
An annotated catalogue of the lichens of Kangaroo Island, South Australia

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Abstract: A ten-year study of the lichens of Kangaroo Island, South Australia, based on extensive fieldwork and a review of more than 1500 herbarium specimens, revealed a remarkable flora of 366 taxa. Fourteen appear to be restricted to the island, although they could be expected to occur on the southern Australian mainland, which is most similar to Kangaroo Island with respect to floristics and ecology, and where similar habitats can be found. In the course of the project, many species were recorded for South Australia for the first time, and a further 95 are reported here, including 19 that are first records for Australia as a whole. The most noteworthy of these include Aspicilia praecrenata (Nyl.) Hue, Catillaria nigroclavata (Nyl.) Schuler, Clauzadea metzleri Clauzade & Cl.Roux ex D.Hawksw., Halecania spodomela (Nyl.) M.Mayrhofer, Lecania koerberiana Lahm, Metamelanea melambola (Tuck.) Henssen, Schisomatoma redivia (Hasse) Tehler and Strangospora pinicola (A.Massal.) Körb., all previously known only from the Northern Hemisphere. The history of lichen investigations on the island, from the visit by Matthew Flinders in 1802 up to the present, is reviewed briefly. For the lichen study, the island's vegetation was classified into the following major habitat types: mallee woodland, *Melaleuca*-dominated swampy woodland, *Callitris*-dominated coniferous woodland, *Eucalyptus*-dominated dry sclerophyll forest, *Allocasuarina* woodland, the littoral zone, agricultural land, consolidated calcareous soil communities, and semi-inundated rocks in fresh-water streams.

Keywords: Australia, biodiversity, islands, lichenised fungi, new records

Introduction

Kangaroo Island lies off the south-eastern coast of South Australia at a latitude of 36°S. With an area of approximately 4400 km², it is Australia’s third largest island, after Tasmania and Melville Island. Its relatively small population (<5000 permanent residents), the fact that large areas remain uncleared and about 25% of the island occurs in some form of nature reserve, and the absence of some exotic pests, such as the rabbit, means that it has retained significant elements of its natural environment in a relatively unspoiled state. There is a considerable body of literature dealing with the island’s flora, fauna and physical features (e.g. Davies et al. 2002; Robinson & Armstrong 1999). However, prior to the commencement of the present project in 2008 (see Kantvilas 2018a), the island’s lichens had been investigated only cursorily, and certainly not in any systematic way. For example, the sole reference exclusively for South Australia’s lichens, the now outdated handbook by Filson & Rogers (1979), makes no specific reference to Kangaroo Island. This paper offers the first detailed inventory of the lichen flora, based on a review of herbarium collections and on the author’s field investigations.

Collectors of Kangaroo Island lichens

The first lichen collections from Kangaroo Island are likely to have been made by Robert Brown, botanist with Matthew Flinders’ *Investigator* expedition, which brought the first Europeans to the island in March 1802. Brown’s name is associated mostly with the vascular flora, but he did collect lichens, although no Kangaroo Island specimens are cited in the catalogues of his lichen collections (Crombie 1879; Groves & Moore 1989). Nor have any been located by the author in searches of the lichen herbarium of London’s Natural History Museum (BM) where Brown’s primary collections are housed. If any lichens were indeed collected, they were presumably lost with other Brown specimens during the ill-fated voyage of the *Porpoise* in August 1803; Stearn (1960) asserts that the “best specimens of the South Coast” perished. Similarly, there is no documented evidence of any lichen collections made during Baudin’s landing on the island a few months later and again in 1803.

Collectors of Kangaroo Island lichens are summarised in Table 1. The oldest lichen collections located during the present study are of the soil-growing species *Cladonia aggregata* and *Cladonia capitellata* var. *squamatica*, made...
in 1884 by Otto [J.G.O.] Tepper, a prolific collector of vascular plants and other specimens, entomologist at the South Australian Museum, and correspondent of Ferdinand Mueller. Although the former species is still common on the island today, significantly, the latter species has not been collected since, although it is widespread and common elsewhere in Australia.

There is a small but significant number of specimens dating from the 1970s and early 1980s attributed to several collectors. The more prolific of these include Island residents Kathie Stove and the late G. (Ida) Jackson, as well as Darrell Kraehenbuehl and Eric Jackson. These collections are held almost exclusively in the State Herbarium of South Australia (AD), are generally of poor quality and are clearly fortuitous. In many cases, the species records derived from them required much painstaking “forensic work” by the author, sorting mixed gatherings of twigs and plant fragments.

In 1985, the island was visited by the Canberra-based lichenologist Jack (J.A.) Elix and his father, Louis. They compiled a large collection spanning many groups, but especially the Parmeliaceae, which is housed in the Australian National Herbarium in Canberra (CANB), but with some duplicates distributed to other herbaria. Several Elix collections have been cited in taxonomic papers by other specialist lichenologists. In 1994, the prolific Canberra-based collector, Heinar Streimann, visited the island, accompanied by Thorsten Lumbsch and Andreas Dickhäuser from Germany. They collected widely and their primary collection is housed at CANB, but some duplicates have been distributed to AD and elsewhere. There are also duplicates in Essen where Lumbsch and Dickhäuser were then resident (H.T. Lumbsch, pers. comm.), but these collections have not been examined during the present study. In 2007, the island was visited by Rod Rogers, whose collections are housed in BRI.

The author (together with Brigitte de Villiers) first visited the island in 2008 when some limited but interesting collections were made. During six further visits from 2009 to 2015, these initial, casual collections and observations developed into a strategic pursuit of species and habitats (Fig. 1). These collections are housed in the Tasmanian Herbarium (HO), but with large numbers of duplicates distributed to AD and smaller numbers elsewhere. In the course of this work, a steady trickle of new discoveries, based on collections from the island, was published in a series of papers, starting with that of *Ochrolechia insularis* (Lumbsch et al. 2011). These are summarised in Table 2.

### General features of the lichen flora

A total of 366 taxa are here recorded for the island. Most are shared with southern Australia and eastern Tasmania, where a similar Mediterranean-maritime climate occurs. Many new records for South Australia have been recorded in previous papers emanating from the project. A further 95 are reported here, of which 18 are new records for Australia as a whole. Most noteworthy of these include *Aspicilia praecrenata*, *Catillaria nigroclavata*, *Claudaceae metzleri*, *Halecania spodomela*, *Lecania koerberiana*, *Metamelanea melambola*, *Schismatomma rediunta* and *Strangospora pinicola*, which were previously unrecorded for the Southern Hemisphere. Fourteen species are known only from Kangaroo Island, although this rather high figure is most certainly a product of the concentrated study, and most of these species are eventually likely to be found elsewhere. An exhaustive inventory for an area as large as Kangaroo Island is an impossible goal, as there will always be localities that will not have been comprehensively surveyed. Well in excess of 400 taxa

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**Table 1. Lichenological exploration of Kangaroo Island since first European contact in 1802.**

<table>
<thead>
<tr>
<th>period</th>
<th>herbarium specimens collected</th>
<th>major collectors</th>
<th>number of first records for the island</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 1900</td>
<td>2</td>
<td>Tepper</td>
<td>2</td>
</tr>
<tr>
<td>1900–1980</td>
<td>c. 125</td>
<td>Cleland, Seppelt, Jackson</td>
<td>47</td>
</tr>
<tr>
<td>1980–2007</td>
<td>c. 470</td>
<td>Stove, Kraehenbuehl, Lumbsch, Streimann, Rogers</td>
<td>122</td>
</tr>
<tr>
<td>2008–present</td>
<td>934</td>
<td>Kantvilas</td>
<td>195</td>
</tr>
</tbody>
</table>
is considered to be a reasonable estimate of the island’s species richness.

When compared with other places studied by the author, Kangaroo Island appears to have a rather depleted lichen flora. Many species, even ones which can be very common elsewhere in Australia, are relatively uncommon or highly localised on the island. After the initial surge of new discoveries, a considerable effort, searching ever more specialised niches or restricted habitats, was required to find additions for the list. By comparison, Tasmania, which admittedly is 14 times larger, probably has a lichen flora of at least 1500 species, and even tiny Flinders Island, which is only one third the size of Kangaroo Island, has an estimated flora of at least 500 species (author’s unpublished observations).

Table 2. Lichens based on type specimens from Kangaroo Island.

<table>
<thead>
<tr>
<th>taxon</th>
<th>reference</th>
<th>distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Pertusaria melanospora var. sorediata</em> Elix &amp; A.W.Archer</td>
<td>Elix &amp; Archer (2013)</td>
<td>south-eastern Australia, Tas</td>
</tr>
<tr>
<td>Psoroglaena halmaturina P.M.McCarthy &amp; Kantvilas</td>
<td>McCarthy &amp; Kantvilas (2013a)</td>
<td>Ki</td>
</tr>
<tr>
<td>Sarcogyne meridionalis P.M.McCarthy &amp; Kantvilas</td>
<td>McCarthy &amp; Kantvilas (2013b)</td>
<td>Ki, SA, Flinders Island</td>
</tr>
<tr>
<td>Tephromela baudiniana Kantvilas &amp; Elix</td>
<td>Kantvilas &amp; Elix (2017)</td>
<td>Ki</td>
</tr>
<tr>
<td>Thelidium robustum P.M.McCarthy &amp; Kantvilas</td>
<td>McCarthy &amp; Kantvilas (2016b)</td>
<td>Ki</td>
</tr>
</tbody>
</table>

One possible explanation for this is low habitat diversity: the low relief (the highest point is just 300 m a.s.l.), relatively low and uniform rainfall (500–700 mm per year) and Kangaroo Island’s shape (no place is more than 25 km from the coast) means it is does not offer the range of habitats that other islands might. Recurring fires have had an enormous impact on the island’s vegetation (Peace & Mills 2012), and are potentially very severe in the absence of natural boundaries such as large rivers or mountains (Kantvilas 2018a). The fire of 2007 destroyed about 20% of the island’s vegetation cover, especially in reserved areas in the west; eight years later, casual observations indicate that recovery of lichens has, for the most part, been minimal.

