

Additional lichen records from Australia 85

John A. Elix

Research School of Chemistry, Building 137,
Australian National University, Canberra, A.C.T. 2601, Australia
e-mail: John.Elix@anu.edu.au

Patrick M. McCarthy

64 Broadsmith St, Scullin, A.C.T. 2614, Australia
email: pmcc2614@hotmail.com

Gintaras Kantvilas

Tasmanian Herbarium, PO Box 5058 UTAS LPO, Sandy Bay, Tasmania 7005, Australia
e-mail: Gintaras.Kantvilas@tmag.tas.gov.au

Alan W. Archer

National Herbarium of New South Wales, Royal Botanic Gardens and Domain Trust,
Mrs Macquaries Road, Sydney, N.S.W. 2000, Australia
email: alanw.archer@bigpond.com

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John A. Elix, Patrick M. McCarthy, Gintaras Kantvilas & Alan W. Archer

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Abstract

Seven lichen species, *Arthonia vinosa* Leight., *Caloplaca chalybaea* (Fr.) Müll. Arg., *Pertusaria alboatra* Zahlbr., *P. labuensis* A.W. Archer & Elix, *P. neilgherrensis* (Müll. Arg.) D.D. Awasthi & P. Srivast., *Rhizocarpon ridescens* (Nyl.) Zahlbr. and *Varicellaria hemisphaerica* (Flörke) I. Schmitt & Lumbsch, are reported from Australia for the first time. New state, territory and oceanic island records are provided for 50 other taxa.

New records for Australia

Arthonia vinosa Leight., *Ann. Mag. nat. Hist.*, ser. 2, **18**, 331 (1856)

Fig. 1

This species was previously known from Europe, North America and New Zealand (Galloway 2007; Coppins & Aptroot 2009). It is characterized by a crustose, immersed or slightly powdery to scurfy, granular, whitish to yellow-orange to pale fawn thallus, often with darker yellow-orange (K+ purple) patches; lecideine apothecia, 0.2–0.6 mm wide, which are often rounded, convex, with an orange to dark brown, epruinose disc, K+ purple in section, and oval to ellipsoid, usually 1-septate ascospores, 10–15 × 3.5–5 µm, which are initially colourless but become brown and warty with age. Pycnidia frequent, conidia bacilliform, 4–6 × 1 µm, straight or slightly curved.

Chemistry: containing an anthraquinone (*O*-methylhaematommone).

A detailed description is given in Coppins & Aptroot (2009) and a colour photograph in Wirth (1995, p. 135).

SPECIMEN EXAMINED

Australian Capital Territory. • Tidbinbilla Nature Reserve, Ring Road causeway over Tidbinbilla River near Fishing Gate Trail, 35°29'S, 148°54'E, 810 m alt., on dead bark of live *Eucalyptus viminalis*, J.A. Curnow 5324, 10.vi.2001 (CANB).

Caloplaca chalybaea (Fr.) Müll. Arg., *Mém. Soc. Phys. Hist. Nat. Genève* **16**, 388 (1862)

Fig. 2

This species was previously known from Europe, Macaronesia, Asia and Africa (Fletcher & Laundon 2009). It is characterized by a crustose, grey-brown, rimose to areolate thallus with a marginal, black prothallus, scattered to crowded apothecia, 0.2–0.3(–0.5) mm wide, initially immersed then adnate, thalline margin distinct, often paler than the disc, the disc flat, level with areole surface when mature, black but often blue-grey-pruinose, a grey-green epiphytenium that reacts K+ purple and polarilocular ascospores, 10–[12.5]–15 × 6–[7.1]–8 µm, with a broad septum, 3–5 µm wide.

Caloplaca chalybaea grows on hard limestone and superficially resembles *Circinaria contorta* or a member of the *Lecanora dispersa* group, but it is readily distinguished by the polariocular ascospores. A detailed description is given in Fletcher & Laundon (2009).

SPECIMEN EXAMINED

New South Wales. • 1 km N of Wee Jasper township, 35°04'21"S, 148°39'38"E, 410 m alt., on limestone rocks in pasture with scattered *Eucalyptus*, *J.A. Elix 46653*, 30.v.2016 (CANB).

Pertusaria alboatra Zahlbr., *Denkschr. Akad. Wiss. Wien math.-naturwiss. Kl.* **104**, 336 (1941) Fig. 3

This corticolous species was previously known from New Zealand (Galloway 2007). It is characterized by a pale yellow-fawn, areolate thallus with conspicuous, pore-like, verruciform apothecia, 0.5–1 mm wide. The verrucae can be flattened-hemispherical to immersed, and have conspicuous black ostioles 0.1–0.4 mm diam., 1 per verruca. The asci are usually 2-spored (rarely 3) and the ascospores are ellipsoid and (70–)85(–110)–130 × 35–45 µm. It contains thiophanic acid (major), 2-chloro-6-*O*-methylnorlichexanthone (trace) and 4-chloro-6-*O*-methylnorlichexanthone (trace). A description is given in Galloway (2007).

SPECIMEN EXAMINED

New South Wales. • Mountain Creek, Jimbaroo State Forest, 14 km NNE of Rankins Springs, 33°45'S, 146°19'E, 340 m alt., on old *Callitris* fence posts in *Callitris* woodland, *J.A. Elix 25306*, 13.vi.1990 (CANB).

Pertusaria labuensis A.W.Archer & Elix, *Nova Hedwigia* **88**, 2 (2009) Fig. 4

This corticolous species was previously known from Papua New Guinea (Archer & Elix 2009). It is characterized by a pale fawn, subtuberculate upper surface, and the presence of cylindrical isidia, 0.3–0.6 mm tall and 0.1–0.2 mm diam. and medullary divaricatic acid. Apothecia have not been observed. It is the only sterile, isidiate *Pertusaria* species known to contain divaricatic acid. A description and illustration are given in Archer & Elix (2009).

SPECIMEN EXAMINED

New South Wales. • Grassy Head, 5 km N of Stuarts Point, 30°48'S, 153°00'E, 6 m alt., on *Eucalyptus* in regrowth coastal forest behind sand dunes, *J.A. Elix 21842*, 24.i.1988 (CANB).

