

## New species and new records of American lichenicolous fungi

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**Abstract:** DIEDERICH, P. 2003. New species and new records of American lichenicolous fungi. – *Herzogia* 16: 41–90.

A total of 153 species of lichenicolous fungi are reported from America. Five species are described as new: *Abrothallus pezizicola* (on *Cladonia peziziformis*, USA), *Lichenodiplis dendrographae* (on *Dendrographa*, USA), *Muellerella lecanactidis* (on *Lecanactis*, USA), *Stigmidium pseudopeltideae* (on *Peltigera*, Europe and USA) and *Tremella lethariae* (on *Letharia vulpina*, Canada and USA). Six new combinations are proposed: *Carbonea aggregantula* (= *Lecidea aggregantula*), *Lichenodiplis fallaciosa* (= *Laeviomyces fallaciosus*), *L. lecanoricola* (= *Laeviomyces lecanoricola*), *L. opegraphae* (= *Laeviomyces opegraphae*), *L. pertusariicola* (= *Spilomium pertusariicola*, *Laeviomyces pertusariicola*) and *Phacopsis fusca* (= *Phacopsis oxyspora* var. *fusca*). The genus *Laeviomyces* is considered to be a synonym of *Lichenodiplis*, and a key to all known species of *Lichenodiplis* and *Minutoexcipula* is given. The genus *Xenonectriella* is regarded as monotypic, and all species except the type are provisionally kept in *Pronectria*. A study of the apothecial pigments does not support the distinction of *Nesolechia* and *Phacopsis*. The following 29 species are new for America: *Abrothallus suecicus*, *Arthonia farinacea*, *Arthophacopsis parmiliarum*, *Carbonea supersparsa*, *Coniambigua phaeographidis*, *Diplolaeviopsis ranula*, *Endococcus nanellus*, *Epaphroconidia hawksworthii*, *Globosphaeria jamesii*, *Hobsoniopsis santessonii*, *Lichenopuccinia poeltii*, *Melaspilea canariensis*, *Minutoexcipula mariana*, *Perigrapha superveniens*, *Pezizella epithallina*, *Phacopsis cephalodioides*, *Polycoccum minutulum*, *Pseudoseptoria usneae*, *Rhymbocarpus cruciatus*, *Sphaerellothecium parmeliae*, *Stigmidium mycobilimbiae*, *Taeniolella delicata*, *T. phaeophysciae*, *T. serusiauxii*, *Tremella papuana*, *T. phaeophysciae*, *Unguiculariopsis lettaii*, *U. thallophila* and *Vouauxiella verrucosa*. New for North America: *Endococcus apiciicola*, *Lichenochora galligena*, *Lichenocoenium carginianum*, *Opegrapha melanospila* and *Tremella leptogii*. New for Central America: *Cystobasidium usneicola*, *Endococcus apiciicola*, *Intralichen christiansenii*, *Lichenodiplis lecanoricola*, *Lichenostigma cosmopolites*, *L. maureri*, *Opegrapha melanospila*, *Syzygospora bachmannii*, *Tremella leptogii* and *Tremella parmiliarum*. New for South America: *Buelliella minimula*, *B. tryppethii*, *Cystobasidium usneicola*, *Epicladonia sandstedei*, *Lichenopeltella heterodermicola* and *Lichenosticta alcornaria*. New for the UK: *Carbonea aggregantula*. New for Australia: *Opegrapha melanospila*.

**Zusammenfassung:** DIEDERICH, P. 2003. Neue Arten und neue Funde von amerikanischen lichenicolen Pilzen. – *Herzogia* 16: 41–90.

Insgesamt werden 153 Arten von lichenicolen Pilzen aus Amerika gemeldet. Fünf Arten werden neu beschrieben: *Abrothallus pezizicola* (auf *Cladonia peziziformis*, USA), *Lichenodiplis dendrographae* (auf *Dendrographa*, USA), *Muellerella lecanactidis* (auf *Lecanactis*, USA), *Stigmidium pseudopeltideae* (auf *Peltigera*, Europa und USA) und *Tremella lethariae* (auf *Letharia vulpina*, Kanada und USA). Sechs Neukombinationen werden vorgeschlagen: *Carbonea aggregantula* (= *Lecidea aggregantula*), *Lichenodiplis fallaciosa* (= *Laeviomyces fallaciosus*), *L. lecanoricola* (= *Laeviomyces lecanoricola*), *L. opegraphae* (= *Laeviomyces opegraphae*), *L. pertusariicola* (= *Spilomium pertusariicola*, *Laeviomyces pertusariicola*) und *Phacopsis fusca* (= *Phacopsis oxyspora* var. *fusca*). Die Gattung *Laeviomyces* wird als Synonym von *Lichenodiplis* betrachtet, und ein Schlüssel für alle Arten von *Lichenodiplis* und *Minutoexcipula* wird gegeben. Die Gattung *Xenonectriella* wird als monotypisch betrachtet, und alle Arten außer dem Typus werden provisorisch in *Pronectria* behalten. Die Apothezien-Pigmente sprechen nicht für eine Trennung von *Nesolechia* und *Phacopsis*. Folgende 29 Arten sind neu für Amerika: *Abrothallus suecicus*, *Arthonia farinacea*, *Arthophacopsis parmiliarum*, *Carbonea supersparsa*, *Coniambigua phaeographidis*, *Diplolaeviopsis ranula*, *Endococcus nanellus*, *Epaphroconidia hawksworthii*, *Globosphaeria jamesii*, *Hobsoniopsis santessonii*, *Lichenopuccinia poeltii*, *Melaspilea canariensis*, *Minutoexcipula mariana*, *Perigrapha superveniens*, *Pezizella epithallina*, *Phacopsis cephalodioides*, *Polycoccum minutulum*, *Pseudoseptoria usneae*, *Rhymbocarpus cruciatus*, *Sphaerellothecium parmeliae*, *Stigmidium mycobilimbiae*, *Taeniolella delicata*, *T. phaeophysciae*, *T. serusiauxii*, *Tremella papuana*, *T. phaeophysciae*, *Unguiculariopsis lettaii*, *U. thallophila* und *Vouauxiella verrucosa*. Neu für Nordamerika: *Endococcus apiciicola*, *Lichenochora galligena*, *Lichenocoenium carginianum*, *Opegrapha*

*melanospila* und *Tremella leptogii*. Neu für Mittelamerika: *Cystobasidium usneicola*, *Endococcus apiciicola*, *Intralichen christiansenii*, *Lichenodiplis lecanoricola*, *Lichenostigma cosmopolites*, *L. maureri*, *Opegrapha melanospila*, *Syzygospora bachmannii*, *Tremella leptogii* und *Tremella parmiliarum*. Neu für Südamerika: *Buelliella minimula*, *B. trypethelii*, *Cystobasidium usneicola*, *Epicladonia sandstedei*, *Lichenopeltella heterodermiicola* und *Lichenosticta alcicornaria*. Neu für Großbritannien: *Carbonea aggregantula*. Neu für Australien: *Opegrapha melanospila*.

**Key words:** *Abrothallus*, *Carbonea*, *Laeviomyces*, *Lichenodiplis*, *Muellerella*, *Phacopsis*, *Stigmidium*, *Tremella*, *Xenonectriella*, distribution, biodiversity.

## Introduction

Lichenicolous fungi in America are poorly explored, and most species have only recently been discovered in that continent. In 1990, just 62 species were known from North America (EGAN 1987, 1989, 1990). Since 1991, several important publications considerably increased this number, and ESSLINGER & EGAN (1995) were able to enumerate 164 species. The most important contributions are summarized by HAFELLNER et al. (2002) and will not be repeated here. The species from Central and South America are still more poorly known, and only a single important contribution has recently been published, the remarkable volume on Colombian lichenicolous fungi by ETAYO (2002), who studied 104 species, including 41 new to science, and mentioned many other yet unidentified specimens that mostly appear to represent additional, undescribed taxa.

During the past 10 years, several lichenologists regularly sent me their collections of American lichenicolous fungi for identification. Some of these data have already been included in other papers, but most records remain unpublished. The aim of this paper is thus to publish the results of the study of c. 1000 specimens of lichen parasites from the entire American continent, focusing on known species. Between 50 and 100 additional, undescribed species are present in the material examined by me, and a selection of them is planned to be published and described in forthcoming papers. Many of the species reported in this paper are new records for America, or part of it, or for a country. Others are not new for a country, but are nevertheless amongst the first American records, and I decided to publish them all.

## Material and methods

Specimens examined are stored in ASU, B, BG, FH, GMUF, GZU, H, HBG, LG, M, MIN, MSC, NY, SBBG, STU-Wirth, U, UBC, US, USJ, VAB, WIS, in the Sonoma State University herbarium, and in the private collections of A. Aptroot, P. Diederich (abbreviated as 'Di'), B. Goffinet, K. Kalb and P. van den Boom. In the enumeration of specimens (with the exception of types), first names of collectors are omitted; in case of several collectors, usually only the first one is given; days and months of collecting date are also omitted; geographical coordinates are given without seconds (if necessary, rounded up or down to the nearest entire minute), except if locality unknown. Authors of fungal names are abbreviated following KIRK & ANSELL (1992) (updated list available at <http://www.indexfungorum.org/AuthorsOffungalNames.htm>), except that Dutch names starting with 'van' are not abbreviated (e.g. 'van den Boom' and not 'P.Boom'). Host names are generally those written on the herbarium label, and have not been checked by me. Authors of host names are omitted. For some rare species, new records from other continents are also given.

Specimens have been identified using standard microscopical techniques. Abbreviations for chemical reagents: K (5 % KOH in water), N (concentrated nitric acid), I (Lugol's reagent), K/I (I after pre-treatment with KOH). Macroscopical measurements refer to dry herbarium specimens, and microscopical ones to specimens examined in water.

Comments for each species include details on the previously known American distribution, but usually do not indicate the world distribution.

## Results

### *Abrothallus caerulescens* Kotte

?= *A. tulasnei* M.S.Cole & D.Hawksw.

The *Abrothallus* material growing on *Xanthoparmelia* species was described as *A. caerulescens* by KOTTE (1909), who regarded the species as distinct from other *Abrothallus* species by the mycelium becoming bluish with iodine (epithet '*caerulescens*'!) and the relatively large ascospores. Recently, COLE & HAWKSWORTH (2001) described a specimen on *Xanthoparmelia somloënsis* as the new *Abrothallus tulasnei*, and, following their detailed discussion, they obviously missed the existence of an older name on the same host genus. The mycelium of *A. tulasnei* was said to be I-, whilst that of *A. caerulescens* is I+ blue, but I am not sure about the taxonomic value of this character. Clearly, a modern revision of the genus *Abrothallus* is urgently needed, and therefore I will not discuss here the taxonomy of this and related species. However, as long as no such revision is available, I prefer to treat both names *Abrothallus caerulescens* and *A. tulasnei* as synonyms. *A. caerulescens* is poorly known, but common and widespread, and has recently been recorded from several countries, e.g. the British Isles (COPPINS 2000), Germany (TRIEBEL & SCHOLZ 2001) and Russia (ZHURBENKO & OTNYUKOVA 2001). The specimen of *Abrothallus bertianus* De Not. from the USA (Arizona) on *Xanthoparmelia somloënsis* published by TRIEBEL et al. (1991) is likely to belong also to *A. caerulescens*.

SPECIMENS EXAMINED: USA: California: San Benito Co., E of Soledad, Panoche road, N of Antelope Fire Station, 121°02'W, 36°39'N, 590 m, on *Xanthoparmelia*, 2002, van den Boom 29300 (hb van den Boom). – Kentucky: Harlan Co., Profile Rock, Kentenia State Forest, Little Shepherd Trail 2.7 mi SW of Ky Hwy 2010, 763 m, on *X. conspersa*, 1991, Harris 27150A (NY) (pycnidia only).

### *Abrothallus cetrariae* Kotte

This species, which seems to be confined to *Platismatia*, has often been considered as a synonym of *Abrothallus parmeliarum* in the past (SANTESSON 1993). However, in recent papers, it is more and more often accepted as a distinct species (TRIEBEL & SCHOLZ 2001). A final decision about its status can only be taken when a modern taxonomic revision of the genus is available. It was reported from Canada (British Columbia) by ALSTRUP & COLE (1998) and GOWARD et al. (1996).

SPECIMENS EXAMINED: Canada: British Columbia: Skeena River drainage, Seven Sisters area, 18 km S of Cedarvale, on Flint Creek road, on *Platismatia norvegica*, 1996, Goward 96-62 (UBC); Blackwater Creek, near Murtle River, Wells Gray Provincial Park, on *P. glauca*, 1996, Goward 96-1159 (UBC, Di); Manning Provincial Park, Rhododendron Flat, on *P. glauca*, 1994, Cole (MIN).

### *Abrothallus cladoniae* R.Sant. & D.Hawksw.

Fig. 2

This species was mentioned from the USA (Maine, Missouri) by COLE & HAWKSWORTH (2001) and HAWKSWORTH (1990b). However, as pointed out below, the material from Missouri belongs to the newly described *Abrothallus pezizicola*.

SPECIMENS EXAMINED (specimens Buck 37447 and those from Missouri were examined and communicated by R. Harris): USA: Arkansas: Jefferson Co., Pine Bluff Arsenal, along S side of Arkansas River, N of Pine Bluff, in vicinity of Philips Creek unit, N of McCoy Road, on *Cladonia caespiticia* (mainly apothecia), 1999, Ladd 22088 (NY); Newton Co., Gene Rush/Bufalo River Wildlife Management Area, Lime Kiln Hollow, E of AR 123, 35°59'N, 93°02'W, 228 m, on *Cladonia peziziformis*, 2000, Buck 37447 (NY). – Florida: Leon Co., Pine scrub E of Natural Bridge Battlefield, c. 6 mi E of Woodville, on podetia of *C. simulata*, 1990, Harris 25341 (NY, Di). – Missouri: Jefferson Co., Victoria Glades Preserve, c. 2 mi SE of Hillsboro, 38°12'N, 90°33'W, 180 m, on *C. peziziformis*, 1997, Buck 31777 (NY); Shannon Co., Ozark National Scenic Riverways, oak woods along MO 19 c. 1 mi N of Sinking Creek, 1990, Harris 25939-A (NY); Wayne Co., Coldwater Conservation Area, along Co. Rd 212, 37°17'N, 90°23'W, on *C. cristatella*, 2001, Harris 45197 (NY).

### *Abrothallus microspermus* Tul.

COLE & HAWKSWORTH (2001) reported this species from the USA (Minnesota) on *Flavoparmelia caperata*, the host of the type specimen. They also included in the same species concept specimens on *Flavopunctelia flaventior*, *F. soledica* and *Punctelia rudecta*, but this was just based on the similar size of ascospores and conidia; a careful study of other important characters, like the localization and nature of the apothecial pigments and their chemical reactions, or the amyloid reactions of the vegetative hyphae should be done on a larger set of specimens to ascertain if all these specimens belong to a single species. The anamorph of this species, *Vouauxiomyces truncatus* (de Lesd.) Dyko & D.Hawksw., was furthermore reported on *F. caperata* from the USA (Arizona) by TRIEBEL et al. (1991).

SPECIMENS EXAMINED: USA: California: Santa Cruz Co., W edge of La Veaga Park, Santa Cruz, on *Flavoparmelia caperata*, 2002, Tucker 37640 (SBBG). – Virginia: Grayson Co., Grayson Highlands State Park, Wilburn Ridge, along Apalachian Trail, 36°38'N, 81°31'W, 1430–1540 m, on *F. caperata*, 1991, Buck 20671 (NY).

### *Abrothallus parmeliarum* (Sommerf.) Arnold

This is a common lichenicolous fungus, generally confined to *Parmelia* s. str., often growing on galls caused by *Phacopsis oxyspora*. It was previously known from Canada (British Columbia) (ALSTRUP & COLE 1998, NOBLE et al. 1987) and the USA (Alaska and Arizona) on *Parmelia saxatilis* and *P. sulcata* (THOMSON & AHTI 1994, TRIEBEL et al. 1991), and has also been recorded from Peru on *Punctelia punctilis* (SANTESSON 1986).

SPECIMENS EXAMINED (all on *Parmelia* s. str.): Canada: British Columbia: Hwy 16, forest NE above Goat River crossing, 53°30'N, 120°37'W, 750 m, on *P. hygrophila*, 1992, Goward 92-1279 p. p. (UBC); Vancouver Island Se, N of Victoria, Saanich Peninsula, Central Saanich, SW of Sidney, John Dean Prov. Park, at Abraham Collins lookout, 48°37'N, 123°27'W, 310 m, 2000, Tønsberg 28782 (BG). USA: Alaska: Kodiak Island Borough, Kodiak Island E, Middle Bay SW, S bank of American River, just W of the main road, 57°38'N, 152°31'W, 0–10 m, 1991, Tønsberg 15325 p. p. (BG, with *Phacopsis oxyspora*). – Idaho: Benewah Co., Heyburn State Park, picnic area, S end of Coeur d'Alene Lake, on *P. sulcata*, 1998, Tucker 36074 (SBBG); Bonner Co., Priest Lake State Park on east side of Priest Lake, on *P. sulcata*, 1998, Tucker 36200 (SBBG). – Montana: Lake Co., Lion Creek Gorge, Swan Range, 47°40'N, 113°43'W, 1135 m, on *P. hygrophila*, 1984, McCune 13917 p. p. (Di).

### *Abrothallus pezizicola* Diederich & R.C.Harris sp. nov.

Figs 1, 2

*Abrothallus* in podetiis *Cladoniae* vigenis, insignis ascomatibus superficialibus, pruinosis, 100–220 µm diam., hymenio pallide brunneo, K-, N-, 30–35 µm, epihymenio atro-olivaceo, K+ olivaceo, N+ brunneo, hypothecio rufo ad olivaceo-rufo, K-, N-, ascis clavatis, 8-sporis, 17–19 × 5.5–7.5 µm, ascosporis pallide brunneis, verruculosus, 1-septatis, 6.5–9 × 2–3 µm, cellulis inaequalibus, rare frangentibus.

Type: USA, Florida, Taylor Co., Big Bend Wildlife Management Area, Tide Swamp Unit, along C. R. 361, 4.4 mi NW of bridge in Steinhatchee, 29°43'N, 83°26'W, planted *Pinus clausa* forest, on *Cladonia peziziformis*, 3 Dec. 1996, W. R. Buck 31079 (NY – holotype; Di – isotype).

Mycelium immersed, I-. Ascomata superficial, blackish, with a yellowish pruina, with a slightly convex disc and a strongly constricted base, 100–220  $\mu\text{m}$  diam., 80–100  $\mu\text{m}$  tall. Hymenium yellowish brown, K-, N-, I-, K/I-, 30–35  $\mu\text{m}$  tall (incl. epihymenium); epihymenium dark olivaceous green to almost blackish, K+ paler olivaceous, N+ brown, 7–10  $\mu\text{m}$  tall. Hypothecium reddish to olivaceous brown, K-, N-. Exciple absent. Paraphyses branched, anastomosed, c. 1  $\mu\text{m}$  thick. Asci clavate, 17–19  $\times$  5.5–7.5  $\mu\text{m}$ , 8-spored, I-, K/I-. Ascospores brownish, verruculose (observed at  $\times 1000$ ), 1-septate, 6.5–9  $\times$  2–3  $\mu\text{m}$ ; cells very unequal, the upper one much broader than the lower, and c. 60 % of the spore length; ascospores not breaking in semi-spores, except in squash preparation with a sufficient pressure on the cover glass. Conidiomata not observed.

Distribution and host: The new species is known from three localities in Florida and one in Missouri (USA), and as far as we know now, it occurs only on *Cladonia peziziformis*. It grows mainly on the apothecia, which become black through the presence of the parasite, rarely on the podetia below the apothecium.

The type collection of *Sphaeropsis cladoniae* Ellis & Everh. (= *Lichenoconium usneae* (Anzi) D.Hawksw.) was said by HAWKSWORTH (1990b) to be mixed with *Abrothallus cladoniae*. In fact it is mixed with *A. pezizicola*. Further, Ellis identified the host as *Cladonia cariosa* (repeated by HAWKSWORTH 1990b), but it is a robust form of *C. peziziformis*. Material issued in Rabenhorst: Fungi Europaei 3891 collected later in 1889 also contains *A. pezizicola* on typical *C. peziziformis*. To date all other collections from Missouri or nearby Arkansas have proven to be *A. cladoniae* (see above) which also can occur on *C. peziziformis*, but seems more common on other species of *Cladonia*, although we have not re-examined the other specimens cited by HAWKSWORTH (1990b).

Discussion: The new species is easily separated from *Abrothallus cladoniae*, which grows on the same host genus, by the characters indicated in Table 1. It is distinguished from all other known *Abrothallus* species by the particular small ascospores, with an unusually short and narrow lower cell.

ADDITIONAL SPECIMENS EXAMINED (all on *Cladonia peziziformis*): USA: Florida: Hamilton Co., Holton Creek Wildlife Management Area, S of Alapaha River, N of Suwannee River, c. 10 mi directly SW of Jasper, 30°27'N, 83°04'W, 1993, Harris 32453 (NY); Lafayette Co., along Co. Rd 355A, 1.4 mi SE of Fla Hwy 51, by cemetery, 30°00'N, 83°11'W, 1994, Buck 27285 (NY). – Missouri: near Emma, April 1889, Demetrio (NY – holotype of *Sphaeropsis cladoniae*, isotypes distributed as Ellis & Everhart *N. Am. Fungi*, ser. 2, no. 2383); *ibid.*, Nov. 1889, Demetrio (NY, distributed as Rabenhorst: Fungi Eur. no. 3891).

### *Abrothallus prodiens* (Harm.) Diederich & Hafellner

This fungus might be confined to species of *Hypogymnia*, but one specimen on the closely related genus *Cavernularia* from the USA (California) was also attributed to it (TRIEBEL et al. 1991).

SPECIMEN EXAMINED: USA: California: San Luis Obispo Co., Los Osos (S of Morro Bay), Baywood, on *Hypogymnia*, 1996, Tucker 35088 (SBBG).

### *Abrothallus suecicus* (Kirschst.) Nordin

New for America.

SPECIMEN EXAMINED: USA: California: Monterey Co., across Carmel Valley Rd, from entrance gate, Hastings Natural History Reservation, on Carmel Valley Rd 15 mi NW of junction with Arroyo Seco Rd, W of Greenfield, 1600 ft, on *Ramalina menziesii* (apothecia), 1996, Tucker 34509 (SBBG).

**Tab. 1:** Diagnostic features allowing to distinguish *Abrothallus pezizicola* from *A. cladoniae*. The data concerning *A. cladoniae* are from HAWKSWORTH (1990b) and from examination of two specimens cited in this paper.

	<i>Abrothallus pezizicola</i>	<i>Abrothallus cladoniae</i>
Ascospores	pale brown verruculose (often indistinct) only breaking in semi-spores in squash preparations after sufficient pressure on the cover glass 2–3 µm wide upper cell much thicker and longer than the lower cell (c. 60 % of the spore length)	medium to dark brown verrucose (distinct) breaking in semi-spores within the ascus, without pressure 3–4.5 µm wide upper cell slightly thicker, longer or not
Asci	17–19 × 5.5–7.7 µm	28–37 × 7.5–9.5 µm
Hymenium	30–35 µm tall, yellowish brown, K-	30–50 µm tall, almost hyaline, K+ intensively bluish green (from the epihymenium)
Epihymenium	dark olivaceous green to almost blackish, K+ paler olivaceous	dark brown to bluish green, K+ intensively bluish green
Ascomata	100–220 µm diam.	150–220(–270) µm diam.

### *Abrothallus usneae* Rabenh.

This species was recently recorded from the USA (Arizona, Minnesota) by COLE & HAWKSWORTH (2001) and HAFELLNER et al. (2002), and from Colombia by ETAYO (2002).

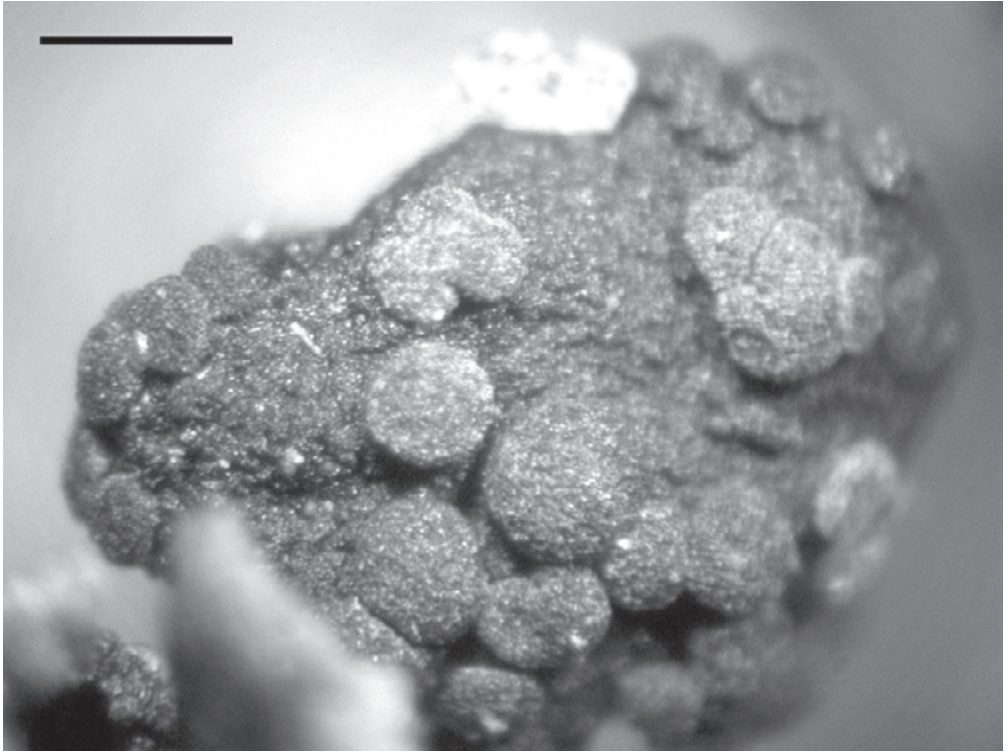
New for Canada.

