The Lichenologist **42**(4): 429–437 (2010)
doi:10.1017/S0024282909990740

Notes on the lichen genus *Rhizoplaca* from continental Antarctica and on some other species from northern Victoria Land

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Abstract: Five taxa of the genera *Omphalodina* and *Rhizoplaca* known from continental Antarctica are reassessed in order to identify a remarkable species collected from northern Victoria Land, for which the new combination *Rhizoplaca macleanii* (C.W. Dodge) Castello is proposed here. This poorly known species is known only from continental Antarctica. Two synonyms are discussed: *Omphalodina exsulans* (Th. Fr.) C. W. Dodge and *O. siplei* (C. W. Dodge & G. E. Baker) C. W. Dodge are synonyms of *Rhizoplaca melanophthalma* (DC.) Leuckert & Poelt. The correct name of another species is *Tephromela priestleyi* (C. W. Dodge) Øvstedal. The name *O. johnstonii* (C. W. Dodge) C. W. Dodge should be abandoned, type material being too scanty for a reliable identification. A contribution to the flora of the Terra Nova Bay area (northern Victoria Land) is provided, with two additional species, including *Buellia vilis* Th. Fr. new to Antarctic regions, and two nomenclatural corrections.

Key words: *Buellia*, *Caloplaca*, flora, *Omphalodina*, taxonomy, *Tephromela*

Introduction

Rhizoplaca is a rather heterogeneous genus comprising mainly peltate-umbilicate *Lecanoraceae* with a thallus corticated on both sides and a rather loose medulla, distributed from temperate to polar areas of both hemispheres, and alpine areas in the tropics. The genus still presents many problems, and it includes many variable taxa in need of revision (Ryan & Nash 1997; Arup & Grube 2000; Ryan 2002).

Knowledge of the genus in Antarctic regions remains unsatisfactory, mainly because of the confused and erroneous treatment of the species included in *Omphalodina* by Dodge (1973). The late B. D. Ryan had begun to reassess the Antarctic material of *Omphalodina*, noting that some taxa were non-umbilicate species of other genera (Ryan & Nash 1997). The results of his work would have clarified the Antarctic taxa of *Rhizoplaca*, but unfortunately they were never published.

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According to recent floristic works, three species of *Rhizoplaca* are known from Antarctic regions. Øvstedal & Lewis Smith (2001, 2004) list *R. aspidophora* (Vain.) Redón from South Georgia and the maritime Antarctic, and *R. melanophthalma* (DC.) Leuckert & Poelt from South Georgia, the maritime and continental antarctic regions; Seppelt *et al*. (1996) reported a further species, *R. priestleyi* (C. W. Dodge) Seppelt from southern Victoria Land (continental Antarctica).

Within the research activity of the Italian National Antarctic Research Programme (PNRA) on the lichen flora and vegetation of Victoria Land, I found samples of a remarkable species of *Rhizoplaca* corresponding with the description of *Omphalodina macleanii* (C. W. Dodge) C. W. Dodge. This material was provisionally cited as *Rhizoplaca* sp. 1 in Castello (2003), as the type material from FH was not available, being on loan to B. D. Ryan. In order to identify this lichen, the type specimens of the five *Omphalodina* species reported by Dodge (1973) from Victoria Land, and other areas of continental Antarctica, were considered in this study: *O.*

johnstonii (C. W. Dodge) C. W. Dodge, *O. macleanii* (C. W. Dodge) C. W. Dodge and *O. siplei* (C. W. Dodge & G. E. Baker) C. W. Dodge from Dodge's herbarium (FH), *O. priestleyi* (C. W. Dodge) C. W. Dodge [= *Rhizoplaca priestleyi* (C. W. Dodge) Seppelt] from BM, and *O. exsulans* (Th. Fr.) C. W. Dodge from UPS. Two further species were reported by Dodge (1973) from continental Antarctica, but only from Eights Coast (West Antarctica): *O. daltoniana* (Hook. f. & Taylor) C. W. Dodge, and *O. leucomelaena* (Hue) C. W. Dodge [as *'leucomelena'*]. According to Zahlbruckner (1928, vol. V: 659) and Lewis Smith (1993) *O. daltoniana* is a synonym of *R. melanophthalma*, while *O. leucomelaena* is a critical taxon still in need of clarification. It is not considered in this work as it differs considerably from the *Rhizoplaca* species collected in Victoria Land.