Pertusaria neilgherrensis (Müll.Arg.) D.D.Awasthi & P.Srivast., in D.D.Awasthi, *Biblioth. Lichenol.* **40**, 3 (1991) Fig. 5

Pertusaria leioplacoides var. *neilgherrensis* Müll.Arg., *Flora* **67**, 301 (1884)
Pertusaria tetrathalamia var. *neilgherrensis* (Müll.Arg.) Müll.Arg., *Rev. Mycol. (Toulouse)* **9**, 84 (1887).

Type: India, Neilgherries [Nilgiri Hills, c. 250 km SSW of Bangalore], *Ziegler s.n.* (holotype – G!).

Thallus pale fawn, smooth, glossy and rimose, corticolous. Apothecia verruciform, scattered, rarely confluent, flattened-hemispherical, sometimes becoming discoid, 0.6–1.5 mm wide. Ostioles inconspicuous, black, punctiform, occasionally sunken, 2–5 per verruca. Ascospores narrowly ellipsoid, hyaline, with a rough inner spore wall, 2 per ascus, 120–150 × 32–36 µm. *Chemistry*: 4,5-dichlorolichexanthone (minor), atranorin (major), stictic acid (major), constrictic acid (minor), cryptostictic acid (trace) and menegazziaic acid (trace).

Pertusaria neilgherrensis was previously known from Madhya Pradesh and Tamil Nadu in India (Singh & Sinha 2010). It is characterized by the verruciform apothecia, 2-spored asci, spores with rough inner walls and the presence of 4,5-dichlorolichexanthone and stictic acid. The North American species *P. macounii* (I.M.Lamb) Dibben has similar ascospores, 154 × 52 µm, and similar chemistry, but that species occurs north from the Carolinas to New England and east through Canada to Newfoundland (Dibben 1980), and is unlikely to occur on Lord Howe Island. *Pertusaria bundiensis* A.W.Archer & Elix, from Papua New Guinea, also has

similar ascospores, 150–175 × 37–40 µm, but contains 4,5-dichlorolichexanthone, stictic acid and 2'-*O*-methylperlatolic acid as a major compound (Archer & Elix 1998).

SPECIMEN EXAMINED

New South Wales. • Lord Howe Island, Goat House Cave, 31°33'50"S, 159°05'15"E, 420 m alt., on base of tree in moist subtropical rainforest at base of Mt Lidgbird escarpment, *J.A. Elix 42215*, 7.ii.1995 (CANB).

Rhizocarpon ridescens (Nyl.) Zahlbr., in A.Engler & K.A.Prantl, *Die Natürlichen Pflanzenfamilien*, **1**, 1, 138 (1905)

This species was previously known from Europe and Central Asia (Fletcher *et al.* 2009). It is characterized by a bright yellow-green, areolate thallus dispersed on a prominent black prothallus where the convex areoles usually develop discrete, initially punctiform then capitate soralia with yellow-green granular soredia, which rarely spread over the upper surface, an I+ medulla, rare lecideine apothecia, 0.7–1 mm wide, with a red-brown, K+ purple-red epiphymenium and dark brown, muriform ascospores, 20–30 × 12–16 µm, and the presence of rhizocarpic and psoromic acids. It is distinguished from the very common *R. geographicum* (L.) DC. by the sorediate upper surface. A detailed description is given in Fletcher *et al.* (2009) and an excellent colour photograph in Wirth (1995, p. 817).

SPECIMENS EXAMINED

New South Wales. • Brown Mountain, adjacent to Pipers Lookout, 17 km SE of Nimmitabel, 36°35'50"S, 149°26'39"E, 905 m alt., on granite rocks in wet *Eucalyptus* forest, *J.A. Elix 46503*, 4.xi.2017 (CANB); • Turallo Range, Hoskinstown-Braidwood road, 10 km E of Hoskinstown, 35°26'29"S, 149°31'35"E, 890 m alt., on granite rocks in open *Eucalyptus* woodland, *J.A. Elix 46526*, 17.xii.2017 (CANB); • Turallo Range, Hoskinstown-Braidwood road, 15 km E of Hoskinstown, 35°26'41"S, 149°32'18"E, 1020 m alt., on granite rocks in open *Eucalyptus* woodland, *J.A. Elix 46539*, 17.xii.2017 (CANB).

Varicellaria hemisphaerica (Flörke) I.Schmitt & Lumbsch, *Myckeys* **4**, 29 (2012) Fig. 6

This species was previously known from Europe, Macaronesia and Asia (Chambers *et al.* 2009). It is characterized by a bluish grey to grey-brown thallus with a broad, paler or white marginal prothallus, a sorediate upper surface with markedly convex soralia 1–2 mm wide, which often become confluent, and the presence of lecanoric acid. Apothecia have not been observed. A description is given in Chambers *et al.* (2009).

SPECIMEN EXAMINED

New South Wales. • Buckenbowra River estuary, 7.5 km WNW of Batemans Bay, 35°32'S, 150°07'E, 2 m alt., on tree trunk in *Avicennia-Aegiceras*-dominated riverside, *J.A. Elix 26599*, 15.iii.1992 (CANB).

New state, territory and oceanic island records

Acarospora simplex (Taylor) Jatta, *Syll. Lich. Ital.* **25** (1900)

Common at higher latitudes of the Northern Hemisphere, but less well known in austral regions. In Australia, previously reported only from the south-west of Western Australia (Richardson & Richardson 1982; Kantvilas 1998).

SPECIMEN EXAMINED

New South Wales. • Southern Tablelands, Turallo Range, Hoskinstown-Braidwood road, 7 km E of Hoskinstown, 35°26'00"S, 149°30'24"E, 850 m alt., on weathered, roadside granite outcrops, *P.M. McCarthy 4704*, 17.xii.2017 (CANB).

Amandinea conglomerata Elix & Kantvilas, *Australas. Lichenol.* **72**, 4 (2013)

This endemic species was previously known from New South Wales (McCarthy 2018).

SPECIMEN EXAMINED

Tasmania. • Poverty Point, 43°13'S, 147°03'E, 2 m alt., on coarse quartzitic coastal rocks, *G. Kantvilas* 23/18, 3.iv.2018 (HO).