Fragmentation of the natural vegetation is a major issue on Kangaroo Island (Robinson 1999b) and has...
a major impact on lichens. The earliest European observations by Flinders’ expedition (e.g. see Edwards 1981; Vallance et al. 2001) describe the island as being “wooded”. Since then, there has been extensive clearing for agriculture, development for housing and recreation, and conversion to forest plantations. Some woodland types, for example mallee and communities dominated by *Melaleuca* or *Callitris*, have been particularly affected (see Kantvilas 2018b). The extensive nature reserves, mainly in the west and south, cater well for some vegetation types but less so for others. As a result, many habitats and their associated species are now rare on the island, and isolated rock outcrops, mature trees and small woodland remnants along roadsides and in paddocks provide critical but highly fragile refugia for lichens in otherwise severely modified landscapes.

**Major lichen habitats and factors affecting distribution**

The main determinants of the composition and distribution of the lichens of Kangaroo Island are vegetation type and geology, and the interaction of these factors with land use and fire history.

There are major compositional differences between the lichens found on limestone and those occurring on non-calcareous rock types, and the close proximity of these starkly different substrata contributes to local species

Fig. 2. Limestone (white rocks, foreground) and non-calcereous rock types (distant) can occur in close proximity (Stokes Bay area).

Fig. 3. Mallee, Kelly Hill Caves area. The complex understorey of subdominant trees and small shrubs provides a potentially lichen-rich habitat.
richness (Fig. 2). More subtle differences have also been observed between the species assemblages on granite, laterite and sandstone. Although the whole island can be described as maritime and lowland, there are also noteworthy differences between species composition of the littoral zone and that of more inland areas.

The main vegetation types on the island were described by Kinnear et al. (1999), Ball & Carruthers (1999) and Ball (2002). However, lichens tend to respond to very small-scale habitat factors, in particular the availability of certain substrata (e.g. rocks, wood, charcoal, bark, soil, very old standing trees or stumps, mature understorey shrubs, etc.). A modified classification from a lichenological perspective is summarised here.

Mallee, dominated by multi-stemmed eucalypts, is one of major woodland types on the island. When occurring in continuous stands with mature dominant trees and a well-developed, species-rich understorey (Fig. 3), this vegetation type is potentially very lichen-rich. The bark of the sub-dominant small trees and shrubs, the basal stockings of the eucalypts, and patches of consolidated soil under canopy gaps are all potentially well-colonised. Where mallee has been reduced to narrow avenues along roads and paddocks, or to small shelter copses (Fig. 4), it becomes subject to windthrow, canopy collapse, and increased air flow and sunlight; the loss of lichen diversity in such remnant stands is startling. Browsing by stock in mallee shelter belts also degrades them and impedes their regeneration.
Melaleuca-dominated woodland can be found fringing lagoons and larger water courses (Fig. 5). This is perhaps the closest vegetation type to wet forest on the island, and one where cyanophiliic lichens (species of Lobariaceae, Pannariaceae, Collemataceae) could be expected to occur. Most of these woodlands are highly degraded, with broken canopies, weed-choked understoreys and windthrown trees. Epiphytes tend to be rare and represented mostly by common, broadly ecologically tolerant species.

Callitris-dominated coniferous woodland is found on the Dudley Peninsula, typically behind sand dunes (Fig. 6). The stands are usually highly fragmented and suffer from canopy collapse, loss of the understorey, and windthrow of mature trees. Nevertheless, several lichen species that can be regarded as old forest indicators have been recorded in these woodlands, albeit as minute thalli hidden in cracks in the bark of decrepit trees.

Eucalyptus-dominated dry sclerophyll forest is widespread, especially across the northern parts of the island. Where there is a well-developed understorey of subdominant trees such as Exocarpos or Allocasuarina (Fig. 7), lichens can be very diverse and conspicuous, festooning trunks, limbs and twigs. The dry, bleached wood of large, old trees, charred wood and large logs all provide specialist habitats for lichens. This community was explored the least during this study and is likely to produce significant numbers of additions to the catalogue with future work.

Fig. 6. Callitris-dominated woodland (near Pelican Lagoon).

Fig. 7. Dry sclerophyll forest dominated by eucalypts, Western River Wilderness Protected Area. The diverse understorey of Allocasuarina, Exocarpos and other subdominant trees and shrubs typically supports very rich communities of epiphytic lichens.
The littoral zone, which includes sea-shore rocks and adjacent heathlands, is one of the richest lichen habitats on the island. Different rock types tend to support different complements of species (Figs 8, 9). Where heathlands are burnt, the regenerating shrubs are typically too young to support significant epiphytes, but older shrubs can be highly colonised (Fig. 10).

Agricultural land that has been improved for cropping and pasture tends to be a lichen desert (Fig. 11), but the farming landscape in general is a very significant habitat for lichens on the island. Rock outcrops, stones, isolated trees and small wooded copses, farm buildings and fences in otherwise cleared ground can act as concentrations of lichen richness, albeit for the more common species or ones that prefer eutrophicated conditions. Whereas split eucalypt fenceposts are a good habitat, treated pine fenceposts, now widely used on the island, are relatively poorly colonised by lichens.

Consolidated, usually calcareous soil occurs in small, seemingly bare patches within woodlands and heathlands. This habitat is extremely important for lichens, with a specialised flora dominated by species of *Psora*, *Gyalolechia* and *Diploschistes*. Much of this habitat has been reduced to narrow strips along roadsides, the margins of paddocks or the edges of cliffs (Fig. 12), sometimes represented only by a few square centimetres between larger stones. Herbarium records suggest that this habitat was more extensive in the past.
Semi-inundated rocks in fresh-water streams. Continuously running fresh water in a rocky water course is an uncommon habitat on the island but can support highly specialised lichens such as *Hymenelia lacustris*, *Ephebe ocellata* and minute cyanophilic species (Fig. 13).

*Allocasuarina* woodland. These dry woodlands occur mostly in small patches near the coast (Fig. 14). In general, the deeply fissured, dry bark of *Allocasuarina* itself is a poor habitat for lichens, as is the ground surface, which is usually thickly covered in fallen twigs. However, one unusual species, *Anisomeridium austroaustraliense*, was discovered in this woodland type (McCarthy & Kantvilas 2016a).

Materials and methods

Specimens studied. The checklist is based exclusively on the herbarium specimens cited in the text, all of which have been examined by the author in the course of this study. Herbaria holding the material are mentioned under ‘Collectors’ (above) and are cited in the text. No literature references to Kangaroo Island lichens, nor any other sources such as electronic herbarium databases, have been accepted uncritically.

Identification methods. Identification of specimens is based on morphological and anatomical examination using standard methods, including high-power light microscopy of hand-cut sections of the thallus, ascomata.
Fig. 11. Agricultural landscape, near Stokes Bay. Although largely a lichen “desert”, isolated trees, rocks and fenceposts provide critical refugia for lichens.

Fig. 12. Calciphilous communities on consolidated soil, Stokes Bay. Although apparently much-reduced in comparison to former times, such seemingly bare areas of soil can be richly colonised by lichens and bryophytes.

and pycnidia. Mounting media included water, 15% KOH (K), Lugol’s iodine, lactophenol cotton blue, ammoniacal erythrosin and 50% HNO₃ (N). Routine chemical analyses using thin-layer chromatography (t.l.c.) follow standard methods (Orange et al. 2001). A number of critical specimens were also analysed using high-performance liquid chromatography by Prof. J. Elix, Canberra (Elix et al. 2003). The author is responsible for all the identifications, but consulted specialists for assistance with specimens from selected genera (see ‘Acknowledgements’).

Nomenclature. For the most part, nomenclature follows Checklist of the Lichens of Australia and its Island Territories by McCarthy (2018) and thus conforms with currently accepted classifications. However, recent (and ongoing) investigations within some groups, based chiefly on molecular data, have led to significant name changes, particularly at generic rank, often with some controversy. In some of these, notably Aspicilia, Caloplaca, Verrucaria, Xanthoria and the Collemataceae, I have retained a more conservative nomenclature and apply broad generic concepts until assessments of all relevant Australian taxa have been undertaken.

Presentation of data. The entry for each species includes the currently accepted name, brief notes on diagnostic features and ecology, and a list of all specimens seen in chronological order by their collection date. Full literature citations for the species are readily available in
McCarthy (2018) and elsewhere and are not repeated here. In the interests of brevity, descriptive diagnoses and reference to short-cut aids for identification are kept to a minimum where these are readily available in the literature. Exceptions are made for taxa that are identified only to genus, for those taxa whose identity is complex, where Kangaroo Island specimens deviate from the norm, or where the record cited is the first for Australia. Names based on a type specimen from Kangaroo Island are indicated with (T). Synonyms are not given except where they pertain to a type from Kangaroo Island. New records for South Australia, based on comparisons with McCarthy (2018), are indicated with (*); new records for Australia are indicated with (#).

I have elected to cite all specimens examined for two main reasons. Firstly, because checklists, at least for poorly known groups with a scant and highly dispersed pool of expertise, need to be supported by voucher specimens. My experience in compiling checklists for other areas is that the hardest task is often not collating the names of what occurs at a place, but sifting, evaluating and excluding names of species that do not, but which have been introduced on the basis of hearsay or literature. Secondly, and perhaps more importantly, Kangaroo Island is a region undergoing rapid and severe change. Where and, in particular, when each specimen was collected offers an insight into how the flora of the island has changed. My perception of the island is that many of the localities where collections were made in the

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Fig. 13. Rocky River. Semi-inundated rocks in fresh water can be a very rich habitat for lichens. The area of most interest and greatest potential diversity is the blackish zone at or just beneath the level of the water.

Fig. 14. Allocasuarina-dominated woodland, near Western River Cove.
past have been irreversibly altered and degraded, and that some species once recorded there are no longer present.

No checklist is ever complete and further additions are to be expected. The list is statement of the situation at the end of 2018, and is a baseline for future work. Critically, such work can now be based on a well-curated and annotated body of herbarium specimens.

Images. Photographs were taken by J. Jarman or B. de Villiers (attributed on each image) or by the author (unattributed).

The catalogue

**Acarospora citrina** (Taylor) Zahlbr. ex Rech.
On rocks in dry sclerophyll woodland. Characterised by the bright yellow areolate to subsquamulose thallus with immersed apothecia and polysporous asci. Fig. 15A.