This paper provides the results of the reassessment of the *Omphalodina* species reported from Victoria Land, based also on the invaluable, unpublished notes of B. D. Ryan. *Omphalodina macleanii* belongs to *Rhizoplaca* as currently understood; hence the new combination *Rhizoplaca macleanii* is proposed here, with a description and discussion of this very characteristic, overlooked lichen known only from continental Antarctica. Two further species are placed in synonymy, one belongs to *Tephromela*, while a fourth name should be abandoned as the type material is too scanty and reduced for a reliable identification. On the basis of this study, the genus *Rhizoplaca* in Antarctica comprises three species: *R. aspidophora, R. melanophthalma* and *R. macleanii*. Moreover, this paper provides a contribution to the published flora of the Terra Nova Bay area, northern Victoria Land (Castello 2003).

Material and Methods

The study was carried out on specimens kept in the Antarctic Lichen Herbarium (ELA) of the University of Trieste (TSB) and type material kept in FH and BM. Samples from TSB-ELA were collected from different parts of the Terra Nova Bay area and surroundings, mainly in the northern sector of Victoria Land (continental Antarctica), from Cape Hallett, 72°19′ S to Cape Ross, 76°45′ S. An exclamation mark (!) after the herbarium citation indicates that the specimen has been examined by the author. The reassessment of type material of *Rhizoplaca priestleyi* was based on a series of photographs of morphological/anatomical features taken at the BM to avoid the loan of the single scanty specimen of this taxon. The taxonomic position of *Omphalodina exsulans* was assessed by W. A. Weber (1957), R. Filson (Filson 1975) and B. Ryan (1988) on the basis of the revision of type material kept in UPS, and it is reported here for completeness of the present study.

The description of the species is based on this material. Photographs of the species and more information are available through the VICTORIA information system, http://dbiodbs.univ.trieste.it/antartide/victoria (Castello *et al.* 2006). Samples were examined using standard microscopic methods. General morphological characters were observed using a stereomicroscope. Anatomical characters were studied by light microscopy on hand-cut sections, mounted in water or 10% KOH solution; all measurements were made on material mounted in water. Chemical spot tests were performed with the usual reagents: potassium hydroxide (K), sodium hypochlorite (C), paraphenylenediamine (P), nitric acid (N) and iodine (I) solutions. The analysis of type material of *R. macleanii*, *O. priestleyi*, *O. siplei* and O. *johnstonii* by TLC was carried out by B. D. Ryan in 1992 following the standard methods of thin-layer chromatography (Culberson 1972), and reported on a label added on the envelope of each specimen.

The climate of the Terra Nova Bay area is cold and arid, and typical of coastal stations in continental Antarctica, with average monthly temperatures ranging from −2° to −5°C (January) and −26° to −30°C (August), average annual temperature of *c.* −17° to −19°C, and very low precipitation, always in the form of snow, equalling *c.* 100–200 mm of water per annum (Grigioni *et al.* 1992). The area has a great diversity of substrata: granites, schistose metamorphites, amphibolites, basalt and volcanic rocks (Orombelli 1986). A more detailed description of the area has been provided by Castello (2003).

The new combination

Rhizoplaca macleanii (C. W. Dodge) Castello comb. nov.

Lecanora macleanii C. W. Dodge [as *'McLeani'*], *B. A. N. Z. Antarct. Res. Exped. Rep. B* **7:** 173 (1948).—*Omphalodina macleanii* (C. W. Dodge) C. W. Dodge [as *'McLeani'*], *Lich. Fl. Antarct. Cont. Isl.* **1973:** 187 (1973); type: George V Land, Horn (Dreadnought) Bluff, 68°25′S 149° 50′E, 335 m, 21 Dec. 1912, *A. L. McLean*, A.A.E. 47 (FH-Dodge!—holotype).