SPECIMENS EXAMINED (on *Usnea*): **Canada:** British Columbia: 40 km W of Likely, Beaver Valley, 52°30'N, 121°50'W, 750 m, on *U. lapponica*, on *Biatoropsis usnearum*, 1981, Goward 81-1378 (UBC, Di); Vancouver Island, Bamfield area, Pachena Bay, shoreline forest, 48°47'N, 125°08'W, 5–20 m, on *U. cornuta* s. lat., over basidiomata of *Cystobasidium usneicola*, 1991, Goward 91-590 p. p. (UBC L24815). **USA:** California: Mendocino Co., along Hwy 1 (Shore Line Hwy), the Pacific coast NNE of Soldier Frank Point, 39°47'N, 123°5'W, 60 m, 2001, Tønsberg 28934 p. p. (BG) (anamorph and teleomorph); Sonoma Co., Sugar Loaf Ridge State Park, on Adobe Canyon Rd 2.5 mi E of Oakmont/Kenwood, 38°25'N, 122°34'W, 2002, Tucker 37794 (SBBG). – Washington: San Juan Co., Lopez Island SE, between McArdele bay and Watmough Bay, along and S of Watmough Head Rd, 48°26'N, 122°49'W, 20–30 m, 1998, Tønsberg 26903, 26906 (BG).

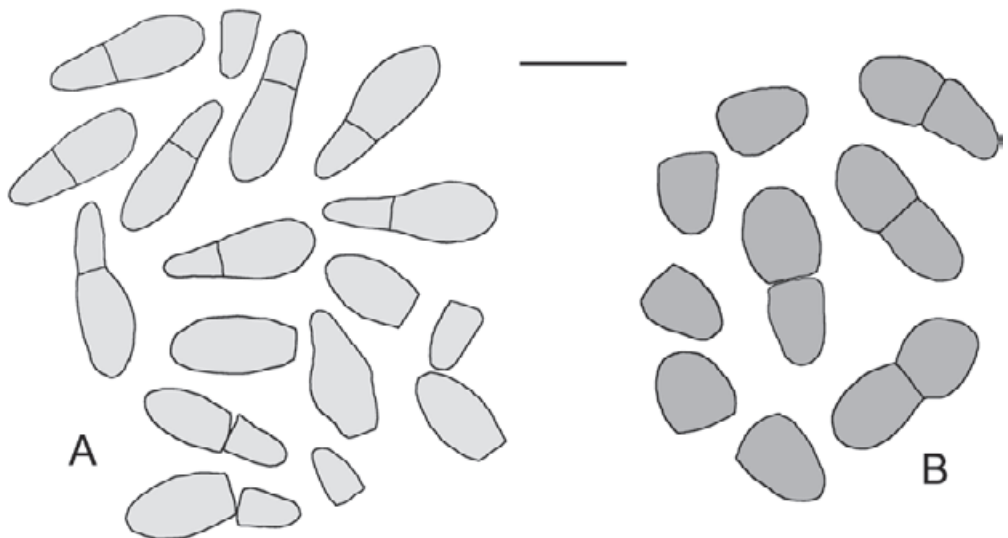
### *Abrothallus welwitschii* Tul. [as 'welwitschii']

This species appears to be confined to *Sticta* species. However, GOWARD & THOR (1992) used this name for a specimen on *Nephroma parile* collected in Canada (British Columbia); a revision of the genus must be awaited for in order to be sure about the identity of the *Abrothallus* material on *Nephroma*. These are the first American records on *Sticta*.

SPECIMENS EXAMINED: **Canada:** British Columbia: Hyphocus Island (adjacent Ucluelet), 48°55'N, 125°35'W, on *Sticta limbata*, 1983, Goward 83-239 (UBC, Di); Vancouver Island, Sayward area, Rd to Mt Cain, W of Shoen



**Fig. 1:** *Abrothallus pezizicola* (holotype). Ascomata overgrowing an apothecium of the host, *Cladonia peziziformis*. Scale bar = 250  $\mu$ m.



**Fig. 2:** A, Ascospores of *Abrothallus pezizicola* (holotype). B, Ascospores of *Abrothallus cladoniae* (Harris 25341). Scale bar = 5  $\mu$ m.

Lake Prov. Park, 50°00'N, 126°20'W, 1000 m, on *S. fuliginosa*, 1991, Goward 91-781 (UNC, Di); N of Hazelton, 10 km WNW of Kispiox, N of Date Creek, 55°23'N, 127°49'W, 720 m, on *S. fuliginosa*, 1994, Tønsberg 20728 (BG). USA: Alaska: Tongass Nat. Forest, Prince of Wales Island E, SW of Thorne Bay, Salt Chuch N, 55°37'N, 132°33'W, 0–5 m, on *S. limbata*, 2001, Tønsberg 30138 (BG). – California: San Mateo Co., Santa Cruz Mountains, San Bruno, E side of Sweeney Ridge overlooking San Andreas Lake, on *S. cf. fuliginosa*, 1998, McGee (SBBG). – Oregon: Powers Creek, Silverton, on *S. limbata*, 1910, Foster 1201 (MSC); Benton Co., 3 mi from Corvallis, along King's Rd, on *S. weigeli*, 1940, Doty 3273 (NY). – Washington: Clallam Co., between Forks and La Push, c. 7 km E of La Push, N river Quillayute, NW of the mouth of Soleduck River, at Mora Rd/Kilmer Rd intersection, 47°55'N, 124°33'W, 10 m, on *S. limbata*, 1994, Tønsberg 21520 (BG); Clallam Co., Olympic Nat. Park, Lake Ozette, Garden Island, SE shore, 48°06'N, 124°37'W, 10 m, on *S. limbata*, 1997, Tønsberg 25014 (BG); Jefferson Co., along upper Hoh Rd, at Alder Creek, 47°50'N, 124°14'W, 120 m, on *S. limbata*, 1998, Tønsberg 25601, 25604, 25612 (BG).

### *Arthonia clemens* (Tul.) Th.Fr. s. str.

Following GRUBE & MATZER (1997), this name has to be used exclusively for a species confined to *Rhizoplaca*, whilst those specimens growing on *Lecanora* belong to several distinct species. TRIEBEL et al. (1991) reported the species from the USA, but they used a broader species concept, including also specimens from *Lecanora dispersa*, which are likely to belong to *A. vagans* var. *lecanorina* Almq. (?= *A. galactinaria* Leight.) (GRUBE & MATZER 1997). A single specimen from New Mexico mentioned by TRIEBEL et al. (1991) was on *Rhizoplaca chrysoleuca* and is therefore likely to represent *A. clemens* s. str. HAFELLNER et al. (2002) reported the species from the USA (Arizona, New Mexico).

SPECIMEN EXAMINED: USA: California: Riverside Co., E of Los Angeles, Joshua Tree National Monument, road from Hidden Valley to Keys View, 0.5 km N of Key View, 116°10'W, 33°56'N, 1240 m, on *Rhizoplaca*, 2002, van den Boom 29509 (hb van den Boom, Di).

### *Arthonia epiphyscia* Nyl.

This is a common ascomycete confined to *Physcia* species, previously known from Chile, Mexico and the USA (Arizona) (HAFELLNER et al. 2002, TRIEBEL et al. 1991, WEDIN 1994). Following SANTESSON (1960), it is also present in Argentina. The report from Canada (British Columbia) on *Xanthoria elegans* (GOWARD et al. 1996) almost surely refers to another species.

SPECIMENS EXAMINED: Canada: Alberta: East side of Cochran-Nordegg Forestry Rd, 45 mi W of Calgary, on *Physcia tenella*, 1971, Tucker 9197B (SBBG). – British Columbia: Tatla Lake area, Mosley Creek Valley, Foster Ranch, N of Twist Lk, 51°36'N, 124°59'W, on *P. biziana*, 1981, Goward (UBC, Di).

### *Arthonia farinacea* (H.Olivier) R.Sant.

New for America.

SPECIMENS EXAMINED: USA: California: San Luis Obispo Co., San Simeon State Park, 5 mi S of San Simeon, off US Hwy 1 along Pacific coast, Monterey Pine forest on slope near Washburn Campground, on epiphytic *Ramalina obtusata*, 1999, Tucker 36516 (SBBG); *ibid.*, on *Ramalina*, Tucker 36515 (SBBG).

### *Arthophacopsis parmiliarum* Hafellner

A relatively common fungus in Europe, confined to *Parmelia* str. (HAFELLNER 1998), here newly reported for America.

SPECIMENS EXAMINED (all on *Parmelia sulcata*): Canada: British Columbia: Liard River Hotsprings, 59°23'N, 126°06'W, 475 m, 1982, Goward 82-1411 (UBC); Clearwater River drainage, E end Azure Lake (Rainbow Falls), Wells Gray Provincial Park, 1996, Goward 96-846 (UBC, Di). USA: Alaska: Cordova, Copper River delta, along Copper River Hwy, SE of airport, 60°29'N, 145°26'W, 30 m, 2001, Tønsberg 29861 (BG). – Oregon: Curry Co., from Gold Beach, take Gold Beach-Agness Rd about 25 mi along Rogue River, right on gravelled Oak Flat Rd to end, picnic area on river, 1996, Tucker 34997 (SBBG, Di). – Washington: Clallam Co., Olympic National Park, Rosemary Inn on Lake Crescent, 48°04'N, 123°48'W, 1996, Buck 30320 (NY).



***Arthrorhaphis aeruginosa*** R.Sant. & Tønsberg

The single specimen examined is sterile, with no ascomata observed, but shows the typical aeruginose colour of the host thallus. Previously known from the USA (Oregon, Washington) (SANTESSON & TØNSBERG 1994), the species is herewith recorded as new for Canada.

SPECIMEN EXAMINED: **Canada**: British Columbia: 2 km S Spahats Creek Provincial Park, S Clearwater Valley, on *Cladonia ochrochlora*, 1998, Goward 98-122 (UBC).

***Athelia arachnoidea*** (Berk.) Jülich

This is a very common and widespread basidiomycete overgrowing and killing corticolous lichens, previously known from Canada and the USA (JÜLICH 1972, HAFELLNER et al. 2002).

SPECIMEN EXAMINED: **USA**: Washington: King Co., Seattle, Univ. of Washington, the campus, 47°39'N, 122°19'W, 50 m, on *Lecanora conizaeoides*, 1996, Tønsberg 24056 (BG) (sterile, with sclerotia).

***Bachmanniomyces uncialicola*** (Zopf) D.Hawksw.

This species was considered to be confined to the *Cladonia uncialis* group, and it was known from *C. amaurocraea*, *C. terrae-novae* and *C. uncialis* (HAWKSWORTH 1981), on the thalli of which it induces the formation of conspicuous galls. It was mentioned from several other *Cladonia* (incl. *Cladina*) species, but none of these reports could be confirmed by HAWKSWORTH (1981). ETAYO & DIEDERICH (1996a) published a recent collection on *Cladonia furcata*. The discovery of the fungus on *Cladonia portentosa* is most interesting, as it supports the recent tendency not to accept *Cladina* as a separate genus (AHTI & DEPRIEST 2001). On *C. portentosa*, the galls formed by the fungus are present, but extremely small, only 100–200 µm in diam., and they usually contain a single conidioma. This is considered to be a response to the different structure of the thallus surface of *Cladonia* subgen. *Cladina* species, and not as a taxonomic character of the fungus. The species was also recently reported from *Cladina* in Russia (ZHURBENKO & OTNYUKOVA 2001). *Bachmanniomyces uncialicola* is widespread in Europe, and was already known from Canada (British Columbia and Newfoundland) (HAWKSWORTH 1981). The collection examined has been compared with a Scottish specimen on *Cladonia uncialis*: UK, Easternness, Glen Affric, Pollan Buidhe, 1985, Sérusiaux s.n. (LG, Di).

SPECIMEN EXAMINED: **Canada**: British Columbia: Rainbow Lk, 25 km E of Prince Rupert, 54°14'N, 130°03'W, 50 m, on *Cladonia portentosa*, 1981, Goward 81-2126 (UBC, Di).

***Biatoropsis usnearum*** Räsänen

This species was reported from Argentina, Canada (British Columbia, Yukon), Chile, Colombia, Ecuador, Peru, the USA (Arizona) and Venezuela by DIEDERICH & CHRISTIANSEN (1994). It has later on been reported from Canada (British Columbia) by ALSTRUP & COLE (1998) and GOWARD et al. (1994), Mexico by HAFELLNER et al. (2002) and the USA (Arizona) by ETAYO & BREUSS (1998). A collection of this species from the USA (Arizona) was also distributed in TRIEBEL (1999). As the similar *Cystobasidium usneicola* turned up to be relatively common in America (see below), and as both species are extremely difficult to separate, especially when the basidiomata are in a poor condition with no mature basidia present, it is likely that some previously published records of *B. usnearum* are misidentifications. The species is new for Costa Rica, the Falkland Isles and Puerto Rico.

SPECIMENS EXAMINED (all on *Usnea*): **Canada**: Alberta: Rocky Mountain Forest Reserve, E of Nordegg, N of Hwy 11, passed Shunda Creek Campground, 52°28'N, 115°47'E, Goffinet 3506 p. p. (hb Goffinet). **Costa Rica**: Amistad, 9°15'N, 83°15'W, 1200–1600 m, 1999, Vervoort (hb Aptroot). **Ecuador**: Prov. León: Cotopaxi, SW slope of the volcano, 3900 m, 1939, Asplund L181 (UPS, Di). **Falkland Islands**: West Falklands: Hill Cove, grove of

planted trees in settlement, UTM 21F TC 8188, 50 ft, on *Usnea*, 1968, Imshaug 41141 p. p. & Harris (MSC 94324). **Puerto Rico:** Utuado, 1901, Underwood & Griggs 17 (NY). **USA:** California: San Luis Obispo Co., along Santa Rita Creek Rd, c. 6 mi E of junction with Cal. State Hwy 1, c. 2 mi S of Cayucos, 1996, Saylor (SBBG); Sonoma Co., Armstrong Redwoods State Park, N of Guerneville, on *U. pendulina*, 1992, Tucker 31755D (SBBG). – Florida: Lake Co., Ocala National Forest, along Forest Serv. Rd 538-A off Forest Serv. Rd 538, T.16S., R.27E., sec. 39, c. 2 mi SE of Alexander Springs, on *U. strigosa*, 1988, Harris 23539 (NY); Wakulla Co., Edward Ball Wakulla Springs State Park, along nature trail, 30°14'N, 84°18'W, on *U. strigosa* s. l., 1990, Buck 18988 (NY). – New York: Clinton Co., Town of Black Brook, Silver Lake Preserve, off Old Hawkye Rd, 44°31'N, 73°53'W, on *U. hirta*, 1996, Harris 39231 (NY). – Oregon: Lane Co., Conifer forest on State Hwy 126 near Olallie campground, Cascade Mts, 2000 ft, 2000, Tucker 37085 (SBBG). – Washington: Island, Co., Whidbey Island, Cranberry Lake W., 48°24'N, 122°40'W, 5 m, 1997, Tønsgberg 24653 (BG).

### ***Buellia pulverulenta*** (Anzi) Jatta

= *Diplotomma pulverulentum* (Anzi) D.Hawksw.

The species was reported from Canada (British Columbia) by ALSTRUP & COLE (1998) and GOWARD & AHTI (1992), and from the USA (Alaska, Colorado, Wyoming) by HAFELLNER (1979).

SPECIMENS EXAMINED: **Canada:** British Columbia: Taku River, Sinwa Mtn, 58°52'N, 133°20'W, c. 1500 m, on *Physconia muscigena*, 1982, Goward 82-709 (UBC, Di). **USA:** Oregon: 30 km N of Silver Lake just off Hwy 31, Fort Rock State Monument, 43°25'N, 121°00'W, 700 m, on *P. perisidiosa*, 1990, Goward 90-172 (UBC, Di).

### ***Buelliella inops*** (Triebel & Rambold) Hafellner

= *Karschia inops* Triebel & Rambold

This species was initially published from Australia (SANTESSON 1994a), and has subsequently been recorded from Mexico (HAFELLNER et al. 2002) and the USA (Arizona) (TRIEBEL et al. 1991).

SPECIMEN EXAMINED: **USA:** California: Madera Co., San Joaquin Experimental Range, 28 mi N of Fresno, 340 m, on *Caloplaca saxicola*, 1986, Weber & Larson: Lich. Exs. Univ. Colorado Museum 693 (sub *C. saxicola*) (LG!).

### ***Buelliella minimula*** (Tuck.) Hafellner

Previously known from Mexico and the USA (Florida) (HAFELLNER 1979), the species is here reported as new for South America.

SPECIMEN EXAMINED: **Ecuador:** Azuay: c. 35 km S von Cuenca, 3200 m, on cf. *Pertusaria*, 1987, Kalb 18426 (hb Kalb).

### ***Buelliella physciicola*** Poelt & Hafellner

The species was reported from Canada (British Columbia), Mexico, Peru and the USA (California) on *Phaeophyscia endococcinodes*, *P. cf. orbicularis*, *P. sciastra* and *P. sp.* (ALSTRUP & COLE 1998, ESSLINGER & EGAN 1995, SANTESSON 1988, 1998).

SPECIMENS EXAMINED: **USA:** California: San Luis Obispo Co., Santa Margarita Lake Recreation Area, E of San Luis Obispo, from Santa Margarita (town), take State Rt. 58, right on Pozo Rd, about 8 mi from Santa Margarita to entrance rd to Park, on *Phaeophyscia orbicularis*, 1996, Tucker 35125 (SBBG, Di); Santa Barbara Co., Santa Cruz Island, W of Cohes Prietos, on *P. cernohorskyi*, 1990, Bratt (SBBG).

### ***Buelliella trypethelii*** (Tuck.) Hafellner

This fungus was previously known only from the USA (Florida) (ETAYO & BREUSS 1998, HAFELLNER 1979), and is therefore new for South America.

SPECIMENS EXAMINED: **Guyana:** Rupununi Distr.: Kuyuwini Landing, Kuyuwini River, 2°10'N, 59°15'W, 200 m, on *Astrothelium gallineum*, 1991, Jansen-Jacobs 2399 (U, hb Aptroot, Di). **USA:** Louisiana: East Baton Rouge Par., SE Baton Rouge, Essen Lane, Burden Plantation, on *Trypethelium virens*, 1974, Tucker 12049 (SBBG);

Asumption Par., Bayou L'Ourse cypress swamp, along oilfield road, E side of 662, 3.5 mi N of junction of state routes 90 and 662, Amelia gas field, sect. 65, 29°42'N, 91°01'W, on *T. virens*, 1981, Tucker 21733 (SBBG); East Baton Rouge Par., Baton Rouge, Essen Lane, Burden Research Plantation, on *T. virens*, 1975, Tucker 14136 (SBBG, Di); Tangipahoa Par., along mouth of Tangipahoa River on Lake Pontchartrain (N shore), 30°20'N, 90°17'W, on *T. ochroleucum*, 1978, Tucker 17961 (SBBG, Di).

### *Carbonea supersparsa* (Nyl.) Hertel

New for America.

SPECIMEN EXAMINED: USA: Michigan: Keweenaw Co., Isle Royale National Park, on rocks near light at Blake Point, on *Lecanora polytropa*, 1957, Wetmore 567-a (MSC).

Notes: *Carbonea supersparsa* can be confused with *C. aggregantula*, a species occurring on the same host, and distinguished by the strongly convex apothecia, the dark brown hypothecium and the narrower ascospores (8.5–12 × 3–4 µm) with rounded apices. The new combination *C. aggregantula* was invalidly published by RAMBOLD & TRIEBEL (1992, as 'ined.'). and the name was subsequently used by several other authors, including GOWARD et al. (1996), who reported it from Canada (British Columbia) as new to America. Although we didn't examine any American material of the species, we take the opportunity here to validate the new combination: *Carbonea aggregantula* (Müll.Arg.) Diederich & Triebel comb. nov.; basionym: *Lecidea aggregantula* Müll.Arg., in Flora 34: 5, 1874. Specimens examined: **Great Britain:** Scotland, V. C. 104, North Ebudes, Isle of Skye: NE Uig, Quiraing, on *Lecanora polytropa*, 1987, Diederich 8205 (Di); S Carbost, Glen Brittle Hut, on *L. polytropa*, 1987, Diederich 8751 (Di). *Carbonea aggregantula* is new for the British Isles.

### *Carbonea vitellinaria* (Nyl.) Hertel

This is a very common and widespread lichenicolous fungus confined to *Candelariella* species, previously known from Canada, Mexico and the USA (TRIEBEL et al. 1991).

SPECIMEN EXAMINED: USA: California: Tulare Co., Sierra Nevada, Sequoia National Park, SE of Giant Forest, Mineral King, Eagle Crest Trail, 118°36'W, 36°27'N, 2382 m, on *Candelariella vitellina*, 2002, van den Boom 29039 (hb van den Boom).

### *Clypeococcum hypocenomycis* D.Hawksw. [as 'hypocenomyceae']

This species is a common parasite of *Hypocenomyce scalaris*. It was previously known from Canada (British Columbia) and the USA (Arizona, Minnesota) (ALSTRUP & COLE 1998, COLE & HAWKSWORTH 2001, GOWARD & THOR 1992, HAFELLNER et al. 2002, TRIEBEL 1989, TRIEBEL et al. 1991), and is here reported from the new host species *H. anthracophila*.

SPECIMENS EXAMINED: **Canada:** British Columbia: Clearwater Valley, N of Clearwater Green Mt., Foot Lake W., 51°55'N, 120°04'W, 1010 m, on *Hypocenomyce scalaris*, 2001, Tønberg 29273 (BG). **USA:** Kentucky: Harlan Co., Profile Rock, Kentenia State Forest, Little Shepherd Trail 2.7 mi SW of Ky Hwy 2010, 763 m, on *H. anthracophila*, 1991, Harris 27197A (NY).

### *Coniambigua phaeographidis* Etayo & Diederich

This is a rare fungus confined to *Phaeographis* species, previously known only from northern Spain (ETAYO & DIEDERICH 1995). New for America.

SPECIMENS EXAMINED: **USA:** Delaware: Sussex Co., Ellendale State Forest, c. 1 mi S of Ellendale on US Hwy 113, on *Phaeographis inusta*, 1989, Harris 24906 (NY, Di). – South Carolina: Jasper Co., gravel road off old Hwy 17 through hammocks in Savannah National Wildlife Refuge, on *Phaeographis*, 1974, Tucker 12163 (SBBG, Di); Pickens Co., along Eastatoo Creek c. 2.5 mi SW of town of Rocky Bottom, 305 m, on *Phaeographis*, 1989, Harris 24787 (NY).

***Cornutispora lichenicola*** D.Hawksw. & B.Sutton

This species was reported from the USA (Minnesota) by COLE & HAWKSWORTH (2001) on *Flavoparmelia flaventior* and *F. sore dica*, and from Mexico by HAFELLNER et al. (2002) on *Lecanora caesiorubella*.

SPECIMEN EXAMINED: USA: Arkansas: Jefferson Cp., Pine Bluff Arsenal, along S side of Arkansas River, N of Pine Bluff, Vicinity of Triplett's Bluff unit, S of river mile #80, E1/2 sec. 22 T4S R10W, on *Ochrolechia africana*, 1999, Ladd 21833 (NY).

***Corticifraga fuckelii*** (Rehm) D.Hawksw. & R.Sant.

This common and widespread fungus was known from Argentina, Canada (Alberta, British Columbia, Ontario), Chile, Mexico (Chihuahua) and the USA (Michigan) (ALSTRUP & COLE 1998, GOFFINET 1994, GOWARD & AHTI 1992, HAFELLNER et al. 2002, HAWKSWORTH & SANTESSON 1990, SANTESSON 2001).

SPECIMENS EXAMINED (all on *Peltigera*): **Canada**: British Columbia: Alaska Highway, 20 km NW Toad River, 59°01'N, 125°30'W, 1600 m, on *P. cf. extenuata*, 1982, Goward 82-1164 (UBC, Di); Blackwater Creek, near Murtle River, Wells Gray Provincial Park, 1996, Goward 96-1164 (UBC); Spahats Creek Provincial Park, S Clearwater Valley, on *P. membranacea*, 1998, Goward 98-10 (UBC, Di); Kispiox area, 50 km NW of village, immediately E of Deadforse Lake, 55°45'N, 128°00'W, 740 m, on *P. membranacea*, 1995, Goward 95-215 (UBC). **USA**: Oregon: Bear Ck. Campground, 35 km WSW of Roseburg on Hwy 42, 43°00'N, 123°50'W, 250 m, on *P. praetextata*, 1990, Goward 90-247 p. p. (UBC). – Washington: Cowlitz Co., 7–8 km SW of summit of Mount St Helens, E of Goat Mtn, NE of Goat Marsh Lake, N of Coldspring Creek, W of gravel Rd FR 8123, 46°10'N, 122°16'W, 900–1000 m, on *P. degenii*, 1996, Tønsberg 24090 p. p. (BG)

***Cystobasidium hypogymniicola*** Diederich & Ahti

This heterobasidiomycete is relatively common in Canada, and was also known from one Finnish locality (DIEDERICH 1996). It is reported here as new for the USA, where it appears to be common at least in Maine. Most known collections are from *Hypogymnia physodes*, but one specimen published by DIEDERICH (1996) is from *H. vittata*, two specimens cited below are from *H. imshaugii*, and one is from an apparently undescribed species of *Hypogymnia*. *H. imshaugii* was already mentioned as a host of a species of *Cystobasidium* by RICHARDSON (1999), but no specimen was indicated by this author.