North Coast, Middle River, S.J. Edmonds s.n. (MEL); Ironstone Hills, 35°43′S 137°58′E, 90 m alt., 2011, G. Kantvilas 311/11 (HO); Cape St Albans, 35°48′S 138°08′E, 40 m alt., 2011, G. Kantvilas 366/11 (AD, CANB); northern end of Antechamber Bay, 35°47′S 138°04′E, 5 m alt., 2011, G. Kantvilas 396/11 (HO); Lesueur Conservation Park, c. 3.5 km SW of Cape Willoughby, 35°51′S 138°06′E, 10 m alt., 2009, G. Kantvilas 359/09, 360/09 (AD, CANB, HO) [type].

**A. veronensis** A.Massal.
On rocks in dry sclerophyll woodland. This species is rarely collected because its scattered thallus areoles are typically widely dispersed amongst other lichens. Amongst the Australian species of the genus with a brown thallus, it is characterised by the absence of lichen substances; superficially similar species containing either gyrophoric acid or norstictic acid could be expected to occur on the island as well.

Ironstone Hills, 35°43′S 137°58′E, 90 m alt., 2011, G. Kantvilas 314/11 (HO); same locality, 35°48′S 138°03′E, 15 m alt., 2012, G. Kantvilas 480/12 & B. de Villiers (AD, HO); W of Windmill Bay, 35°51′S 138°07′E, 40 m alt., 2012, G. Kantvilas 505/12 (HO).

**A. devilliersiana** Elix & Kantvilas
On coastal granite. Characterised by a pale brownish grey to dark grey, areolate thallus containing norstictic acid, *Physconia*- to *Buellia*-type ascospores, 10–17 × 6–8 µm, and filiform conidia, 15–21 µm long. Also recorded from Tasmania. Illustration: Elix & Kantvilas (2013a: Fig. 2).

Lesueur Conservation Park, c. 3.5 km SW of Cape Willoughby, 35°51′S 138°06′E, 10 m alt., 2009, G. Kantvilas 359/09, 360/09 (AD, HO); Windmill Bay, 35°51′S 138°07′E, 1 m alt., 2012, G. Kantvilas 494/12 (AD, CANB, HO) [type].

**A. dudleyensis** Kantvilas & Elix
On eucalypt twigs in avenues of mallee fringing paddocks and roadsides, and in scrubby coastal vegetation. Superficially similar to species of *Buellia* sens. str., but distinguished by the 1-septate, brown ascospores of the *Orcularia*-type, 20–28 × 9–14 µm, the filiform conidia, 20–30 µm long, and by the lack of lichen substances. Recorded recently from Campbell Island and the Auckland Islands (Elix 2018) and likely to have been overlooked on mainland Australia. Illustration: Elix & Kantvilas (2013a: Fig. 3).

Chapman River Estuary, 35°50′S 138°05′E, 3 m alt., 1985, J.A. Elix 19693 & L.H. Elix (CANB); Creek Bay Farm, headwaters of Lubra Creek, 35°49′S, 138°06′E, 40 m alt., 2011, G. Kantvilas 383/11 (AD, CANB, HO) [type]; Stars
On wood and bark, especially in woodland dominated by *Melaleuca* or *Callitris*, and on old mallee roots and logs in rough pasture. Recognised by the typically olive-brown, subsquamulose thallus, black apothecia, 1-septate, brown, *Physonia*-type ascospores, 13–20 × 6–8 µm, and filiform conidia. This lichen is widespread across southern Australia including Tasmania. **Illustration:** Elix & Kantvilas (2013a: Fig. 4).

**Amandinea lignicola** var. *australis* Elix & Kantvilas

On coastal rocks. Characterised by the pale grey-brown thallus that has a non-amyloid medulla and lacks lichen substances, the *Physonia*-type ascospores, 12–17 × 6–9 µm, and the filiform conidia, 16–27 µm long (Blaha et al. 2016).

Mouth of De Mole River, 35°43’S 136°47’E, 20 m alt., 2010, G. Kantvilas 773/12 (CANB); northern end of Antechamber Bay, 35°49’S 137°48’E, 10 m alt., 2012, G. Kantvilas 410/12 (AD, HO); slopes above Red House Bay, 35°49’S 138°07’E, 50 m alt., 2012, G. Kantvilas 591/12 (AD, HO); southern end of Antechamber Bay, 35°48’S 138°06’E, 10 m alt., 2013, G. Kantvilas 202/13 (HO).

**Amandinea litoralis** (Zahlbr.) H.Mayrhofer & Elix

On coastal rocks. Characterised by the pale grey-brown thallus that has a non-amyloid medulla and lacks lichen substances, the *Physonia*-type ascospores, 8–15 × 4–7 µm, and filiform conidia, 19–25 µm long (Elix et al. 2017).


**Amandinea neoconglomerata** Elix

Occasional on coastal rocks. This species is characterised by a very reduced thallus that lacks lichen substances, *Buellia*-type ascospores, 8–15 × 4–7 µm, and filiform conidia, 19–25 µm long (Elix et al. 2017).

Hog Bay, 3 km E of Penneshaw, 35°43’S 137°57’E, 15 m alt., 1994, H.T. Lumbsch 10897a, A. Dickhäuser & H. Streimann (CANB); northern end of Antechamber Bay, 35°47’S 138°04’E, 1 m alt., 2011, G. Kantvilas 390/11 (HO); Western River Cove, W end of beach, 35°40’S 136°58’E, 2 m alt., 2015, G. Kantvilas 415/15, 416/15 (AD, HO).

**Amandinea punctata** (Hoffm.) Coppens & Scheid.

Widely scattered on bark and wood. With its rather inapparent thallus and *Buellia*-type ascospores, 10–16 × 5–8 µm, identification of this cosmopolitan species requires observation of its rather elusive, filiform conidia, 14–22 × 0.5–1 µm.

Banks of Cygnet River near Lockwood Corner, 35°39’S 137°38’E, 1967, G. Jackson 531 (AD); 1 km N of Flour Cask Bay, 35°52’S 137°42’E, 1986, D.N. Krabbenhøft s.n. (MEL 1068706 p.p.); Creek Bay Farm, 35°51’S 138°06’E, 100 m alt., 2011, G. Kantvilas 416/11 (AD, HO); Chapman River, 35°48’S 138°04’E, 10 m alt., 2012, G. Kantvilas 398/12 & B. de Villiers (AD, HO); W of Windmill Bay, 35°51’S 138°07’E, 40 m alt., 2012, G. Kantvilas 497/12 (HO).

**Amandinea stajsicii** Elix & Kantvilas

On the twigs of coastal trees and shrubs. Superficially similar to *A. dudleyensis* but with smaller ascospores, 12–18 × 6–10 µm. **Illustration:** Elix & Kantvilas (2013a: Fig. 7).

Cape Borda, 35°45’S 136°35’E, 100 m alt., 1994, H.T. Lumbsch 10904, A. Dickhäuser & H. Streimann (CANB); northern end of Antechamber Bay, 35°47’S 138°04’E, 10 m alt., 2012, G. Kantvilas 509/12 (AD, HO); same locality, 2013, G. Kantvilas 273/13 (AD, HO); Red House Bay, 35°49’S 138°06’E, 15 m alt., 2013, G. Kantvilas 322/13 (HO).

**Anisomeridium austroaustraliense** P.M.McCarthy & Kantvilas

On the bark of a dead tree in *Allocasuarina*-dominated woodland. Characterised by the pale thallus with a trentepohlioid photobiont, black perithecia to 0.35 mm wide, and 1-septate ascospores, 12–18 × 5–8 µm. Known only from Kangaroo Island but likely to occur more widely. **Illustration:** McCarthy & Kantvilas (2016a: Fig. 1).

Ironstone Hills, 35°44’S 137°57’E, 70 m alt., 2015, G. Kantvilas 382/15 (HO) [type].

**Anisomeridium polypori** (Ellis & Everh.) M.E.Barr

On bark and wood in dry sclerophyll forest and coastal scrub. This is a rather inconspicuous crustose lichen with a *Trentepohlia* photobiont and black perithecia with non-amyloid asci, slender, branched and anastomosing pseudoparaphyses, and 1–3-septate ascospores, 14–20 × 4–6 µm.

Point Ellen, 36°00’S 137°11’E, 5 m alt., 2013, G. Kantvilas 223/13 (HO); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 336/15 (HO).

**Arthonia calicai** Kantvilas & Wedin

Lichenicolous on the thallus of *Calicium tricolor*, growing on eucalypt wood in dry sclerophyll forest. This minute species represents the first report of an *Arthonia* species parasitising a *Calicium* (Kantvilas & Wedin 2015). Known only from Kangaroo Island. **Illustration:** Kantvilas & Wedin (2015: Figs 1, 2A–E).

**Arthonia insularis** Kantvilas & Wedin

Lichenicolous on the thallus of *Caloplaca eos* on granite boulders in coastal heathland. Recorded only from

G. Kantvilas 220/13 (AD, HO); Cape Borda, 35°45’S 136°35’E, 100 m alt., 1994, H.T. Lumbsch 10904, A. Dickhäuser & H. Streimann (CANB); northern end of Antechamber Bay, 35°47’S 138°04’E, 10 m alt., 2012, G. Kantvilas 509/12 (AD, HO); same locality, 2013, G. Kantvilas 273/13 (AD, HO); Red House Bay, 35°49’S 138°06’E, 15 m alt., 2013, G. Kantvilas 322/13 (HO).
Kangaroo Island, although its host lichen is widespread in southern Australia and Tasmania. **Fig. 16A.**

W of Windmill Bay, 35°51’S 138°07’E, 40 m alt., 2012, G. Kantvilas 506/12 (AD, HO, KW, S) [type].

**Arthonia intexta** Almq.
Lichenicolous, infecting the apothecia of *Lecidella sublapicida*, a species found on rocks in exposed habitats (Kantvilas & Wedin 2015).

Cape Willoughby Road, 35°50’S 138°06’E, 110 m alt., 2011, G. Kantvilas 325/11 (HO).

**Arthonia** sp. A
On the twigs of *Melaleuca* in mallee woodland. This extremely inconspicuous species is characterised as follows: thallus scurfy, containing a *Trentepohlia* photobiont; ascomata black, to 0.25 mm wide; hypothecium colourless to pale brownish; epihymenium dark brown, K+ olivaceous; hymenial gel and asci I–, KI–; ascospores 3-septate, fusiform-ellipsoid, non-macrocephalic, 10–12.5 (–14) × 3–4 µm.

Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 324/15 (HO).