(Fig. 1)

Thallus epilithic, squamulose peltate or pulvinate to clearly foliose umbilicate,

https://doi.org/10.1017/S0024282909990740 Published online by Cambridge University Press

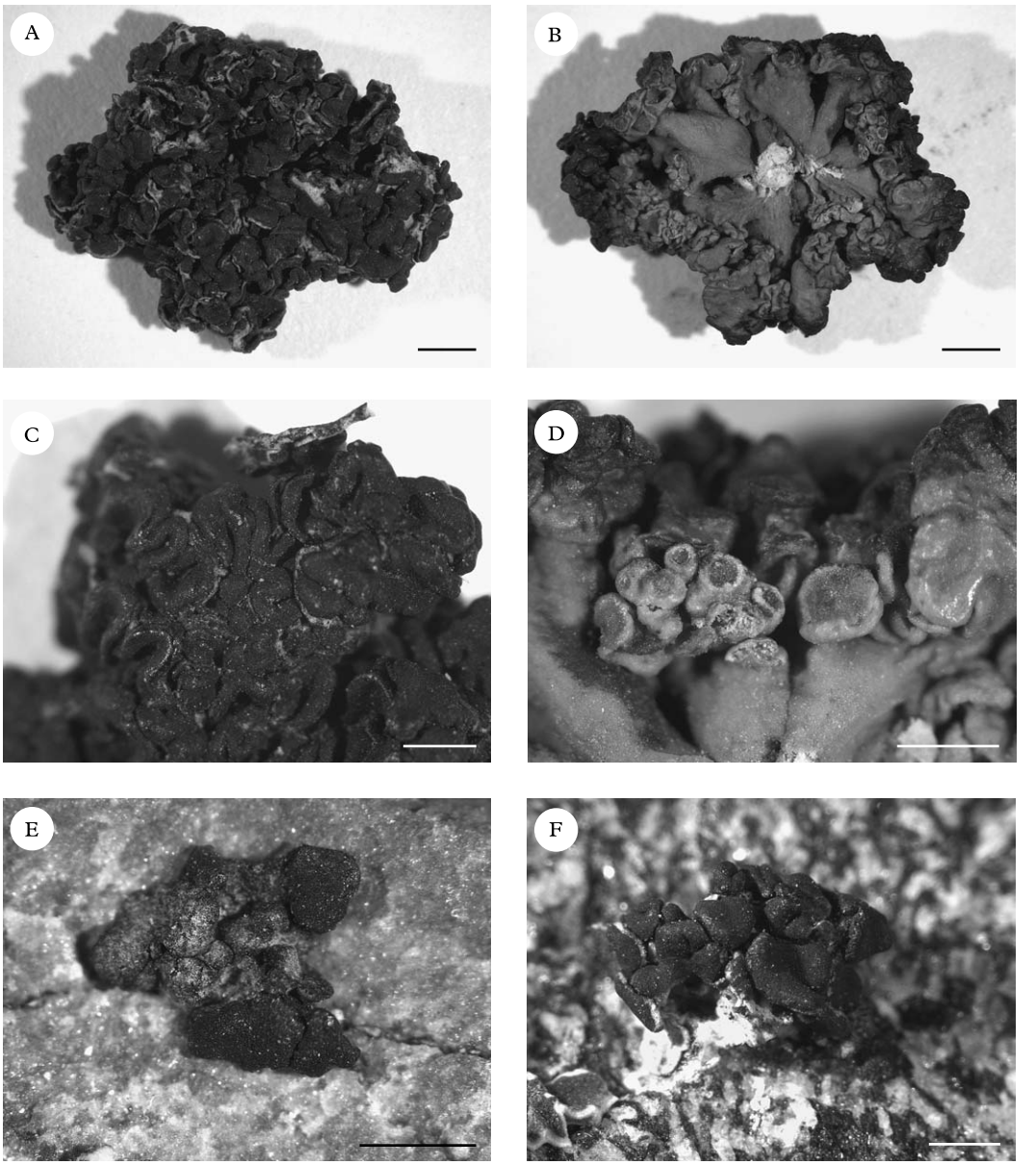

FIG. 1. *Rhizoplaca macleanii*. A, general habit; B, lower surface; C, detail of thallus and apothecia on upper surface; D, detail of thallus lower surface and apothecia on thallus margins; A–D, FH—holotype; E–F, thallus and apothecia details of samples from northern Victoria Land; E, *P. Modenesi* A321 (TSB); F, *S. Sedmak* A179 (TSB). Scales: A & B = 2 mm; C–F = 1 mm.