Amandinea litoralis (Zahlbr.) H.Mayrhofer & Elix, in J.Blaha *et al.*, *Australas. Lichenol.* **79**, 40 (2016)

In Australia this Australasian species was previously known from Tasmania (McCarthy 2018).

SPECIMEN EXAMINED

New South Wales. • Newcastle, Bogey Hole, 32°56'07"S, 151°46'54"E, on sandstone on coastal cliffs, *D. & H. Mayrhofer* 11138, *E. Hierzer, S. & R. Filson*, 22.vii.1992 (GZU).

Amandinea nebulosa (Elix & Kantvilas) Elix & Kantvilas, *Australas. Lichenol.* **79**, 30 (2016)
This endemic species was previously known from Tasmania (McCarthy 2018).

SPECIMENS EXAMINED

New South Wales. • Southern Tablelands, Tom Groggin Road, 0.5 km E of Snowy Mountains Highway, 15 km SE of Cooma, 36°20'49"S, 149°13'31"E, 940 m alt., on conglomerate in tussock grassland with low conglomerate boulders, *P.M. McCarthy* 4683, 4.xi.2017 (CANB, HO).

Australian Capital Territory. • Molonglo Gorge Forest Park, 16 km SE of Canberra, 35°19'46"S, 149°14'59"E, 650 m alt., on moist, sheltered quartzite rock face in dry *Eucalyptus-Callitris* woodland, *J.A. Elix* 46195, 18.vii.2016 (CANB).

Amandinea prothallinata Elix & H.Mayrhofer, in J.A.Elix *et al.*, *Australas. Lichenol.* **80**, 28 (2017)

This species was known previously from Queensland, New South Wales, Victoria, Norfolk Island and New Zealand (Elix *et al.* 2017).

SPECIMEN EXAMINED

Tasmania. • E of Eldon Road, 42°29'S, 147°26'E, 410 m alt., on sheltered aspect of sandstone bluff in dry sclerophyll forest, *G. Kantvilas* 53/16, 10.v.2016 (HO).

Arthrorhaphis citrinella (Ach.) Poelt, *Bestimmungs. Eur. Flecht.* 126 (1969) var. **citrinella**
This common antitropical lichen of peat, soil and bryophytes occurs in boreal Eurasia and North America, New Zealand, Antarctica, alpine New South Wales and Tasmania (Obermayer 2001; McCarthy 2018).

SPECIMEN EXAMINED

Macquarie Island. • Mt Fletcher, 400 ft [c. 120 m] alt., NE and N aspect, growing on peat and bryophytes, *D.A. Parker*, 10.x.1971 (MEL 1023767).

Bryobilimbia hypnorum (Libert) Fryday, Printzen & S.Ekman, *Lichenologist* **46**, 31 (2014)
A common lichen on bryophytes and plant debris, mainly in Eurasia and North America; also in southern Western Australia, the Australian Capital Territory and Tasmania (McCarthy 2018).

SPECIMEN EXAMINED

Victoria. • Basalt Hill, 35 km NW of Omeo, Bogong High Plains, Alpine Natl Park, 36°53'S, 147°18'E, alt. 1650 m, on humus in swampy ground in subalpine grassland with scattered shrubs, *H. Streimann* 50585, 28.xii.1992 (CANB).

Buellia abstracta (Nyl.) H.Olivier, *Bull. Acad. Internat. Géogr. Bot.* **12**, 176 (1903)
This cosmopolitan species was known previously from Europe, North and South America, New Zealand and Tasmania (Elix & McCarthy 2018).

SPECIMENS EXAMINED

New South Wales. • Turallo Range, Hoskinstown-Braidwood road, 7 km E of Hoskinstown, 35°26'S, 149°30'24"E, 850 m alt., on granite rocks in open *Eucalyptus* woodland, *P.M. McCarthy* 4705, 4706, 17.xii.2017 (CANB).

Buellia aeruginosa A.Nordin, Owe-Larsson & Elix, *Mycotaxon* **71**, 400 (1999)
In Australia this species is known from South Australia, New South Wales, Victoria and Tasmania (McCarthy 2018); it also occurs in New Zealand (Elix & Mayrhofer 2018).

SPECIMEN EXAMINED

New South Wales. • Lord Howe Island, Boat Harbour, 31°33'40"S, 159°05'50"E, 3 m alt., on basalt rocks along foreshore, *J.A. Elix* 42469 *pr. p.*, 10.ii.1995 (CANB).

Buellia canobolansensis Elix & P.M.McCarthy, in Elix *et al.*, *Australas. Lichenol.* **80**, 29 (2017)

This endemic species was previously known from New South Wales (McCarthy 2018).

SPECIMEN EXAMINED

Australian Capital Territory. • Namadgi Natl Park, Brindabella Range, Mt Ginini-Mt Franklin road, 4 km S of Aggie Gap, 50 km WSW of Canberra, 35°30'26"S, 148°45'44"E, 1555 m alt., on schist rock in subalpine *Eucalyptus* woodland, *P.M. McCarthy* 4713, 10.i.2018 (CANB).

Buellia cranfieldii Elix, *Australas. Lichenol.* **66**, 45 (2010)

This endemic Australian species was previously known from Western Australia, Victoria and Tasmania (McCarthy 2018).

SPECIMEN EXAMINED

New South Wales. • Turallo Range, Hoskinstown-Braidwood road, 10 km E of Hoskinstown, 35°26'29"S, 149°31'35"E, 890 m alt., on granite rocks in open *Eucalyptus* woodland, *J.A. Elix* 46529, 17.xii.2017 (CANB).

Buellia halonioides Elix, in J.A.Elix *et al.*, *Australas. Lichenol.* **81**, 34 (2017)

This Australasian species was previously known from South Australia, New South Wales and New Zealand (Elix *et al.* 2017b).

SPECIMEN EXAMINED

Tasmania. • Swansea, 42°07'S, 148°44'E, 1–5 m alt., on coastal rocks, *H. Mayrhofer* 13394 *pr. p.*, 15.xi.1996 (GZU).

Buellia inturgescens Müll.Arg., *Hedwigia* **31**, 197 (1892)

This endemic Australian species was previously known from the Northern Territory, South Australia and New South Wales (McCarthy 2018).