**Arthonia** sp. B
On the decorticated, dry, bleached wood of a dead standing tree, associated with calicioid species and *Schismatomma rediunta*. This remarkable species has the following diagnostic characters: thallus inapparent, containing no substances detectable by t.l.c.; photobiont *Trentepohlia*; ascomata lirelliform, c. to 1 mm long and 0.2 mm wide, with tapered ends, sunken between and following the fibres of the wood substratum, black, mostly with a light, pale grey pruina; hypothecium colourless; ephymenium granular, olivaceous, intensifying olive in K; hymenium strongly Kl+ blue; ascii lacking any discernible amyloid structures; ascospores 3–4-septate, macrocephalic, 16.5–20 × 5.5–8 µm.

The old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 30 m alt., 2015, G. Kantvilas 488/15 (HO).

**Aspicilia caesiocinerea** (Nyl. ex Malbr.) Arnold
On non-calcareous rocks, especially near the coast. Although often with abundant apothecia, only one Kangaroo Island specimen has any fertile asci, but all nevertheless display the diagnostic characters of a grey, continuous, areolate or sometimes rather lumpy thallus containing aspicilin, and conidia 6–9 × 1 µm. Supported by DNA-sequence data, this taxon has been transferred to the genus *Circinaria* (Nordin et al. 2010).

Northern end of Antechamber Bay, 35°46’S 138°04’E, 5 m alt., 2009, G. Kantvilas 364/09 (HO); same locality, 2015, G. Kantvilas 477/15 (AD, HO); Ironstone Hills, 35°43’S 137°58’E, 90 m alt., 2011, G. Kantvilas 312/11 (AD, HO); Windmill Bay, 35°51’S 138°07’E, 10 m alt., 2011, G. Kantvilas 413/11 (HO); Western River Cove, W end of beach, 35°40’S 136°58’E, 2 m alt., 2015, G. Kantvilas 414/15 & B. de Villiers (HO); Rocky River, 35°57’S 136°40’E, 35 m alt., 2015, G. Kantvilas 539/15 (HO).

**Aspicilia contorta** (Hoffm.) Ach.
On limestone in heathland or rough pasture near the coast. The specimens studied are characterised by a thallus of whitish, well-separated, rather knobbly papillae and/or apothecia with a prominent, inrolled margin, an inconspicuous or absent prothallus, and contain aspicilin. Although apothecia are usually abundant, no ascospores were located; nor could conidia be observed. This species is included in the genus *Circinaria* by Nordin et al. (2010). **Fig. 16B.**

**Aspicilia praecrenata** (Nyl.) Hue
The specimen cited could well be accommodated within a broad concept of the widespread calcicolous species, *A. contorta* (Hoffm.) Kremp., and I have seen similar specimens under that name in Australian
herbaria. However, I have elected to follow the account of Owe-Larsson et al. (2007) and apply the name _A. praecrenata_ (based on a North American type), albeit with some hesitation. The specimen is terricolous, growing on calcareous soil with _Gyatolechia_ and _Psora_ species, has a rather lumpy, squamulose, white thallus containing aspicilin, prominent apothecia with a thick crenulate margin and a white-pruinose disc, well-developed 3-spored asci (contrary to all studied specimens of _A. contorta_) and subglobose ascospores, 20–26 x 18–20 µm.

Near King George Beach, 35°39′S 137°07′E, 10 m alt., 2011, _G. Kantvilas_ 336/11 & _B. de Villiers_ (AD, HO, UPS).

**Austroparmelina conlabrosa** (Hale) _A.Crespo, Divakar & Elix_

Locally common on wood and bark in dry sclerophyll forest, _Melaleuca_-dominated woodland and mallee; rarely also on rock. Recognised by the tightly adnate, grey, foliose thallus with dense isidia, the C+ red medulla and the black underside. **Illustration:** _Kantvilas et al._ (2002: 118).

Flinders Chase area, 1955, _J.B. Cleland_ s.n. (AD); Waterfall Creek, Western River Conservation Park, 35°42′S 136°54′E, 1982, _K. Stove_ 1742 (AD); Lashmar Lagoon, 35°49′S 138°04′E, 10 m alt., 2011, _G. Kantvilas_ 266/11 & _B. de Villiers_ (AD, HO); Billygoat Falls, 35°42′S 136°55′E, 200 m alt., 2012, _G. Kantvilas_ 570/12, 755/12 & _B. de Villiers_ (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46′S 137°48′E, 3 m alt., 2013, _G. Kantvilas_ 345/13 & _B. de Villiers_ (AD, HO); Ironstone Hills, 35°44′S 137°57′E, 70 m alt., 2015, _G. Kantvilas_ 380/15 (HO); Rocky River near bridge on West Bay Road, 35°56′S 136°37′E, 10 m alt., 2015, _G. Kantvilas_ 519/15 (HO).

**Austroparmelina pruinata** (Müll.Arg.) _A.Crespo, Divakar & Elix_

Widespread and very common on twigs and young branches in eucalypt woodland, mallee and heathland. This is one of Kangaroo Island’s most common macrolichens, recognised by the grey, foliose thallus, the C+ red medulla, the grey-pruinose apothecial disc and the black underside. **Illustration:** _Kantvilas et al._ (2002: 123).

Flinders Chase area, 1945, _J.B. Cleland_ s.n. (AD); N of Murray Lagoon, 1972, _R.D. Seppels_ 2063 (MEL); Mt Taylor Conservation Park, 35°56′S 137°03′E, 1982, _E.N.S.Jackson_ 4489 (AD); Cape Ganhautume Conservation Park, c. 2 km S of entrance, 36°00′S 137°36′E, 1982, _K. Stove_ 1514 p.p. (AD); corner of Playford Hwy, Birdmore Hwy and road to Kingscote aerodrome, 35°42′S 137°31′E, 1982, _K. Stove_ 1791 p.p. (AD); c. 0.75 km SE of Amen Corner, 35°41′S 137°13′E, 1982, _K. Stove_ 1982 (AD); 13 km NE of Vivonne Bay, 35°35′S 137°16′E, 30 m alt., 1985, _J.A. Elix_ 19581 & _L.H. Elix_ (CANB); 3 km E of Seal Bay, 36°00′S 137°21′E, 30 m alt., 1985, _J.A. Elix_ 19584, 19587 & _L.H. Elix_ (CANB); S of Wisanger Hills, 35°37′S 137°27′E, 80 m alt., 1985, _J.A. Elix_ 19650 & _L.H. Elix_ (CANB); Dudley Peninsula, 5 km W of Antechamber Bay, 35°45′S 138°01′E, 160 m alt., 1985, _J.A. Elix_ 19684 & _L.H. Elix_ (CANB); Rivers Return, 1985, _J.H. Willis_ s.n. (MEL); 1 km N of Flour Cask Bay, 35°52′S 137°42′E, 1986, _D.N. Krachenbuehl_ s.n. (MEL 1052177); adjacent to Eleanor River, 3 km E of Little Sahara sand dunes, 35°57′S 137°17′E, 1989, _D.N. Krachenbuehl_ 5177 (AD); c. 6 km N of Vivonne Bay, 35°56′S 137°11′E, 1989, _D.N. Krachenbuehl_ 5190 p.p. (AD); Creek Bay Farm, c. 3.5 km NW of Cape Willoughby, 35°49′S 138°07′E, 110 m alt., 2009, _G. Kantvilas_ 366/09 (AD, HO); Cape Borda lighthouse cemetery, 35°45′S 136°38′E, 90 m alt., 2010, _G. Kantvilas_ 190/10 (HO); northern end of Antechamber Bay, 35°47′S 138°04′E, 1 m alt., 2010, _G. Kantvilas_ 193/10 (HO); Beyeria Conservation Park, 35°47′S 137°36′E, 50 m alt., 2010, _G. Kantvilas_ 215/10 (AD, HO); Stars Road, 35°47′S 137°33′E, 65 m alt., 2012, _G. Kantvilas_ 395/12 (HO); Hanson Bay Track, c. 1 km SW of Grassdale Lagoon, 36°00′S 136°52′E, 50 m alt., 2015, _G. Kantvilas_ 299/15 & _B. de Villiers_ (HO).

**Austroparmelina pseudorelicina** (Jatta) _A.Crespo, Divakar & Elix_

On _Allocasuarina_ bark in dry sclerophyll forest; apparently very uncommon on the island and highly localised. This grey, foliose species is distinguishable from the preceding one chiefly by having a brownish, pruinose apothecial disc. **Illustration:** _Kantvilas et al._ (2002: 123).

Billygoat Falls, 35°42′S 136°55′E, 200 m alt., 2012, _G. Kantvilas_ 572/12 & _B. de Villiers_ (AD, HO).

**Austroparmelina subordia** (Elix) _A.Crespo, Divakar & Elix_

On the bark of twigs of understorey trees in dry sclerophyll forest; seemingly rare on the island. Differing from the superficially similar _A. pseudorelicina_ by the pale underside.

_Cape Borda lighthouse cemetery, 35°45′S 136°38′E, 90 m alt., 2010, _G. Kantvilas_ 189/10 (AD, HO)._
Bacidia brigitteae Kantvilas
On soft bark of Melaleuca in coastal oldgrowth mallee and woodland, in close proximity to rivers and lagoons. Readily recognised by the greenish, granular thallus with densely pruinose apothecia, an excipulum inspersed with crystals, and the filiform ascospores, (43–) 50–77 (–80) × (2.5–) 3–4 µm, with 8–18 septa. Known only from Kangaroo Island. Fig. 18.

Ravine des Casoars, 35°48’S 136°37’E, 20 m alt., 1985, J.A. Elix 19734 & L.H. Elix (B, CANB); same locality, 35°48’S 136°35’E, 15 m alt., 2012, G. Kantvilas 482/12 & B. de Villiers (AD, HO); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 326/15 & B. de Villiers (AD, HO) [type]; South West River, 36°01’S 136°52’E, 10 m alt., 2015, G. Kantvilas 426/15 & B. de Villiers (AD, HO).

Bacidia laurocerasi (Delise ex Duby) Zahlbr.
On Melaleuca in swampy woodland. Characterised by the generally smooth crustose thallus, the dark-coloured to black apothecia with the epihymenium and outer part of the excipulum pigmented purple-brown, intensifying purple in K, the absence of greenish, N+ crimson pigments, the colourless hypothecium and by the acicular ascospores, 55–80 × 3–4 µm, with up to 17 septa. This name has been variously applied to Australasian specimens, but the KI collection compares favourably to reference material and descriptions from the Northern Hemisphere (Ekman 1996).