polyphyllous, up to 1·5 cm wide, often reduced to small dispersed peltate squamules, 1–2 mm diam.; upper side smooth, shiny, cream or pale brown to more often dark brown, grey or black; lower side smooth, shiny, cream or pale brown with darker margins. *Squamules* distinct to indistinct, plane to concave or undulate, flexuous to lobed at

https://doi.org/10.1017/S0024282909990740 Published online by Cambridge University Press

margins. *Upper cortex* 10–30 μm thick, with an olive to dark bluish green or dark brown outer layer, internally colourless, covered by an amorphous colourless layer, 10–15 μm thick. *Photobiont*: chlorococcoid alga, 15–20 μm diam. *Medulla* strongly loose, of interwoven thick hyphae, 5–7 μm diam. *Lower cortex* 40–60 μm thick, with a green-blue outer layer and colourless inside, of thick and gelatinized chondroid hyphae.

Apothecia lecanorine, immersed at first, then sessile, mostly marginal, often numerous and crowded, covering the squamules, rounded to irregular, up to 2 mm diam., finally dark brown to blackish and immarginate and often hardly distinguishable from the squamules; thalline margin initially well-developed, entire, thick and slightly raised, becoming flexuous, thin and level with the disc and finally excluded, pale brown to dark brown or blackish; disc flat or slightly concave at first, then convex to strongly convex, often undulate to horse-shoe shaped, slightly darker than the margin. *Epithecium* dark olive-green to bluish green, N+ reddish, encrusted with small dark granules. *Hymenium* colourless, 50–70 μm tall, inspersed with oil droplets. *Hypothecium* colourless to pale yellowish, 10–40 μm tall. *Paraphyses* simple or sparsely branched, *c*. 2 μm diam., apices dark olive-green or blue-green, swollen, 3–5 μm diam. *Asci* broadly clavate, *Lecanora*-type, 30–40 × 10–15 μm, 8-spored. *Ascospores* unicellular, colourless, 8–11 × 5–6(–7) μm, ellipsoid to broadly ellipsoid, with a thick wall.

Conidia filiform, more or less curved, arc-like, 15–25 × 1 μm.

Chemistry. Cortex K−, C−, KC− or KC+ (pale) yellow, P−; medulla K−, C−, KC−, P−, I−. TLC: isousnic acid, usnic acid, zeorin, fatty acids (rangiformic group) (B. D. Ryan, 1992).

Ecology. An epilithic, nitrophobous species. In Victoria Land the species occurs on acid rocks (granite, cornubianite), in non-eutrophicated habitats. It usually grows as small thalli or scattered peltate squamules along rock crevices, with *Acarospora gwynnii*, *Buellia frigida, B. lignoides, Lecanora physciella, L. fuscobrunnea, Lecidea cancriformis, Umbilicaria decussata* and *Carbonea vorticosa*.

Distribution. The species is so far known only from continental Antarctica, George V Land (type) and Victoria Land. It is rather rare in northern Victoria Land; one specimen examined is from Ross Island (southern Victoria Land).

According to Dodge (1973) this species occurs in several parts of continental Antarctica, showing a wide distribution (from Ellsworth Land to Ingrid Christensen Coast), but all these records must be confirmed by the revision of each specimen, as in Dodge's herbarium specimens filed under a certain name often belong to different taxa (Castello & Nimis 1995).

Discussion. This is a peculiar, probably overlooked lichen known only in continental Antarctica. It is well-characterized by morphological-anatomical and ecological features. Thalli may be clearly umbilicate or reduced to peltate squamulose or pulvinate; they are usually dark brown, grey or black, without a yellow-green tinge and often covered by crowded apothecia. Apothecia are typically terminal on margins of squamules, finally black, immarginate, convex to strongly convex, undulate or horse-shoe shaped; they are often hardly distinguishable from the dark squamules beneath.