SPECIMENS EXAMINED (all on *Hypogymnia physodes*, except otherwise mentioned): **Canada**: British Columbia: Rockport Peninsula, Cape Meringuoin area, 1977, Goward 77-538 (UBC, Di); SE of Prince George, Hungary Creek, on *Hypogymnia* sp. nov., 1999, Radies (UBC); N of Hazelton, Date Creek, on *Hypogymnia*, s. d., s. coll. (MIN). – Ontario: Near Kirkland Lake, 3 mi N of junction of Routes 11 and 66, 1959, Wetmore 6367 (MSC). **USA**: Arizona: Apache Co., Mount Baldy Wilderness, along the W fork of the Little Colorado River and the trail to Mt Baldy from Sheep's Crossing, 33°57'N, 109°31'W, 1994, Nash 34966 (ASU, Di). – California: Lake Co., Soda Springs Ranger Station, c. 14 mi W of Lake Pillsbury Resort, 8 mi NE of Potter Valley, Mendocino National Forest, on *H. imshaugii*, 1997, Tucker 35479 (SBBG, Di); Sierra Co., Indian Valley campground on State Hwy 49, 10.7 mi W of Downieville, Tahoe National Forest, along Yuba River (North Folk), on *H. imshaugii*, 1992, Tucker 31841 (SBBG). – Maine: Aroostook Co., 46°56'15"N, 68°56'15"W, 1999, Mann & Cole 7805 (WIS); *ibid.*, 46°48'45"W, 68°41'15"W, 2000, Mann & Cole 9091 (WIS); Oxford Co., 44°48'45"N, 70°48'45"W, 2000, Pratt & Cole 9089 (WIS, Di); Somerset Co., 44°41'15"N, 69°48'45"W, 2000, Pratt & Cole 9090 (WIS); Penobscot Co., 45°33'45"N, 68°18'45"W, 2000, Mann & Cole 9094 (WIS); Washington Co., 44°41'15"N, 67°22'30"W, 1999, DelSignore & Cole 7803 (WIS); *ibid.*, 45°18'15"N, 67°26'15"W, 1999, Mann & Cole 7799 (WIS); *ibid.*, 45°03'45"N, 68°03'45"W, 2000, Mann & Cole 9092 (WIS, Di).

***Cystobasidium usneicola*** Diederich & Alstrup

This species was known only from two neighbouring localities in Vancouver Island, Canada (DIEDERICH 1996). It is herewith newly reported from Colombia, Costa Rica, Mexico and the USA. In the additional Vancouver specimen cited below, collected just 2 km away from the

type locality, and also in the Costa Rica specimen, I was able to prove that the basidia produce 4 basidiospores; in the original account (DIEDERICH 1996), only 2-spored basidia had been observed. The species can very easily be confused with *Biatoropsis usnearum*. Especially when immature, it can take over an hour of microscopical examination to be sure about its identity. As a rule, basidiomata of *C. usneicola* are often much harder to section with a razor blade than those of *B. usnearum* and the interior of the young galls is more whitish, and this might be a certain help to discover additional specimens of this overlooked species.

**SPECIMENS EXAMINED** (all on *Usnea*): **Canada**: British Columbia: Vancouver Island, Bamfield area, Pachena Bay, shoreline forest, 48°47'N, 125°08'W, 5–20 m, on *U. cornuta* s. lat., 1991, Goward 91-590 p. p. (UBC L24815) (basidiomata parasitized by *Abrothallus usneae*); Tofino area, Vargas Island, 8 km NNW of town, 49°12'N, 125°59'W, on *U. madeirensis*, 1991, Goward 91-1964 (UBC, Di). **Colombia**: Antioquia: Munic. El Retiro, along road Medellín-La Ceja, between Las Palmas and El Retiro, Hacienda Fizebad, 6°08'N, 75°30'W, 2050 m, 1986, Sipman 34152 (B). **Costa Rica**: Finca Las Duelas, Carretera Interamericana, Cerro de la Muerte, 1997, Bandoni 12367 (USJ, Di). **Mexico**: Sinaloa: Sierra Madre Occidental, 1 km N of route 40 in the vicinity of Barrancy libre and c. 2 km W of the Durango border, 23°28'N, 105°50'W, 1700 m, on *U. brasiliensis*, 1985, Nash 39110 (ASU). **USA**: Alaska: Tongass Nat. Forest, Mitkof Island W, S of Petersburg, between Mitkof Hwy and Blind Slough SE, NW of Blind Slough River bridge, 56°37'N, 132°49'W, 0–5 m, 2001, Tønsberg 30360 (BG). – California: Mendocino Co., along Hwy 1 (Shore Line Hwy), the Pacific coast NNE of Soldier Frank Point, 39°47'N, 123°5'W, 60 m, 2001, Tønsberg 28934 p. p. (BG). – Oregon: Curry Co., from Gold Beach, take Gold Beach-Agness Rd about 25 mi along Rogue River, right on gravelled Oak Flat Rd to end, picnic area on river, 1996, Tucker 34992B (SBBG). – Washington: Clallam Co., W of Kydaka Point, S of State Rd 112, 1.4–1.5 mi (along road) W of Hoko River Bridge, close to the beach, 48°17'N, 124°23'W, 5–10 m, 1998, Tønsberg 25778 (BG).

### *Dactylospora athallina* (Müll.Arg.) Hafellner

The species was reported from the USA (Arizona, Minnesota, Missouri) by HAFELLNER (1979) and HAFELLNER et al. (2002), and is new for Canada.

**SPECIMEN EXAMINED**: **Canada**: Ontario: Algoma distr., NW of Batchawana, along Lake Superior shore, N of Whiskey Point, on *Baeomyces rufus*, 1960, Imshaug 25940 B (MSC).

### *Dactylospora lobariella* (Nyl.) Hafellner

This fungus was known from Canada (British Columbia), Ecuador, Mexico and the USA (Virginia) (GOWARD et al. 1994, HAFELLNER 1979).

**SPECIMEN EXAMINED**: **Canada**: New Brunswick: Parc National Konchibouguac, le long du ruisseau Major Kollock, on *Lobaria quercizans*, 1988, Sérusiaux 10188b (LG).

### *Dactylospora parasitica* (Spreng.) Zopf

This species was previously reported from the USA (Minnesota) on an unidentified *Pertusaria* species (COLE & HAWKSWORTH 2001).

**SPECIMEN EXAMINED**: **USA**: Washington: Clallam Co., Olympic Nat. Park, Lake Ozette, Tivoli Island, NE shore, 48°04'N, 124°38'W, 10 m, on *Ochrolechia*, 1997, Tønsberg 24846 (BG).

### *Diplolaeviopsis ranula* Giralt & D.Hawksw.

This is a rather common lichenicolous coelomycete on *Lecanora* gr. *strobilina* (GIRALT & HAWKSWORTH 1991), here reported for the first time from America.

**SPECIMENS EXAMINED**: **Brazil**: Rio Grande do Sul: Porto Alegre, Morro Santana, Campos U. F. R. G. S., 300 m, on *L. cf. strobilina*, Marbach (hb Kalb 32918 & 32919, Di). **USA**: Georgia: Walker Co., Chattahoochee National Forest, Johns Mountain Overlook at end of Forest Serv. Rd 208, 34°37'N, 85°07'W, 550 m, on *Lecanora strobilina*, 1992, Harris 28224 (NY, Di). – Kentucky: Harlan Co., Profile Rock, Kentenia State Forest, Little Shepherd Trail 2.7 mi SW of Ky Hwy 2010, 763 m, on *L. strobilina*, 1991, Harris (NY, Di).

***Endococcus apiciicola*** (J.Steiner) R.Sant.= *E. alpestris* D.Hawksw.

This species was known from Colombia (ETAYO 2002), and is thus new for Central and North America.

SPECIMENS EXAMINED (all on *Usnea*): **Bolivia**: *Depto La Paz*: Prov. Saavedra, on mountain side directly N of river, beneath Niño Karine, NNW of Chuma, 15°08'S, 69°03'W, 3300 m, 1979, Lewis 79-1110 (NY). **Brazil**: Serra do Capivari (mun. Campina Grande do Sul), Paraná, 1200 m, on *U. aspera*, 1989, Nicolack 42 (B, Di). **Canada**: British Columbia: Vancouver Island, West Coast Trail, near Thresher's Cove, 48°32'N, 124°26'W, on *U. fragilesceus* s. l., 1994, Aptroot 35056 (hb Aptroot, Di). **Puerto Rico**: Monte Alegriillo, on *U. florida*, 1913, Stevens (NY, Di). **USA**: Washington: Clallam Co., Neah Bay, Waadah Island SW, 48°23'N, 124°36'W, 5–30 m, 1998, Tønsberg 25889 (BG); Clallam Co., Olympic National Park, the Pacific coast, Cape Alava, 48°10'N, 124°44'W, 1–5 m, 1999, Tønsberg 27022, 27023 (BG).

***Endococcus nanellus*** Ohlert

New for America.

SPECIMENS EXAMINED: **Canada**: British Columbia: Shushwap Highland, Hemp Creek, at S entrance of Wells Gray Provincial Park, on *Stereocaulon tomentosum*, 1961, Ahti 13036a (H, Di); SW Satah Mountain, Puntzi Lake area, Chilcotin Plateau, on *Stereocaulon*, 1998, Goward 98-64 (UBC). – Ontario: Temiskaming Distr., airport serving abandoned D. E. W. line 9 km E of Armstrong on S side of CNR mainline, 50°17'N, 88°55'W, on *S. tomentosum*, 1984, Garton 23160 (NY). **USA**: New Hampshire: White Mts., on *S. paschale*, s. d., s. coll. (NY).

***Epaphroconidia hawksworthii*** Calatayud & V.Atienza

This species was known only from the type locality in Spain, on *Pertusaria pertusa* (CALATAYUD & ATIENZA 1995), and is here reported as new for America.

SPECIMEN EXAMINED: **USA**: Georgia: Walker Co., Chattahoochee National Forest, Keown Falls, 34°36'N, 85°07'W, 305–515 m, on *Quercus*, on *Ochrolechia africana*, 1992, Harris 28250 (NY, Di).

***Epicladonia sandstedei*** (Zopf) D.Hawksw.

This relatively common fungus was reported by SCHOLZ (1998) from Canada (Québec) and by COLE & HAWKSWORTH (2001) from the USA (Minnesota). It is new for South America.

SPECIMENS EXAMINED: **Canada**: British Columbia: Sicamous Creek Research area, 10 km ESE of Sicamous, 50°50'N, 118°50'W, on *Cladonia contiocraea*, 1994, Goward 94-720 (UBC); Queen Charlotte Islands, Moresby Island, Tasu Sound, c. 2.5 km SW of Tasu, N slope of the summit of Mine Mtn, 52°40'N, 132°03'W, on *C. albonigra*, 1980, Ahti 39032a (H); along W side of Connector Creek, 0.2 km NE of UBC Cabin, 59°N, 132°W, 1280 m, on *C. phyllophora*, 1975, J. Pojar 1178 (UBC L19486). **Chile**: Prov. Valdivia: Depto La Unión, Reserva Forestal de Llancacura, on *C. verruculosa*, 1969, Mahu 1623 p. p. (H).

***Epicoccum purpurascens*** Schldtl.= *E. neglectum* Desm., *E. nigrum* Link

This is a widely distributed dematiaceous hyphomycete, commonly isolated from air, soil and food. It is a common causative agent of leaf spots of various plants. It has several times been reported as occurring on lichens (HAWKSWORTH 1979, SANTESSON 1993). Whether the lichenicolous specimen reported here belongs to the same species or represents an additional, yet undescribed taxon, can only be decided when more lichenicolous specimens, possibly from the same host genus are available.

SPECIMEN EXAMINED: **USA**: Arizona: Coconino Co., above timberline on the N to NE slope on Mount Agassiz in the San Francisco Peaks, 35°19'N, 111°40'W, 3540 m, on *Diploschistes*, 1988, Nash 25459 (ASU, Di).

***Epilichen scabrosus* (Ach.) Clem.**

HAFELLNER (1979) reported this species from Canada (Nunavut) and the USA (Alaska).

SPECIMEN EXAMINED: USA: Alaska: Mt McKinley Nat. Park, NW slope to summit of Mt Eielson (Copper Mt.), 63°25'N, 50°20'W, 3500–5500 ft, on *Baeomyces placophyllus*, 1956, Weber & Viereck S 7147 (MSC).

***Geltingia associata* (Th.Fr.) Alstrup & D.Hawksw.**

This fungus was previously reported from Canada (British Columbia) (ALSTRUP & COLE 1998) and the USA (Alaska) (ZHURBENKO et al. 1995), always on *Ochrolechia* species.

SPECIMEN EXAMINED: USA: Washington: Jefferson Co., Olympic Peninsula, c. 9.5 km NE of the Pacific coast at Ruby Beach, along Noland Rd 200–300 m from Hwy 101/Nolan Rd junction, at Noland Creek, 47°45'N, 124°19'W, 40 m, on *Ochrolechia*, 1995, Tønsberg 23371 (BG).

***Globosphaeria jamesii* D.Hawksw.**

This species was known only from the type locality in Australia (Tasmania) on *Normandina pulchella*, and the type specimen just consists of a single perithecium, a second having been used for study (HAWKSWORTH 1990a). It is therefore fortunate that an additional collection with more ascomata is now available. New for America.

SPECIMEN EXAMINED: USA: Washington: Clallam Co., N of Sappho, NE of Beaver Lake, along Burnt Mtn Rd 4.1 mi (along road) from Sappho/Hwy 101, 0.8 mi N of Cold Creek Bridge, 48°07'N, 124°14'W, 180 m, on *Normandina pulchella*, 1998, Tønsberg 25991 (BG).

***Hawksworthiana peltigericola* (D.Hawksw.) U.Braun**

This species was reported from Canada (British Columbia) (GOWARD et al. 1994) and Mexico (HAFELLNER et al. 2002), and is therefore new for the USA.

SPECIMENS EXAMINED: **Canada:** British Columbia: Wells Gray Prov. Park, S end of Clearwater Lake, 52°16'N, 120°14'W, on *Peltigera praetextata*, 1979, Goward 79-1383 (UBC); *ibid.*, Ray Farm, 52°05'N, 120°08'W, 700 m, on *Peltigera*, 1994, Goward & Poelt (GZU). **USA:** Oregon: Bear Ck. Campground, 35 km WSW of Roseburg on Hwy 42, 43°00'N, 123°50'W, 250 m, on *P. membranacea*, 1990, Goward 90-247 p. p. (UBC). – Washington: Cowlitz Co., 7–8 km SW of summit of Mount St Helens, E of Goat Mtn, NE of Goat Marsh Lake, N of Coldspring Creek, W of gravel Rd FR 8123, 46°10'N, 122°16'W, 900–1000 m, on *P. degenii*, 1996, Tønsberg 24090 p. p. (BG).

***Hobsoniopsis santessonii* (Lowen & D.Hawksw.) D.Hawksw.**

This species was known only from Sweden and Norway, where it exclusively colonizes thalli of *Peltigera scabrosa* (LOWEN et al. 1986). It is new for America, and *P. neopolydactyla* is a new host.

SPECIMEN EXAMINED: **Canada:** British Columbia: S end Clearwater Lake, Wells Gray Provincial Park, on *Peltigera neopolydactyla*, 1996, Goward 96-1226 (UBC, Di).

***Illosporium carneum* Fr.**

This relatively common parasite of *Peltigera* thalli was known from Canada (Alberta, British Columbia, Ontario) and the USA (Alaska, New York) (ALSTRUP & COLE 1998, GOFFINET 1994, GOWARD et al. 1994, HAWKSWORTH 1979, ZHURBENKO et al. 1995).

SPECIMENS EXAMINED: **Canada:** British Columbia: Mt Chuwhels (W of Lac Le Jeune), near summit, 50°33'N, 120°36'W, 1900 m, on *P. rufescens*, 1981, Goward 81-1280 (UBC); Whistler, 700 m, on *P. didactyla*, 1990, Weber 90-1271b (UBC, Di); Philip Lake, S Wells Gray Provincial Park, on *P. extenuata*, 2001, Goward 01-640 p. p. (UBC). **USA:** Michigan: Near Michigan Agricultural College, on *Peltigera*, 1892, Hicks 625 (MSC). – Montana: Glacier National Park, along summit ridge of Altyn Peak, 7500 ft, on *P. canina*, 1950, Imshaug 5662 (MSC). – New York: Jefferson Co., on *P. rufescens*, 1997, Buck 32193 (GMUF, Di).

***Intralichen christiansenii*** (D.Hawksw.) D.Hawksw. & M.S.Cole

= *Bispora christiansenii* D.Hawksw.

COLE & HAWKSWORTH (2001) and HAFELLNER et al. (2002) reported this hyphomycete from the USA (Arizona, Nebraska), and ALSTRUP & COLE (1998) from Canada (British Columbia). The species, as currently understood, is most probably heterogeneous. New for Mexico.

SPECIMEN EXAMINED: **Mexico**: Baja California: Punta Santa Tomas, 31°33'N, 116°42'W, coastal scrub community, on sterile saxicolous crust, 1989, Aptroot 24244 (hb Aptroot).

***Karsteniomyces peltigerae*** (P.Karst.) D.Hawksw.

Reported from Canada (British Columbia) and the USA (Montana) by ALSTRUP & COLE (1998).

SPECIMEN EXAMINED: **Canada**: Alberta: W of Nordegg, 11.7 km W on Cardinal Road from Junction with Hwy 940, 52°51'N, 116°43'W, on *Peltigera rufescens*, 1994, Chesterman (hb Goffinet, Di).

***Leptosphaerulina peltigerae*** (Fuckel) Riedl

This species was reported from Canada (British Columbia) by MIADLIKOWSKA & ALSTRUP (1995), and from Colombia by ETAYO (2002).

SPECIMEN EXAMINED: **Canada**: British Columbia: 23 km E of Satah Mtn, Chilcotin Plateau, 52°28'N, 124°27'W, on *Peltigera*, 1995, Goward 95-1389 (UBC, Di).

***Lettauia cladoniicola*** D.Hawksw. & R.Sant.

ESSLINGER & EGAN (1995) reported the species from the USA (Tennessee) on *Cladonia rangiferina*. New for Canada.

SPECIMENS EXAMINED: **Canada**: Newfoundland: Burgeo-La Poile distr., 4 mi SE of South Branch Station, on *Cladonia mitis*, 1956, Ahti 2992a (H, Di). **USA**: Maine: Hancock Co., Otter Cliffs, Mt Desert Island, on *C. rangiferina*, 1921, Taylor 18 (NY).

***Lichenochora galligena*** R.Sant. & Hafellner

Previously known from Tanzania and Paraguay on *Physcia* species (HAFELLNER 1989), this fungus is new for North America.

SPECIMEN EXAMINED: **USA**: Louisiana: Ascension Par., dead end of White Road, reached from State Hwy 42, 1 mi E of Prairieville Exit off Interstate 10, on *Physcia americana*, 1992, Tucker 31998A (SBBG).

***Lichenochora obscurioides*** (Linds.) Triebel & Rambold

= *L. thallina* (Cooke) Hafellner

This is a common species, mostly growing on *Phaeophyscia*, previously recorded from Canada (British Columbia) (GOWARD et al. 1994) and the USA (Arizona, Michigan) (HAFELLNER et al. 2002).

SPECIMEN EXAMINED: **USA**: New York: Ulster Co., from end of McKinley Hollow Road to summit of Balsam Mt. via Oliverea-Mapledale & Pine Hill-West Branch Trails, c. 940 m, on *Phaeophyscia pusilloides*, 1993, Harris 30368A (NY, Di).

***Lichenonium cargillianum*** (Linds.) D.Hawksw.

This species was reported from New Zealand on *Rimelia cetrata* (type specimen of *L. cargillianum*), from Mexico on *Ramalina yemensis* (type specimen of *Coniothyrium ramalinae*



Vouaux), from Great Britain and the French Pyrenees on apothecia of *Usnea florida*, and from the French Pyrenees on *Platismatia glauca* (ETAYO & DIEDERICH 1996a). More specimens on all these hosts are needed to determine if one or several species are involved. It is interesting to note that the pycnidial wall in the specimen cited below has a red pigment that dissolves and disappears in KOH. The species is new for North America.

SPECIMEN EXAMINED: USA: Florida: Levy Co., Lower Suwannee National Wildlife Refuge, Shell Mound Co. Park at W end of Co. Rd 326, 29°12'N, 83°05'W, on apothecia of *Parmotrema rigidum*, 1993, Buck 24287 (NY, Di).

***Lichenoconium lecanorae*** (Jaap) D.Hawksw.

This species was reported from Chile and the USA (Alaska, Arizona, Minnesota, New Jersey and Wyoming) (COLE & HAWKSWORTH 2001, DIEDERICH & CHRISTIANSEN 1994, HAWKSWORTH 1977, TRIEBEL et al. 1991, ZHURBENKO et al. 1995). It is new for Bolivia and Canada.

SPECIMENS EXAMINED: **Bolivia**: Depto La Paz: Prov. Murillo, Zongo-Tal, Blockmeer am Viscachani-See, 3800 m, on *Psiloparmelia distincta* (apothecia), 1980, Feuerer 6010b (HBG). **Canada**: Northwest Territories: Mackenzie Distr., Richards Island, 69°32'N, 133°45'W, on *Lecanora symmicta*, 1966, Scotter 8449f (H). **USA**: California: Santa Barbara Co., W of Santa Barbara, WSW of Guadalupe, Sal Ridge, 120°37'W, 34°55'N, 200 m, on lignicolous *Lecanora*, 2002, van den Boom 29059 (hb van den Boom). – New York: Clinton Co., Town of Black Brook, Silver Lake Preserve, off Old Hawkeye Rd, 44°31'N, 73°53'W, on *L. rugosella*, 1996, Buck 30931 (NY); Clinton Co., Town of Altona, Altona Flat Rock area in Miner Experimental Forest, 44°51'N, 73°35'W, on *Parmelia sulcata*, 1996, Buck 30853 (NY, Di). – Pennsylvania: Luzerne Co., Hickory Run State Park, 0.5 mi W of Park Office on Rt. 534, on *Flavoparmelia caperata*, 1998, Lawrey 1688 (GMUF). – Wyoming: 10 km N of Jackson, direction Grand-Teton N. P., on *Melanelia* (apothecia), 1996, Marson (Di).

***Lichenoconium usneae*** (Anzi) D.Hawksw.

This species was reported from Canada (Alberta, British Columbia, Québec), Colombia and the USA (Minnesota, Missouri, New Jersey, Washington) (ALSTRUP & COLE 1998, COLE & HAWKSWORTH 2001, ETAYO 2002, HAFELLNER et al. 2002, HAWKSWORTH 1977, HAWKSWORTH 1981, NOBLE et al. 1987).

SPECIMENS EXAMINED: USA: California: San Benito Co., E of Seledad, Panoche road, N of Antelope Fire Station, 121°02'W, 36°39'N, 590 m, on *Quercus*, on *Ramalina*, 2002, van den Boom 29326 (hb van den Boom). – Virginia: Grayson Co., Wilburn Ridge, Grayson Highlands State Park, c. 1500 m, on *Xanthoparmelia* (apothecia), 1991, Harris 26900 (NY).

***Lichenoconium xanthoriae*** M.S.Christ.

This is a widespread, but relatively rare fungus in Europe, reported from Mexico on *Teloschistes chrysophthalmus* (TRIEBEL et al. 1991) and from Colombia on *Heterodermia comosa* (ETAYO 2002).

SPECIMEN EXAMINED: **Falkland Islands**: West Falklands: Hill Cove, grove of planted trees in settlement, UTM 21F TC 8188, 50 ft, on *Xanthoria candelaria* (apothecia), 1968, Imshaug 41141 p. p. & Harris (MSC 94324).

***Lichenodiplis*** Dyko & D.Hawksw., in Hawksworth & Dyko, *Lichenologist* **11**: 51 (1979)

= *Laeviomycetes* D.Hawksw., *Bull. Br. Mus. nat. Hist. (Bot.)* **9**: 26 (1981)

HAWKSWORTH (1981) described the genus *Laeviomycetes* for two lichenicolous coelomycetes very similar to *Lichenodiplis*, but differing in non-septate conidia. He furthermore noticed that in the type species, *Laeviomycetes pertusariicola*, the conidiomatal wall structure is more complex than in species of *Lichenodiplis*, although in the second species, *Laeviomycetes*

*opegraphae*, this wall is poorly developed and almost hyphal. In the mean time, two further species of *Laeviomycetes* were described, and one additional new species with aseptate conidia is described below. As the conidial septation is not sufficient for distinguishing genera in modern taxonomy, I wondered for a long time if the two genera might be synonymous, or if additional characters would support their separation. The colour of the conidiomatal wall, of the conidiogenous cells and of the conidia appears to be variable within the genus, but this just reflects different concentrations of the same pigment, which is reddish to slightly olivaceous brown and K- in all species. The conidiomatal wall is often very poorly developed, or poorly visible when not or only slightly pigmented, especially when the conidiomata are entirely immersed in the host thallus or apothecia, and its structure is also variable, as already noted by HAWKSWORTH (1981) for *Laeviomycetes*. The conidiogenous cells appear the same in all species of *Laeviomycetes* and *Lichenodiplis*, and the conidia only differ by their septation. In *Lichenodiplis lecanorae*, I experienced to observe some aseptate conidia, and even a 2-septate one intermixed with normal 1-septate conidia. Finally, the macroscopical appearance at a high magnification, the irregular opening of overmature conidiomata, and the predilection of species of both genera to infect host ascomata is the same in *Laeviomycetes* and *Lichenodiplis*. I therefore suggest to treat both genera as synonyms, and I propose the necessary new combinations below. I studied material of all known species, except *Lichenodiplis fallaciosa* (description available in KALB 1990), *L. lichenicola* Dyko & D. Hawksw., *L. opegraphae* (description and illustrations of both in HAWKSWORTH 1981) and *L. poeltii* S.Y.Kondr. & D.Hawksw. (description in KONDRATYUK 1996b).