SPECIMEN EXAMINED

Tasmania. • Wind Song Property, NW corner adjacent to Swanston Road, 42°21'S, 147°54'E, 60 m alt., on exposed dolerite rocks in paddock, *G. Kantvilas* 178/17, 26.x.2017 (HO).

Buellia kantvilasii Elix, Blanchon & A.Knight, *Australas. Lichenol.* **80**, 48 (2017)
This Australasian species was previously known from Tasmania and New Zealand (Elix *et al.* 2017a).

SPECIMENS EXAMINED

Queensland. • Cunninghams Gap Natl Park, S exposed ridge of Mt Cordeaux, 28°02'S, 152°23'E, c. 1000 m alt., on basaltic rocks, *J. Hafellner* 15370, 17.ix.1986 (GZU).

Australian Capital Territory. • Molonglo Gorge Reserve, 14 km SE of Canberra, on sheltered sandstone rocks, *P.W. James s.n.*, 27.i.1994 (BM 001231321).
Victoria. • Lederberg Gorge, 4 km N of Bacchus Marsh, 37°31'S, 144°22'E, on rock, *R. Filson & H. Mayrhofer 3031*, 18.x.1981 (GZU).

Buellia reagenella Elix, *Fl. Australia* **57**, 660 (2009)

This austral species was previously known from South America, and in Australia from Western Australia, Queensland, New South Wales, Victoria and Tasmania (Elix 2009b; McCarthy 2018).

SPECIMEN EXAMINED

Australian Capital Territory. • Blue Range, 7 km N of Condor Creek, c. 25 km W of Canberra, c. 800 m alt., on *Exocarpus cupressiformis*, *H. Mayrhofer 5347*, 1.ix.1981 (GZU).

Buellia schaeereri De Not., *Giorn. Bot. Ital.* **2**, 199 (1846)

In Australia this cosmopolitan species was previously known from New South Wales (McCarthy 2018).

SPECIMENS EXAMINED

Tasmania. • Wind Song Property, Ronnies Spur, 42°21'S, 147°55'E, 30 m alt., on bleached and charred standing eucalypt wood in dry sclerophyll forest, *G. Kantvilas 197/17*, 25.x.2017 (HO); • Wind Song Property, Callitris Gully, 42°21'S, 147°55'E, 40 m alt., on dry bleached wood of *Callitris* in *Callitris rhomboidea* woodland, *G. Kantvilas 368/17*, 24.x.2017 (HO); *loc. id.*, *G. Kantvilas 402/17*, 26.x.2017 (HO).

Buellia subadjuncta Elix & Kantvilas, in *J.A.Elix et al.*, *Australas. Lichenol.* **81**, 37 (2017)

This lichenicolous species was previously known from South Australia and New Zealand (Elix & Mayrhofer 2018; McCarthy 2018).

SPECIMEN EXAMINED

Tasmania. • Wind Song Property, Ronnies Spur, 42°21'S, 147°55'E, 30 m alt., on thallus of *Caloplaca rexifilsonii* on rocks in dry sclerophyll forest, *G. Kantvilas 278/17*, 25.x.2017 (HO).

Byssoloma adpersum Malcolm & Vězda, *Mycotaxon* **55**, 358 (1995)

This lichen was previously known from New Zealand, south-eastern New South Wales, southern Victoria and Tasmania (Malcolm & Vězda 1995; McCarthy 2018).

SPECIMENS EXAMINED

New South Wales. • Lord Howe Island, junction of tracks to Mutton Bird Point and Intermediate Hill, 31°32'43"S, 159°04'48"E, alt. 60 m, on basalt in dry lowland forest on ridge, *J.A. Elix 32755A*, 21.vii.1992 (CANB); • Lord Howe Island, track to Goat House Cave, 31°33'48"S, 159°05'11"E, 380 m alt., on basalt rocks in moist subtropical rainforest at base of Mt Lidgerbird escarpment, *J.A. Elix 42108*, 7.ii.1995 (CANB).

Cyphelium trachylioides (Nyl.) Erichsen ex Keissl., *Rabenh. Krypt.-Fl.* **9**(1), 2, 784 (1938)

In Australia this cosmopolitan species occurs in Western Australia, New South Wales, the Australian Capital Territory and Victoria (McCarthy 2018).

SPECIMEN EXAMINED

Tasmania. • Wind Song Property, Paradise, 42°21'S, 147°55'E, 30 m alt., on charred eucalypt log in dry sclerophyll forest, *G. Kantvilas 122/18*, 26.ix.2018 (HO).

Dibaeis arcuata (Stirt.) Kalb & Gierl, in *Gierl & Kalb, Herzogia* **9**, 617 (1993)

This species occurs in Australia (Queensland, New South Wales, the Australian Capital Territory, Victoria and Tasmania) and New Zealand (Johnston 2001).

SPECIMEN EXAMINED

Norfolk Island. • Cascade Road, 29°01'26"S, 167°57'51"E, 50 m alt., on soil bank in grassy area with scattered shrubs, *J.A. Elix 27337*, 14.vi.1992 (CANB).

Dibaeis sorediata Kalb & Gierl, in *Gierl & Kalb, Herzogia* **9**, 615 (1993)

This species is known from Nepal and Réunion, and in Australia from Queensland and New South Wales (Johnston 2001).

SPECIMEN EXAMINED

Norfolk Island. • Mount Pitt Reserve, track at end of Selwyn Pine Road, 29°01'S, 167°56'30"E, 200 m alt., on soil bank in open woodland with kikuyu grass, *J.A. Elix 18452 & H. Streimann*, 3.xii.1984 (CANB).

Diorygma wilsonianum (Müll.Arg.) A.W.Archer, *Australas. Lichenol.* **56**, 10 (2005)

This endemic species was previously known from Victoria (McCarthy 2018).

SPECIMEN EXAMINED

New South Wales. • Evans Head, 29°07'S, 153°26'E, 3 m alt., on bark of tree in maritime scrub, *J.A. Elix 1103*, 20.viii.1975 (CANB).

Endocarpon pallidum Ach., *Lichenogr. Universalis* 301 (1810)

In Australia, this almost cosmopolitan, terricolous species was previously known from Western Australia, South Australia, Queensland and New South Wales (McCarthy 2018).