In the field, reduced forms of this lichen may resemble a *Lecidea,* or *Lecanora fuscobrunnea* with a pulvinate thallus and immarginate dark apothecia, but they are readily distinguished by spore characters, having broadly ellipsoid spores with a thick wall. Reduced forms of *Rhizoplaca melanophthalma* may be confused with this species: *R. melanophthalma* is distinguished by thallus colour, which is often yellowish, yellow-green or greenish at least in some parts (but may be dark brownish or blackish in very exposed habitats), mostly laminal apothecia with a well-developed, persistent, flexuous to strongly crenulate, raised and inflexed margin, and a plane to strongly convex, yellowish brown to dark green or black disc. *Rhizoplaca melanophthalma* usually grows in more nutrient-enriched habitats.

The type material of *R. macleanii* (Fig. 1) consists of few well-developed, clearly foliose-umbilicate thalli, up to 1·5 cm diam., without the growth substratum. The upper side is dark brown to blackish, smooth, shiny, almost completely covered by crowded dark apothecia, pale brown only in some young or protected parts; the lower side is smooth, shiny, cream or pale brown with darker margins. Apothecia are up to 1–1·5 mm diam., crowded, typically developed on the margins of squamules, dark brown to black, smooth, flexuous in shape, convex to undulate or horse-shoe shaped, with a thin thalline margin or immarginate. Spores are ellipsoid, 9–11 × 5 μm with a thick wall. The specimen packet contains the results of the TLC analyses (here reported in the description of the species) and a label with the following hand-written notes by B. D. Ryan in 1992: "'*Rhizoplaca' mcleani*; C−, K−, KC+ yellow. Holotype of *Lecanora McLeani* Dodge". The material belongs to *Rhizoplaca* as currently understood, and therefore the new combination is here proposed, together with all of Ryan's notes on the type.

This taxon was erroneously cited as *Rhizoplaca mcleanii* (C. W. Dodge) C. W. Dodge in Castello & Nimis (2000), as this name was never published.

Additional specimens examined. **Victoria Land:** Ross Island, McMurdo, *G. A. Llano* 2135 (FH-Dodge, as *Omphalodina exsulans*); Terra Nova Bay, Reeves Glacier, Teall Nunatak, *S. Sedmak* A179 (TSB); Terra Nova Bay, Reeves Glacier, Tarn Flat, *S. Sedmak* A219 (TSB); Terra Nova Bay, Vegetation Island, *S. Sedmak* A162, A171 (TSB); Terra Nova Bay, Northern Foothills, Mt Abbott, *F. Bersan* A721 (TSB); Hallett Peninsula, Football Mt, Football Saddle, *P. Modenesi* A430 (TSB); Hallett Peninsula, Admiralty Mts, Edisto Glacier, Stefania Cirque, *P. Modenesi* A321, A323, A338, A347 (TSB).

Excluded species

Omphalodina exsulans (Th. Fr.) C. W. Dodge

Lich. Fl. Antarct. Cont. Isl. **1973:** 184 (1973).—*Lecanora chrysoleuca β. melanophthalma* f. *exsulans* Th. Fr., *Nyt Mag. f. Naturvidenskab* **40**: 208 (1902).—*Lecanora rubina* var. *melanophthalma* f. *exsulans* (Th. Fr.) Zahlbr. [as '*exulans*'], *Cat. Lich. Univ.* **5:** 660 (1928).—*Lecanora exsulans* (Th. Fr.) C. W. Dodge & G. E. Baker, *Ann. Mo. Bot. Gard.* **25:** 570 (1938); type: Victoria Land, Geikie Land, 71°40′S 170°E, 90 m, *C. E. Borchgrevink* (UPS—holotype, fide Filson 1975: 153).

According to Filson (1975) the type material of this taxon is *Rhizoplaca melanophthalma* (DC.) Leuckert & Poelt; the conspecificity is confirmed by the analyses of the type by W. A. Weber (1957) and B. D. Ryan (1988). The type contains material macroscopically corresponding to *R. melanophthalma* (information from the curator at UPS). Therefore, this material was not requested on loan for this study.

