS); Misty Fiords Wilderness, Kanagunut Island, on *Picea sitchensis*, K. L. Dillman 2003-349 (TNFS).

***Usnea dasypoga* (Ach.) Nyl.** (syns. *Usnea plicata* var. *dasypoga* Ach.; *U. chaetophora* Stirt.; *U. filipendula* Stirt.; *U. sublaxa* Vain. ex Motyka) – Confirmed here as probably the most common *Usnea* species in southeastern Alaska.

Selected specimens examined: Alexander Archipelago, Betton Island, Behm Canal, N of Clover Pass, on *Tsuga heterophylla*, K. L. Dillman 2002-1337 (TNFS, as *U. filipendula*); *ibid.*, Chichagof Island, S Arm of Hoonah Sound, Douglass Bay, on *Picea sitchensis*, K. L. Dillman 2002-1715 (TNFS, as *U. filipendula*); *ibid.*, Coronation

Island, Egg Harbor, on *Picea sitchensis*, K. L. Dillman 2003-923 (TNFS, as *U. madeirensis*); *ibid.*, Gravina Island, Dall Bay, on *Picea sitchensis*, K. L. Dillman 2003-244 (TNFS, as *U. filipendula*); *ibid.*, Kruzof Island, Sitka Sound, almost directly across from St. Lazaria Island, on *Picea sitchensis*, K. L. Dillman 2010-12 (TNFS); *ibid.*, Kuiu Island, Chatham Straits, Table Bay, on *Tsuga heterophylla*, K. L. Dillman 2003-961 (TNFS, as *U. chaetophora*); *ibid.*, Kupreanof Island, Frederick Sound, outside of Portage Bay, on *Alnus*, K. L. Dillman 2003-623 (TNFS, as *U. filipendula*); *ibid.*, Misty Fiords Wilderness, Kah Sheets Island, Boca de Quadra, on *Tsuga heterophylla*, K. L. Dillman 2003-458 (TNFS, as *U. filipendula*); *ibid.*, W Stoney Island, Prince of Wales Island, on *Menziesia ferruginea*, C. Derr 3670 (TNFS, as *U. chaetophora*); *ibid.*, Revillagigedo Island, Tongass Narrows, Mountain Point, on *Picea sitchensis*, K. L. Dillman 2002-1376 (TNFS, as *U. madeirensis*); *ibid.*, Mitkof Island W, S of Petersburg, on *Alnus rubra*, T. Tonsberg 30359 (BG); *ibid.*, Warren Island Wilderness, Warren Cove, on *Picea sitchensis*, 2005, L. Geiser, Ref. Plot 510, packet 31 (TNFS, as *U. filipendula*); Southeast Alaskan Mainland, Chilkat Peninsula, Excursion Inlet, Homeshore Creek, on *Picea sitchensis*, K. L. Dillman 2002-1158 (TNFS, as *U. fragileszens*, *U. diplotypus* morphotype); *ibid.*, Juneau, Shrine of St. Therese, on *Picea sitchensis*, L. Geiser 6412 (TNFS, as *U. chaetophora*).

Usnea flavocardia Räsänen (syn. *U. wirthii* P.Clerc) – Confirmed as a common species in southeastern Alaska where it has been previously reported by DILLMAN (2004).

Selected specimens examined: Alexander Archipelago, S shore of small island S of Brownson Island, on *Tsuga heterophylla*, K. L. Dillman 2003-632 (TNFS, as *U. cornuta*); *ibid.*, Coronation Island, Windy Bay, on *Alnus viridis*, K. L. Dillman 2003-803 (TNFS, as *U. cornuta*); *ibid.*, Gravina Island, Dall Bay, on *Picea sitchensis*, K. L. Dillman 2003-246 (TNFS, as *U. cornuta*); *ibid.*, Kruzof Island, Sitka Sound, almost directly across from St. Lazaria Island, on *Picea sitchensis*, K. L. Dillman 2010-12 (TNFS); *ibid.*, Misty Fiords Wilderness, Kah Sheets Island, Boca de Quadra, on *Menziesia ferruginea*, K. L. Dillman 2003-450 (TNFS, as *U. cornuta*); *ibid.*, Mitkof Island, Sumner Straits, Pt. Howe, S of Woodpecker Cove, on *Picea sitchensis*, K. L. Dillman 2003-636 (TNFS, as *U. longissima*); *ibid.*, Revillagigedo Island, Tongass Narrows, Mountain Point, on *Tsuga heterophylla*, K. L. Dillman 2002-1374 (TNFS as *U. fragileszens*); *ibid.*, Kuiu Island, Tebenkof Bay, on *Picea sitchensis*, K. L. Dillman 98-1375 (TNFS, as *U. cornuta*); *ibid.*, Warren Island, Warren Cove, on *Picea sitchensis*, 2005, L. Geiser, Ref. Plot 510, packet 31 (TNFS, as *U. glabrata*).

Usnea fragileszens Havaas ex Lynge – Previously reported in Alaska by GEISER et al. (1998) and DILLMAN (2004) and confirmed here. A quite frequent taxon in southeastern Alaska, represented by four chemotypes.