Murray Lagoon, Timber Creek, 35°55’S 137°26’E, 15 m alt., 2011, G. Kantvilas 347/11 & B. de Villiers (HO).

Bacidia littoralis Kantvilas
On sandstone in sheltered underhangs in dry sclerophyll forest. The apothecia of this widespread, southern Australian species are extremely variable, ranging from dark grey to grey-brown to black, with variable amounts of brown, K+ purple brown, and greenish, N+ crimson pigments, in the excipulum, hypothecium and epihymenium; ascospores are acicular to narrowly fusiform, 3–7-septate, 24–48 × 2–3.5 µm (Kantvilas 2018c). Fig. 19A.

Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 785/12 (HO).

Fig. 18. Bacidia brigitteae. A Habit, showing the persistently pruinose apothecia. Scale = 5 mm. B Detail of the granular to goniozyst-like thallus. Scale = 1 mm. Photos: J. Jarman.

Fig. 19. A Bacidia littoralis. B Bacidia septosior. Scales = 2 mm. Photos: J. Jarman.
**Bacidia rubella** (Hoffm.) A.Massal. aggr.
Overgrowing bryophytes on a mature *Callitris* trunk in a relict coniferous woodland. The greyish, ± granular thallus, pale orange-pink, biatorine apothecia to 1 mm wide, internally pigmented yellow-orange, and the excipulum inspersed with granules and constructed of radiating hyphae that lack enlarged cells, suggest a relationship with the widespread *B. rubella* (Hoffm.) A.Massal. group. However, this remarkable species is distinguished by having ascospores that are 85–96 × 4–5.5 µm, with 30–40 septa; these are longer, wider and more septate than those of *B. rubella* (Ekman 1996) or its relatives (Llop *et al.* 2007). Superficially, this species resembles a species of *Coenogonium*. Fig. 20.

Brown Beach, 35°48’S 137°50’E, 10 m alt., 2012, G. Kantvilas 438/12 & B. de Villiers (HO).

**Bacidia cf. schweinitzii** (Fr. ex E.Michener) A.Schneid.
On moist *Melaleuca* bark in coastal woodland. Characterised by a rather reduced thallus of dispersed granules, dark brown to black apothecia to 1 mm diam., a green, N+ crimson epihymenium, a dark reddish brown hypothecium and excipulum, acicular, mostly 7-septate ascospores, 40–56 × 3 µm, and thread-like, curved conidia, 20–25 × 0.5 µm.

I hesitate to unequivocally determine this specimen as *B. schweinitzii*, first described from North America, because reference material of that taxon has a better developed thallus. Furthermore, in these reference specimens, the red-brown colour appears to be derived mainly from *rubella*-orange or *schweinitzii*-red pigments (after Ekman 1996) which intensify reddish in KOH. In the Kangaroo Island specimen, the brown colour is derived at least in part from *laurocerasi*-brown and reacts K+ purplish brown.

Ravine des Casoars, 35°48’S 136°35’E, 15 m alt., 2012, G. Kantvilas 485/12 & B. de Villiers (HO).

**Bacidia septosior** (Nyl.) Zahlbr.
Locally common in moister habitats in mallee woodland on spongy bark at the bases of older eucalypts, on larger *Melaleuca* trunks in coastal woodland, and on *Callitris*. This distinctive species is easily recognised by the jet-black apothecia that are commonly thickly whitish-pruinose or have the pruina confined to the edge of the excipulum; older, epruinose apothecia are superficially very similar to those of a *Megalaria*. Anatomically this species is characterised by a combination of an excipulum that is colourless within, inspersed with bands of angular crystals and with red-brown, K+ purple-brown pigment at the outer edge, a colourless to pale yellowish hypothecium, a grey-green, K+ greenish, N+ purple epihymenium, and filiform to narrowly cylindrical ascospores, 55–104 × 4–6 µm with 20–35 septa (Kantvilas 2017). Fig. 19B.

West Bay, 35°53’S 136°33’E, 40 m alt., 1994, H.T. Lumbsch 10915a, A. Dickhäuser & H. Streimann (CANB); Cape du Couedic Road, 1 km S of Rocky River Settlement, 35°57’S 136°44’E, 70 m alt., 1994, H. Streimann 54997 (AD, CANB); Willson River, 35°52’S 137°56’E, 1997, R.J. Bates 48365 (AD); Moffatt Road, 35°49’S 138°00’E, 70 m alt., 2011, G. Kantvilas 251/11 & B. de Villiers (HO); West Bay, 35°53’S 136°33’E, 10 m alt., 2011, G. Kantvilas 299/11 (AD, HO); Creek Bay Farm at headwaters of Lubra Creek, 35°49’S 138°06’E, 40 m alt., 2011, G. Kantvilas 379/11 (AD, HO); Brown Beach, 35°48’S 137°50’E, 10 m alt., 2012, G. Kantvilas 435/12 & B. de Villiers (AD, HO); North Cape Road, 35°36’S 137°35’E, 5 m alt., 2013, G. Kantvilas 261/13 & B. de Villiers (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 3 m alt., 2013, G. Kantvilas 347/13 & B. de Villiers (AD, HO); South...
West River, 36°01’S 136°52’E, 10 m alt., 2015, G. Kantvilas 423/15 (HO); Rocky River, 35°56’S 136°37’E, 10 m alt., 2015, G. Kantvilas 518/15 (HO).

*Bacidia stenospora C.Knight*
On bark and wood in mallee woodland and dry sclerophyll forest. Characterised by the reddish brown, bitorine apothecia that contain no greenish or purple-brown pigments, and by the acicular ascospores, 43–62 × 2–3 µm, with 7–10 (–15) indistinct septa. The orange-brown pigment in the excipulum and hypothecium is rubella-orange (after Ekman 1996) and intensifies orange in K and N.

Approx. 2.5 km SW of Cape St Albans, 35°49’S 138°07’E, 120 m alt., 2011, G. Kantvilas 291/11 & B. de Villiers (HO); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 343/15 (HO); Snake Lagoon carpark, 35°57’S 136°39’E, 70 m alt., 2015, G. Kantvilas 517/15 (HO).

**Bacidia sp. A**
The genus *Bacidia* is very poorly known in Australia, and several unidentified species have been recorded from the island. The following taxon is common on eucalypt bark in mallee. A diagnosis highlighting salient features follows.

Thallus whitish, smooth to rimose; apothecia bitorine, to 0.3–0.7 mm diam., black to brown-black, rarely very faintly greyish-pruinose. Hymenium colourless, 70–80 µm thick, with a dark red-brown to grey-brown, K+ purplish brown ephymenium composed of the pigmented apices of the paraphyses. Hypothecium colourless, faintly yellowish in K. Excipulum red-brown, K+ purplish brown at the outer edge, with the pigment increasingly dilute within. Ascospores spiralled in the ascus, acicular with rounded or acute apices, 30–45 × 2–3 µm, (5–) 7-septate. Conidia filiform, curved, 10–15 × 0.5 µm.

I have not been able to find a published name for this species. The apothecial pigmentation, in particular the absence of greenish, N+ crimson pigments, is similar to that of *B. laurocerasi* (Nyl.) Th.Fr. with respect to pigmentation and ascospore morphology, but that species has bacilliform conidia.

Cape Gantheaume Conservation Park, c. 2 km S of entrance, 36°00’S 137°36’E, 1982, K. Stove 1514 p.p. (AD); Corner of Playford Hwy, Birchmore Hwy and road to Kingscote aerodrome, 35°42’S 137°31’E, 1982, K. Stove 1790, 1789 p.p. (AD); Playford Hwy, 1 km W of Kingscote Airport, 35°43’S 137°31’E, 1985, J.A. Elix 19616 & L.H. Elix (CANB); Beyeria Conservation Park, 35°47’S 137°36’E, 50 m alt., 2010, G. Kantvilas 216/10 (AD, HO); Hog Bay Road, 35°46’S 137°37’E, 20 m alt., 2013, G. Kantvilas 208/13 (HO).

*Bacidia sp. B* On *Exocarpos* in dry sclerophyll forest. Characterised by a thallus, apothecial pigments and ascospores that are identical to those of *B. septosior* (see above), but lacking pruina on the apothecia and crystalline inclusions in the excipulum.

Rocky River near bridge on West Bay Road, 35°56’S 136°37’E, 10 m alt., 2015, G. Kantvilas 521/15 (HO).

**Bacidia sp. C**
On twigs of *Leucopogon parviflorus* in coastal scrub. This species is characterised by the following: thallus poorly developed, areolate, dull olive; apothecia black, to 0.2 mm wide; excipulum dilutely pigmented brown, K+ purplish brown at the upper and outer edges, elsewhere colourless; hypothecium colourless; hymenium 40–45 µm thick, grey-green, N+ crimson in the upper part; paraphyses mostly with capitulate apices to 4 µm wide; ascospores fusiform, sigmoid, with acute apices, 25–30 × 2–2.5 µm, 3–7-septate; conidia filiform, strongly curved, 8–10 × 0.5 µm.

Approx. 1.5 km SW of Point Ellen, 36°00’S 137°11’E, 10 m alt., 2015, G. Kantvilas 447/15 (HO).

**Baculifera xylophila** (Malme) Marbach
On the twigs of *Acacia*. Distinguished from superficially similar species of *Buella sens. str.* (e.g. *B. disa*) by the non-inspersed hymenium with an olive-brown, N+ dark grey ephymenium, 8-spored asci, ascospores 12–22 × 6–9 µm, bacilliform conidia and the absence of substances detectable by t.l.c. (Elix & Kantvilas 2014).


**Baglettoia baldensis** (A.Massal.) Vėzda
On limestone near the coast in pasture and open woodland. Distinguished from other endolithic species of the Verrucariaceae with tiny, immersed perithecia by having a radially fissured perithecial apex.

Kirkpatrick Point, N of Remarkable Rocks, 36°02’S 136°45’E, 40 m alt., 1985, J.A. Elix 19616 & L.H. Elix (CANB); near Pelican Lagoon, summit of hill above the Tiger Simpson memorial, 35°50’S 137°49’E, 60 m alt., 2013, G. Kantvilas 284/13A (HO); Kelly Hill Conservation Park, c. 1 km SSW of Kelly Hill Caves, 36°00’S 136°54’E, 40 m alt., 2015, G. Kantvilas 359/15 (HO).