Another problem is the distinction of *Lichenodiplis* from *Minutoexcipula* V.Atienna & D.Hawksw. (ATIENZA & HAWKSWORTH 1994). The type species, *M. tuckerae*, lichenicolous on *Pertusaria* species, differs from *Lichenodiplis* by the presence of elongate, septate, 2–3-branched conidiophores (conidiophores are absent or reduced in *Lichenodiplis*), and by a different kind of conidiomata that are sporodochial since the beginning, with a thin exciple and a distinctly to strongly convex fertile layer (conidiomata of *Lichenodiplis* are pycnidial, opening irregularly, with a tendency to become completely open, cupulate, with an irregular margin at maturity, but always with a concave fertile layer). HAFELLNER (1994) described a second species in the genus, *M. tuerkii* Hafellner, lichenicolous over *Pertusaria glomerata*; that species has very reduced, unbranched conidiophores; however, the conidiomata are sporodochia that are flat since the beginning, rapidly becoming convex to subspherical. In a very recent paper, ATIENZA (2002) describes two additional new species in *Minutoexcipula*: *M. mariana* V.Atienna, found twice in Spain on *Pertusaria heterochroa*, and *M. calatayudii* V.Atienna, collected once in Spain on *Hypogymnia tubulosa*. In both species, the conidiomata are distinctly smaller than in *M. tuckerae* and *M. tuerkii*, and they are mostly concave, resembling overmature, irregularly formed pycnidia of a species of *Lichenodiplis* (fine illustrations published by ATIENZA 2002). However, the exciple-like margin described and illustrated by ATIENZA (2002) is typical for *Minutoexcipula*, and the reduced conidiophores resemble those of *M. tuerkii*. I have examined type specimens of the four *Minutoexcipula* species (GZU, SBBG, VAB) and tentatively agree with the generic placement proposed by ATIENZA (2002). Nevertheless, I would appreciate a re-appraisal of the whole group, using combined morphological and molecular data.

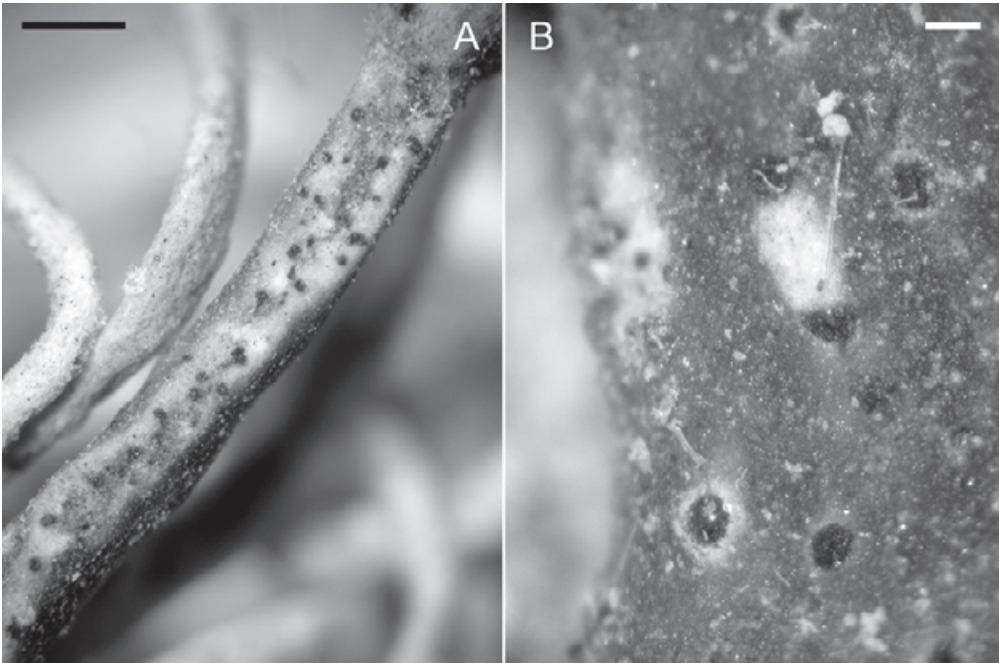
**Key to the known species of *Lichenodiplis* and *Minutoexcipula***

- 1 Conidia aseptate ..... 2  
 1\* Conidia septate ..... 6  
 2 Conidia at least  $4.5 \times 3 \mu\text{m}$  ..... 3  
 2\* Conidia smaller ..... 5  
 3 Conidia  $6-8 \times 3-4 \mu\text{m}$ ; on *Buellia* ..... *L. fallaciosa*  
 3\* Conidia not exceeding  $6 \mu\text{m}$  in length ..... 4  
 4 Conidiomata  $40-80 \mu\text{m}$  diam.; conidia  $4.5-6 \times 3-3.5 \mu\text{m}$ ; on *Dendrographa*  
 ..... *L. dendrographae*  
 4\* Conidiomata  $100-250 \mu\text{m}$  diam.; conidia  $3.5-6 \times 2.5-3.5 \mu\text{m}$ ; on *Pertusaria*  
 ..... *L. pertusariicola*  
 5 Conidia  $3-4.5 \times 1.5-2 \mu\text{m}$ ; ratio length/width 2.3-3; on *Opegrapha* ..... *L. opegraphae*  
 5\* Conidia  $4-4.5 \times 2-2.5 \mu\text{m}$ ; ratio length/width 1.6-2; on *Lecanora* ..... *L. lecanoricola*  
 6 Conidiomata sporodochia, since the beginning flat, soon becoming strongly convex, often  
 with a thin, but distinct, not prominent exciple ..... 7  
 6\* Conidiomata concave, at least when young: either pycnidia with an often irregular open-  
 ing, or sporodochia with a distinct, thin exciple ..... 8  
 7 Conidiophores present,  $12.5-14 \mu\text{m}$  long, 2-3-branched; conidia  $6.5-8 \times 3-4 \mu\text{m}$ ; on  
 corticolous *Pertusaria* ..... *M. tuckerae*  
 7\* Conidiophores absent; conidia  $7-10 \times 3.5-4 \mu\text{m}$ ; on terricolous *Pertusaria glomerata* (the  
 report on *P. schizostomella* by ATIENZA 2002 is a mistake for *M. tuckerae*) .... *M. tuerkii*  
 8 Conidia  $4-8 \mu\text{m}$  long ..... 9  
 8\* Conidia  $8.3-13 \mu\text{m}$  long ..... 10  
 9 Conidiogenous cells  $3.5-6.2 \times 1.5-2.5 \mu\text{m}$ ; conidiomata concave sporodochia (easily con-  
 fused with irregularly opening pycnidia); on *Pertusaria* ..... *M. mariana*  
 9\* Conidiogenous cells  $5.5-12 \times 2-3 \mu\text{m}$ ; conidiomata pycnidia; on *Caloplaca* and *Lecanora*  
 species, also reported from other lichens, heterogeneous? ..... *L. lecanorae*  
 10 Conidia  $2.5-3 \mu\text{m}$  wide; on *Xanthoria* ..... *L. poeltii*  
 10\* Conidia exceeding  $4 \mu\text{m}$  in width ..... 11  
 11 Conidiogenous cells  $5.5-6.2 \times 3-5 \mu\text{m}$ ; conidia  $8.3-10.6 \times 3-4.4 \mu\text{m}$ ; conidiomata con-  
 cave sporodochia; on *Hypogymnia tubulosa* ..... *M. calatayudii*  
 11\* Conidiogenous cells longer and narrower, exceeding  $7 \mu\text{m}$  in length,  $2-3.5 \mu\text{m}$  wide;  
 conidiomata pycnidia ..... 12  
 12 Conidia  $4-4.5 \mu\text{m}$  wide, pale brown, thin-walled; basal scar less than  $1 \mu\text{m}$  diam.;  
 conidiogenous cells  $8.5-17 \times 2-2.5 \mu\text{m}$ ; on *Rinodina* ..... *L. lichenicola*  
 11\* Conidia  $4.5-5.5 \mu\text{m}$  wide, dark brown, thick-walled; basal scar  $1.5-2 \mu\text{m}$  diam.;  
 conidiogenous cells  $7-7.5 \times 2.5-3.5 \mu\text{m}$ ; on *Pertusaria* ..... *L. hawksworthii*

*Lichenodiplis dendrographae* Diederich & van den Boom sp. nov.

Figs 3, 4

*Lichenodiplis* species insignis conidiis aseptatis,  $4.5-6 \times 3-3.5 \mu\text{m}$ , cellulis conidiogenis  $6.5-10 \times 3-3.5(-4) \mu\text{m}$  et conidiomatibus  $40-80 \mu\text{m}$  diam.



**Fig. 3:** *Lichenodiplis dendrographae* (holotype). Conidiomata growing on the thallus of *Dendrographa*. Scale bars: A = 500  $\mu\text{m}$ , B = 100  $\mu\text{m}$ .

Type: USA, California, San Luis Obispo Co., S of Morro Bay, State Park road, N of Museum of Natural History, 120°50.6'W, 35°20.9'N, 2 m, mature *Cupressus macrocarpa* trees beside beach, on *C. macrocarpa*, on *Dendrographa leucophaea* f. *minor*, 26 July 2002, van den Boom 28902 (ASU – holotype; hb van den Boom, hb Diederich – isotypes).

Conidiomata pycnidial, immersed in the host thallus, arising singly, blackish, 40–80  $\mu\text{m}$  diam., subglobose, opening in an irregular way and occasionally becoming cupulate; wall hyaline to brown, paraplectenchymatous, with cells 4.5–7  $\mu\text{m}$  in diam., irregular in thickness and pigmentation. Conidiogenous cells subcylindrical, pale brown, with several annellations, 6.5–10  $\times$  3–3.5(–4)  $\mu\text{m}$ . Conidia aseptate, medium reddish to olivaceous brown, K-, smooth, dry, ellipsoid or more rarely irregular in shape, with a broadly truncate base, 4.5–6  $\times$  3–3.5  $\mu\text{m}$ , wall c. 0.5  $\mu\text{m}$  thick.

Distribution and host: The new species is known only from the type locality in the USA (California) on the thallus of *Dendrographa leucophaea* f. *minor*. It is predominantly attacking the main branches of the host, without visibly damaging them.

Discussion: Amongst the species with aseptate conidia, this species is easily distinguished by the size of the conidia and of the conidiomata (see identification key).

***Lichenodiplis fallaciosa*** (Hafellner & Kalb) Diederich comb. nov.

Basionym: *Laeviomyces fallaciosus* Hafellner & Kalb, in Kalb, Lichenes Neotropici, Fascikel XI (No. 451–475), Neumarkt/Opf., p. 4 (1990).

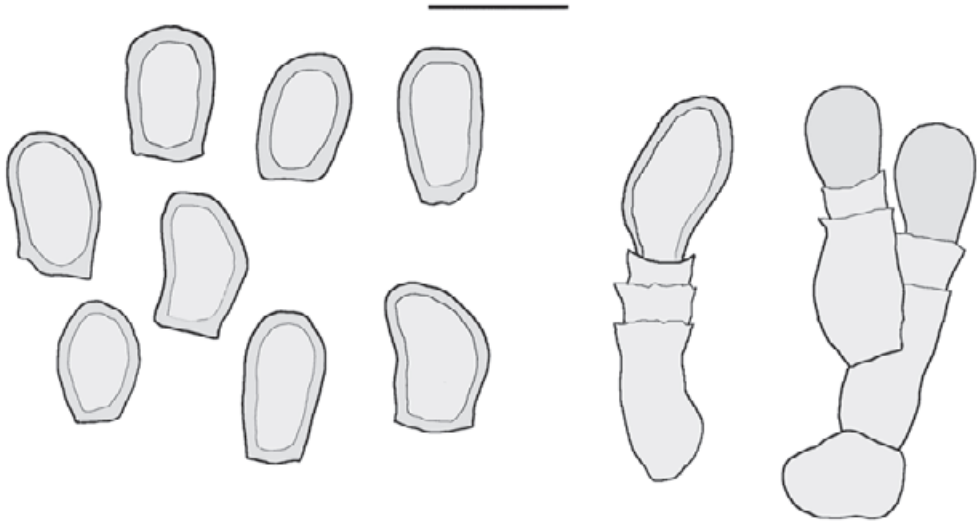


Fig. 4: *Lichenodiplis dendrographae* (holotype). Conidia and conidiogenous cells. Scale bar = 5  $\mu$ m.

***Lichenodiplis lecanorae*** (Vouaux) Dyko & D.Hawksw.

?= *Vouauxiella caloplacae* Alstrup, *Graphis Scripta* 5: 101 (1993)

This species was reported from Argentina on *Lecanora* (ETAYO & BREUSS 1998), from Mexico on *Lecanora caesiorubella* (HAFELLNER et al. 2002), and from the USA (Arizona, Minnesota) on *Caloplaca cerina*, *C. holocarpa* and *Candelaria fibrosa* (COLE & HAWKSWORTH 2001, HAFELLNER et al. 2002, TRIEBEL et al. 1991). New for Canada.

SPECIMENS EXAMINED: **Canada**: Québec: Compté de Terrobonne, Université de Montréal, Station de biologie des Laurentides, 25 km N of St-Jérôme, c. 46°00'N, 74°01'W, on *Lecanora albella* var. *rubescens*, 1997, Buck 32307 (NY). **USA**: California: Santa Barbara Co., W of Santa Maria, WSW of Guadalupe, Sal Ridge, 120°37'W, 34°55'N, 200 m, on lignicolous *Caloplaca*, 2002, van den Boom 29058 (hb van den Boom). – Idaho: Swan Valley, on *Caloplaca* (apothecia), 1996, Marson (Di).

***Lichenodiplis lecanoricola*** (M.S.Cole & D.Hawksw.) Diederich comb. nov.

Basionym: *Laeviomycetes lecanoricola* M.S.Cole & D.Hawksw., *Mycotaxon* 77: 316 (2001).

This species was recently described from a single specimen from the USA (Minnesota) on *Lecanora wisconsinensis*. It appears to be relatively common in North America, as the four additional specimens suggest. New for Mexico.

SPECIMENS EXAMINED: **Mexico**: Chihuahua: Ridge crest area along a secondary dirt road to Casas Grandes from Bavispe, Sonora, 30°24'N, 108°24'W, 2180 m, on *Lecanora varia* s. l., 1994, Nash 36366 (ASU). **USA**: California: Santa Barbara Co., Santa Rosa Island, fence posts above Bee Canyon, 120°11'W, 33°57'N, 210 m, on *Lecanora*, 1994, Nash 32764 (ASU). – Louisiana: Cameron Par., Audubon Migratory Bird Reserve, Peveto Beach, 2 mi E of Johnsons Bayou, on *Lecanora*, 1991, Ross (SBBG, Di). – Washington: Clallam Co., Olympic Peninsula, between Sequim and Blyn, 4 km NW of Blyn, W of Sequim Bay, Sequim Bay State Park, 48°01'N, 123°01'W, 0–5 m, on *Lecanora*, 1996, Tønsberg 24006 (BG).

***Lichenodiplis opegraphae*** (D.Hawksw.) Diederich comb. nov.

Basionym: *Laeviomyces opegraphae* D.Hawksw., Bull. Brit. Mus. (Nat. Hist.) Bot. **9**: 28 (1981).

***Lichenodiplis pertusariicola*** (Nyl.) Diederich comb. nov.

Basionym: *Spilomium pertusariicola* Nyl., Mém. Soc. Imp. Sci. Nat. Cherbourg **5**: 91 (1858) [as '*pertusaricola*'].

= *Laeviomyces pertusariicola* (Nyl.) D.Hawksw., Bull. Brit. Mus. (Nat. Hist.) Bot. **9**: 29 (1981).

***Lichenopeltella heterodermiicola*** M.S.Cole & D.Hawksw.

This species was recently described from the USA (COLE & HAWKSWORTH 2002) and is thus new for South America. The ascomata in the specimen examined are abundant on both thallus margin and cilia.

SPECIMEN EXAMINED: **Ecuador**: Prov. Tung.: Baños lava along Rio Pastaza, 1600 m, on *Heterodermia lutescens*, 1982, Aptroot 10410 (hb Aptroot, Di).

***Lichenopeltella santessonii*** (P.M.Kirk & Spooner) R.Sant.

This species was known from Canada (British Columbia) on *Peltigera membranacea* (ALSTRUP & COLE 1998). It is new for the USA.

SPECIMENS EXAMINED: **USA**: Oregon: Coos Co., Eel Creek Campground area, 43°31'N, 124°16'W, 10 m, on *Peltigera collina*, 1993, Rosentreter 8373 (Di). – Washington: Jefferson Co., along Upper Hoh Road, at Alder Creek, 47°50'N, 124°14'W, 120 m, on *P. collina*, 1998, Tønberg 25613 (BG).

***Lichenopeltella thamnoliae*** R.Sant.

The species was recently published from Colombia, Ecuador, Peru and Venezuela on *Thamnolia vermicularis* (SANTESSON 1998).

SPECIMEN EXAMINED: **Colombia**: Cundinamarca: Páramo de Palacio, parte más alta del filo al S de las Lagunas de Siecha y Buitrago, 3750 m, on *Thamnolia vermicularis*, 1972, Cleef 4043 p. p. (H, Di).

***Lichenopuccinia poeltii*** D.Hawksw. & Hafellner

New for America.

SPECIMENS EXAMINED: **Canada**: British Columbia: Kispiox area, c. 9 km NNW of town, N of Date Creek, 55°25'N, 127°48'W, 510 m, on *Parmelia hygrophila*, 1992, Goward 92-302 (UBC, Di); Hungary Creek, SE of Prince George, on *P. sulcata*, 1999, Radies (UBC). **USA**: Washington: Kittitas Co., 23 km (direct) SSE of Snoqualmie Pass, S of Hwy 90, SW of Kachess Lake, between Yakima River and road FR 4283, 47°16'N, 121°17'E, 680 m, on *P. sulcata*, 1997, Tønberg 25163, 25183 (BG).

***Lichenosticta alcicornaria*** (Linds.) D.Hawksw.

This is a very common lichenicolous coelomycete, previously known from Canada (British Columbia, Newfoundland) and the USA (Minnesota) (ALSTRUP & COLE 1998, COLE & HAWKSWORTH 2001, ETAYO & BREUSS 1998, GOWARD et al. 1994, HAWKSWORTH 1981). New for South America.

SPECIMENS EXAMINED: **Argentina**: Prov. Neuquén: Nahuel Huapí National Park, Puerto Blest – Laguna Los Cántaros, 800 m, on *C. gracilis* subsp. *elongata*, 1983, Hämet-Ahti 3310a (H). **Canada**: British Columbia: Vancouver Island, Miracle Beach Provincial Park (S of Oyster River), on *Cladonia ochrochlora*, 1961, Ahti 15216a (H, Di); Southern Cariboo Mountains, Wells Gray Provincial Park, c. 1 mi S of Hemp Creek Ranger Sta., on *C. gracilis* subsp. *turbinata*, 1961, Ahti 13039a (H, Di); *ibid.*, Murtle Lake, on *C. cf. cornuta*, 13480 (H); *ibid.*, on *C. gracilis*

subsp. *turbinata*, 1961, Ahti 13563a (H, Di); N side of Tulameen (c. 15 mi NW of Princeton), on Lawless (Bear) Creek, W slope of Mt. Rabbit, on *C. cornuta*, 1958, Ahti (H). – New Foundland: Ferryland Distr., NE of Northwest Pond (c. 14 mi WSW of Aquaforte), on *C. cyanipes*, 1956, Ahti 2484a (H); Harbour Main Distr., Hawk Hills, W side of Drop Long Pond, on *C. ochrochlora*, 1956, Ahti 8391 (H). – Ontario: Thunder Bay Distr., Lake Nipigon, island SE of Hunt Island, 50°06'N, 88°39'W, on *C. fimbriata*, 1958, Ahti 4309a (H). **Chile**: Valdivia: Corral, Quitaluto, 450 m, on *C. ochrochlora*, 1936, Gunckel 6506 p. p. (H). **USA**: Washington: Whatcom Co., Mt Baker National Forest, Sulfur Creek Lava Flow, on *C. ochrochlora*, 1992, Ahti 51007a (H).

### *Lichenostigma cosmopolites* Hafellner & Calatayud

This is an extremely common ascomycete, confined to *Xanthoparmelia* species, previously known from Brazil, Canada, Chile, Mexico, Uruguay, the USA and Venezuela (HAFELLNER & CALATAYUD 1999). New for the Central America.

SPECIMENS EXAMINED: **Dominican Republic**: Prov. La Vega: Alto de la Bandera, near summit, 18°49'N, 70°37'W, 2840 m, on *Xanthoparmelia* cf. *cumberlandia*, 1982, Harris 16084A (NY). **USA**: Nevada: W of Las Vegas, Red Rock Canyon National Conservation Area, 36°10'N, 115°27'W, 1290 m, on *Xanthoparmelia*, 1997, Diederich 14166 (Di).

### *Lichenostigma elongata* Nav.-Ros. & Hafellner

This common fungus, confined to *Aspicilia* and *Lobothallia* species, was previously known from Mexico and the USA (Arizona, California, Colorado) (HAFELLNER et al. 2002, NAVARRO-ROSINÉS & HAFELLNER 1996).

SPECIMENS EXAMINED (all on *Aspicilia*): **USA**: California: Riverside Co., E of Los Angeles, Joshua Tree National Monument, road from Hidden Valley to Keys View, 0.5 km N of Key View, 116°10'W, 33°56'N, 1240 m, 2002, van den Boom 29517 (hb van den Boom). – Maine: Washington Co., Steuben, Petit Manan National Wildlife Refuge, John Hollingsworth Trail to Pigeon Bay, 44°26'N, 67°54'W, Cole 9317 (MIN). – Nevada: W of Las Vegas, Red Rock Canyon National Conservation Area, 36°10'N, 115°27'W, 1290 m, 1997, Diederich 14143, 14144 (Di).

### *Lichenostigma maureri* Hafellner

This common species was known from the USA (Arizona, California, Colorado, Idaho) (ESSLINGER & EGAN 1995) and Colombia (ETAYO 2002). It is new for Canada and Costa Rica.

SPECIMENS EXAMINED: **Canada**: Alberta: Rocky Mountain Forest Reserve, E of Nordegg, N of Hwy 11, passed Shunda Creek Campground, 52°28'N, 115°47'E, Goffinet 3506 p. p. (hb Goffinet). – British Columbia: Gulf Islands, Saltspring Island, S of Fulford Harbour, between Mt Bruce and Mt Tuam, 6.5 km along Musgrave Rd from junction Isabella Point Rd, 530 m, on *Letharia vulpina*, 1989, Tønsberg 12725 (BG, Di). – Ontario: Cochrane distr., Wade Lake, Stimson Twp., 49°02'N, 80°33'W, on *Evernia mesomorpha*, 1958, Ahti 9933 (H). **Costa Rica**: San Jose: 6.2 mi from San Rafael de Heredia on Volcan Barba, 8000 ft, on *Usnea*, 1967, Bowers 4041A (NY). **USA**: New Mexico: Bernalillo Co., Sandia Crest, summit of Sandia Mts, 10500 ft, on *Usnea*, 1956, Shushan S6597 (hb Kalb 22859).

### *Lichenostigma subadians* Hafellner, Calatayud & Nav.-Ros.

This is a very common species, mainly growing on yellow *Acarospora* species, previously known from the USA (Arizona), Mexico, Saudi Arabia and the Canary Islands (CALATAYUD et al. 2002).

SPECIMENS EXAMINED: **USA**: Nevada: W of Las Vegas, Red Rock Canyon National Conservation Area, sandstone quarry, 36°10'N, 115°27'W, 1290 m, on *Acarospora*, 1997, Diederich 14137, 14138 (Di).

### *Limoniella pertusariae* Diederich & Etayo

DIEDERICH & ETAYO (2000) described this species from Canada (British Columbia) and the USA (Washington).

SPECIMENS EXAMINED (all on corticolous *Pertusaria*): **Canada**: British Columbia: Clearwater Valley, N of Clearwater along Stillwater Trail, Blackwater Creek, 51°57'N, 120°03'W, 610–620 m, on *P. ophthalmiza*, 2001,

Tønsberg 29233 (BG). USA: Alaska: Kenai Peninsula Borough, just SW of Turnagain Arm, along Seward Highway, near mouth of the valley, 60°51'N, 149°04'W, 10–20 m, 2001, Tønsberg 29634, 29645 (BG); Tongass Nat. Forest, Prince of Wales Island E, SW of Thorne Bay, Salt Chuch N, 55°37'N, 132°33'W, 0–5 m, on *P. cf. ophthalmiza*, 2001, Tønsberg 30121 (BG). – Oregon: Hood River Co., along Hwy 35, 0–1 km N of Pollalie Creek Bridge/Copper Spur Rd jct., 45°25'N, 121°34'W, 850–870 m, 2001, Tønsberg 29122 (BG); Hood River Co., SE of Mt Hood, along Hwy 35, 45°20'N, 121°35'W, 1170–1180 m, 2001, Tønsberg 29132 (BG); Lincoln Co., Ellmake State Park, on US Hwy 20, 22 mi W of Corvallis, on *P. glaucomela*, 2000, Tucker 37047A (SBBG). – Washington: Cowlitz Co., 6 km SW of summit of Mt St Helens, NE of Goat Mtn, SW of Blue Lake, along the road (FR 8123), 46°10'N, 122°16'W, 1000 m, on *P. cf. ophthalmiza*, 1995, Tønsberg 23476 (BG).

***Marchandiomyces corallinus*** (Roberge) Diederich & D.Hawksw.

This common sclerotial basidiomycete was reported by COLE & HAWKSWORTH (2001) from the USA (Minnesota and Missouri). The closely related *M. aurantiacus* (Lasch) Diederich & Etayo, which is widespread and abundant in Europe, has never been correctly reported from America.