Omphalodina johnstonii (C. W. Dodge) C. W. Dodge

Lich. Fl. Antarct. Cont. Isl. **1973:** 186 (1973).—*Lecanora johnstonii* C. W. Dodge [as '*johnstoni*'], *B. A. N. Z. Antarct. Exped. Res. Rep.* **7:** 172 (1948); type: George V Coast, Cape Denison, Commonwealth Bay, 67°00′S 142°40′E, on rocks, B.A.N.Z.A.R.E. 536-34 (FH-Dodge!—holotype).

This is a dubious name. The type contains a few, extremely small fragments, 1–3 mm diam. of several different, poorly developed lichens, including thalli of *Lecanora*, a *Lecidea*, a sterile thallus of *Buellia frigida* (as reported in the original description of the species), and rock grains. Most fragments are poorly developed parasitized thalli of a *Lecanora* with cream to brownish areoles and small, crowded apothecia, up to 0·8 mm diam., with a cream to brown, smooth, convex disc and thin margin; there is only a single fragment of a squamulose areole with one apothecium up to 3 mm diam. From this type it is impossible to understand what this taxon may be: the original description seems to be based on more material than that included at present in the type, and perhaps it refers to other specimens listed in the description.

The type material certainly does not belong in *Rhizoplaca*. According to Ryan's notes this is a "*Lecanora* sp. Holotype of *Lecanora johnstoni* Dodge. Cortex Pd−, K+ yellow-brown, C−, KC−. Medulla Pd−, K−, C−, KC−. Spores oblong-ellipsoid, 9–12 ×

4–5 μm. Det. B. Ryan, 1992"; "TLC BT-6: zeorin, trace of norstictic acid. Det. B. Ryan, 1992". I confirm that the type contains material of a *Lecanora*, perhaps a badly developed, parasitized sample of *Lecanora fuscobrunnea* C. W. Dodge & G. E. Baker. However, the type is in such poor condition that it was not possible to carry out any anatomical analyses on the few and fragile available fragments, nor designate a lectotype. This name is best abandoned.

Omphalodina siplei (C. W. Dodge & G. E. Baker) C. W. Dodge

Lich. Fl. Antarct. Cont. Isl. **1973:** 189 (1973).—*Lecanora siplei* C. W. Dodge & G. E. Baker, *Ann. Mo. Bot. Gard.* **25:** 571 (1938); type: Marie Byrd Land, Skua Gull Peak, 76°50′S 145°30′W, on dark greenish grey slate, orthoclase-sericite schist, fine-grained dike, 1934, *P. A. Siple, F. A. Wade, S. Corey and O. D. Stancliff* 72W-13 (FH-Dodge!—holotype, isotype).

The holotype is clearly *Rhizoplaca melanophthalma*, and consists of two packets, one containing some well-developed fertile umbilicate thalli and the other a collection of numerous well-developed apothecia. The isotype contains a small, well-developed thallus of *R. melanophthalma* and a piece of rock with *Buellia frigida*. Ryan's notes on the holotype state: "*Rhizoplaca melanophthalma*. Holotype of *Lecanora siplei* Dodge & Baker. Cortex Pd−, K+ yellow, C−, KC++ yellow. Medulla Pd−, K−, C−, KC++ yellow. Det. B. Ryan, 1992"; "TLC by Bruce Ryan, 1992: usnic acid, fatty acids (constipatic group), unknown RI 7 C".

Rhizoplaca priestleyi (C. W. Dodge) Seppelt

New Zealand J. Bot. **34:** 330 (1996).—*Lecanora* (*Squamaria*) *priestleyi* C. W. Dodge, *Trans. Amer. Microsc. Soc.* **84:** 517 (1965).—*Omphalodina priestleyi* (C. W. Dodge) C. W. Dodge, *Lich. Fl. Antarct. Cont. Isl.* **1973:** 188 (1973); non *Rhizoplaca priestleyi* (C. W. Dodge) Seppelt, *New Zealand J. Bot.* **33:** 213 (1995) [Nom. inval., Art. 33.2]; type: Victoria Land, Cape Adare, 71°17′S 170°15′E, *R. E. Priestley* 42, det. *Parmelia quarta* Darb. by Darbishire, but not agreeing with his original description (BM holotype).