SPECIMEN EXAMINED

Australian Capital Territory. • NE slopes of Mt Mugga Mugga, Canberra Nature Park, Woden Valley, Canberra, 35°20'43"S, 149°07'10"E, 655 m alt., on consolidated siliceous soil in *Eucalyptus* woodland, *P.M. McCarthy 4776*, 15.ix.2017 (CANB).

Lecanora epibryon (Ach.) Ach., *Lichenogr. Universalis* 396 (1810) subsp. **epibryon**

A widespread Arctic-alpine species in the Northern Hemisphere, and also recorded from southern South America (Lumbsch *et al.* 1994), this lichen was previously known in Australia only from Western Australia. Rather unusually, the Tasmanian specimen is from rock; this taxon usually grows over soil or bryophytes.

SPECIMEN EXAMINED

Tasmania. • Wind Song Property, northern rim of Callitris Gully, 42°21'S, 147°55'E, 60 m alt., on dolerite boulder in rough paddock, *G. Kantvilas 304/17*, 24.x.2017 (HO).

Lecania turicensis (Hepp) Müll.Arg., *Mém. Soc. Phys. Hist. Nat. Genève* **16**, 286 (1862)

A common species of calcareous and non-calcareous rocks in temperate regions of both hemispheres, this lichen is known from southern Western Australia, South Australia, New South Wales, the Australian Capital Territory and Tasmania (Kantvilas & van den Boom 2015; McCarthy 2018).

SPECIMEN EXAMINED

Victoria. • Royal Botanic Gardens, South Yarra, W side of California Garden, 37°49'54"S, 144°59'02"E, on shale and schist, *V. Stajsic 7399*, 17.vi.2015 (CANB, MEL).

Leimonis erratica (Körb.) R.C.Harris & Lendemmer, in *R.C.Harris, Opuscula Philolich.* **6**, 151 (2009)

Known from Central and Western Europe, North America and New Zealand; in Australia it has been reported from Queensland, New South Wales and Victoria (McCarthy 2018).

SPECIMENS EXAMINED

Australian Capital Territory. ● Namadgi Natl Park, Brindabella Range, summit of Mt Ginini, 35°31'47"S, 148°46'22"E, alt. 1760 m, on siliceous stones embedded in soil, *P.M. McCarthy* 4722, 4741, 10.i.2018 (CANB); ● Namadgi Natl Park, Brindabella Range, Mt Franklin Road, 1 km N of Aggie Gap, c. 44 km WSW of Canberra, 35°28'02"S, 148°46'09"E, alt. 1420 m, on schist outcrop beside road in subalpine *Eucalyptus* woodland, *P.M. McCarthy* 4712, 10.i.2018 (CANB); *loc. id.*, *J.A. Elix* 46552, 10.i.2018 (CANB); ● Namadgi Natl Park, Brindabella Range, Mt Franklin road, 4 km S of Aggie Gap, c. 50 km WSW of Canberra, 35°30'26"S, 148°45'44"E, alt. 1555 m, on schist outcrop beside road in subalpine *Eucalyptus* woodland, *P.M. McCarthy* 4715, 4716, 10.i.2018 (CANB); *loc. id.*, *J.A. Elix* 46547, 46549, 10.i.2018 (CANB). [Det.: C. Gueidan]

Lepra clarkeana (A.W.Archer) I.Schmitt, B.P.Hodk. & Lumbsch, in Wei *et al.*, *PLoS ONE* **12**, 7/14 (2017)

This Australian endemic species was previously known from Queensland, New South Wales and Victoria (McCarthy 2018).

SPECIMEN EXAMINED

Norfolk Island. ● end of abandoned road (Marsh's Road), Mount Pitt Natl Park, 29°00'48"S, 167°56'50"E, 180 m alt., on fallen twigs, in subtropical forest on moderate slope near head of creek, *J.A. Elix* 29164, 17.vi.1992 (CANB).

Lepra psoromica (A.W.Archer & Elix) A.W.Archer & Elix, *Australas. Lichenol.* **82**, 132 (2018)

In Australia this species is known from Queensland and New South Wales (McCarthy 2018). It also occurs in Norfolk Island, Papua New Guinea and New Zealand (Archer & Elix 2016).

SPECIMEN EXAMINED

Australian Capital Territory. ● Molonglo Gorge, 16 km SE of Canberra, 35°19'46"S, 149°14'59"E, 650 m alt., on rocks along the river bank, *J.A. Elix* 11785, *P.W. James & D. Verdon*, 27.i.1984 (CANB).

Lepraria jackii Tønsberg, *Sommerfeltia* **14**, 200 (1992)

In Australia this cosmopolitan species is known from Western Australia, Queensland, New South Wales, the Australian Capital Territory, Victoria and Norfolk Island (McCarthy 2018).

SPECIMENS EXAMINED

Tasmania. ● Bisdiee Tier, 42°26'S 147°17'E, 640 m alt., on rocks in dry sclerophyll forest, *G. Kantvilas* 158/09, 214/09, 11.iii.2009 (HO); ● Crest Range, 43°17'S 146°30'E, 980 m alt., on rock, *G. Kantvilas* 214/16, 2016 (HO); ● Wind Song Property, Callitris Gully, 42°21'S, 147°55'E, 40 m alt., on dolerite rocks in stream bed, *G. Kantvilas* 347/17, 26.x.2017 (HO).

Massalongia carnosa (Dicks.) Körb., *Syst. Lich. Germ.* 109 (1855)

In Australia this cosmopolitan species was previously known from alpine areas of New South Wales, Victoria and Tasmania (McCarthy 2018).

SPECIMEN EXAMINED

Australian Capital Territory. ● Namadgi Natl Park, Scabby Range, Mt Scabby, 35°45'S, 148°51'E, 1750 m alt., on exposed rock in open rocky plateau, *J.A. Curnow* 4278, 11.iii.1992 (CANB).

Megalaria coralloidea P.M.McCarthy & Elix, *Australas. Lichenol.* **79**, 20 (2016)

First described from rainforest near Tolga on the Atherton Tableland (McCarthy & Elix 2016b), a second NE Queensland collection has since been recognized.