SPECIMENS EXAMINED: USA: Arkansas: Polk Co., Ouachita National Forest, Caney Creek Wilderness Area, end of E ridge from Hanna Mt Ridgetop, 34°24'N, 94°04'W, 1700 ft, on *Parmelia* s. l., 2000, Wetmore 84419 (Di); Newton Co., Ozark National Forest, Upper Buffalo River Wilderness Area, Dug Hollow 1 mi from Buffalo River, 35°54'N, 93°26'W, 1800 ft, on *Xanthoparmelia*, Wetmore 85073 (Di). – New York: Essex Co., Chapel Pond near St. Hubert's dryish, 1600 ft, on *Cladonia stellaris*, *Imshaugia aleurites*, *Lasallia papulosa* and *Rhizoplaca chrysoleuca*, 1983, Harris 16637, 16638, 16642, 16659 (NY). – Vermont: C. 35 mi S of Burlington, 3 mi SE of Bristol, 44°06'N, 73°04'W, 274 m, on *Dimelaena oreina*, *Melanelia* and *Rhizoplaca subdiscrepans*, 1994, Rosentreter 8984 a, b & c (Di). – Virginia: Augusta Co., St Mary's Wilderness, near Big Levels area on E end, on *Flavoparmelia baltimorensis*, *F. caperata*, *Lasallia papulosa*, *L. pensylvanica*, *Umbilicaria muehlenbergii*, 1996, Lawrey 1625, 1626, 1627, 1628, 1629 (US, Di).

***Melaspilea canariensis*** D.Hawksw.

New for America.

SPECIMEN EXAMINED: **Brazil**: Mato Grosso: Chapada dos Guimarães, Umgebung von Buriti, on corticolous *Pertusaria*, 1993, Kalb 27814, 27815 (hb Kalb).

***Minutoexcipula mariana*** V.Atiienza

See the introduction of *Lichenodiplis* for comments on the generic placement of this species. The fungus can easily be confused with the two *Lichenodiplis* species confined to *Pertusaria*: *Lichenodiplis pertusariicola* is distinguished by aseptate conidia (HAWKSWORTH 1977), and *L. hawksworthii* Berger & Diederich by much larger conidia (BERGER & DIEDERICH 1996). HAWKSWORTH (1981) included several specimens on *Pertusaria* in his concept of *Lichenodiplis lecanorae*, and the relevant material has to be re-checked for a correct identification. The species was known from Spain and is here reported as new for the Azores, Mexico, New Caledonia and the USA.

SPECIMENS EXAMINED (all on corticolous *Pertusaria*): **Mexico**: Baja California Sur: Along Rte 22, 21 km W of Ciudad Constitucion, S Magdalena Region of the Sonoran Desert, 24°59'N, 111°51'W, 30 m, on *P. xanthodes*, 1989, Aptroot 24727 (hb Aptroot, Di); 36 km NNW of Ciudad Insurgentes (just W of paved road), Magdalena region of the Sonoran Desert, 25°40'N, 111°59'W, 50 m, on *P. xanthodes*, 1992, Nash 30515 (ASU); 15 km N of Todos Santos, road (Mex 19) to San Pedro, 110°10'W, 23°37'N, 200 m, on *P. cf. xanthodes*, 2000, van den Boom 24781 (hb van den Boom); W of Ciudad Constitucion, 5 km E of San Carlos, along Mex 22, 112°06'W, 24°53'N, 50 m, 2000, van den Boom 25111 (hb van den Boom). USA: California: Monterey Co., SSW of Carmel, Point Lobos State Reserve (NW), Allen Memorial Grove, Cypress Grove Trail, 121°57'W, 36°31'N, 25 m, 2002, van den Boom 29347 (hb van den Boom); Santa Barbara Co., Santa Barbara, Hope Ranch, Via Huerto Rd, garden of S. Carlquist, on *P. xanthodes*, 1995, Tucker 34307 (SBBG, Di). – New York: Long Island, Easthampton Co., 3 km E of Amagansett, 40°59'N, 72°08'W, 10 m, 1987, Aptroot 21548 (hb Aptroot, Di). **Azores**: São Miguel: Near Socorra on the W of the island, 200



m, 1986, Aptroot 16185 (hb Aptroot). **New Caledonia:** Grande-Terre: Province Sud, Westküste, Plage de Poé, SW von Bourail, 21°40'S, 165°21'E, 4 m, 1994, Kalb 29034 (hb Kalb).

***Minutoexcipula tuckeræ*** V.Atienza & D.Hawksw.

This is a common hyphomycete confined to *Pertusaria* species, previously known from Mexico (Baja California) (SANTESSON 1998) and the USA (Louisiana) (ATIENZA & HAWKSWORTH 1994).

SPECIMENS EXAMINED: **Mexico:** Baja California Sur: c. 35 km S of Todos Santos, road (Mex 19) to Cabo San Lucas, 110°6'W, 23°12'N, 100 m, on *Pertusaria*, 2000, van den Boom 24803 (hb van den Boom). **USA:** Alabama: C. 8 mi due SW of Oneonta, along W side of Alabama Hwy, on *P. texana*, 1989, Bowers 15998 (SBBG). – California: Santa Barbara Co., Lotusland estate, Ashley Rd., Montecito E of Santa Barbara, on *P. lecanina*, 1996, Tucker 34417 (SBBG). – Louisiana: Baton Rouge, Baird Drive, on *P. xanthodes*, 1966, 1976, 1991 & 1994, Tucker 6702A, 15951, 31186A, 33582 (SBBG, Di); Baton Rouge, Essen Lane, Burden Research Plantation [= type locality], on *Pertusaria*, 1981 & 1991, Tucker 21785, 30901, 30924 (SBBG, Di). – Mississippi: Jackson Co., Ocean Springs, on grounds of Gulg Coast Research Laboratory, on *P. texana*, 1974, Tucker 13071B p. p. (SBBG).

***Monodictys cellulosa*** S.Hughes

This hyphomycete was known from Europe and Canada (HAWKSWORTH 1979). Its biology is poorly known, as it has been mentioned from wood and lichen thalli belonging to different host genera. A larger set of specimens is needed to ascertain if the species is homogeneous, or if several taxa with distinct ecological affinities are hidden behind this name. New for the USA.

SPECIMEN EXAMINED: **USA:** Virginia: Wise Co., Jefferson National Forest, High Knob Recreation Area, along trail from High Knob to High Knob Lake, 36°52'N, 82°37'W, 1215–1265 m, on *Phlyctis*, 1991, Buck 20721 (NY, Di).

***Muellerella lecanactidis*** Diederich & van den Boom sp. nov.

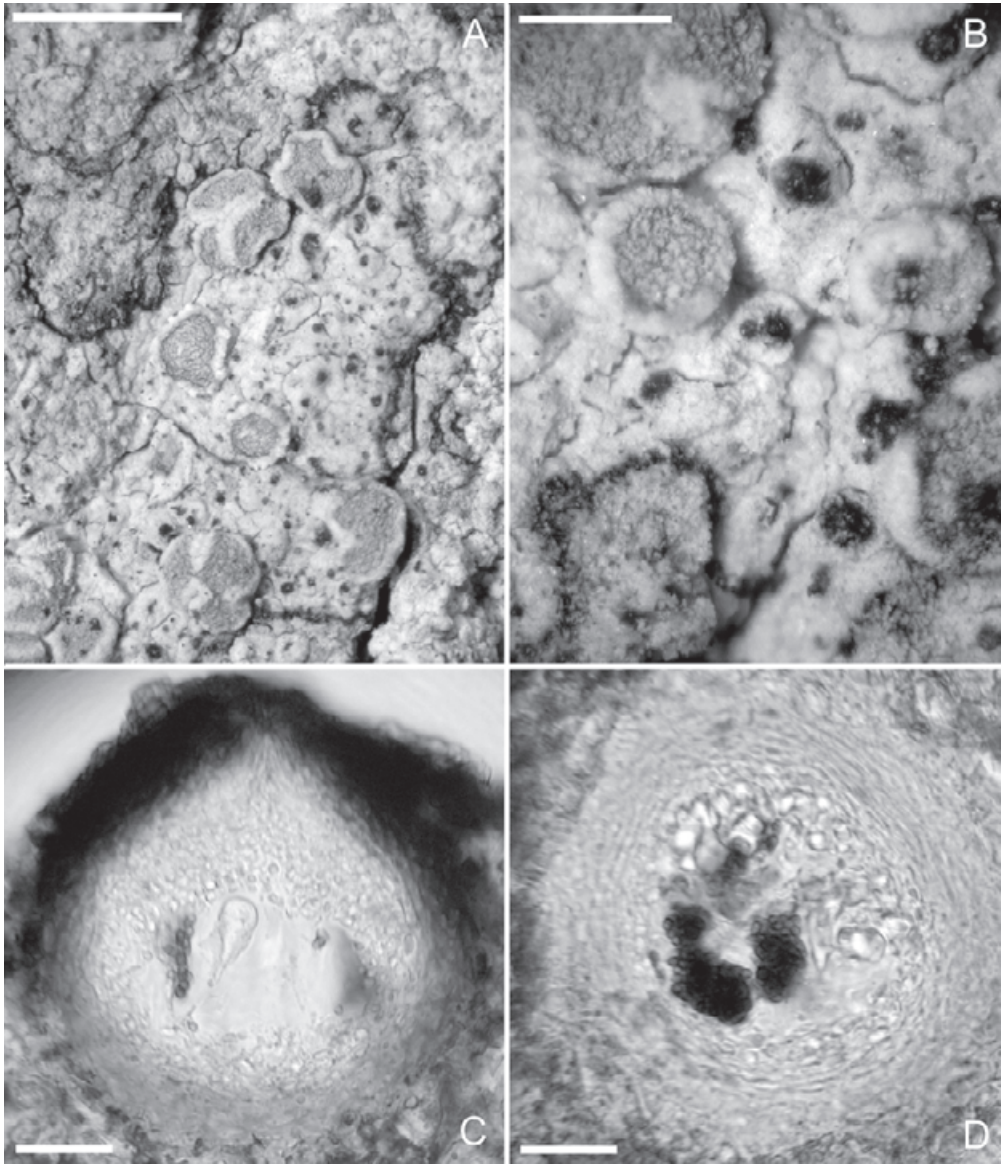
Figs 5, 6

*Muellerella* lichenicola in thallo et apotheciis *Lecanactidis* vigenis, insignis ascomatibus perparvis, 60–120 µm, pariete atrobrunneo ubi exposito, incolori ubi immerso, ascis c. 256-sporis, ascosporis 1-septatis, tenuiseptatis, pallide brunneis, perparvis, 3.5–5 × 1.7–2.3 µm.

Type: USA, California, San Luis Obispo Co., S of Morro Bay, State Park road, N of Museum of Natural History, 120°50.6'W, 35°20.9'N, 2 m, mature *Cupressus macrocarpa* trees beside beach, on *C. macrocarpa*, on *Lecanactis*, 26 July 2002, van den Boom 28909 (ASU – holotype; hb van den Boom, hb Diederich – isotypes).

Mycelium immersed, hyaline. Perithecia lichenicolous, initially immersed in the host thallus and apothecia, later erumpent, subspherical, ostiolate, exposed parts blackish, 60–120 µm diam. Wall in section dark reddish brown in upper exposed parts, K-, entirely hyaline in immersed parts, 15–25 µm thick, sometimes slightly thicker in exposed parts, pseudo-parenchymatous, cells in section elongate, 5–9 × 1.5–3.5 µm. Periphyses abundantly developed in the upper part of the perithecial cavity, hyaline, septate, branched; interascal filaments absent; centrum entirely I-, K/I-. Asci ellipsoidal to shortly clavate, apically thick-walled, c. 25–30 × 15–20 µm, c. 256-spored. Ascospores 1-septate, pale olivaceous brown, smooth-walled, 3.5–5 × 1.7–2.3 µm, septum and wall thin, c. 0.2 µm; perispore absent. Conidiomata not observed.

Distribution and host: The new species is known only from the type locality in California, where it grows on the thallus and apothecia of a corticolous *Lecanactis*. The host is not visibly damaged by the presence of the fungus.



**Fig. 5:** *Muellerella lecanactidis* (holotype). A-B, Fertile thallus of *Lecanactis* with blackish, partly immersed ascomata of *Muellerella*. C, Section through a partially exposed ascoma, showing the dark, pigmented exposed ascomatal wall, and the hyaline immersed wall. D, Immersed ascoma with an entirely hyaline wall. Scale bars: A = 1000  $\mu\text{m}$ , B = 500  $\mu\text{m}$ , C, D = 20  $\mu\text{m}$ .

Discussion: Amongst the *Muellerella* taxa with 1-septate ascospores recognized by TRIEBEL (1989), *M. lichenicola* (Sommerf.: Fr.) D.Hawksw. has the smallest perithecia (100–125  $\mu\text{m}$  diam.), the largest number of ascospores per ascus (c. 100), the smallest and palest ascospores (5–6  $\times$  2.5–3  $\mu\text{m}$ ) and the thinnest ascospore septum. The type of *M. lichenicola* is from

*Caloplaca flavovirescens*, but the species has additionally been reported from many other host genera, including *Catillaria*, *Pertusaria*, *Physcia*, *Physconia*, *Rinodina*, *Solenopsisora*, *Tephromela* and *Verrucaria* (TRIEBEL 1989). This host spectrum suggests that *M. lichenicola* might be heterogeneous, but no attempt to recognize a larger number of more narrowly defined species has been made until now.

*Muellerella lecanactidis* is the first known species of the genus with still smaller ascomata and ascospores, and with a larger number of ascospores per ascus. The species is furthermore characterized by the immersed parts of the perithecial wall being hyaline, contrarily to all other hitherto known species of *Muellerella*, which have a more or less entirely dark perithecial wall.

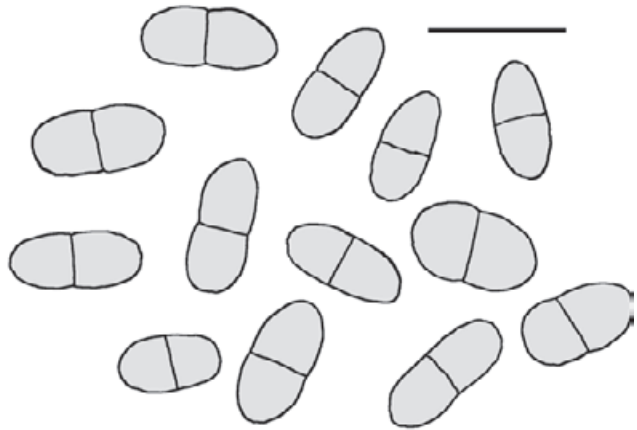


Fig. 6: *Muellerella lecanactidis* (holotype). Ascospores. Scale bar = 5  $\mu$ m.

#### *Nectriopsis lecanodes* (Ces.) Diederich & Schroers

The species was known from Canada (British Columbia), Mexico (Baja California, Baja California Sur, Chihuahua) and the USA (Alaska, Colorado, Idaho, Oregon, Wyoming) (ALSTRUP & COLE 1998, ESSLINGER & EGAN 1995, HAFELLNER et al. 2002, SANTESSON 2001).

SPECIMEN EXAMINED: **Canada:** British Columbia: S end Clearwater Lake, Wells Gray Provincial Park, on *Peltigera collina*, 1996, Goward 96-1249 (UBC).

#### *Nectriopsis parmeliae* (Berk. & M.A.Curtis) M.S.Cole & D.Hawksw.

This species was known from the USA (Massachusetts, Minnesota and Missouri) (COLE & HAWKSWORTH 2001). It was also reported from the USA (Massachusetts) on *Physcia millegrana* by LAWREY et al. (1994). New for Canada.

SPECIMENS EXAMINED: **Canada:** Nova Scotia: Halifax, near intersection of Inglis and Robbie Streets, on *Parmelia sulcata*, 1998, Richardson (Di). **USA:** New York: Franklin Co., small city park near Saranac Lake, on *P. sulcata*, 1994, Rosentreter 8990 (Di).

#### *Neolamyia peltigerae* (Mont.) Theiss. & Syd.

This rare ascomycete was reported from Canada (British Columbia) on *Peltigera didactyla* (ALSTRUP & COLE 1998). It is new for the USA.

SPECIMENS EXAMINED: **Canada:** British Columbia: 25 km SW of Williams Lake, 51°55'N, 122°07'W, on *Peltigera* cf. *didactyla*, 1981, Goward 81-2155 (UBC, Di). **USA:** Arizona: Santa Cruz Co., Santa Rita Mountains, Madera Canyon, trail to Josephine Saddle, 31°43'N, 110°52'W, on *Peltigera*, 1988, Aptroot 24154 (hb Aptroot, Di).

***Opegrapha foreau*** (Moreau) Hafellner & R.Sant.= *Opegrapha trassii* S.Y.Kondr. & Coppins

This is a relatively common and widespread species on *Heterodermia*, previously known from Colombia, Hawaii, Surinam, Puerto Rico and the USA (Louisiana) (COPPINS & KONDRATYUK 1998, ETAYO 2002).

SPECIMEN EXAMINED: **USA**: Louisiana: Allen Par., 4.5 mi W of Kinder on US 190, N side of Hwy, 1 mi W of Calcasieu River, on *Heterodermia albicans*, 1986, Tucker 27324 (SBBG, Di).

***Opegrapha melanospila*** Müll.Arg.

This species was described from Venezuela (CLAUZADE et al. 1989), and has subsequently been collected in Socotra (MÜLLER 1882) and in China (SANTESSON 2001). It is herewith reported as new for Central and North America, and for Australia. The fungus seems to be confined to species of *Parmotrema* and *Rimelia*, two very closely related genera, which share at least one additional lichenicolous fungus, *Tremella parmeliarum* Diederich.

SPECIMENS EXAMINED: **Brazil**: Bahia: Municipality of Paulo Afonso, 15–20 km NW of Paulo Afonso on airport road that eventually leads to Petrolândia, Caatinga, 300 m, on *Rimelia reticulata*, 1981, Boom 1051A (NY). – Mato Grosso: Etwa 35 km SE von Cuiabá, 120 m, on *Parmotrema*, 1980, Kalb 33375 (hb Kalb). **Dominican Republic**: Peninsula de Samaná, prov. Samaná, en la parte NE de la península, Loma El Frontón, 19°17'N, 69°10'W, on *P. endosulphureum*, 1984, Zanoni 29337 (NY). **USA**: Florida: Marion Co., Ocala National Forest, along Forest Serv. Rd 573 at jct of Forest Serv. Rd 573A, 1.4 mi E of 210 Avenue, c. ¼ mi NE of Doe Lake, T.17S., R.25E., sec. 4, on *Parmotrema*, 1988, Buck 16908 (NY).

**Australia**: New South Wales: Patonga, an der Ostseite des Patonga Creek, c. 40 km N von Sydney, Mangrove, 33°33'S, 151°16'E, 1–2 m, on isidiate *Parmotrema*, 1992, Kalb 26228 (hb Kalb).

***Opegrapha pulvinata*** Rehm

This widespread species growing on *Dermatocarpon* was known from Mexico (SANTESSON 1998) and the USA (HAFELLNER et al. 2002).

SPECIMEN EXAMINED: **USA**: California: Marin Co., Mt Tamalpais State Park, rocky headlands along Hwy 1 about 3 mi S of Stinson Beach, 200 ft, on *Dermatocarpon*, 2001, Robertson (Sonoma State University herbarium, Di).

***Opegrapha sphaerophorica*** Isbrand & Alstrup

This species was described from Vancouver Island (Canada, British Columbia) on *Sphaerophorus globosus* by ISBRAND & ALSTRUP (1992). It has subsequently been reported from a second locality on the same island on *S. globosus* and from the USA (California) on *S. globosus* var. *gracilis* (= *S. tuckermanii*) (ALSTRUP & COLE 1998).

SPECIMENS EXAMINED: **Canada**: British Columbia: Vancouver Island, Sayward area, lower Tsitika Valley, 50°23'N, 125°58'W, 100 m, on *Sphaerophorus globosus*, 1991, Goward 91-692 (UBC). – Newfoundland: Placentia, on *S. globosus*, 1894, Robinson & Schrenk (NY, Di).

***Opegrapha thelotrematis*** Coppins

This species was considered to be endemic in Scotland (PENTECOST & JAMES 1992), where it is known from *Thelotrema lepadinum* and *T. macrosporum* [= *T. monosporum* auct.] growing over *Corylus* (COPPINS 1987). It has recently been reported from the USA (Washington) (SANTESSON 2001) on *T. lepadinum*. New for Canada.

SPECIMEN EXAMINED: **Canada**: British Columbia: Vancouver Island, Port Renfrew, Botanical Beach, 48°31'N, 124°25'W, 0–50 m, on *Alnus rubra*, on *Thelotrema* cf. *lepadinum*, 1994, Aptroot 35371 (hb Aptroot, Di).

***Opegraphoidea staurothelicola*** Fink

This is a poorly known species, apparently confined to *Staurothele*, described from the USA. The delimitation of this species to *Opegrapha pulvinata*, and also the generic position of this species need further investigations.

SPECIMEN EXAMINED: USA: Massachusetts: Berkshire Co., Bartholomew's Cobble, Ashley Falls, on *Staurothele diffractella*, 1982, Harris (NY, Di).

***Paranectria oropensis*** (Ces.) D.Hawksw. & Piroz.

= *P. oropensis* subsp. *parviseptata* M.S.Cole & D.Hawksw.

COLE & HAWKSWORTH (2001) recently described the new subsp. *parviseptata* for specimens differing by shorter ascospores with a smaller number of transverse septa. The ascospores were said to be  $(21.5-23-27(-29) \times (10-11-14 \mu\text{m})$  and  $(2-3-4(-5) \times (0-1(-2)$ -septate in subsp. *parviseptata*, and  $(22-25-32(-36) \times (9-11-14(-15) \mu\text{m})$  and  $(5-6-7(-9) \times (0-1-2(-3)$ -septate in subsp. *oropensis*. In the USA specimen examined by me, the ascospores are  $25-37 \times 10-14 \mu\text{m}$  and  $3-9 \times (0-1(-2)$  septate (N = 40); c. 75 % of the ascospores examined are 3-5-septate and fit subsp. *parvispora*, whilst c. 60 % are 5-9-septate and fit subsp. *oropensis*; over 50 % are 24-27  $\mu\text{m}$  long and fit subsp. *parviseptata*, whilst all, except one are at least 25  $\mu\text{m}$  long and fit subsp. *oropensis*. COLE & HAWKSWORTH (2001) considered that the smaller number of septa and the slightly shorter ascospore length is not due to immaturity. In the USA specimen examined by me, I observed that some asci contain mainly smaller and less septate ascospores, whilst others contain longer and more septate ones. I am convinced that, in this specimen, the asci are of a different age, and that the ascospore length and septation does represent a degree of maturity. I therefore conclude that the two subspecies cannot be distinguished, and suggest to consider both as synonyms. COLE & HAWKSWORTH (2001) furthermore noticed that in one specimen of subsp. *parviseptata*, the ascospore appendages are  $(1.5-2.5-4(-5.5) \mu\text{m}$  long, whilst in another they are 7-10  $\mu\text{m}$ . In the USA specimen examined by me, these appendages are 3-4  $\mu\text{m}$  long in many ascospores, but much longer, up to 14  $\mu\text{m}$  in others from the same ascoma, and thus their length does not appear to have any taxonomic value.

The species was previously known from Mexico and the USA (Minnesota) (COLE & HAWKSWORTH 2001, HAFELLNER et al. 2002). New for Canada.

SPECIMENS EXAMINED: Canada: British Columbia: Blanket Creek, 20 km SSE Revelstoke, on *Massalongia carnososa*, 1999, Goward 99-403 (UBC). USA: Massachusetts: Franklin Co., Town of Rowe, just off Tunnel Road, 3.8 mi NW of Zoar on River Road, 42°40'N, 72°53'W, on *Biatora* on rock, 1998, Buck 34586 (NY, Di).

***Patriciomyces valentinianus*** D.Hawksw.

This species was recently described for a hyphomycete growing on *Physcia stellaris* in the USA (Missouri) (COLE & HAWKSWORTH 2001). The authors were not sure if the fungus is a parasite of *Physcia*, or just a saprobe installed after the host thallus was already bleached for some other reason. The discovery of a second collection on *Physcia americana* supports the hypothesis that the fungus is really a parasite confined to *Physcia* species.

SPECIMEN EXAMINED: USA: North Carolina: Jackson Co., Cedar Cliff Mountain, along NC 281, 3.6 mi E of NC 107 at Tuckasegee, 35°15'N, 83°05'W, on *Physcia americana*, 1996, Harris 38674 (NY, Di).

***Perigrapha superveniens*** (Nyl.) Hafellner

This is a rare lichenicolous fungus, hitherto known only from France and Madeira on *Parmelia sulcata* (HAFELLNER 1996). New for America.

SPECIMEN EXAMINED: **Canada**: Newfoundland: Grand Falls Distr., 17 mi SW of Badger, on Exploits River, on *Parmelia sulcata*, 1956, Ahti 7775a (H).

***Pezizella epithallina*** (W.Phillips & Plowr.) Sacc.

New for America.

SPECIMEN EXAMINED: **USA**: New York: Jefferson Co., Three Mile Creek Road Barrens, NW of Three Mile Creek Road (Co. Rd 5), 1.7 mi NE of Houghton Road (Co. Rd 8), 2.4 mi NW of NY 12E at Chaumont, 44°08'N, 76°09'W, on *Peltigera rufescens*, 1997, Buck 32257 (NY).

***Phacopsis* versus *Nesolechia***

TRIEBEL & RAMBOLD (1988) suggested synonymizing *Phacopsis* Tul. (type species: *P. vulpina*) and *Nesolechia* A.Massal. (type species: *N. oxyspora*), based on similar ascomatal characters. This was questioned and not accepted by some subsequent authors (ALSTRUP & HAWKSWORTH 1990). A recent molecular study, in which *Phacopsis huuskonenii*, *P. oxyspora* and *P. vulpina* were included (PERŠOH & RAMBOLD 2002) could neither confirm nor reject a monophyletic origin of these species. As ascomatal pigments proved to be reliable taxonomic characters at species or even genus level, I examined these pigments in a selection of *Phacopsis* s. lat. species. All species examined by me, incl. *P. vulpina*, *P. huuskonenii* and several species of the *P. oxyspora*-group, have the same epihymenial and hypothecial pigment (except for those species with an unpigmented hypothecium): this pigment is orange brown, becomes olivaceous in K and more light orange brown in N. Although the galls induced by *P. vulpina* are often bluish black, no other or additional pigment could be detected. In *P. huuskonenii*, the dark brown hypothecium has the same pigment, but the epihymenium is greyish olivaceous, K-, N+ orange brown. In my opinion, the epihymenium contains the same brownish, K+ olivaceous, N+ orange brown pigment as the hypothecium and also as the other *Phacopsis* species, but there is an additional, greyish olivaceous epihymenial pigment, obscuring the brownish one. As a conclusion, the ascomatal pigments do not suggest that *Phacopsis* s. lat. should be split into two genera.