Selected specimens examined:

1. Stictic acid group chemotype: Alexander Archipelago, Baranof Island, approximately 6 miles S of Sitka, on *Picea sitchensis*, 2011, K. LaBounty s.n. (TNFS); *ibid.*, Chichagof Island, Leo's Anchorage, on *Picea sitchensis*, 2010, K. La Bounty s.n. (TNFS); *ibid.*, Coronation Island, China Cove, K. L. Dillman 2003-755 (TNFS, as *U. cornuta*); *ibid.*, Gravina Island, Dall Head, on *Thuja plicata*, K. L. Dillman 2003-199 (TNFS, as *U. cornuta*); *ibid.*, Kuiu Island, Chatham Straits, Table Bay, on *Tsuga heterophylla*, K. L. Dillman 2003-962 (TNFS, as *U. cornuta*); *ibid.*, Maurelle Island Wilderness, San Lorenzo Island, on *Picea sitchensis*, 2009, K. L. Dillman s.n. (TNFS, as *U. cornuta*); *ibid.*, Misty Fiords Wilderness, Kah Sheets Island, Boca de Quadra, on *Tsuga heterophylla*, K. L. Dillman 2003-455 (TNFS, as *U. cornuta*); *ibid.*, Misty Fiords Wilderness, DeLong Island, at entrance of Foggy Bay, on *Picea sitchensis*, K. L. Dillman 2003-325 (TNFS, as *U. cornuta*); *ibid.*, Warren Island, Warren Cove, on *Picea sitchensis*, 2005, L. Geiser Ref. Plot 510, packet 29 (TNFS); *ibid.*, Windfall Island, Chatham Straits, S Tebenkof Bay, on *Picea sitchensis*, K. L. Dillman 2003-735 (TNFS, as *U. subfloridana*); Southeast Alaskan Mainland, S shore of Cape Fanshaw, L. Geiser 6227 (TNFS).

2. Psoromic acid chemotype: Alexander Archipelago, Gravina Island, Dall Bay, on *Picea sitchensis*, K. L. Dillman 2003-190 (TNFS, as *U. cornuta*); *ibid.*, Misty Fiords Wilderness, Kah Sheets Island, Boca de Quadra, on *Tsuga heterophylla*, K. L. Dillman 2003-460 (TNFS); *ibid.*, Misty Fiords Wilderness, Kanagunut Island, SW side of island, snag at beach, K. L. Dillman 2003-341 (TNFS).

3. Salazinic acid chemotype: Alexander Archipelago, Dog Island, on *Pinus contorta*, L. Geiser 5719 (TNFS); *ibid.*, Gravina Island, Dall Head, on *Thuja plicata*, K. L. Dillman 2003-185 (TNFS as *U. cornuta*); *ibid.*, Misty Fiords Wilderness, Kanagunut Island, SW side of island, on *Picea sitchensis*, K. L. Dillman 2003-345 (TNFS, as *U. cornuta*).

4. Norstictic acid chemotype: Alexander Archipelago, vicinity of S shore of small island S of Brownson Island, on *Thuja plicata*, K. L. Dillman 2003-633 (TNFS, as *U. cornuta*); *ibid.*, Maurelle Island Wilderness, San Lorenzo Island, on *Tsuga heterophylla*, K. L. Dillman 2009-260 (TNFS); *ibid.*, Misty Fiords Wilderness, DeLong Island, at entrance of Foggy Bay, on *Malus fusca*, K. L. Dillman 2003-328 (TNFS, as *U. cornuta*); *ibid.*, St. Lazaria Island, on *Picea sitchensis* twigs, K. L. Dillman 2008-612 (TNFS, as *U. subfloridana*).

Usnea glabrata (Ach.) Vain. – A seemingly rare species in Alaska where it has been previously reported by HOWARD (1958), KROG (1968), SCHINDLER (1990) and GEISER et al. (1998) but these collections should be re-examined. We confirm the presence of the species for Alaska from only a single specimen.

Specimen examined: Southeast Alaskan mainland, Chilkat Peninsula, Excursion Inlet, Homeshore Creek, on *Picea sitchensis*, K. L. Dillman 2002-1180a (TNFS, as *U. cornuta*).

Usnea glabrescens (Nyl. ex Vain.) Vain. ex Räsänen var. *glabrescens* – A seemingly rare taxon in Alaska where it has been previously reported by THOMSON (1979), GEISER et al. (1998) and DILLMAN (2004) but these collections should be re-examined.

Specimen examined: Misty Fiords Wilderness, Kah Sheets Island, Boca de Quadra, on *Malus fusca*, K. L. Dillman 2003-461 (TNFS, as *U. madeirensis*).

Usnea silesiaca Motyka (syn. *U. madeirensis* Motyka) – Previously reported from southeastern Alaska by DILLMAN (2004) where it is not an uncommon species.