SPECIMEN EXAMINED

Queensland. ● Atherton Tableland, Tully Falls, 18 km SE of Ravenshoe, 17°47'S, 145°34'E, alt. 720 m, on treelet stem in rainforest on a gentle slope, *H. Streimann* 27118, 1.iii.1983 (B. n.v., CANB).

Megalospora subtuberculosis (C.Knight) Sipman, *Biblioth. Lichenol.* **18**, 123 (1983)

This Australasian species was previously known from Queensland, New South Wales, Victoria and Tasmania (McCarthy 2018). It also occurs in New Zealand (Galloway 2007).

SPECIMENS EXAMINED

New South Wales. ● Lord Howe Island, junction of Kims Lookout and Max Nicholls Tracks, 31°31'08"S, 159°03'01"E, 100 m alt., on basalt rocks on flat broad ridge in lowland forest, *J.A. Elix* 42049, 6.ii.1995 (CANB).

Norfolk Island. ● Mt Bates summit trail, Mount Pitt Natl Park, 29°00'30"S, 167°56'30"E, 300 m alt., on dead *Araucaria* in subtropical forest, *J.A. Elix* 18552 & *H. Streimann*, 6.xii.1984 (CANB); ● track E of Mt Bates, Mount Pitt Natl Park, 29°00'40"S, 167°56'20"E, 280 m alt., on *Nestigia* in subtropical forest, *J.A. Elix* 27464, 15.vi.1992 (CANB), on canopy branches of *Araucaria* in subtropical forest, *J.A. Elix* 29011, 15.vi.1992 (CANB); ● West Palm Glen Track, Mount Pitt Natl Park, 29°01'06"S, 167°56'33"E, 140 m alt., on base of *Cyathea* in subtropical forest, *J.A. Elix* 29058, 29069, 29077, 29091, 16.vi.1992 (CANB); ● Emily Bay, Kingston, 29°03'37"S, 167°57'26"E, 30 m alt., on dead wood, *J.A. Elix* 29115, 17.vi.1992 (CANB); ● end of abandoned track (Marshs Road), Mount Pitt Natl Park, 29°00'408"S, 167°56'50"E, 180 m alt., on fallen twigs in subtropical forest, *J.A. Elix* 29163, 17.vi.1992 (CANB); ● Pop Rock, near Mount Pitt Road, 29°01'23"S, 167°56'10"E, on dead *Cupressus* in remnant subtropical forest, *J.A. Elix* 29298, 18.vi.1992 (CANB).

Micarea globulosella (Nyl.) Coppins, *Bull. Brit. Nat. Hist. Mus. Bot.* **11**, 134 (1983)

This species was previously known from Europe, North America and Japan (Coppins 2009), and in Australia from South Australia (Kantvilas 2019).

SPECIMENS EXAMINED

Western Australia. ● Walebing, Quarrell Range, Moora-New Norcia road, 22 km S of Moora, 30°41'38"S, 116°12'20"E, 275 m alt., on base of dead *Acacia* in remnant *Eucalyptus-Acacia* woodland, *J.A. Elix* 37540, 2.iv.2006 (CANB); ● near summit of Mt Observation, Mount Observation Natl Park, 20 km W of York, 31°53'45"S, 116°33'26"E, 365 m alt., on base of dead *Eucalyptus* in *Eucalyptus* woodland, *J.A. Elix* 38116, 3.iv.2006 (CANB); ● Charles Gardiner Flora Reserve, central track, 20 km SW of Tammin along old York Road, 31°47'24"S, 117°28'07"E, 305 m alt., on dead wood in *Eucalyptus* woodland in shallow gully, *J.A. Elix* 38476, 4.iv.2006 (CANB).

Queensland. ● Broadwater State Forest, Canoe Creek, 35 km NW of Ingham, 18°27'04"S, 146°00'07"E, 40 m alt., on *Pinus caribea* wood at margin of rainforest and *Pinus caribea* plantation, *J.A. Elix* 38955, 26.vii.2006 (CANB).

Victoria. ● dead-end track off Eagles Nest Road, Strathewen, c. 2.5 km from Strathewen Bridge, 37°33'S, 146°16'E, *R.A. Kilgour* 480, 28.x.1984 (HO).

Micarea argopsinosa P.M.McCarthy & Elix, *Telopea* **19**, 32 (2016)

A second specimen of this saxicolous lichen has recently been collected from within a kilometre of the type locality on Mount Ginini, A.C.T. (McCarthy & Elix 2016a).

SPECIMEN EXAMINED

Australian Capital Territory. ● Namadgi Natl Park, Brindabella Range, Mt Ginini, c. 200 m S of locked gate at carpark, 35°31'36"S, 148°46'45"E, 1590 m alt., on granite outcrop among snowgums (*Eucalyptus pauciflora*), *P.M. McCarthy* 4736, 10.i.2018 (CANB).

Ochrolechia africana Vain., *Ann. Univ. Fenn. Aboensis*, Ser. A, 2(3), 3 (1926)

This species was known previously from Africa, North America and South America (Brodo 1991), and in Australia from Western Australia, South Australia, Queensland, the Australian Capital Territory, Victoria and Lord Howe Island (McCarthy 2018).

SPECIMENS EXAMINED

Tasmania. • Louisa Bay, 43°31'56"S, 146°22'20"E, sea level, on bark, *L. Cave 3010*, 2016 (HO); • West Point, 40°57'S, 144°37'E, 10 m alt., on bark, *G. Kantvilas 479/11*, 2011 (HO); • end of Bolduans Road, 40°47'S, 145°02'E, 1 m alt., on bark, *G. Kantvilas 464/11*, 2011 (HO); • Swan Basin, 42°13'S, 145°16'E, 1 m alt., on bark, *G. Kantvilas 108/13*, 2013 (HO); • Dago Plains, between mouths of Italian and Lagoon Rivers, 41°29'S, 144°49'E, 15 m alt., on bark, *G. Kantvilas 99/15*, 30.i.2015 (HO); • Black River, 40°51'S, 145°18'E, 2 m alt., on bark, *G. Kantvilas 360/16*, 2016 (HO); • Wind Song Property, Callitris Gully, 42°21'S, 147°55'E, 40 m alt., on *Callitris* in *Callitris rhomboidea* woodland, *G. Kantvilas 381/17*, 24.x.2017 (HO).