***Phacopsis cephalodioides*** (Nyl.) Triebel & Rambold

This is a rarely recorded ascomycete (TRIEBEL et al. 1995) confined to *Hypogymnia* species, here reported as new to America.

SPECIMEN EXAMINED: **Canada**: Ontario: Cochrane Distr., Stoddart Twp., Carey Lake air base, 49°44'N, 84°02'W, on *Hypogymnia physodes*, 1958, Ahti 4454 (H).

***Phacopsis fusca*** (Triebel & Rambold) Diederich comb. nov.

Basionym: *Phacopsis oxyspora* var. *fusca* Triebel & Rambold, in Triebel, Rambold & Elix, Bryologist 98: 80 (1995).

TRIEBEL et al. (1995) described the new var. *fusca* for specimens of *Phacopsis oxyspora* with a dark brown hypothecium (versus colourless to pale brown in var. *oxyspora*). In the material examined by me, I noticed an additional useful character to distinguish both taxa: very young ascomata are always blackish in var. *fusca*, whilst they are often reddish brown in var. *oxyspora*. As var. *fusca* furthermore has a different host range than var. *oxyspora* (mainly growing on *Xanthoparmelia* species, although mentioned from some other hosts), I believe that this taxon best deserves recognition at species rank.

*Phacopsis fusca* was known on *Xanthoparmelia* from Venezuela (type specimen). The taxon

was furthermore cited from Canada on *Cavernularia* (TRIEBEL et al. 1995), and is here reported from the same host genus from Alaska. HAFELLNER et al. (2002) reported the taxon from Mexico (Chihuahua) and the USA (Arizona) on *Hypotrachyna* species. *Phacopsis oxyspora* was recently mentioned from the USA (Minnesota) on *Xanthoparmelia plittii* (COLE & HAWKSWORTH 2001); as the specimens on *Xanthoparmelia* studied by TRIEBEL et al. (1995) all belonged to *P. fusca*, and a further species, *P. australis* Aptroot & Triebel was recently described from *Xanthoparmelia* (APTROOT et TRIEBEL 2002), it is most likely that the specimen studied by COLE & HAWKSWORTH (2001) belongs to one of these two species.

**SPECIMENS EXAMINED:** USA: Alaska: Kodiak Island Borough, Kodiak Island E, Kalsin Bay SE, just W of and uphill from Cape Chiniak Rd, 57°35'N, 152°26'W, 20–30 m, on *Cavernularia lophyrea*, 2001, Tønsberg 29398, 29399 p. p. (BG [with *Phacopsis oxyspora* on *Parmelia*]); *ibid.*, at the end of Anton Larsen Bay Rd, 57°52'N, 152°39'W, 10 m, on *C. hultenii*, 2001, Tønsberg 29366 (BG); Cordova, Copper River Delta, along Copper River Hwy, 60°37'N, 145°15'W, 10 m, on *C. hultenii*, 2001, Tønsberg 29707 (BG). – Nevada: W of Las Vegas, Red Rock Canyon National Conservation Area, 36°10'N, 115°27'W, 1290 m, on *Xanthoparmelia*, 1997, Diederich 14165 (Di). **Venezuela:** Merida: Distr. Miranda, Paramo zw. Almorzadero und Pinango, 8°55'N, 70°50'W, 4200 m, on *Xanthoparmelia*, 1989, Kalb (Di).

### *Phacopsis huuskonenii* Räsänen

This fungus was reported from Canada (British Columbia) and the USA (Alaska) by GOWARD & AHTI (1992), HAFELLNER (1987) and THOMSON & AHTI (1994).

**SPECIMENS EXAMINED** (all on *Bryoria*): **Canada:** British Columbia: 5 km S of Aiyansh on road to Terrace, edge of Tseax R., 55°08'N, 129°00'W, 60 m, Goward 81-1996 (UBC); 12 mi S of McLead L., 54°N, 122°W, on *B. fuscescens*, 1967, Revel (UBC); Nr. Trappers Creek, on Hart Hwy, 1967, Revel (UBC); Blackwater Creek, near Murtle River, Wells Gray Provincial Park, 1997, Goward 97-5 (UBC, sub *Tremella hypogymniae*). **USA:** Alaska: Kodiak Island Borough, Kodiak Island E, the peninsula W of Mill Bay, Ft. Abercrombie State Historic Park, at Gjertrude Lake, 57°50'N, 152°21'W, 30 m, 1991, Tønsberg 15537 (BG).

### *Phacopsis oxyspora* (Tul.) Triebel & Rambold

= *P. oxyspora* var. *defecta* Triebel & Rambold

= *P. menegazziae* Triebel & Rambold

This is a relatively common parasite inducing the formation of galls on parmelioid lichens. It was previously known from Bolivia, Brazil, Canada (British Columbia, New Foundland), Chile, Colombia, Peru and the USA (Arizona, California, Maine, Massachusetts, Minnesota) (ALSTRUP & COLE 1998, ETAYO 2002, GOWARD & AHTI 1992, HAFELLNER 1998, SANTESSON 1994a, 2001, TRIEBEL et al. 1991, TRIEBEL et al. 1995, WEDIN 1994).

TRIEBEL et al. (1995) described var. *defecta* for specimens with a hypothecium not reacting with Lugol's iodine. In my opinion, this character is of a low taxonomic value within the genus *Phacopsis* (APTROOT et al. 1997b), and I suggest to treat this variety as a synonym of var. *oxyspora*. For the same reason, I propose to treat *Phacopsis falcispora* Triebel & Rambold var. *sipmanii* Diederich & Triebel as a synonym of var. *falcispora*. Furthermore I propose to regard *P. menegazziae* as a synonym of *P. oxyspora*; the type specimen is distinguished from *P. oxyspora* only by smaller ascospores (TRIEBEL et al. 1995); however, ascospores within the *P. oxyspora* complex are highly variable in size, and a second specimen that I collected on *Menegazzia* in New Guinea (APTROOT et al. 1997b) has ascospores similar in size to typical *P. oxyspora*.

**SPECIMENS EXAMINED:** **Canada:** British Columbia: Hwy 16, forest NE above Goat River crossing, 53°30'N, 120°37'W, 750 m, on *Parmelia hygrophila*, 1992, Goward 92-1279 p. p. (UBC); Kispiox area, c. 9 km NNW of Town, N of Date Creek, 55°25'N, 127°48'W, 510 m, on *P. hygrophila* and *Platismatia norvegica*, 1992, Goward 92-

334 p. p., 92-304 (UBC); McBride area, 80 km NW of town just off Hwy 16, 3 km N of Slim Creek, 53°39'N, 121°12'W, 800 m, on *Platismatia glauca*, 1992, Goward 92-1205 (UBC); Manning Provincial Park, Rhododendron Flat, on *P. glauca*, 1994, Cole (MIN). **USA:** Alaska: Kodiak Island Borough, E of Kodiak Village, Near Island N, Northend Park, small island just N of Near Island, 57°47'N, 152°23'W, 0–10 m, on *Parmelia* sp., 2001, Tønsberg 29508 (BG); Kodiak Island Borough, Kodiak Island E, Middle Bay SW, S bank of American River, just W of the main road, 57°38'N, 152°31'W, 0–10 m, on *Parmelia* sp., 1991, Tønsberg 15325 p. p. (BG, with *Abrothallus parmeliarum*); *ibid.*, Kalsin Bay SE, just W of and uphill from Cape Chiniak Rd, 57°35'N, 152°26'W, 20–30 m, on *Parmelia* s. str., 2001, Tønsberg 29400, 29406 (BG). – California: Shasta Co., Pollard Flat on Sacramento River, off US Hwy 5, 1 mi N of LaMoine, SW of Dunsmuir, on *P. sulcata*, 2000, Tucker 37157 (SBBG). – Michigan: Roscommon Co., T. 22 N, R. 2 W, sec. 9, on *Punctelia rudecta*, 1959, Imshaug 25458, 25470 (MSC); Keweenaw Co., Isle, Royale National Park, on main island across from Clay Island in bay S of Robinson Bay, on *P. rudecta*, 1959, Wetmore 4445 (MSC). – Montana: Lake Co., Lion Creek Gorge, Swan Range, 47°40'N, 113°43'W, 1135 m, on *P. hygrophila*, 1984, McCune 13917 p. p. (Di).

### *Phacopsis vulpina* Tul.

The species was known from Canada (British Columbia) and the USA (California, Idaho) (GOWARD & AHTI 1992, HAFELLNER 1987).

SPECIMENS EXAMINED (all on *Letharia vulpina*): **Canada:** British Columbia: Gulf Islands, Saltspring Island, S of Fulford Harbour, between Mt Bruce and Mt Tuam, 6.5 km along Musgrave Rd from junction Isabella Point Rd, 530 m, 1989, Tønsberg (BG, Di); '100 Mile House', 51°38'N, 121°18'W, 1996, McDermott (UBC, Di). **USA:** California: Eldorado Co., around Saylor cabin on US Hwy 50 (S side) along American River, c. 3 mi E of Kyburz, Eldorado National Forest, 38°47'N, 120°14'W, c. 4500 ft, 1995, Tucker 34113 p. p. (SBBG); Lassen Co., Cariboo Wilderness, N shore of Posey Lake, 1991, Corbin 48 p. p. (SBBG); Lassen Co., Emigrant Pass area, State route 89, Lassen Volcano Nat. Park, 1955, Herre (SBBG, with *Phaeosporobolus usneae*); Shasta Co., Thousand Lakes Wilderness, S side Eiler Butte, 1990 & 1991, Corbin 16 p. p., 25 p. p. (SBBG); Siskiyou Co., Mt Shasta road departing from Hwy 9 mi SE of Weed, Mt Shasta National Forest, 1975, Tucker 14848B (SBBG, Di).

### *Phaeopyxis punctum* (A.Massal.) Rambold, Triebel & Coppins

ALSTRUP & COLE (1998), APTROOT (2002), HAFELLNER et al. (2002) and RAMBOLD & TRIEBEL (1990) reported this species from Brazil, Canada (British Columbia and Newfoundland) and the USA (Arizona).

SPECIMENS EXAMINED: **Canada:** British Columbia: Sacamous Creek Research area, 10 km ESE of Sicamous, 50°50'N, 118°50'W, 1560 m, on *C. fimbriata*, *C. ochrochlora* and *C. norvegica*, 1994, Goward 94-717, 94-758, 94-759 (UBC, Di); Brooks Peninsula, end of estuary, 50°10'N, 127°50'W, on *C. portentosa* subsp. *pacifica*, 1975, Hedba L16051 (UBC, Di); S end Clearwater Lake, Wells Gray Provincial Park, on *C. umbricola*, 1996, Goward 96-993 (UBC); 2 km S Spahats Creek Provincial Park, S Clearwater Valley, on *C. ochrochlora*, 1998, Goward 98-123 (UBC). – Ontario: Thunder Bay Dist., Lot 1, Conc. III on Townline Marks, O'Connor Twps., 1 km W of Conc. IV Rd, 48°20'W, 89°46'W, on *C. coniocraea*, 1986, Garton 23554 (NY). **USA:** North Carolina: Mitchell Co., Pisgah National Forest, Roan Mountain Gardens, 36°06'N, 82°08'W, 1930 m, on *C. chlorophaeae* s. l., 1993, Harris 30818 (NY). **Venezuela:** Cordillera de la Costa, El Avila a lo largo del camino entre la Estación del Teleférico El Tanque-El Lagunaso, 1900–2000 m, on *C. subradiata*, 2000, Lopez-Figueiras 25357a (H).

### *Phaeosporobolus alpinus* R.Sant., Alstrup & D.Hawksw.

This common lichenicolous hyphomycete, mostly confined to species of *Ochrolechia* and *Pertusaria*, was reported from Argentina, Canada (British Columbia), Chile, Colombia and the USA (Alaska) (ALSTRUP & COLE 1998, ALSTRUP & HAWKSWORTH 1990, ETAYO 2002, WEDIN 1994 and ZHURBENKO et al. 1995).

SPECIMENS EXAMINED: **Canada:** British Columbia: Vancouver Island, Victoria Watershed, 48°31'N, 123°34'W, 300 m, on *Ochrolechia pseudopallescens*, 1994, Aptroot 35091 (hb Aptroot, Di). **USA:** Georgia: Columbia Co., Heggie's Rock Preserve, off Louisville Road ca. 2 mi N of GA 232, 33°33'N, 82°15'W, 100 m, on *O. africana*, 1999, Buck 36492 (NY). – Hampshire: Carroll Co., Town of Madison, West Branch Pine Barrens Preserve, along NH 41, 0.6 mi NE of jct. with NH 16 in West Ossipee, 43°50'N, 71°11'W, 140 m, on *O. arborea*, 1999, Buck 36218 (NY). –



Missouri: Jefferson Co., W-facing Ordovician dolomite glade, E of Mammoth Creek Road, on slopes above Ridenour Hollow, sec. 12, on sterile *Pertusaria*, 1990, Harris 25436 (NY, Di); Shannon Co., Ozark National Scenic Riverways, Rocky falls, off Co. Rd NN along falls of Rocky Creek, 37°05'N, 91°12'W, 275 m, on *P. trachythallina*, 1990, Harris 25585 (NY). – Washington: San Juan Co., San Juan Island NW, British Camp, the park NE of Guss Island in Garrison Bay, 48°35'N, 123°09'W, 0–5 m, on *P. amara*, 1998, Tønsberg 26848 (BG).

### *Phaeosporobolus usneae* D.Hawksw. & Hafellner

This is a very common lichenicolous ascomycete growing on all kinds of epiphytic foliose or fruticose lichens. It was reported from Argentina, Canada (British Columbia, Ontario, Québec), Colombia and the USA (Arizona, Michigan, Minnesota, Missouri and North Carolina) on *Evernia mesomorpha*, *E. prunastri*, *Flavoparmelia caperata*, *Letharia vulpina*, *Protousnea magellanica*, *Punctelia semansiana*, *Usnea fulvoviregens* and *U. subfloridana* (ALSTRUP & COLE 1998, COLE & HAWKSWORTH 2001, ETAYO 2002, HAFELLNER et al. 2002, HAWKSWORTH & HAFELLNER 1986, SANTESSON 1994b).

SPECIMENS EXAMINED: **Canada:** Saskatchewan: Lac Ile-à-la-Croise, 55°07'N, 107°51'W, 150 m, on *Evernia mesomorpha*, 1972, Looman 723303 (in Lich. Canad. Exs. 114, sub *E. mesomorpha*, H!). **USA:** California: Eldorado Co., around Saylor cabin on US Hwy 50 (S side) along American River, c. 3 mi E of Kyburz, Eldorado National Forest, 38°47'N, 120°14'W, c. 4500 ft, on *Letharia vulpina*, 1995, Tucker 34113 p. p. (SBBG); Lassen Co., Cariboo Wilderness, N shore of Posey Lake, on *L. vulpina*, 1991, Corbin 48 p. p. (SBBG); Lassen Co., Emigrant Pass area, State route 89, Lassen Volcano Nat. Park, 1955, Herre p. p. (SBBG, sub *Phacopsis vulpina*); Monterey Co., across Carmel Valley Rd, from entrance gate, Hastings Natural History Reservation, on Carmel Valley Rd 15 mi NW of junction with Arroyo Seco Rd, W of Greenfield, 1600 ft, on *Ramalina menziesii* (apothecia), 1996, Tucker 34509 (SBBG); Nevada Co., Sierra Nevada Mountains, Tahoe National Forest, N of Truckee near Saghein Research Station, 39°25'N, 120°18'W, on *L. vulpina*, 1990, Nash 30976 (in Lich. Exs. ASU 118, sub *L. vulpina*, ASU!); Santa Barbara Co., Santa Cruz Island, along Ridge Rd, at Centinella Gate, on *Ramalina subleptocarpha*, 1988, Bratt 5697 (SBBG); Santa Cruz Co., along Skyline Boulevard, 2 mi NW of junction with Cal. Hwy 17 from San Jose, on *Usnea fulvoviregens*, 1966, Tucker 6267D (SBBG); Shasta Co., Thousand Lakes Wilderness, S side Eiler Butte, on *L. vulpina*, 1990 & 1991, Corbin 16 p. p., 25 p. p. (SBBG). – Montana: Missoula Co., near Mt. Dean Stone, Sapphire Range, 46°48'N, 113°58'W, 1770 m, on *L. columbiana*, 1985, McCune (Di). – Oregon: Wallawa Co., S end of Wallawa Lake, c. 5 mi S of Joseph, Wallawa-Whitman National Forest, 4640 ft, on *L. vulpina*, 1975, Tucker 14495 (SBBG).

### *Phoma cytospora* (Vouaux) D.Hawksw.

This coelomycete was known from the USA (Minnesota, Missouri) (COLE & HAWKSWORTH 2001).

SPECIMENS EXAMINED (all on *Flavoparmelia caperata*): **USA:** California: San Luis Obispo Co., S of Morro Bay, between Morro Bay State park and Baywood park, Elfin forest preserve, 120°49'W, 35°20'N, 35 m, 2002, van den Boom 29136 (hb van den Boom, Di); *ibid.*, Montana de Oro State Park (S), Rattlesnake Trail, 120°53'W, 35°16'N, 150 m, 2002, van den Boom 29188 (hb van den Boom); Santa Barbara Co., W of Santa Maria, WSW of Guadalupe, Sal Ridge, trail to Sal beach, 120°38'W, 34°44'N, 300 m, 2002, van den Boom 29068 (hb van den Boom).

### *Phoma physciicola* Keissl.

This species was reported from Canada (British Columbia, Québec) on *Physcia aipolia* by ALSTRUP & COLE (1998) and HAFELLNER et al. (2002), and is therefore new for the USA.

SPECIMEN EXAMINED: **USA:** California: Santa Barbara Co., Davey Brown trailhead on Rd 7N07, Figueroa Mountain, Los Padres National Forest, San Rafael Range, 34°44'N, 119°58'W, 4000 ft, on *Physcia*, 1998, Tucker 35931 (SBBG).

### *Plectocarpon nephromeum* (Norman) R.Sant.

The species was known from Canada (British Columbia) (SCHOLZ 1998) and is new for the USA.

SPECIMENS EXAMINED (all on *Nephroma*): **Canada:** British Columbia: N of Hazelton, 10 km WNW of Kispiox, N of Date Creek, 55°23'N, 127°49'W, 720 m, 1994, Tønsberg 20729 (BG). **USA:** Alaska: City and Borough of

Juneau, mainland NW of Juneau City, N of Dotsons Landing, N bank of Herbert River, just W of the Hwy, 58°31'N, 134°48'W, 10 m, on *N. bellum*, 1991, Tønsberg 16260 (BG); City and Borough of Juneau, Medenhall Lake SW, Tongass Natural Forest Picnic Ground, 58°25'N, 134°35'W, 30 m, 1999, Tønsberg 27591 (BG).

***Polycoccum clauzadei*** Nav.-Ros. & Cl.Roux

This species forms typical galls on the thallus of *Xanthoria elegans*, in which the perithecia develop. It was described from southern France (NAVARRO-ROSINÉS & ROUX 1998) and later reported from the USA (Nebraska) (HAFELLNER et al. 2002). It is new for Canada.

SPECIMEN EXAMINED: **Canada:** Newfoundland: St Barbe South District, Norris Point, Norris Cove, rocks by sea in village, on *Xanthoria elegans*, 1978, Ahti 34999b (H, Di).

***Polycoccum minutulum*** Kocourková & F.Berger

This species was recently described from Austria and the Czech Republic on *Trapelia placodioides* (KOCOURKOVÁ & BERGER 1999). It is new for America.

SPECIMEN EXAMINED: **USA:** New York: Rockland Co., Harriman State Park, along Woodtown Road West near dam at S end of Lake Sebago along Seven Lakes Drive, 41°11'N, 74°08'W, 240 m, on *Trapelia placodioides*, 1998, Harris 42164 (NY, Di).

***Polycoccum trypethelioides*** (Th.Fr.) R.Sant.

This rare species was known from Canada (British Columbia) (ALSTRUP & COLE 1998).

SPECIMEN EXAMINED: **Canada:** British Columbia: 25 km N of Kispiox, near Skeena River, on *Stereocaulon tomentosum*, 1995, Goward 95-282 (UBC, Di).

***Pronectria streimannii*** S.Y.Kondr., Coppins & D.J.Galloway

= *Xenonectriella streimannii* (S.Y.Kondr., Coppins & D.J.Galloway) Rossmann

ROSSMAN et al. (1999) included this species, and also *Pronectria leptaleae* (J.Steiner) Lowen and *P. ornamentata* (D.Hawksw.) Lowen, in the genus *Xenonectriella* Weese, which otherwise was monotypic, with the sole species *X. lutescens* (Arnold) Weese. I do not agree with this decision.

First of all, the description of *X. lutescens* given by ROSSMAN et al. (1999) is not accurate, as they describe the asci as cylindrical and 2-spored, and the ascospores as uniseriate, muriform, with 4–6 often oblique transverse septa, and 0–4 obliquely longitudinal septa. In reality, as illustrated by ROSSMAN et al. (1999, Pl. 36) and confirmed by my studies, the asci are claviform and 8-spored, and the ascospores are 1–2-seriate and 1-septate. The ascospores of *X. lutescens* studied by me were filled with large lipid drops of 3–5 µm diam. in KOH or lactic acid, which might have been mistaken for cells by some earlier authors, resulting in apparently muriform ascospores. Following ROSSMAN et al. (1999), the ascomatal papilla is scarlet, K+ dark red, whilst the ascomatal wall is just said to be pigmented in the outer region. In the material examined by me, the perithecia have a very pale wall, which doesn't give any positive colour reaction with KOH or lactic acid.

The three *Pronectria* species combined into *Xenonectriella* by ROSSMAN et al. (1999) certainly do not belong there. They are distinguished from *X. lutescens* by uniseriate, strongly tuberculate, brown (at maturity), ellipsoid to almost cylindrical ascospores with rounded or almost angular ends [see epithet '*angulospora*' below], whilst those of *X. lutescens* are 1–2-seriate, verruculose, hyaline, becoming yellow, fusiform to naviculate, with almost pointed ends.

Instead, they are closely related to *Pronectria fissuriprodiens* Etayo and *P. subimperspicua* (Speg.) Lowen (ETAYO & DIEDERICH 1996b, ROSSMAN et al. 1999). *Pronectria angulospora* Etayo, which ROSSMAN et al. (1999) consider a synonym of *P. leptaleae*, but in my opinion seems to be distinct with broader ascospores and much larger ascospore tubercles (ETAYO 1998), is a further member of this possibly natural group of fungi. I wondered if these species might represent a distinct genus, closely related to *Pronectria*. They are distinguished from other *Pronectria* species by the presence of an orange pigment in the perithecial wall, which becomes darker orange in KOH and intensively yellow in lactic acid, uniseriate ascospores which become brownish at maturity, and a tendency of the ascospores to be verrucose or tuberculate. Most other *Pronectria* species do not have this pigment, have 1–2- or 2-seriate ascospores, and the ascospores remain hyaline. *Pronectria fissuriprodiens*, *P. ornamentata* and *P. streimannii* have an additional reddish perithecial pigment, which becomes dark purplish to violet in KOH, but does not react in lactic acid. This pigment is also known from *P. septemseptata* Etayo (ETAYO 1998), and is thus not a reliable character allowing to split the genus into two natural entities. As a number of additional, yet undescribed species of *Pronectria* s. lat. have other combinations of characters, a satisfactory splitting is not advisable at present. The description of many more species of *Pronectria* should be awaited for, before attempting to segregate any natural groups.

Curiously, the main reason for ROSSMAN et al. (1999) for including some *Pronectria* species in *Xenonectriella* is their positive reaction with KOH and lactic acid, and this character, together with the perithecial colour led the authors distinguish the two families Bionectriaceae (in which the perithecial wall does not react with KOH and lactic acid) and the Nectriaceae (in which there is a positive reaction). However, colours and positive reactions observed are due to completely different pigments and thus cannot be considered as indications of any natural relationship. E.g., *Pronectria ornamentata* was included in *Xenonectriella* mainly because of the red perithecial pigment, which reacts K<sup>+</sup> purplish, whilst *P. leptaleae* was included in that genus because of the orange pigment, which reacts K<sup>+</sup> darker orange. In my opinion, the colour-based taxonomy should urgently be replaced by a pigment-based one, as the presence or absence of certain well-characterised pigments proved to be one of the most useful taxonomic characters in other groups of ascomycetes (DIEDERICH & ETAYO 2000).

A final question is how to distinguish *Xenonectriella* from *Pronectria* s. lat. Many characters, like form, size, ornamentation, colour and arrangement of ascospores, form of asci, pigmentation of the perithecial wall, etc., are very variable within the latter genus, and, if I had to newly describe the species known as *X. lutescens*, I would not hesitate to include it in *Pronectria*. However, the genus *Xenonectriella* Weese (1919) is older than *Pronectria* Clem. (1931), and a synonymization of both would imply all *Pronectria* names to be combined into *Xenonectriella*, which seems highly inadvisable for the moment, at least as long as no molecular data confirm such a decision.

*P. streimannii* was known from the type specimen, collected in Australia on the thallus of *Sticta cyphellulata* (KONDRATYUK 1996a), and from additional collections from Colombia on *Sticta* and *Lobaria* (ETAYO 2002).