*Bryobilimbia australis* (Kantvilas & Messutti) Fryday, Printzen & S.Ekman
On soil in gaps in mallee woodland. When first described, this species was perceived to be restricted mainly to cool, moist habitats at high elevations in Tasmania, south-eastern Australia and elsewhere at austral latitudes (Kantvilas et al. 2005). It has since been found commonly in lowland, dry sclerophyll habitats in Tasmania. Although somewhat atypical, the Kangaroo Island specimen displays the diagnostic features of the soon-immarginate, black apothecia with *Porpidia*-type asci and 0 (–1)-septate ascospores, 7–11 × 3.5–5 µm; the characteristic K+ blue-green pigment is very sparse.
but can be observed in the hypothecium. **Illustration:** Kantvilas et al. (2005: Figs 1, 2A).

Beyeria Conservation Park, 35°47'S 137°36'E, 50 m alt., 2013, G. Kantvilas 229/13 & B. de Villiers (HO, MSC).

**Buellia aeruginosa** A.Nordin, Owe-Larsson & Elix

Widespread and locally common on non-calcareous rocks on or near the coast. This faintly yellowish species is distinguished from the many other species of *Buellia* by its muriform ascospores, in combination with an aeruginosum epihymenium. Contrary to the original description of Nordin et al. (1999), the ascospores of this species can be as large as 14–24 × 7–12 µm. **Fig. 21A.**

Stokes Bay, 35°37’S 137°12’E, 2 m alt., 1985, J.A. Elix 19658, 19659, 19660 & L.H. Elix (CANB); Cape St Albans, 35°48’S 138°08’E, 40 m alt., 2011, G. Kantvilas 363/11 (AD, HO); northern end of Antechamber Bay, 35°47’S 138°04’E, 5 m alt., 2011, G. Kantvilas 393/11 (AD, HO); Windmill Bay, 35°1’S 138°07’E, 10 m alt., 2011, G. Kantvilas 415/11 (AD, HO); Point Ellen, 36°00’S 137°11’E, 2 m alt., 2012, G. Kantvilas 461/12 & B. de Villiers (AD, HO); Western River Cove, E of beach, 35°41’S 136°58’E, 5 m alt., 2015, G. Kantvilas 408/15 (HO).

**Buellia aethalea** (Nyl.) Müll.Arg.

On rocks. Best distinguished from the superficially similar and more common and widespread *B. homophylia* by containing norstictic acid only; the latter contains additional atranorin.

Scotts Cove lookout, 3 km E of Cape Borda, 35°46’S 136°37’E, 80 m alt., 1985, H. Streimann 19624 (CANB); Cape Borda lighthouse carpark, 35°45’S 136°36’E, 1982, K. Stove 1731 (AD); Point Ellen, 36°00’S 137°11’E, 4 m alt., 1985, J.A. Elix 19598 & L.H. Elix (CANB); Kirkpatrick Point, N of Remarkable Rocks, 36°02’S 136°45’E, 40 m alt., 1985, J.A. Elix 19615 & L.H. Elix (CANB); Cape Du Couedic, 36°03’S 136°42’E, 80 m alt., 1985, J.A. Elix 19617 & L.H. Elix (CANB); Cape Borda, 35°45’S 136°35’E, 100 m alt., 1994, H. Streimann 54956A (CANB); track to Cape Gantheaume, 36°04’S 137°27’E, 2008, G. Kantvilas 322/08 (AD, HO); Cape St Albans, 35°48’S 138°07’E, 20 m alt., 2010, G. Kantvilas 170/10 (AD, HO); Cape Borda, 35°45’S 136°36’E, 120 m alt., 2010, G. Kantvilas 186/10 (AD, HO); Cape St Albans, 35°48’S 138°08’E, 40 m alt., 2011, G. Kantvilas 365/11 (AD, HO); Ravine des Casos, 35°48’S 136°35’E, 5 m alt., 2012, G. Kantvilas 448/12 (AD, HO); Stokes Bay, 35°37’S 137°13’E, 50 m alt., 2012, G. Kantvilas 517/12 & B. de Villiers (AD, HO); near Pelican Lagoon, summit of hill above the Tiger Simpson memorial, 35°50’S 137°49’E, 60 m alt., 2013, G. Kantvilas 276/13 (HO); c. 1.5 km SW of Point Ellen, 36°00’S 137°11’E, 10 m alt., 2015, G. Kantvilas 440/15 (AD, HO); Rocky River Track, c. 1 km S of Snake Lagoon, 35°58’S 136°39’E, 50 m alt., 2015, G. Kantvilas 506/15 & B. de Villiers (AD, HO).

*B. Buellia cranfieldii* Elix

On sandstone in dry sclerophyll forest. Distinguished from several superficially similar species (*B. aethalea, B. homophylia and B. stellulata*) with a whitish thallus and black, sessile, immersed to adnate apothecia by its chemistry, which consists of atranorin only.

Bilbygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 758/12 & B. de Villiers (AD, HO).

**Buellia dissa** (Stirt.) Zahlbr.

A common crustose epiphyte, mainly on twigs in woodland, mallee and heathland. Characterised by the presence of atranorin and diplocicin, the inpersed hymenium, the 2-spored asci, and the brown, 1-septate ascospores, 22–42 × 10–16 µm, that have prominent subapical and septal wall thickenings.

Beyeria Conservation Park, 35°47’S 137°36’E, 50 m alt., 2010, G. Kantvilas 217/10 (AD, HO); c. 2.5 km SW of Cape St Albans, 35°49’S 138°07’E, 120 m alt., 2011, G. Kantvilas 286/11 & B. de Villiers (HO); Western Cove Road, 35°44’S 137°35’E, 2 m alt., 2011, G. Kantvilas 305/11 (HO); Ladies Road, 35°52’S 137°30’E, 50 m alt., 2011, G. Kantvilas 321/11 (HO); Creek Bay Farm, 35°49’S 138°06’E, 40 m alt., 2011, G. Kantvilas 373/11, 381/11 (AD, HO); Brown Beach, 35°48’S 137°50’E, 10 m alt., 2012, G. Kantvilas 432/12 & B. de Villiers (AD, HO); Strawbridge Point, 35°47’S 137°47’E, 5 m alt., 2012, G. Kantvilas 542/12 & B. de Villiers (HO); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 350/15 (AD, HO).

**Buellia extenuatella** Elix & Kantvilas

On twigs of *Leucopogon* and *Myoporum* in coastal scrub. With its inapparent thallus, black, lecideine apothecia and *Buellia*-type ascospores, 11–19 × 5–8 µm, this species is superficially very similar to *Amandinea punctata*, from which it can be distinguished with certainty only by its bacilliform conidia, (3-) 4–6 × 0.5–1 µm. It has also been recorded from the southern Australian mainland. **Illustration:** Elix & Kantvilas (2013b: Fig. 4).

Track to Cape Gantheaume, 36°04’S 137°27’E, 2008, G. Kantvilas 323/08 (AD, CANB, HO) [type]; Point Ellen, 36°00’S 137°11’E, 3 m alt., 2013, G. Kantvilas 220/13 (HO).

**Buellia halonia** (Ach.) Tuck.

Very common on non-calcareous rocks, mainly along the coast. Recognised by the yellowish, C+ orange, crustose thallus (containing isoarothelin and roccellic acid), sessile, black, lecideine apothecia and *Phyconia*-type ascospores, 11.5–19 × 6–9 µm. **Figs 21C, 22.**

Just E of Wisanger Park Homestead, 35°37’S 137°28’E, 80 m alt., 1985, J.A. Elix 19624 & L.H. Elix (CANB); mouth of De Mole River, 35°43’S 136°46’E, 20 m alt., 1994, H. Streimann 55064, 55077 (AD, CANB); Cape St Albans,
35°48′S 138°07′E, 20 m alt., 2010, G. Kantvilas 173/10 (AD, HO); near King George Beach, 35°39′S 137°07′E, 2 m alt., 2011, G. Kantvilas 327/11 (AD, HO); northern end of Antechamber Bay, 35°47′S 138°04′E, 5 m alt., 2011, G. Kantvilas 392/11 (HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46′S 137°48′E, 3 m alt., 2013, G. Kantvilas 323/13, 331/13 & B. de Villiers (AD, HO).

**Buellia halonioides** Elix

Occasional on rocks in dry sclerophyll forest. Superficially very similar to the preceding species and best distinguished chemically in that it contains arthothelin as the major constituent and medullary calcium oxalate; the latter is detected in squash preparations of the medulla by forming clusters of
needle-like crystals with the addition of 10% sulphuric acid (Elix et al. 2017).

Mouth of De Mole River, 35°43’S 136°46’E, 20 m alt., 1994, H. Streimann 55072, 55079 (CANB, HO).

*Buellia homophylla* (C.Knight) Zahlbr.
On non-calcareous rocks, especially near the coast. This species, with a whitish, crustose thallus and black, adnate to immersed apothecia, is best characterised by its chemistry that comprises atranorin, norstictic and connorstictic acids.

Scotts Cove Lookout, 35°46’S 136°37’E, 120 m alt., 1985, J.A. Elix 19715 & L.H. Elix (CANB, HO); Ravine des Casoars, 35°48’S 136°37’E, 70 m alt., 1994, H. Streimann 54961 (CANB); Western River Road near Cove, 20 m alt., 1994, H. Streimann 54965 (CANB); mouth of De Mole River, 35°43’S 136°46’E, 20 m alt., 1994, H. Streimann 55094 (CANB); Cape St Albans, 35°48’S 138°07’E, 1 m alt., 2011, G. Kantvilas 368/11A (AD, HO); Windmill Bay, 35°51’S 138°07’E, 10 m alt., 2011, G. Kantvilas 414/11 (AD, HO); northern end of Antechamber Bay, 35°46’S 138°04’E, 5 m alt., 2013, G. Kantvilas 268/13 (HO); Western River Cove, E of beach, 35°41’S 136°58’E, 20 m alt., 2015, G. Kantvilas 406/15 (HO); shoreline of Eastern Cove, c. 2.5 km NE of American River, 35°46’S 137°47’E, 2 m alt., 2015, G. Kantvilas 489/15 (AD, HO).