Pertusaria balekensis A.W.Archer & Elix, *Mycotaxon* 67, 158 (1998)

This species was previously known from Papua New Guinea and Queensland (Archer & Elix 2016).

SPECIMENS EXAMINED

New South Wales. • Lord Howe Island, Intermediate Hill via track to North Hummock, 31°32'45"S, 159°04'55"E, alt. 120 m, on basalt in lowland forest with dense shrub cover, *J.A. Elix 42036*, 5.ii.1995 (CANB); • Lord Howe Island, junction of Kims Lookout and Max Nicholls Tracks, 31°31'08"S, 159°03'01"E, 100 m alt., on basalt rocks on flat broad ridge in lowland forest, *J.A. Elix 42056*, 6.ii.1995 (CANB); • Lord Howe Island, Goat House Cave, 31°33'50"S, 159°05'15"E, 420 m alt., on shrubs in moist subtropical rainforest at base of Mt Lidgbird escarpment, *J.A. Elix 42186*, 7.ii.1995 (CANB); • Lord Howe Island, near pier, 31°30'59"S, 159°03'12"E, 180 m alt., on basalt rocks in stunted lowland forest, *J.A. Elix 42354*, 9.ii.1995 (CANB); • Lord Howe Island, track to Kims Lookout, 31°30'59"S, 159°03'12"E, 180 m alt., basalt rocks in stunted lowland forest, *J.A. Elix 42358*, 9.ii.1995 (CANB); • Lord Howe Island, track from Smoking Tree Ridge to Rocky Run, 31°33'35"S, 159°05'09"E, 170 m alt., on tree in lowland forest, *J.A. Elix 42446*, 10.ii.1995 (CANB).

Pertusaria crassilabra Müll.Arg., *Hedwigia* 32, 126 (1893)

This species is known from South America, South Africa and New Zealand, and in Australia from South Australia, New South Wales, the Australian Capital Territory, Victoria and Tasmania (Archer & Elix 2016; McCarthy 2018).

SPECIMENS EXAMINED

New South Wales. • Lord Howe Island, Boat Harbour, 31°33'40"S, 159°05'50"E, 3 m alt., on basalt rocks along foreshore, *J.A. Elix 42469 pr. p.*, 10.ii.1995 (CANB); • Lord Howe Island, Mt Eliza, 31°30'52"S, 159°02'20"E, 130 m alt., on exposed boulder, *H. Streimann 55785*, 6.ii.1995 (CANB).

Pertusaria georgeana var. **victoriana** Elix & A.W.Archer, in *J.A.Elix et al.*, *Telopea* 12, 266 (2008)

This endemic taxon was previously known from New South Wales, the Australian Capital Territory and Victoria (McCarthy 2018).

SPECIMEN EXAMINED

Tasmania. • Wind Song Property, Ronnies Spur, 42°21'14"S, 147°55'01"E, 30 m alt., on bleached and charred standing eucalypt wood in dry sclerophyll forest, *G. Kantvilas 201/17*, 25.x.2017 (HO).

Pertusaria maritima A.W.Archer & Elix, *Telopea* 6, 19 (1994)

This endemic species was previously known from Queensland, New South Wales and Lord Howe Island (McCarthy 2018).

SPECIMEN EXAMINED

Norfolk Island. • Bloody Bridge, 29°03'21"S, 167°58'E, 35 m alt., on rotting wood in grasslands on steep slope with scattered *Araucaria heterophylla*, *J.A. Elix 27330*, 14.vi.1992 (CANB).

Pertusaria puffina A.W.Archer & Elix, *Telopea* 6, 22 (1994)

This taxon was previously known from Queensland, New South Wales, Lord Howe Island, India, Papua New Guinea, Thailand and New Zealand (Archer & Elix 2016).

SPECIMEN EXAMINED

Norfolk Island. • Track between Mt Pitt and Mt Bates, Mount Pitt Natl Park, 29°00'50"S, 167°56'05"E, 270 m alt., on dead wood in disturbed subtropical forest, *J.A. Elix 27375*, 15.vi.1992 (CANB).

Pertusaria texana Müll.Arg., *Flora* 67, 399 (1884)

In Australia this pantropical species was previously known from Queensland and New South Wales (McCarthy 2018).

SPECIMEN EXAMINED

New South Wales. • Lord Howe Island, track from Smoking Tree Ridge to Rocky Run, 31°33'35"S, 159°05'09"E, 170 m alt., on tree in lowland forest, *J.A. Elix 42437*, 10.ii.1995 (CANB).

Rhizocarpon adarensis (Darb.) I.M.Lamb, *Lilloa* 14, 221 (1948)

This species is known from Antarctica and southern Argentina, and in Australia from the Australian Capital Territory and Victoria (McCarthy 2018).

SPECIMEN EXAMINED

New South Wales. • Tallaganda Natl Park, Turallo Range, Hoskinstown-Braidwood road, 20 km E of Hoskinstown, 35°26'36"S, 149°33'10"E, 1010 m alt., on granite rocks in open *Eucalyptus* woodland, *J.A. Elix 46535*, 17.xii.2017 (CANB).

Rhizocarpon viridiatrum (Wulfen) Körb., *Syst. Lich. Germ.* 262 (1855)

In Australia this cosmopolitan species is known from Western Australia, New South Wales, the Australian Capital Territory and Victoria (McCarthy & Elix 2014).

SPECIMEN EXAMINED

Tasmania. • Wind Song Property, NW corner adjacent to Swanston Road, 42°21'S 147°54'E, 60 m alt., on exposed dolerite rocks in paddock, *G. Kantvilas 178/17A*, 26.x.2017 (HO).

Rinodina confragosa (Ach.) Körb., *Syst. Lich. Germ.* 125 (1855)

This species is known from Europe, Asia, North America and South Africa, and in Australia from Victoria (Kaschik 2006).