SPECIMEN EXAMINED: **Brazil**: Minas Gerais, Catas Altas, Serra do Caraça, Parque Natural do Caraça, near Funil, 1.5 km NW of monastery Santuário do Caraça, 20°06'S, 43°29'W, 1300 m, in secondary rain forest on tree, on *Sticta*, 1997, Aptroot 41396 (hb Aptroot, Di).

SPECIMEN OF *Xenonectriella lutescens* EXAMINED: [**Germany**: Bayern: 35 km S of München,] Isarwinkelgebirge, Benediktenwand, am Ostereg, on *Solorina*, 1958, Poelt (M).

***Pseudoseptoria usneae*** (Vouaux) D.Hawksw.

New for America.

SPECIMEN EXAMINED: **Costa Rica**: Amistad, 9°15'N, 83°15'W, 1200–1600 m, on *Usnea*, 1999, Vervoort (hb Aptroot, Di).

***Raciborskiomyces peltigericola*** (D.Hawksw.) M.E.Barr

= *Wentiomyces peltigericola* D.Hawksw.

This rare fungus was known from Canada (British Columbia) (ALSTRUP & COLE 1998). It is new for the USA.

SPECIMEN EXAMINED: **USA**: Washington: King Co., SW of Stevens Pass, 0.8 km from Hwy 2 along road FR 6095, just S of tunnel Creek bridge, 47°43'N, 121°07'W, 880 m, on *Peltigera britannica*, 1997, Tønsberg 25113 p. p. (BG) (sub *Stigmidium pseudopeltideae*, holotype).

***Rhymbocarpus cruciatus*** (Sherwood, D.Hawksw. & Coppins) Etayo & Diederich

New for America.

SPECIMEN EXAMINED: **USA**: California: Monterey Co., SSW of Carmel, Point Lobos State Reserve (NW), Allen Memorial Grove Cypress Grove Trail, 121°57'W, 36°31'N, 25 m, on *Cupressus*, on *Diploicia canescens*, 2002, van den Boom 29558 (hb van den Boom).

***Rhymbocarpus neglectus*** (Vain.) Diederich & Etayo

This species was known from the USA (Colorado) (KÜMMERLING et al. 1993).

SPECIMEN EXAMINED: **USA**: Washington: Pierce Co., along the road between Hwy 410 and Crystal Mountain Ski Resort, near Silver Creek, along forest trail no. 1163, 46°58'N, 121°29'W, 1170 m, on *Lepraria*, 1996, Tønsberg 24052 (BG).

***Roselliniella cladoniae*** (Anzi) Matzer & Hafellner

This is a common and widespread fungus confined to *Cladonia* species, previously known from Colombia (ETAYO 2002) and the USA (Maine, Vermont) (HAFELLNER et al. 2002). New to Canada.

SPECIMENS EXAMINED: **Canada**: British Columbia: Seymour River, c. 15 km N of Blais Creek, 51°35'N, 118°53'W, 850 m, on corticolous *Cladonia ochrochlora*, 1995, Goward 95-835 (UBC L32757). – Newfoundland: Burgeo - La Poile Distr., 6 mi SE of South Branch Sta., 47°52'N, 58°45'W, on *C. rangiferina*, 1956, Ahti 8490a (H). **USA**: Washington: Jefferson Co., SE of Hwy 101, 1.1 mi (along Hwy) S of Hoh River Bridge, along small gravel road 200 m W of Hwy, 47°48'N, 124°15'W, 60 m, on *Cladonia*, 1998, Tønsberg 25765 (BG).

***Roselliniella nephromatis*** (Crouan) Matzer & Hafellner

This rare species, described from France and Scotland (MATZER & HAFELLNER 1990), has later been discovered in Canada (British Columbia) (ALSTRUP & COLE 1998, ETAYO & BREUSS 1998, GOWARD et al. 1996).

SPECIMEN EXAMINED: **Canada**: British Columbia: Coal Creek Falls, Hemp Creek, Wells Gray Provincial Park, on *Nephroma*, 1994, Goward 94-893 (UBC).

***Scutula epiblastematica*** (Wallr.) Rehm

This species is widespread and common in Europe and North America (USA), and is also known from Africa, Asia and South America (Colombia) (COLE & HAWKSWORTH 2001, ETAYO 2002, TRIEBEL et al. 1997). It is new for Canada.

SPECIMEN EXAMINED: **Canada:** British Columbia: West Central Vancouver Island, N side of Sproat Lake, 49°18'N, 125°10'W, 590 m, on *Peltigera praetextata*, 1981, Gagnon 81-77-10 (UBC, Di).

### *Scutula miliaris* (Wallr.) Trevis.

This common species was known from Canada (British Columbia), Chile, Mexico (Chihuahua) and the USA (Colorado, Minnesota, Missouri, New Mexico) (COLE & HAWKSWORTH 2001, GOWARD et al. 1994, HAFELLNER et al. 2002, SANTESSON 2001, TRIEBEL et al. 1997).

SPECIMENS EXAMINED: **Canada:** British Columbia: Wells Gray Prov. Park, near Helmcken Falls, Cougar Creek Canyon, 51°57'N, 120°11'W, on *Peltigera canina*, 1980, Goward 80-598 (UBC, Di); Cariboo Zone, 52°14'N, 122°22'W, on *P. canina*, 1967, Beil (UBC, Di); near Crown Lake, Pavilion Lake Rd, 50°52'N, 121°44'W, on *P. rufescens*, 1962, Schofield 17871A (UBC); N facing slope above Williams Lake Creek Valley, 52°10'N, 122°15'W, on *P. canina*, 1997, Roberts (UBC). – Nova Scotia: Queens Co., Thomas H. Raddall Provincial Park, 43°51'N, 64°55'W, on *P. aphthosa*, 1999, Maxfield (NY). – Québec: Parc de la Rivière Saguenay, Baie du Cap Trinité, on *P. britannica*, 1988, Sérusiaux (LG, Di). **USA:** Massachusetts: New Bedford, on *Peltigera*, Wiley (NY – AC 73791). – New Mexico: Taos Co., c. 4 mi S of Tres Piedras, 7800 ft, on *P. canina*, 1956, Shushan & Weber S 6536 (MSC).

### *Scutula stereocaulorum* (Anzi) Kőrb.

This fungus confined to *Stereocaulon* was known from Canada (British Columbia, Québec) (COLE & HAWKSWORTH 2001, GOWARD & AHTI 1992, NOBLE et al. 1987).

SPECIMEN EXAMINED: **Canada:** British Columbia: Forested N slopes of Trophy Mountains, Wells Gray Provincial Park, on *Stereocaulon*, 1999, Goward 99-398 (UBC, Di).

### *Skyttea megalosporae* Diederich & Etayo

This apparently rare species was known from the French and Spanish Pyrenees, and from Colombia (DIEDERICH & ETAYO 2000, ETAYO 2002). It is new for Venezuela.

SPECIMEN EXAMINED: **Venezuela:** Merida: Distr. Libertador, Pico Espejo, SE of Merida, Loma Redonda, 8°35'N, 71°00'W, 4200 m, on *Megalospora foersteri*, 1989, Kalb 22754 (hb Kalb).

### *Skyttea tavaresae* R.Sant., Etayo & Diederich

The species was known from two Californian specimens (DIEDERICH & ETAYO 2000) and appears to be more common in that region.

SPECIMENS EXAMINED (all on *Pyrrhospora querneae*): **USA:** California: Monterey Co., between Big Sur and Morro Bay, Point Piedras Blancas (lighthouse), 121°17'W, 35°40'N, 25 m, 2002, van den Boom 28898 (hb van den Boom); San Luis Obispo Co., Cambria, neben Straße Nr.1, auf *Pinus*, 1991, Marson (Di); San Luis Obispo Co., S of Morro Bay, between Morro Bay State Park and Baywood park, Elfin forest preserve, 120°49'W, 35°20'N, 35 m, on *Ceanothus*, 2002, van den Boom 29108 (hb van den Boom).

### *Skyttella mulleri* (Willey) D.Hawksw. & R.Sant.

This species was known from Canada (British Columbia) and the USA (California and Massachusetts) (ALSTRUP & COLE 1998, HAWKSWORTH & SANTESSON 1988).

SPECIMEN EXAMINED: **Canada:** British Columbia: Spahats Creek Provincial Park, S Clearwater Valley, on *Peltigera praetextata*, 1998, Goward 98-11 (UBC, Di).

### *Sphaerellothecium parmeliae* Diederich & Etayo

This species was known from Europe (ETAYO & DIEDERICH 1998) and southern Siberia (ZHURBENKO & OTNYUKOVA 2001) and is herewith reported as new for America.

SPECIMEN EXAMINED: **USA:** California: Marin Co., Mt Tamalpais, Rock Springs, boulders to SW of parking lot, 37°55'N, 122°37'W, 613 m, on *Parmelia saxatilis*, 2001, Cole 7901 (MIN).

***Sphaerellothecium propinquellum* (Nyl.) Cl.Roux & Triebel**

This parasite of the apothecia of *Lecanora* species (mainly *L. subcarpineae*) was known from the USA (Arizona) (ROUX & TRIEBEL 1994).

SPECIMEN EXAMINED: USA: California: Tulare Co., Sierra Nevada, Sequoia National Park, Giant Forest, area of Museum, on *Pseudotsuga*, on *Lecanora* aff. *subcarpineae*, 2002, van den Boom 29562 (hb van den Boom).

***Sphinctrina anglica* Nyl.**

The biology of this species was for a long time unclear. LÖFGREN & TIBELL (1979) stated that the species is sometimes parasitic on *Lecanora*, but mostly associated to a brownish crust, and they were not able to decide if this thallus is formed by the *Sphinctrina*, or if it belongs to an unidentified host. In the meantime, PURVIS (1992) mentioned the species on *Protoparmelia oleagina*, and APTROOT et al. (1997a) found it on the newly described *P. hypotremella*. I have seen additional European collections, in which the fungus grows on a sterile, brownish crust, which could not be identified, but which was tentatively considered as belonging to a species of *Protoparmelia*. The American material examined by me is particularly interesting as the host of specimen Harris 7408 is abundantly fertile and is a typical member of the genus *Protoparmelia*. The identity of the host in this specimen, and also of many other sterile host thalli of *S. anglica* has not yet been assessed, but it seems to me that at least one undescribed species may be involved.

*Sphinctrina anglica* has repeatedly been mentioned from North America (LÖFGREN & TIBELL 1979, TRIEBEL et al. 1991, WETMORE: Lich. Exs. Min. 50).

SPECIMENS EXAMINED: USA: Michigan: Cheboygan Co., W of Hebron Mail Rd, T. 37 N, R. 3 W, sec. 13, on *Thuja*, 1974, Harris 9390 (MSC); Dickinson Co., S end of O'Neil Lake, T. 44 N, R. 28 W, sec. 7, on *Thuja*, 1971, Harris 7408 (MSC).

***Sphinctrina leucopoda* Nyl.**

This species is rare in North America, where it was known from Mexico (Baja California and Baja California Sur) and the USA (Arizona, California, Oregon and Virginia) (HAFELLNER et al. 2002, KALB et al. 1995, PETERSON & RIKKINEN 1999), and in South America, where TIBELL (1996) recorded it in Peru. The specimens below were identified by Tibell in 1977, but apparently never published.

SPECIMENS EXAMINED: USA: Michigan: Delta Co., near Chicago Lake NW of Isabella, T. 42 N, R. 18 W, sec. 18, on *Pertusaria*, 1969, Harris 4278 (MSC); Keweenaw Co., Isle Royale National Park, along Island Mine Trail between Island Mine and Greenstone Ridge, on *Thuja*, 1959, Wetmore 4907 (MSC); *ibid.*, Feldtman Ridge (Turkey Ridge), on *Thuja*, 1959, Wetmore 4817 (MSC); *ibid.*, at the end of Grace Creek Trail, on *Thuja*, 1958, Wetmore 1967B (MSC); *ibid.*, Greenstone Ridge, 2 mi NE of Windigo, on *P. pertusa*, 1958, Wetmore 1910-a (MSC); Washtenaw Co., NW of Crooked Lake, T. 2 S, R. 3 E, sec. 6, on *Pertusaria*, 1964, Harris (MSC). – Minnesota: Snowbank Lake, on wood, 1897, Fink 866 (MSC).

***Sphinctrina tubaeformis* A.Massal.**

This species is relatively common and widespread in South America and is also known from North America (TIBELL 1996). TRIEBEL et al. (1991) and SANTESSON (2001) reported it from Mexico (Baja California).

SPECIMENS EXAMINED: USA: Mississippi: Jackson Co., Ocean Springs, on grounds of Gulf Coast Research Laboratory, on *Pertusaria texana*, 1974, Tucker 13071B p. p. (SBBG); Jasper Co., Bienville National Forest, Forest Serv. Rd 506-3 at E edge of national forest by small cemetery, 32°12'N, 89°13'W, 105 m, on *P. epixantha*, 1992, Harris 28865 p. p. (NY).

***Stigmatidium epixanthum*** Hafellner

This is a very common species of *Stigmatidium*, confined to yellow *Acarospora* species, often occurring on the margin of the host areoles (HAFELLNER et al. 2002).

SPECIMENS EXAMINED: **Mexico:** Baja California Sur: Along Rte 1, 68 km NE of Ciudad Insurgentes in a pass through the Sierra de la Gigante, 25°36'N, 111°20'W, 400 m, 1989, Aptroot 24692 (hb Aptroot, Di); 40 km S of Loreto, along road (Mex 1) to Ciudad Insurgentes, 111°16'W, 25°37'N, 500 m, 2000, van den Boom 25088 (hb van den Boom); 32 km (on road) NW of Santa Rosalia, along road to San Ignacio, 112°28'W, 27°25'N, 200 m, 2002, van den Boom 25052 (hb van den Boom). **USA:** California: Catalina Island, on *Acarospora xanthophana*, 1912, Hasse (FH); San Bernardino Co., c. 13 mi E of Baker on Kebaker Rd, N side of road, Lava Beds, 35°14'N, 115°50'W, 3000 ft, 1998, Tucker 36312 (SBBG, Di); San Bernardino Co., E of Los Angeles, Joshua Tree National Monument, along road from Joshua Tree to Hidden Valley, 116°14'W, 34°04'N, 1217 m, 2002, van den Boom 29504 (hb van den Boom); San Diego Co., NNE of San Diego, San Pasqual Historic State Park, 117°00'W, 33°18'N, 400 m, 2000, van den Boom 25195 (hb van den Boom). – Nevada: W of Las Vegas, Red Rock Canyon National Conservation Area, sandstone quarry, 36°10'N, 115°27'W, 1290 m, 1997, Diederich 14140 (Di).

***Stigmatidium fuscatae*** (Arnold) R.Sant.

This parasite is confined to *Acarospora fuscata* and possibly some other *Acarospora* species with a brown thallus. It was reported from the USA (Arizona, Minnesota, Nevada) and Mexico (Baja California, Sonora) on *Acarospora* species with a brown thallus by COLE & HAWKSWORTH (2001), HAFELLNER et al. (2002) and TRIEBEL et al. (1991). It was furthermore mentioned from the USA (Arizona, California) and Mexico (Sonora) by ETAYO & BREUSS (1998) and TRIEBEL et al. (1991) on *A. schleicheri*, but the corresponding specimens almost surely belong to *Stigmatidium epixanthum*.

SPECIMEN EXAMINED: **USA:** New York: Clinton Co., Town of Mooers, trail to The Gulf Unique Area, 1.5 mi NW of Cannon Corners Road (Co. Rd 10) on Rock Road, 44°59'N, 73°46'W, on sandstone outcrops, on *Acarospora fuscata*, 1996, Harris 39049 (NY).

***Stigmatidium mycobilimbiae*** Cl.Roux, Triebel & Etayo

This is a rare species, previously known from Central Europe on *Mycobilimbia* species (ROUX & TRIEBEL 1994), herewith newly reported from America.

SPECIMEN EXAMINED: **USA:** Wisconsin: Sauk Co., Baraboo Hills, Spring Green Reserve State Natural Area, off Jones Road, T.8-9N, R.4E, sects 5 & 32, 43°12'N, 90°04'W, on *Mycobilimbia sabuletorum*, 1998, Buck 34517 (NY, Di).

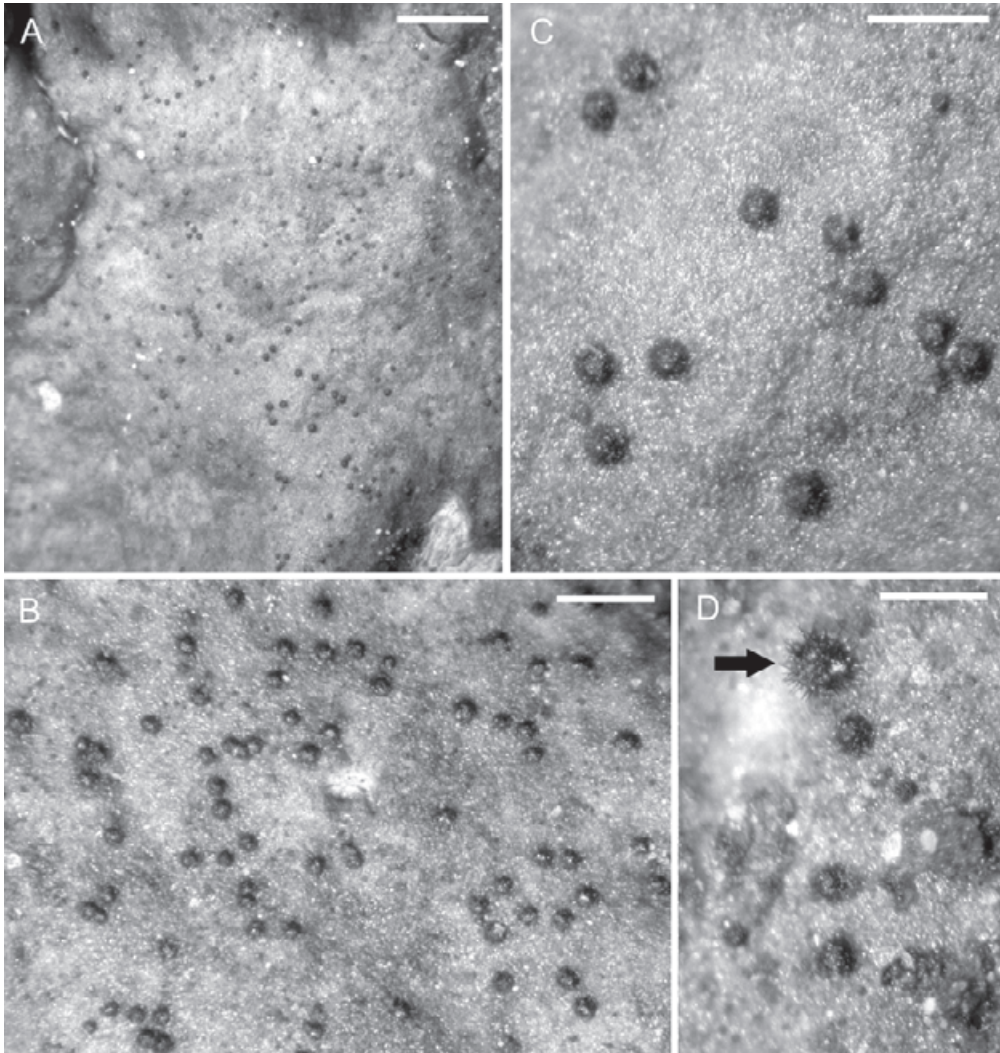
***Stigmatidium pseudopeltideae*** Cl.Roux & Triebel sp. nov.

Fig. 7

A *Stigmatidium solorinarium* (Vain.) D.Hawksw. differt ascomatibus (90–100 µm diam.) paulo majoribus, omnino fuscis, ascosporis (10–14 × 3.5–6 µm) paulo largioribus, non pseudotetrablasticis, atque parasitatione in *Peltigera* spp.

Type: USA, Washington, King Co., SW of Stevens Pass, 0.8 km from Hwy 2 along road FR 6095, just S of tunnel Creek bridge, 47°43'N, 121°07'W, 880 m, on *Peltigera britannica*, 26 Sept. 1997, T. Tønsberg 25113 (BG – holotype).

This species was provisionally described by ROUX & TRIEBEL (1994) as '*Stigmatidium pseudopeltideae* Roux et Triebel ad int.'. In the meantime, the species has been reported by several authors, but the name never validated. As the USA specimen examined is in a very good condition, we take the opportunity here to validate the name using this specimen as the type. The description above has been contributed by C. Roux and D. Triebel. A detailed



**Fig. 7:** *Stigidium pseudopeltideae* (holotype). A–C, Thallus of the host, *Peltigera britannica*, overgrown by numerous blackish ascomata of *Stigidium*. D, Partly immersed, non-setose ascomata of *S. pseudopeltideae* intermixed with one superficial, setose ascoma of *Raciborskiomyces peltigericola* (arrow). Scale bars: A = 1000  $\mu\text{m}$ , B = 500  $\mu\text{m}$ , C–D = 250  $\mu\text{m}$ .

description and high quality drawings were provided by ROUX & TRIEBEL (1994), and we will not repeat them here. In the type specimen, the species is accompanied by two other lichenicolous fungi: *Raciborskiomyces peltigericola*, distinguished by superficial, setose ascomata (those of *S. pseudopeltideae* are partly immersed and aseptose), symmetrical ascospores with two more or less equal cells (spores are unequal in length and width in *S. pseudopeltideae*), and a different ascus type; and an immature *Thelocarpon*. The species was known from Europe and is here newly reported from America.



***Stigmidium squamariae*** (de Lesd.) Cl.Roux & Triebel

The species was known from Mexico (Sonora) and the USA (Colorado, Nevada, New Mexico) (HAFELLNER et al. 2002, ROUX & TRIEBEL 1994).

SPECIMEN EXAMINED: USA: Nevada: W of Las Vegas, Red Rock Canyon National Conservation Area, 36°10'N, 115°27'W, 1290 m, on *Lecanora* sp. and *L. muralis*, 1997, Diederich 14169, 14170 (Di).

***Syzygospora bachmannii*** Diederich & M.S.Christ.

This basidiomycete was known from Canada (British Columbia) (DIEDERICH 1996), the USA (Alaska) (HAFELLNER et al. 2002) and Guyana (SIPMAN 1997). It is new for Panama.

SPECIMENS EXAMINED: **Canada:** British Columbia: 35 km NE of New Aiyansh, Mudflat Ck Valley to Kiteen R., 55°11'N, 127°35'W, 800 m, on *Cladonia gracilis* subsp. *elongata*, 1981, Goward 81-1903 (UBC L16899, Di); Revelstoke National Park, Clachnacudainn Valley, trail no. 4, 51°03'N, 118°00'W, 2600–3400 ft, on *C. pyxidata*, 1970, Otto 3240 (UBC); S end Clearwater Lake, Wells Gray Provincial Park, on *C. digitata*, 1996, Goward 96-994 (UBC); c. 6 km from Clarwater Lake, 850 m, on *C. umbricola*, 1978, Goward 78-983 (UBC). **Panama:** Chiriqui: W side of Volcan Baru, along trail from lava flats to summit, 3000 m, on *C. squamosa*, 1975, Mori & Bolten 7353 (NY).

***Syzygospora physciacearum*** Diederich

DIEDERICH (1996) published this species from Canada (Ontario), Ecuador and the USA (California, Washington). ESSLINGER & BRATT (1998) reported it as being very common on *Heterodermia namaquana*, but absent on the related *H. erinacea* in the USA (California). It was furthermore mentioned from the USA (Arizona) on *Physconia* sp. (ETAYO & BREUSS 1998) and from Colombia on *Heterodermia* (ETAYO 2002).

SPECIMENS EXAMINED: USA: Alaska: E of Mud Creek, 57°10'N, 158°05'W, 30 m, on *Physcia aipolia*, 2000, Talbot 033-X-10 (UBC). – California: Lake Co., Clear Lake State Park, on Soda bay on S side of Clear Lake, on Soda Bay Rd. E of Finley near Lakeport, on *Physconia*, 1992, Tucker 31710A (SBBG); Napa Co., coastal hills, on Cal. Hwy 128, 2 mi W of Moscowitz Corner, 38°00'N, 172°36'W, on *Physcia biziana*, 2001 (SBBG); San Luis Obispo Co., on side road to Cerro Alto campground off Cal. State Hwy 41, 6.9 mi NE from junction with State Hwy 1 N of Morro Bay, on *Physconia*, 1996, Tucker 34623 (SBBG); San Luis Obispo Co., road from Los Osos Baywood Middle School, c. 1 block E of S Bay Blvd on El Morro Av., Baywood, Los Osos, S of Morro Bay, on *Heterodermia namaquana*, 1997, Tucker 35649B (SBBG); San Mateo Co., Jasper Ridge Biological Preserve of Stanford University, S side of Sand Hill Rd, E of Portola Rd, on *Physconia exteroxantha*, 1998, Tucker 36391 (SBBG); *ibid.*, on *Physcia biziana*, Tucker 36394 (SBBG); *ibid.*, on *Physcia tribacoides*, Tucker 36395 (SBBG); San Mateo Co., Los Trancos Open Area, Palo Alto Hills N of Page Mill Rd, 37°19'N, 122°10'W, 645 m, on *Physconia*, 2001, Cole (MIN); Santa Barbara Co., grounds of Santa Barbara Botanic Garden, on *Physcia tenella*, 1996, Tucker 34366 (SBBG); Shasta Co., Pollard Flat on Sacramento River, off US Hwy 5, 1 mi N of LaMoine, SW of Dunsuir, on *Physconia perisidiosa*, 2000, Tucker 37163 (SBBG); Ventura Co., West Anacapa Island on W side of summit, 34°01'N, 119°26'W, 250 m, on *Physcia*, 1995, Nash 37119 (ASU). – Maine: Penobscot Co., 44°41'15"N, 69°03'45"W, on *Physcia stellaris*, 2000, Pratt & Cole 9097 (WIS). – Oregon: Jackson Co., Gold Nugget Wayside on State Hwy 234, 1 mi NE of Gold Hill, NW of Medford, on *Physcia adscendens*, 2000, Tucker 37120 (SBBG); *ibid.*, on *Physconia isidiigera*, Tucker 37125A, 37125B (SBBG).