The original description, the illustrations of the type material from BM, and the chemical analyses performed by B. Ryan confirm that this lichen is not a *Rhizoplaca*, but a *Tephromela*. Ryan's notes on the holotype state: "TLC B5-34: atranorin only. Holotype of *Lecanora priestleyi* Dodge, see *Trans. Amer. Microsc. Soc.* **84:** 517 (1965). Det. B. Ryan, 1992". The type material corresponds to samples of a *Tephromela* species collected in northern Victoria Land on volcanic rocks, identified as *Tephromela atra* (Huds.) Hafellner *s. lat.* in Castello (2003). While this manuscript was in progress, this taxon was combined in *Tephromela* as *Tephromela priestleyi* (C. W. Dodge) Øvstedal; it is closely related to *T. atra*, differing in having a squamulose thallus, smaller and more broader spores, thinner paraphysis apices and a less complex chemistry (Øvstedal & Lewis Smith 2009).

Tephromela priestleyi was described by Dodge from material from Cape Adare, northern Victoria Land, that had been identified by O. V. Darbishire as *Parmelia quarta* Darb. However, according to Dodge this material did not agree with the original description of *P. quarta*, and it was therefore described as a new species. *Parmelia quarta* (= *Omphalodium quartum* (Darb.) C. W. Dodge & G. E. Baker) is a taxon known only from the type material, collected from Granite Harbour, Victoria Land, in 1902 on "dark basic solidified volcanic ash". Unfortunately, the type material of *P. quarta* in BM appears to have been lost since Dodge's time, and the original description by Darbishire (1910) is rather short and not exhaustive. Although morphological features of the thallus and the peculiar growth substratum of *P. quarta* are those of *T. priestleyi*, some anatomical details of apothecia reported in the description do not correspond. For these reasons, I think it is advisable to keep *P. quarta* as a different taxon, as the possible conspecificity of these taxa should be based on the examination of type material of *P. quarta* (if it can be found).

Contribution to the lichen flora of the Terra Nova Bay area (northern Victoria Land)

Two additional *Buellia* species and two nomenclatural corrections are reported. On the

basis of this work, 59 lichen species are now known from Terra Nova Bay and surrounding areas (Castello 2003; see also Cannone & Seppelt 2008).

Buellia grisea C. W. Dodge & G. E. Baker

Ann. Mo. Bot. Gard. **25:** 639 (1938).

Thallus epilithic, effuse, consisting of whitish to pale greyish areoles, scattered to adpressed in small groups; *areoles* adpressed to the substratum or slightly stipitate, more or less angular, up to 0·8 mm diam. and up to 0·5 mm tall, often with an eroded, scabrid surface. *Prothallus* not evident. *Medulla* I−.

Apothecia lecideine, black, rounded, small, up to 0·5 mm diam., immersed at first to sessile, flat with an evident margin to convex and immarginate, 1–3 per areole. *Epithecium* olive-green, N+ red; *hymenium* colourless to pale green, 50–70 µm tall; *hypothecium* brown to dark brown, paler in the upper part, 50–70 µm tall; *exciple* dark brown, slowly N+ reddish, 20–30 µm thick, *aethalea*-type. *Paraphyses c.* 2 µm diam., with dark olive-green, 4–5 µm diam. apices. *Asci* clavate, 45–50 × 12–13 µm, 8-spored. *Ascospores* bicellular, brown, *Buellia*-type, 12–15 × (6–)7 µm, slightly constricted at septum, distinctly (micro-)rugulate.

Chemistry. No lichen substances found.

Ecology and distribution. On granitic rocks, growing with *Usnea sphacelata*, *Umbilicaria decussata* and *Buellia lignoides*. Endemic to continental Antarctica, known from Marie Byrd Land and Victoria Land (Hale 1987; Øvstedal & Lewis Smith 2001).

Discussion. This lichen is characterized by the substipitate, whitish or pale areoles, often adpressed in small pulvinate groups, with an eroded, fissured surface, the distinctly brown hypothecium, the olive, N+ red epithecium and the I– medulla. According to Hale (1987) the hymenium is pale bluish green. *Buellia grisea* may resemble pale forms of *B. lignoides*, which differs in the I+ medulla, the never substipitate pulvinate thallus, the possible presence of norstictic acid, and by smaller spores.