*Buellia stellulata* (Taylor) Mudd var. *stellulata*
On non-calcareous rocks near the coast. This variety is characterised by containing atranorin together with confluentic acid and/or 2’-O-methylperlatolic acid; var. *tasmanica* Elix & Kantvilas differs by containing atranorin and roccellic acid. Both varieties could be expected to occur on Kangaroo Island.

Cape St Albans, 35°48’S 138°07’E, 1 m alt., 2011, G. Kantvilas 368/11A (AD, HO); Windmill Bay, 35°51’S 138°07’E, 10 m alt., 2011, G. Kantvilas 414/11 (AD, HO); Cape St Albans, 35°48’S 138°07’E, 1 m alt., 2011, G. Kantvilas 368/11A (AD, HO); Windmill Bay, 35°51’S 138°07’E, 10 m alt., 2011, G. Kantvilas 414/11 (AD, HO); northern end of Antechamber Bay, 35°46’S 138°04’E, 5 m alt., 2013, G. Kantvilas 268/13 (HO); Western River Cove, E of beach, 35°41’S 136°58’E, 20 m alt., 2015, G. Kantvilas 406/15 (HO); shoreline of Eastern Cove, c. 2.5 km NE of American River, 35°46’S 137°47’E, 2 m alt., 2015, G. Kantvilas 489/15 (AD, HO).

*Buellia subadjuncta* Elix & Kantvilas
This remarkable species grows as a parasite on the thallus and prothallus of *Caloplaca lateritia*, and is visible as tiny, black apothecia scattered on the orange-coloured host (Elix et al. 2017). It was first collected from a large boulder in a grassy, coastal shrubland. More recently it has been reported from New Zealand (Elix & Mayrhofer 2018). Fig. 21E.

*Cape St Albans, 35°48’S 138°07’E, 40 m alt., 2015, G. Kantvilas 398/15 (HO) [type].

*Buellia subarenaria* Müll.Arg.
On sandstone in dry sclerophyll forest. Characterised by a yellowish to yellowish brown thallus containing atranorin (+) and xanthones (C+ yellow-orange) and *Physconia*- to *Buellia*-type ascospores, 11–17 × 6.5–9 µm. The species appears to be uncommon on Kangaroo Island, and the single specimen seen is extremely small.

*Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 753/12 & B. de Villiers (HO).
Buellia xantholeuca Bungartz & U.Grube
Locally abundant on limestone, especially near the coast. This species is superficially similar to and grows intermixed with B. albula, from which it can be distinguished by its pale yellowish cream thallus that contains xanthones (C+ orange); in contrast, B. albula is chalky white and contains norstictic acid (K+ yellow→red, C−).

Cape St Alans, 35°48’S 138°08’E, 40 m alt., 2011, G. Kantvilas 360/11 (HO); Windmill Bay, 35°51’S 138°07’E, 20 m alt., 2012, G. Kantvilas 470/12 (AD, HO); same locality, 2013, G. Kantvilas 235/13 (HO); Cape Willoughby, 35°51’S 138°08’E, 10 m alt., 2013, G. Kantvilas 241/13 & B. de Villiers (AD, HO); Stokes Bay, 35°37’S 137°13’E, 60 m alt., 2013, G. Kantvilas 300/13 & B. de Villiers (HO).

3Byssoloma subdiscordans (Nyl.) P.James
On sandstone outcrops in dry sclerophyll forest. This cosmopolitan species can occur on living leaves, bark or rock in moist habitats (Lücking 2008). The Kangaroo Island record is very unusual in that it was found in a dry, exposed microhabitat in a generally low rainfall area. Nevertheless, it conforms to published accounts and reference material of this species (P.M. McCarthy, pers. comm.): thallus grey-green, verruculose, forming discrete roundish patches, 10–15 mm wide, that sometimes coalesce, surrounded by a distinct, effuse, greyish green marginal prothallus; apothecia 0.2–0.8 mm diam., with disc black and margin minutely byssoid, grey and very thin; ascospores 3-septate, 12–17 × 3.5–5 µm; conidia pear-shaped, 4–5.5 µm long, to 1 µm wide at the distal end and to 2 µm wide at the proximal end; containing 2,5,7-trichloro-12–17 × 3.5–5 µm; conidia pear-shaped, 4–5.5 µm long, to 1 µm wide at the distal end and to 2 µm wide at the proximal end; containing 2,5,7-trichloro-

Calicium salicinum Pers.
On eucalypt wood in dry sclerophyll forest. Distinguished from the preceding species by the brown pruina on the lower side of the capitulum.

Bilbygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 770/12 (AD, HO, UPS).

Calicium tricolor F.Wilson
On eucalypt wood in dry sclerophyll forest. Distinguished from the other species recorded for the island by the white pruina on the lower side of the capitulum. The Kangaroo Island specimen is heavily infected with Arthonia caliciae (see above).

Bilbygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 772/12 (HO, UPS).

Caloplaca aggregata Kantvilas & S.Y.Kondr.
On limestone in rough, coastal pasture. This distinctive, yellow-orange species is recognised by its pulvinate thallus to 30 mm wide, dominated almost entirely by densely crowded, zeorine apothecia. Further distinguishing characters are the hymenium and subhymenium that are inspersed with oil droplets, the slender paraphyses, and relatively small ascospores, 9–14 × 4.5–6 µm. Kondratyuk et al. (2017a) transferred this species to the genus Gintanisiella, but their alternative generic classification of this and other species of Caloplaca is not followed in this paper (see Kantvilas 2016a). Fig. 24A.

Windmill Bay, 35°51’S 138°07’E, 20 m alt., 2012, G. Kantvilas 470/12 (HO, KW). [type]

Caloplaca bastowii S.Y.Kondr. & Kärnefelt
On coastal shrubs. Characterised by lecanorine apothecia with a thin, grey thalline margin and a brownish orange disc, slender paraphyses lacking oil vacuoles, and a hymenium heavily inspersed with oil droplets. On the basis of molecular data, Kondratyuk et al. (2014) transferred this species to the genus Franweibia. Fig. 24B.

Point Ellen, 36°00’S 137°11’E, 3 m alt., 2013, G. Kantvilas 221/13 (AD, HO, KW).

Fig. 23. Calicium abietinum. Scale = 1 mm. Photo: J. Jarman.
Caloplaca brownlieae S.Y. Kondr., Elix & Kärnefelt
On exposed non-calcareous rocks in woodland. This species is characterised by a vivid orange-red, esorediate thallus composed of rather angular, contiguous, very tightly adnate areoles. The presence of gyrophoric acid is diagnostic. Chiefly on the basis of molecular data, it was transferred to the genus Neobrowniella by Kondratyuk et al. (2015).

Just S of Wisanger Hills Homestead, 35°37’S 137°27’E, 80 m alt., 1985, J.A. Elix 19644 & L.H. Elix (CANB); Harveys Return, 1985, J.H. Willis (MEI); Ironstone Hills, near Harry Bates’ cottage, 35°43’S 137°58’E, 90 m alt., 2011, G. Kantvilas 313/11 (AD, HO); Creek Bay Farm, 35°50’S 138°06’E, 85 m alt., 2013, G. Kantvilas 372/13 (AD, HO); Lathami Conservation Park, 35°38’S 137°14’E, 160 m alt., 2015, G. Kantvilas 290/15 & B. de Villiers (HO).

Caloplaca cliffwetmorei S.Y. Kondr. & Kärnefelt
On twigs of Leucopogon in coastal heathland. Characterised by an inconspicuous thallus with orange, biatorine apothecia, <0.5 mm diam., paraphyses with oil vacuoles in chains, and ascospores that are 10–13 × 4–6 µm, with a prominent septum 3–5 µm wide. Fig. 24C.

Caloplaca cranfieldii S.Y. Kondr. & Kärnefelt
Mostly in nutrient-enriched sites near bird rookeries, on bird perch rocks or near sheep pasture. Recognised by the development of yellow soredia and blastidia from the eroding upper surface and margins of the thallus areoles. On the basis of molecular data, Arup et al. (2013) transferred this and several limestone-inhabiting species to the genus Flavoplaca.

Stokes Bay, 35°37’S 137°13’E, 50 m alt., 2012, G. Kantvilas 520/12 & B. de Villiers (AD, HO, KW); northern end of Antechamber Bay, 35°46’S 138°04’E, 5 m alt., 2013, G. Kantvilas 269/13 (HO); Ironstone Hills, 35°44’S 137°57’E, 70 m alt., 2015, G. Kantvilas 376/15 (AD, HO); Western River Cove, E of beach, 35°41’S 136°58’E, 20 m alt., 2015, G. Kantvilas 412/15 (AD, HO, KW).

Caloplaca dahlii Elix, S.Y. Kondr. & Kärnefelt
This is the most widespread, conspicuous and distinctive epiphytic species of Caloplaca recorded for the island, and is found on twigs and small branches in heathland, woodland and mallee. Characterised by the glaucous grey to beige-brown thallus containing Ravine des Casoars, at the coast, 35°48’S 136°35’E, 5 m alt., 2012, G. Kantvilas 446/12 (AD, HO, KW).

lichexanthone, and the bright orange, biatorine apothecia to 1.5 mm wide, usually with a deeply lobed margin and sometimes slightly pruinose disc. Chiefly on the basis of molecular data, Kondratyuk et al. (2014) transferred this species to the genus Eilisiphilia. Fig. 24D.

N of Murray Lagoon, 1972, R.D. Seppelt 2064 (MEL); Bunker Hill, 36°00′40″S 136°44′10″E, 1982, K. Store 1607 (AD); Playford Hwy, 1 km W of Kingscote Airport, 35°43′S 137°31′S, 15 m alt., 1985, J.A. Ellis 19662 & L.H. Ellis (CANB); S of Wisanger Hills Homestead, 35°37′S 137°27′E, 80 m alt., 1985, J.A. Ellis 19678 & L.H. Ellis (CANB); 4 km W of Cape Willoughby, 35°50′S 138°05′E, 100 m alt., 1985, J.A. Ellis 19705 & L.H. Ellis (CANB); Playford Hwy, 1975, 2064 (MEL); N of Murray Lagoon, 1972, R.D. Seppelt 2064 (MEL); Mouth of De Mole River, 35°43′S 136°46′E, 20 m alt., 1994, H.T. Lumbsch 10922m, A. Dickhäuser & H. Streimann (CANB); Mouth of De Mole River, 35°43′S 136°46′E, 20 m alt., 1994, H.T. Lumbsch 10922m, A. Dickhäuser & H. Streimann (CANB); Cape St Albans, 35°48′S 138°07′E, 2 m alt., 2013, G. Kantvilas 212/13 & B. de Villiers (HO).