Specimens examined: Alexander Archipelago, Coronation Island, Egg Harbor, on *Alnus viridis*, K. L. Dillman 2003-919 (TNFS, as *U. madeirensis*); *ibid.*, Dog Island, Dog Cove, beach edge E side, on *Menziesia ferruginea*, C. Derr 3264 (TNFS, as *U. filipendula*); *ibid.*, Kuiu Island, Chatham Straits, Table Bay, snag at beach, K. L. Dillman 2003-963 (TNFS, as *U. madeirensis*); *ibid.*, Kupreanof Island, Frederick Sound, outside of Portage Bay, on *Alnus*, K. L. Dillman 2003-623 (TNFS, as *U. filipendula*); *ibid.*, Misty Fiords Wilderness, DeLong Island, at entrance of Foggy Bay, on *Picea sitchensis*, K. L. Dillman 2003-319 (TNFS, as *U. madeirensis*); *ibid.*, Misty Fiords Wilderness, Kah Sheets Island, Boca de Quadra, on *Tsuga heterophylla*, *Picea sitchensis*, *Alnus viridis* and *A. rubra*, K. L. Dillman 2003-448, 454, 456, 449, 497 and 443 (TNFS as *U. cornuta*, *U. filipendula* and *U. madeirensis*); *ibid.*, Misty Fiords Wilderness, Kanagunut Island, Lincoln Channel, on *Picea sitchensis*, K. L. Dillman 2003-417 (TNFS as *U. madeirensis*); Southeast Alaskan Mainland, Chilkat Peninsula, Excursion Inlet, Homeshore Creek, on *Picea sitchensis* and *Alnus viridis*, K. L. Dillman 2002-1301 (TNFS, as *U. cornuta*).

Usnea subfloridana Stirt. – Previously reported in Alaska by THOMSON (1984), SCHINDLER (1990), HALONEN et al. (1998), DILLMAN (2004) and TALBOT et al. (2007). We include it here to confirm its presence in Alaska even after considerable revisionary work on specimens and taxonomy has cast doubt on other reports. Both studied specimens represent the squamatic acid chemotype.

Specimens examined: Southeast Alaskan Mainland, Chilkat Peninsula, Excursion Inlet, Homeshore Creek, on *Picea sitchensis* and *Alnus* bole, K. L. Dillman 2002-1199 (TNFS, as *U. madeirensis*); *ibid.*, Misty Fiords Wilderness, mouth of Boca de Quadra, on *Alnus viridis*, K. L. Dillman 2003-493 (TNFS, as *U. cornuta*).

Errata to the Klondike lichen list

The following are corrections specific to the lichen flora of the Klondike Gold Rush National Historical Park published by SPRIBILLE et al. (2010).

Bactrospora patellarioides – All of the Klondike specimens belong to *Bactrospora cascadenis* Ponzetti & McCune, a species recently described from Washington (PONZETTI & MCCUNE 2006) and reported from Alaska by MCCUNE & PONZETTI (2011). *Bactrospora patellarioides* should however be maintained for the Alaskan list for now as it was reported for the Kenai Peninsula by DERR (2010, p. 232) and we have not checked this specimen.

Cladonia macrophyllodes – The Klondike specimens are all *C. pseudalcicornis* Asahina (det. T. Ahti).

Hypogymnia rugosa – Delete, the record is a robust specimen of *H. apinnata* Goward & McCune (based on TLC, B. McCune pers. comm., March 2011) and thus *H. rugosa* is to be excluded from the biota of Alaska.

Leptogium burnetiae – The correct waypoint for TT39047 is 654, not 655.

Lobaria hallii – The correct waypoint for TT39041 is 654, not 655.

Peltigera polydactylon – The specimen Rome 693 was determined by T. Goward as *Peltigera neopolydactyla*, not *P. polydactylon*.

Pertusaria mccroryae – The collection number of the type specimen was inadvertently given incorrectly. The correct number is Spribille 24850. Furthermore, Figures 7C, 7D, 7E were all photos taken in lactophenol cotton blue.

Rinodina laevigata, *R. trevisanii* – All collections reported under the number S24600 should be listed as “sub *Myrionora albidula*”.

Rinodina subminuta – the correct waypoint for TT39042 is 654, not 655.

Waypoint index – WP214, WP216, WP217, WP218 and WP219 were taken on 23.08.2003, not 23.08.2009.

Acknowledgements

We would like to thank Ulf Arup, Alan Fryday, Anders Nordin, Leif Tibell and Einar Timdal for the identification or verification of several specimens. Peter Kosnik and Walter Obermayer are thanked for performing comparative TLC on several specimens. Tim Wheeler graciously allowed us to cite his recently collected specimen of *Protoparmelia atriseda*. We thank the curator of the herbarium F for a loan and the curators of ALA and S for accommodating us on recent research visits. Irwin Brodo, Alan Fryday, Paul Diederich and Helmut Mayrhofer provided detailed reviews. Peter Nelson organized field access by CP and TS to the Tokositna and Chulitna River areas in 2008. Work by SPO and TS was supported in part by the U.S. National Park Service, Klondike Gold Rush National Historical Park, and Glacier Bay National Park and Preserve (project R9815110518 to the University of Montana).

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Manuscript accepted: 8 November 2012.

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