Specimen examined. **Victoria Land:** Terra Nova Bay, Vegetation Island, *S. Sedmak* A901 (TSB).

Buellia vilis Th. Fr.

Kgl. Sv. Vetensk.-Akad. Handl. 7(2)**:** 44 (1867).

Thallus not evident (chasmolithic), or reduced to few, very small, whitish areoles, up to 0·2 mm diam., K−, C−, developed near the apothecia. *Medulla* I+ violet-blue.

Apothecia lecideine, sessile, constricted at the base, up to 0·8 mm diam., scattered or adpressed in small groups or rows of 2–8 apothecia, rounded to irregular in shape; *disc* flat to slightly convex; margin persistent, prominent and thick at first, becoming thinner with age, often flexuous. *Epithecium* dark olive-brown, K−, N+ slowly purple-red; *hymenium* colourless, not inspersed, *c.* 80 µm tall; *hypothecium* colourless, I+ blue; *exciple* 50–70 µm thick, *vilis*-type, K−, N+ slowly purple-red, with *textura oblita*, with dark brown outer part and pale reddish brown to colourless, I+ blue inner part. *Paraphyses* with dark olive swollen apices, *c.* 4 µm diam. *Asci* clavate, *c.* 60–65 × 15 µm, 8-spored. *Ascospores Buellia*-type, (11–)12–15 × 7–8(–9) µm, slightly constricted at septum, finely warted (microrugulate ornamentation).

Chemistry. No lichen substances found.

Ecology and distribution. A rare species, growing on granitic rocks, mostly in depressions and crevices of the rocks, with *Usnea sphacelata*. Arctic and alpine regions of Europe and North America (Scheidegger 1993; Bungartz & Fryday 2004) and Antarctica (Victoria Land). This is the first record of *B. vilis* from the Antarctic.

Discussion. The material has all essential characters of *B. vilis* discussed by Scheidegger (1993).

Specimens examined. **Victoria Land:** Terra Nova Bay, Vegetation Island, *S. Sedmak* A892, A893 (TSB).

Caloplaca coeruleofrigida Søchting & Seppelt

Mycotaxon **86:** 163 (2003).

This is the valid name for material provisionally identified as *Caloplaca conversa* (Kremp.) Jatta s. lat. in Castello (2003). This epilithic lichen, endemic to continental Antarctica (Victoria Land), shows considerable variation in morphological-anatomical characters of the thallus and apothecia, resulting from exposure. Samples from northern Victoria Land have inconspicuous to granular or areolate thalli, forming patches up to 3 cm diam., consisting of flat to subglobose, whitish to dark brown or blackish, more or less adpressed areoles, 1–1·5 mm diam. Apothecia may be clearly lecanorine, with a thick, smooth to crenulate, cream margin and a yellow to ochre-brown disc, to lecideine, with a thin, black, disappearing margin and a black, strongly convex disc. Ascospores are polarilocular, colourless, (10–)12–14(–16) × 5–7(–8) µm; septum 3–5 µm wide. For a more detailed discussion of this lichen see Castello (2003).

Tephromela priestleyi (C.W. Dodge) Øvstedal

Nova Hedwigia **88:** 165 (2009).

All specimens reported as *Tephromela atra* (Huds.) Hafellner by Castello (2003) correspond to *T. priestleyi*, which is a taxon known only from Victoria Land (continental Antarctica).

I wish to dedicate this work to B. D. Ryan whose notes guided the direction of this research. I thank the Curators of the involved herbaria, in particular Holger Thüs (BM) for his kind help and the pictures of type material of *Tephromela priestleyi*, Anders Nordin for valuable information on revisions of type material of *Omphalodina exsulans* and FH for the loan of material from Dodge's herbarium. I thank two referees for helpful comments and linguistic corrections of the manuscript. This work was supported by the Italian National Antarctic Research Programme (PNRA) and the Italian National Museum of Antarctica (MNA).

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Accepted for publication 05 *December* 2009