***Taeniolella caespitosa*** M.S.Cole & D.Hawksw.

This hyphomycete was recently described from a single Canadian collection growing on an unidentified corticolous *Pertusaria* (COLE & HAWKSWORTH 2001). It is new for the USA.

SPECIMENS EXAMINED: USA: Florida: Dixie Co., Big Bend Wildlife Management Area, Jena Unit, along C. R. 361, 3.9 mi S of C. R. 358, 29°36'N, 83°23'W, on *Pertusaria ventosa*, 1996, Harris 39630 (NY, Di). – Missouri: Iron Co., St Francis Mts, Clark National Forest, along Co. Rd N just N of Reynolds Co. line, 37°40'N, 90°47'W, 335 m, on *P. texana*, 1993, Harris 31197 (NY).

***Taeniolella delicata*** M.S.Christ & D.Hawksw.

New for America.

SPECIMENS EXAMINED: USA: Florida: Gilchrist Co., Waccasassa Flats, along Co. Rd 232, c. 3 mi E of US 129, c. 7.5 mi due N of Trenton, 29°44'N, 82°48'W, on '*Phlyctis ludoviciensis* (Müll.Arg.) ined.', 1993, Buck 24414 (NY, Di); Levy Co., Black Point Swamp, along Co. Rd 326, 1.1 mi W of Co. Rd 347, 29°13'N, 83°02'W, on sterile thallus with *Trentepohlia*, 1992, Harris 29381 (NY, Di).

***Taeniolella phaeophysciae*** D.Hawksw.

New for America.

SPECIMENS EXAMINED: USA: California: Lake Co., Clear Lake State Park, on Soda Bay on S side of Clear Lake, on Soda Bay Rd E of Finley near Lakeport, on *Phaeophyscia* cf. *orbicularis*, 1992, Tucker 31712 p. p. (SBBG); San Luis Obispo Co., Santa Margarita Lake Recreation Area, E of San Luis Obispo, from Santa Margarita (town), take State Rt. 58, right on Pozo Rd, about 8 mi from Santa Margarita to entrance rd to Park, on *P. orbicularis*, 1996, Tucker 35125 p. p. (SBBG).

***Taeniolella serusiauxii*** Diederich

New for America.

SPECIMENS EXAMINED (all on unidentified, sterile lichens with *Trentepohlia*): USA: Florida: Clay Co., Gold Head Branch State Park, around Devil's Washbasin (sinkhole lake) 29°50'N, 81°57'W, on *Quercus*, 1992, Harris 29170 (NY, Di); *ibid.*, along trail through ravine, on *Ilex*, Harris 29211 (NY, Di); Sarasota Co., Myakka River State Park, along Florida Hwy 72 c. 0.7 mi SE of park entrance, 0.1 mi SE of Myakka River, 27°14'N, 82°19'W, 1992, Harris (NY, Di); Wakulla Co., Apalachicola National Forest, along Country Rd 368, 3.6 mi NW of junction of US 319 at Crawfordville, 30°12'N, 84°27'W, 1990, Tucker 30279 (SBBG, Di).

***Tremella cetrariicola*** Diederich & Coppins

This species was known from northern Europe, the Canary Islands, Canada (British Columbia, Québec) and the USA (New York) on *Cetrariella delisei* and on *Tuckermannopsis* species (DIEDERICH 1996).

SPECIMENS EXAMINED: USA: Georgia: Rabun Co., Chattahoochee National Forest, Rabun Bald, along trail to summit, 34°58'N, 83°18'W, 1115–1420 m, on *Tuckermannopsis ciliaris*, 1996, Harris 38930A (NY). – Michigan: Keweenaw Co., Isle Royale National Park, Hay Bay, on *T. ciliaris*, 1959, Wetmore 5207 (MSC).

***Tremella cladoniae*** Diederich & M.S.Christ.

This relatively common European species was just known from a single literature report from North America (Florida) (DIEDERICH 1996) and one recent record from Colombia (ETAYO 2002). I herewith confirm its presence in North America, where it is probably as common and widespread as in Europe.

SPECIMENS EXAMINED (all on *Cladonia*): Canada: British Columbia: Wells Gray Prov. Park, Philip Creek, E above Park rd, 51°53'N, 119°59'W, 800 m, on *C. pyxidata*, 1994, Goward (UBC L31717). USA: Maryland: Montgomery Co., Chesapeake and Ohio National Historical Park, along towpath near Bear Island, 38°59'N, 77°14'W, on *C. macilenta*, 2001, Lawrey 1750 (Di). – North Carolina: Macon Co., Nantahala National Forest, trail from Tellico Gap to Wesser Bald, 35°16'N, 83°34'W, 1190–1400 m, 1997, Buck 32511 (NY); *ibid.*, along Appalachian Trail, 35°10'N, 83°34'W, 1616 m, 1997, Buck 32533 (NY). – Virginia: Wise Co., Jefferson National Forest, High Knob Recreation Area, along trail from High Knob to High Knob Lake, 36°52'N, 82°37'W, 1250 m, 1991, Buck 20695 (NY). – Washington: Jefferson Co., Olympic Peninsula, 1.4 km along the road W of Alder Creek along Upper Hoh Rd, 1.9 km E of Hwy 101, 47°50'N, 124°14'W, 140 m, 1994, Tønberg 21613 (BG); *ibid.*, 1996, Tønberg 23952, 23953 (BG).

***Tremella dendrographae*** Diederich & Tehler

This is a very common gall-forming basidiomycete on *Dendrographa*, previously known from Mexico (Baja California) and the USA (California) (DIEDERICH 1996).

SPECIMEN EXAMINED: USA: California: Santa Barbara Co., Santa Rosa Island, lower portion of Cañada Lobos, 120°05'W, 34°01'N, 30 m, on *Dendrographa minor*, 1994, Nash 32972 (ASU).

***Tremella everniae*** Diederich

This species was known from China and Canada (DIEDERICH 1996). It is new for the USA.

SPECIMENS EXAMINED: USA: Maine: Somerset Co., s. loc., 46°19'N, 69°49'W, on *Evernia mesomorpha*, 2000, Mann (MIN); Washington Co., Milbridge, cemetery off of Route 1, 44°31'N, 67°54'W, 21 m, on *E. mesomorpha*, 2001, Cole 9300 (MIN, Di).

***Tremella harrisii*** Diederich

This fungus was known from the Dominican Republic, Puerto Rico and the USA (Florida, Texas) (DIEDERICH 1996).

SPECIMEN EXAMINED: USA: Florida: Polk Co., Saddle Blanket Lakes, SW of Lake Wales, on *Polymeridium catapastum*, 1992, Platt 374 (SBBG).

***Tremella hypogymniae*** Diederich & M.S.Christ.

This parasite of *Hypogymnia physodes* is very common in Europe, but apparently rare in America. In addition to the specimens mentioned below, I have seen material from Canada (Ontario: DIEDERICH 1996) and SE Alaska (GEISER et al. 1998).

SPECIMENS EXAMINED: **Canada**: British Columbia: Blackwater Creek, near Murtle River, Wells Gray Provincial Park, on *Hypogymnia physodes*, 1997, Goward 97-5 (UBC). USA: Idaho: Bonner Co., Beaver Bay campground, N end of Priest Lake, on *H. physodes*, 1998, Tucker 36145 (SBBG). – Montana: Flathead Co., Birch Creek, Noisy Creek Rd, 3200 ft, on *H. physodes*, 1981, Bratt 2447 (SBBG). – Oregon: Lane Co., Conifer forest on State Hwy 126 near Olallie campground, Cascade Mts, 2000 ft, on *H. physodes*, 2000, Tucker 37064 (SBBG).

***Tremella leptogii*** Diederich

This fungus was known from Colombia and Peru on unidentified *Leptogium* species (DIEDERICH 1996, ETAYO 2002). It is new for North America and for Brazil.

SPECIMENS EXAMINED: **Brazil**: Minas Gerais: Parque Nacional do Itatiaia, along entry road near border of Rio de Janeiro, between km 1.5 and km 3, 22°22'S, 44°45'W, 1900 m, on *Leptogium* cf. *cyanesceus*, 1991, Vital & Buck 19510 (NY, Di). **Mexico**: Baja California Sur: Sierra de la Laguna, W slopes ESE above Todos Santos, 23°29'N, 109°59'W, 1500 m, on *Leptogium*, 1993, Hafellner 40275, 40287 (GZU).

***Tremella lethariae*** Diederich sp. nov.

Basidiomata lichenicola in thallo *Lethariae*, gallas superficiales, luteas ad aurantiacas vel glandaceas, convexas, basim non constrictas, 0.2–1.5 mm in diam. efficientia. Hyphidia nulla. Basidia 2–4-cellularia, septis longitudinalibus, 15–20 × 10–16 µm. Basidiosporae 6–8 × 5.5–7.5 µm. Conidia ignota.

Type: Canada, British Columbia, Gulf Islands, Saltspring Island, S of Fulford Harbour, between Mt. Bruce and Mt. Tuam, 6.5 km along Musgrave Rd. from junction Isabella Point Rd., somewhat uphill from road, 530 m, on *Pseudotsuga menziesii*, on *Letharia vulpina*, 14 Sept. 1989, T. Tonsberg 12725b (BG – holotype; hb Diederich – isotype).

Distribution and host: The new species is known from two localities in Canada (British Columbia) and one in the USA (California), all on the thallus of *Letharia vulpina*.

Discussion: This species was already described by DIEDERICH (1996: 173, sub *Tremella* sp. 4), but it was left unnamed, as the single specimen known at that time is too much reduced. The discovery of a rich collection from Canada allows describing it formally here. There is almost nothing to be added to the description and illustrations given by DIEDERICH (1996), except that the basidiomata can reach 1.5 mm and get orange brown at maturity, and that the basidia have a basal clamp.

ADDITIONAL SPECIMENS EXAMINED: **Canada**: British Columbia: Trophy Mountain Recreation Area, 51°46'N, 119°54'W, 1800–2200 m, on *Letharia vulpina*, 1994, Poelt & Goward (GZU). **USA**: California: Tulare Co., Sierra Nevada, Sequoia Nat. Park, Giant Forest, area of Museum, on *L. vulpina*, 2002, van den Boom 29050 (hb van den Boom).

### *Tremella lobariacearum* Diederich & M.S.Christ.

This fungus was known from Bolivia, Colombia and Ecuador (DIEDERICH 1996, ETAYO 2002). It is new for Peru.

SPECIMEN EXAMINED: **Peru**: Prov. San Miguel: Dpto Cajamarca, Taulis Recorco (Calquis), 2650 m, on *Lobaria corrosa*, 1986, Mostacero 1157 (NY).

### *Tremella nephromatis* Diederich

This species is known only from Canada (British Columbia) (DIEDERICH 1996).

SPECIMEN EXAMINED: **Canada**: British Columbia: Rainbow Falls, E end Azure Lake, Wells Gray Provincial Park, on *Nephroma parile*, 1996, Goward 96-904 (UBC); Adams River drainage, 7 km N of Tumtum Lake, on *N. bellum*, 1996, Goward 96-1343 (UBC).

### *Tremella papuana* Diederich

This fungus was known only from the type collection from Papua New Guinea on *Hypogymnia pseudobitteriana* (DIEDERICH 1996). It is new for America.

SPECIMEN EXAMINED: **Canada**: British Columbia: Roaring Creek Falls, Quesnel Lake, on *Hypogymnia inshaugii*, 1999, Goward 99-335 (UBC, Di).

### *Tremella parmeliarum* Diederich

This common parasite of *Parmotrema* and *Rimelia* species was known from Brazil, Chile, Mexico (Baja California), Peru and the USA (Florida, Louisiana) (DIEDERICH 1996). It is new for Central America and for Columbia.

SPECIMENS EXAMINED: **Brazil**: Minas Gerais, Catas Altas, Serra do Caraça, Parque Natural do Caraça, near monastery Santuário do Caraça, 20°06'S, 43°29'W, 1300 m, on *Rimelia reticulata*, 1997, Aptroot 40647 (hb Aptroot). **Chile**: X Region de Los Lagos, Valdivia, Botanischer Garten, 39°50'S, 73°15'W, 10 m, 1999, Wirth 33993 (STU-Wirth). **Colombia**: Antioquia: Munic. El Retiro, along road Medellín-La Ceja, between Las Palmas and El Retiro, Hacienda Fizebad, 6°08'N, 75°30'W, 2050 m, on *Rimelia*, 1986, Sipman 34151 (B). **Dominican Republic**: La Vega: Jarabacoa, grounds of Hotel Montaña, 1800 ft, on *R. reticulata*, 1982, Buck 8530A (NY, Di). **Mexico**: Baja California Sur: Sierra de la Laguna, W slopes ESE above Todos Santos, 23°29'N, 109°59'W, 1500 m, on *Parmotrema*, 1993, Hafellner 40313 (GZU). **USA**: Arkansas: Garland Co., Hot Springs Nat. Park, Peak NW of DeSoto Park on Sunset Trail, 34°33'N, 93°02'W, 1020 ft, on *R. reticulata*, 2001, Wetmore 85928 (MIN, Di). – California: Santa Barbara Co., grounds of 'Lotusland' Botanic Garden, on *P. cf. austrosinense*, 1996, Tucker 34441 (Di); *ibid.*, on *P. hypoleucinum*, 1998, Tucker 36015 (SBBG); Ventura Co., West Anacapa Island, on *P. hypoleucinum*, Nov., 1995, Bratt 9258 (SBBG). – Florida: De Soto Co., along CR 760 at Peace River, 1.2 mi W of US 17 at Nocatee, 27°09'N, 81°54'W, on *P. perforatum*, 1998, Buck 33908 (NY); Highlands Co., Archbold Biological Station, along Old SR 8, along S end of nature trail just E of station buildings, 27°09'N, 81°20'W, on *P. rigidum*, 1998, Buck 33876 (NY); Manatee Co., Upper Myakka River Watershed, on Taylor Rd at Myakka River, 0.4 mi W of Myakka-Wauchula Rd, 27°25'N, 82°08'W, on *P. perforatum*, 1998, Buck 33949 (NY). – Louisiana:

Winn Par., Saline Creek Prairie, c. 4 km NW of Tullos, 2.4 km W of Castor Creek, near Saline Creek, in SW/4 Section 15, T10N, R1E, 31°51'N, 92°21'W, on *P. perforatum*, 1992, Tucker 31622 (SBBG). – North Carolina: Wilkes Co., Stone Mountain State Park, c. 8 mi SSW of Sparta, Cedar Rock and Cedar Rock Trail, 36°24'N, 81°03'W, 525 m, on *R. reticulata*, 1993, Harris 30765 (NY).

### *Tremella pertusariae* Diederich

This species was known from Europe, the USA (Florida, Louisiana) and Mexico (DIEDERICH 1996), mainly on *Pertusaria hymenea*. *Pertusaria tetrathalamia* is a new host.

SPECIMENS EXAMINED: USA: Alabama: Volanta, on *Pertusaria tetrathalamia*, 1925, Evans (NY). – Florida: Citrus Co., St Martins Marsh Aquatic Preserve, along C.R. 44, 2 mi W of US 19/98, 28°52'N, 82°37'W, on *Pertusaria* (unidentified, with roundish soralia, stictic ac. agg. and lichexanthone), 1996, Buck 31301 (NY); Dixie Co., Steinhatchee Wildlife Management Area, along Andrew Sauls Rd, c. 0.4 mi N of Co. Rd 351 just N of Scrub Creek Baptist Church, c. 6 mi NE of Cross City, 29°41'N, 83°04'W, on *P. tetrathalamia*, 1993, Harris 31612 (NY); Osceola Co., Bull Creek Wildlife Management Area, along Interpretive Drive, 1.5 mi ESE of Check-in Station, 28°05'N, 80°56'W, on *P. tetrathalamia*, 1996, Harris 37569 (NY, Di).

### *Tremella phaeographinae* Diederich & Aptroot

The species was known only from two neighbouring localities in Florida, both on an unidentified species of *Phaeographina* (DIEDERICH 1996).

SPECIMEN EXAMINED: USA: Florida: Union Co., Lake Butler Wildlife Management Area, along Co. Rd 231A, 4 mi NE of Fla Hwy 100, 30°05'N, 82°23'W, on *Phaeographina explicans*, 1994, Harris 36016 (NY).

### *Tremella phaeophysciae* Diederich & M.S.Christ.

This species, apparently confined to *Phaeophyscia* species, was known only from Europe, where it is common and widespread (DIEDERICH 1996). It is new for America.

SPECIMENS EXAMINED: **Canada**: Alberta: Campus of the University of Alberta, Edmonton, on *Phaeophyscia orbicularis*, 1991, Tucker 30771 (SBBG, Di). USA: California: Lake Co., Clear Lake State Park, on Soda Bay on S side of Clear Lake, on Soda Bay Rd E of Finley near Lakeport, on *P. cf. orbicularis*, 1992, Tucker 31712 p. p. (SBBG). – Colorado: Fort Collins, 5000 ft, on cf. *Phaeophyscia*, 1894, Baker (NY, sub *Biatora vernalis*).

### *Tremella ramalinae* Diederich

Initially described from Mexico (Baja California) and Sweden on *Ramalina fraxinea* and *R. lacera* (DIEDERICH 1996), this species is new for the USA.

SPECIMENS EXAMINED: USA: California: Monterey Co., across Carmel Valley Rd, from entrance gate, Hastings Natural History Reservation, on Carmel Valley Rd 15 mi NW of junction with Arroyo Seco Rd, W of Greenfield, 1600 ft, on *Ramalina farinacea*, 1996, Tucker 34509B (SBBG, Di); Santa Barbara Co., Santa Cruz Island, on steep slope above Valley Road in narrow canyon near Portozuelo, on epiphytic *R. pollinaria*, 1997, Tucker 35762B (SBBG).

### *Tremella stictae* Diederich

The species was recently reported from Colombia (ETAYO 2002) and is new for Brazil.

SPECIMEN EXAMINED: **Brazil**: Minas Gerais: Serra da Mantiqueira, Vila Monte Verde, c. 30 km E of Camanducaia, on *Sticta*, 1978, Kalb 33404 (hb Kalb).

### *Unguiculariopsis lettaui* (Grumann) Coppins

This species is widespread in Europe and Macaronesia (DIEDERICH & ETAYO 2000), and is herewith newly reported from America.

SPECIMEN EXAMINED: USA: Oregon: Jackson Co., Gold Nugget Wayside on State Hwy 234, 1 mi NE of Gold Hill, NW of Medford, on *Evernia prunastri*, 2000, Tucker 37101 (SBBG).

*Unguiculariopsis thallophila* (P.Karst.) W.Y.Zhuang

This widespread European fungus confined to *Lecanora* species (DIEDERICH & ETAYO 2000) is here reported as new to America.

SPECIMEN EXAMINED: USA: Utah: Junction Vernal – Manila, 1 mi after junction dir. Vernal, on lignicolous *Lecanora*, 1996, Marson (Di).

*Vouauxiella lichenicola* (Linds.) Petr. & Syd.

This is a very common coelomycete confined to *Lecanora* species, previously reported from Mexico (Baja California) and the USA (California, Louisiana, Massachusetts and Washington) (ESSLINGER & EGAN 1995, ETAYO & BREUSS 1998, HAFELLNER et al. 2002, SANTESSON 1960).

SPECIMENS EXAMINED (all on *Lecanora*): **Mexico:** Baja California Sur: 30 km WNW of San Ignacio, along road to Vizcaino Junction, path to Las Flores, 113°13'W, 27°23'N, 100 m, on *L. pacifica*, 2000, van den Boom 25042 (hb van den Boom). **USA:** Alabama: Marion Co., North Fork Creek, on W side of US 43, c. 5 mi SW of AL 172 at Hackleburg, 34°14'N, 87°54'W, on *L. caesiorubella* subsp. *prolifera*, 1999, Harris 43446-A (NY). – California: San Luis Obispo Co., San Simeon State Park, 5 mi S of San Simeon, off US Hwy 1 along Pacific coast, Monterey Pine forest on slope near Washburn Campground, 1999, Tucker 36487 (SBBG); San Luis Obispo Co., S of Morro Bay, State Park road, N of Museum of Natural History, 120°51'W, 35°21'N, 2 m, on *L. pacifica*, 2002, van den Boom 29446 (hb van den Boom); San Mateo Co., Jasper Ridge Biological Preserve of Stanford University, S side of Sand Hill Rd., E of Portola Rd., 1998, Tucker 36393 (SBBG); Santa Barbara Co., Santa Cruz Island, Ridge Road at Saucos Canyon Rd. Gate, on *L. cf. confusa*, 1997, Tucker 35848 (SBBG); Santa Barbara Co., Lotusland estate, Ashley Rd., Montecito E of Santa Barbara, 1998, Tucker 36014 (SBBG); Tulare Co., Sierra Nevada, Sequoia National Park, Giant Forest, area of Museum, on *Pseudotsuga*, 2002, van den Boom 29250 (hb van den Boom). – Florida: Duval Co., Jacksonville Beach, 1539 6th Avenue North, on *L. louisiana*, 1996, Buck 30719 (NY); Escambia Co., Santa Rosa Island, Fort Pickens National Park (Pensacola Beach), on *L. cf. hybocarpa*, 1989, E. M. Harris 779b (SBBG); Highlands Co., Archbold Biological Station, along Old SR 8, along S end of nature trail just E of station buildings, 27°09'N, 81°20'W, on *L. louisiana*, 1998, Buck 33875 (NY); Polk Co., Bok Tower Gardens, on *L. louisiana*, 1989, Wheeler (NY, 2 spec.); Polk Co., Nalcrest recreation area, on *L. louisiana*, 1988, Wheeler (NY, Di). – Georgia: Union Co., Chattahoochee National Forest, along Duncan Ridge Trail from Wildcat Gap to Coosa Bald, off Forest Service Road 39, c. 1.4 mi NNW of GA 180 at Wolf Pen Gap, 34°46'N, 83°57'W, c. 1200 m, on *L. argentata*, 1998, Harris 42589 (NY); Washington Co., c. 3 mi N of Harrison along Co. Rd 206 (Peacock Road), near headwaters of Rocky Creek, 32°53'N, 82°44'W, 140 m, on *L. caesiorubella* s. l., 1995, Buck 27563 (NY). – Idaho: Benewah Co., McCroskey State Park, Skyline Drive, 0.5 mi from junction with King Valley Rd., at 14-mi post, W of US 95, S of Plummer and W of De Smet, 1998, Tucker 36096 (SBBG); Benewah Co., Heyburn State Park, picnic area, S end of Coeur d'Alene Lake, 1998, Tucker 36070 (SBBG). – Louisiana: East Feliciana Par., c. 0.25 mi inside entrance to LSU Idlewild Experimental Farm, c. 3 mi SE of Clinton, 90°57'W, 30°57'N, on *L. leprosa*, 1978, Tucker 17318A (NY, Di); St. Landry Par., south end of Hill St. SW edge of Eunice, on *L. cf. chlarotera*, 1986, Allen 14688 (SBBG); Tangipahoa Par., Lake Pontchartrain (N shore), mouth of Tangipahoa River on 30°20'N, 90°17'W, 1982, Tucker 25356 (SBBG, Di); *ibid.*, Fontainebleau State Park, 30°20'N, 90°03'W, on *L. louisiana*, 1993, Tucker 33501 (SBBG); St John the Baptist Par., woods along Lake Maurepas, c. 8 mi S of Manchac bridge on Hwy 51, on *L. hybocarpa*, 1993, Tucker 33136 (SBBG); East Baton Rouge Par., Hilltop Arboretum, Highland Rd SE of Bluebonnet Rd, on *L. hybocarpa*, 1992, Tucker 32184D (SBBG); Baton Rouge, Essen Lane, Burden research Plantation, 30°24'N, 91°07'W, on *L. cf. chlarotera*, 1991, Tucker (SBBG); St Tammany Par., c. 4 mi N of Covington, 1990, Tucker 29597 (SBBG). – Mississippi: Lamar Co., N of Purvis, 0.6 mi off state route 529, sect. 14, 1980, Tucker 21071D (SBBG). – South Carolina: Sumpter Co., Manchester State Forest, along SC 261, 3.3 mi S of SC 763 at Wedgefield, 33°51'N, 80°31'W, on *L. cf. argentata*, 1997, Buck 31658 (NY). – Virginia: Shenandoah / Hardy Co., George Washington National Forest, along trail from Wolf Gap campground to Tibbet Knob, 2932 ft, on *L. hybocarpa*, 1967, Harris 3568A (NY); Wise Co., Jefferson National Forest, High Knob Recreation Area, along trail from High Knob to High Knob Lake, 36°52'N, 82°37'W, c. 1250 m, on *L. hybocarpa*, 1991, Buck 20716A, 20718 (NY).

*Vouauxiella verrucosa* (Vouaux) Petr. & Syd.

New for America.

SPECIMEN EXAMINED: USA: Virginia: Wise Co., Jefferson National Forest, High Knob Recreation Area, along trail from High Knob to High Knob Lake, 36°52'N, 82°37'W, c. 1250 m, on *Lecanora cf. pallida*, 1991, Buck 20704 (NY).

***Zwackhiomyces cladoniae* (C.W.Dodge) Diederich**

The species was reported from Canada (British Columbia) by ALSTRUP & COLE (1998). It is new for the USA.

SPECIMENS EXAMINED: **Canada:** British Columbia: Queen Charlotte Islands, Moresby Island, Sandspit, by the airport, 5 m, on *Cladonia pyxidata*, 1980, Ahti 39113 a & b (H). **USA:** Florida: Polk Co., Bok Tower Gardens near Lake Wales, on *C. ravenelii* (det. Ahti), 1988, Wheeler (NY, Di).

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