SPECIMEN EXAMINED

New South Wales. • Mt Canobolas State Conservation Area, W face of Mt Canobolas, 13 km SW of Orange, 33°20'13"S, 148°58'51"E, 1110 m alt., on weathered trachytic rhyolite in heath with scattered *Eucalyptus*, *J.A. Elix 46610*, 6.iv.2016 (CANB).

Rinodina conradii Körb., *Syst. Lich. Germ.* 123 (1855)

Previously known from bark and lignum in the south-west of Western Australia and Tasmania (Elix 2012), also in Europe, Asia, North and South America and New Zealand.

SPECIMEN EXAMINED

New South Wales. • Southern Tablelands, Queanbeyan River, 8 km N of Jerangle, on road to Captains Flat, 35°49'04"S, 149°25'15"E, alt. 1005 m, on soil and bryophytes overgrowing weathered roadside granite outcrops, *P.M. McCarthy 4697*, 5.xi.2017 (CANB).

Rinodina peloleuca (Nyl.) Müll.Arg., *Nuovo Giorn. Bot. Ital.* **23**, 125 (1891)

This southern circumpolar species is known from southern South America, Antarctica, South Georgia, Falkland Islands, Heard Island, Macquarie Island, Campbell Island, Auckland Islands and New Zealand, and in Australia from Tasmania (Kaschik 2006).

SPECIMEN EXAMINED

New South Wales. • Cliffs just N of Barlings Beach, 14 km SSE of Batemans Bay, 35°49'49"S, 150°12'20"E, 1–3 m alt., on shale rocks along foreshore, *J.A. Elix 46338*, 19.xi.2016 (CANB).

Tetramelas concinnus (Th.Fr.) Giralt, *Nova Hedwigia* **89**, 330 (2009)

This species was known previously from subarctic, subalpine and alpine areas of Europe, North America, New Zealand and Macquarie Island, and in Australia from the Australian Capital Territory (Elix 2017).

SPECIMEN EXAMINED

New South Wales. • Mt Canobolas State Conservation Area, W face of Mt Canobolas, 13 km SW of Orange, 33°20'13"S, 148°58'51"E, 1110 m alt., on weathered trachytic rhyolite in heath with scattered *Eucalyptus*, *J.A. Elix 46613*, 6.iv.2016 (CANB).

Triclinum cinchonarum Fée var. **janeirensis** (Müll.Arg.) Elix, *Fl. Australia* **57**, 651 (2009)

This taxon was previously known from East Asia, Central and South America, and in Australia from New South Wales (Elix 2009).

SPECIMEN EXAMINED

Queensland. • Mount Spec State Forest, Paluma to Hidden Valley Road, 40 km S of Ingham, 19°01'S, 146°09'E, 940 m alt., on *Syncarpia* margin at margin of wet sclerophyll forest and grassy area, *H. Streimann 64244A*, 20.viii.1999 (CANB).

Verrucaria alborimosa P.M.McCarthy & Kantvilas, *Muelleria* **34**, 55 (2015)

Previously known only from the type locality in Flinders Island, Tasmania, where it was collected from limestone in the upper supralittoral (McCarthy & Kantvilas 2015).

SPECIMEN EXAMINED

New South Wales. • South Coast, Gerringong, Werri Beach, headland at N end of beach, 34°43'42"S, 150°50'15"E, 1 m alt., on sandstone boulders along the foreshore, *P.M. McCarthy 4579*, 24.v.2017 (CANB).

Verrucaria aucklandica Zahlbr., *Denkschr. Akad. Wiss. Wien, math-naturwiss. Kl.* **104**, 250 (1941)

Known from maritime, siliceous rocks in northern New Zealand and in western and southern Tasmania (McCarthy 2012); also reported from Taiwan (Aptroot 2003).

SPECIMEN EXAMINED

New South Wales. • South Coast, Ben Boyd Natl Park, Green Cape Peninsula, W of lighthouse, 37°15'34"S, 150°02'52"E, c. 3 m alt., on sheltered, supralittoral sandstone, *P.M. McCarthy 4763*, 21.iii.2018 (CANB).

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Fig. 1. *Arthonia vinosina*. Scale bar = 1 mm

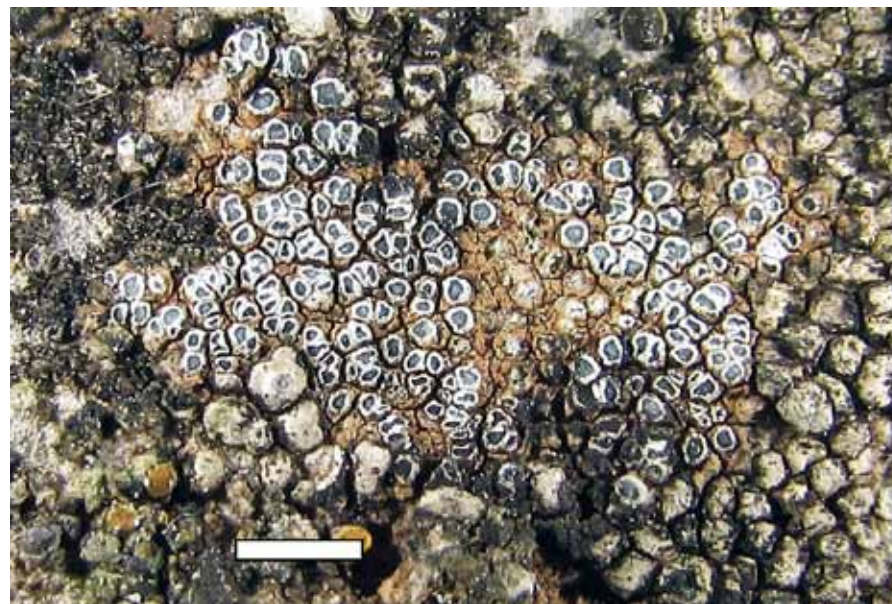


Fig. 2. *Caloplaca chalybaea*. Scale bar = 1 mm



Fig. 3. *Pertusaria alboatra*. Scale bar = 1 mm



Fig. 5. *Pertusaria neilgherrensis*. Scale bar = 1 mm



Fig. 4. *Pertusaria labuensis*. Scale bar = 1 mm



Fig. 6. *Varicellaria hemisphaerica*. Scale bar = 1 mm