**Caloplaca erythrosticta** (Taylor) Zahlbr.

On wood. Characterised by the subsquamulose, scattered or contiguous, brownish orange areoles that become coarsely granular sorediate. The single specimen from Kangaroo Island is sterile.

[Rocky River area], 1940, J.B. Cleland s.n. (AD, HO).

**Caloplaca fernandmuelleri** S.Y.Kondr. & Kärnefelt

On sandstone in mallee woodland. Characterised by a sorediate, brownish orange, squamulose thallus and biatorine to zeorine apothecia. This species appears to be the sorediate counterpart of *C. rexfilsonii* (see below) and, like that species, is included in the genus Fibonianna by Kondratyuk et al. (2013).

Creek Bay Farm, 35°50′S 138°06′E, 85 m alt., 2013, G. Kantvilas 370/13 (AD, HO).

**Caloplaca gallowayi** S.Y.Kondr., Kärnefelt & Filson

On non-calcareous coastal rocks where, together with several other species of the genus, it is largely responsible for the extensive reddish coloration of the sea-shore; also found more rarely at inland locations. This species is included in the genus Sireoniphila by Arup et al. (2013), whereas Kondratyuk et al. (2017a) classify it in *Elisiphilia*. Fig. 25.

[Rocky River area], 1940, J.B. Cleland s.n. (AD, HO); Emu Bay, 35°35′S 137°31′E, 1957, H.B.S. Womersley (AD); Remarkable Rocks, 36°03′S 136°45′E, 1972, R.D. Seppelt 916 (MEL); Harveys Return, 35°45′S 136°38′E, 2 m alt., 1985, J.A. Ellis 19741 & L.H. Ellis (CANB); mouth of De Mole River, 35°43′S 136°46′E, 20 m alt., 1994, H.T. Lumbsch 10922m, A. Dickhäuser & H. Streimann (CANB); Cape St Albans, 35°48′S 138°08′E, 40 m alt., 2011, G. Kantvilas 320/15 & B. de Villiers (AD, HO).

**Caloplaca eos** S.Y.Kondr. & Kärnefelt

Forming extensive patches on coastal rocks, especially granite. Its yellow-orange to bright orange, areolate thallus, in which the marginal areoles are elongate, rounded and minutely effigurate, separate it from *C. tommareena*, which has radiating, plicate, marginal lobes and stronger yellowish tones, and from *C. gallowayi*, which differs by being areolate and C. gallowayi having lobes and stronger yellowish tones, and from *C. tomareana* for this species and the related *C. rexfilsonii* below. The relationship between these two species (see below) and, like that species, is included in the genus *Elisiphilia* by Arup et al. (2013) and, that classification is not adopted here.

Remarkable Rocks, 1975, C.R. Twidale s.n. (AD, HO); Stokes Bay, 35°37′S 137°12′E, 2 m alt., 1985, J.A. Ellis 19678 & L.H. Ellis (CANB); Remarkable Rocks, 36°03′S 136°45′E, 40 m alt., 1994, H.T. Lumbsch 10913d, A. Dickhäuser & H. Streimann (CANB); Point Ellen, 36°00′S 137°10′E, 10 m alt., 2001, C.R. Twidale s.n. (AD, HO, KW); Billygoat Falls, 35°42′S 136°55′E, 200 m alt., 2012, G. Kantvilas 565/12 & B. de Villiers (AD, HO, KW).

**Caloplaca gilfillaniorum** Kantvilas & S.Y.Kondr.

On wood in roughly cleared pasture and woodland. This tiny, easily overlooked species has minute, isidioid-thallus granules and biatorine to zeorine apothecia, 0.3–1 mm wide (Kantvilas & Kondratyuk 2013). Although known only from Kangaroo Island, its habitat suggests it should be more widely distributed. Kondratyuk et al. (2013) erected the genus *Kaernefia* for this species and the related *C. kärnefeltii* (see below). The relationship between these two species requires further study (Kantvilas 2016a). Fig. 26A.

Creek Bay Farm, 35°51′S 138°06′E, 100 m alt., 2011, G. Kantvilas 417/11 (AD, HO, KW); Cape St Albans, 35°48′S 138°07′E, 2 m alt., 2013, G. Kantvilas 225/13 (AD, HO, KW); Grassdale Lagoon, 36°00′S 136°53′E, 200 m alt., 2015, G. Kantvilas 333/15 & B. de Villiers (AD, HO, LD).
Caloplaca holocarpa (Hoffm.) A.E.Wade
On nutrient-enriched rocks. Characterised by an inconspicuous thallus covered with tiny (0.1–0.25 mm wide), crowded, zeorine apothecia with a grey thalline margin and yellow-orange disc, and ascospores 9–14 × 5–8 µm, with the septum 3–4 µm wide. This species is classified in the genus Athallia by Arup et al. (2013).

Creek Bay Farm, 35°50'S 138°06'E, 85 m alt., 2013, G. Kantvilas 376/13 (HO, KW).

Caloplaca jackelixii S.Y.Kondr., Kärnefelt & A.Thell
On non-calcareous coastal rocks, intermixed with other species of Caloplaca, but seemingly preferring more sheltered sites such as small overhangs. It is best recognised by the rather waxy, deeply rimose-areolate thallus that is mottled yellowish, pale grey and greenish grey, sometimes in ± concentric zones, and the zeorine apothecia with a bright orange-yellow to orange-red disc. Kondratyuk et al. (2017a) include this species in the genus Elixjohnia. Fig. 27.

Cape St Albans, 35°48’S 138°07’E, 40 m alt., 2015, G. Kantvilas 399/15 (AD, HO, KW); shoreline of Eastern Cove, c. 2.5 km NE of American River, 35°46’S 137°47’E, 3 m alt., 2015, G. Kantvilas 491/15 (AD, HO, KW).

Caloplaca jerramungupensis S.Y.Kondr., Kärnefelt & Elix
On limestone in rough pasture. Characterised by an inconspicuous thallus and brownish orange, scattered, biatorine apothecia, with the hymenium and subhymenium densely inspersed with oil droplets, paraphyses with occasional oil vacuoles, and ascospores 14–18 × 6–9 µm. Kondratyuk et al. (2013) classify this species in the genus Xanthocarpia. Fig. 26B.

Cape St Albans, 35°48’S 138°08’E, 40 m alt., 2011, G. Kantvilas 359/11 (AD, HO, KW); Ravine des Casoars, at the coast, 35°48’S 136°35’E, 5 m alt., 2012, G. Kantvilas 454/12A (HO, KW); near Pelican Lagoon, summit of hill above the Tiger Simpson memorial, 35°50’S 137°49’E, 60 m alt., 2013, G. Kantvilas 286/13, 287/13 (HO); Stokes Bay, 35°37’S 137°13’E, 60 m alt., 2013, G. Kantvilas 299/13 & B. de Villiers (HO).

Caloplaca johnwhinrayi S.Y.Kondr. & Kärnefelt
On limestone in rough pasture. Characterised by a whitish, often indistinct thallus, soon zeorine apothecia with a whitish margin and bright orange to pink-orange disc, a non-inspersed hymenium, paraphyses with occasional oil vacuoles, and ascospores 12–15 × 4.5–7 µm. Fig. 26C.

Windmill Bay 35°51’S 138°07’E, 20 m alt., 2012, G. Kantvilas 475/12 (AD, HO, KW); Stokes Bay, 35°37’S 137°13’E, 50 m alt., 2012, G. Kantvilas 518/12 & B. de Villiers (AD, HO, KW); Cape Willoughby, 35°51’S 138°08’E, 10 m alt., 2013, G. Kantvilas 242/13 & B. de Villiers (HO).

Caloplaca kaernefeltii S.Y.Kondr., Elix & A.Thell
Epiphytic on moist bark in swampy woodland. This attractive species is recognised by its orange to orange-green, granular sorediate thallus and by the lecanorine apothecia to 1 (–2) mm wide, with a whitish thalline margin and orange to orange-pink disc. Kondratyuk et al. (2013) classify this species and the related C. gilfillaniorum in the genus Kaernefia. The relationship between these two species, at least on Kangaroo Island, requires further study (Kantvilas 2016a).

Chapman River, 35°48’S 138°04’E, 2 m alt., 2011, G. Kantvilas 371/11 & B. de Villiers (HO, KW); Ravine des Casoars, 35°48’S 136°35’E, 15 m alt., 2012, G. Kantvilas 483/12 & B. de Villiers (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 3 m alt., 2013, G. Kantvilas 348/13 & B. de Villiers (AD, HO).
Caloplaca kalbiorum S.Y.Kondr. & Kärnefelt

On the bark of an old Leucopogon shrub at the edge of an abandoned paddock. This species is unusual for a Caloplaca in that it has a sorediate thallus and black apothecia, and lacks any of the orange or yellow pigments characteristic of the genus. Chiefly on the basis of molecular data, it has been most recently classified in the genus Streimanniella by Kondratyuk et al. (2015).

Hanson Bay Track, c. 1 km S of Grassdale Homestead, 36°00’S 136°52’E, 5 m alt., 2015, G. Kantvilas 368/15 & B. de Villiers (AD, HO).

Caloplaca kantvilasii S.Y. Kondr. & Kärnefelt

On limestone outcrops in pasture. Recognised by the thick, convex areoles in which soredia and blastidia arise from the disintegration of the undersides of the margins. Arup et al. (2013) transferred this species to the genus Flavoplaca. Fig. 26D.

Windmill Bay, 35°51’S 138°07’E, 20 m alt., 2012, G. Kantvilas 472/12, 474/12A (HO, KW); Cape Willoughby, 35°51’S 138°08’E, 10 m alt., 2013, G. Kantvilas 246/13 & B. de Villiers (AD, HO, KW); North Cape area, 3 km N of Cape Rouge, 35°35’S 137°38’E, 10 m alt., 2013, G. Kantvilas 251/13 (AD, HO, KW); near Pelican Lagoon, summit of hill above the Tiger Simpson memorial, 35°50’S 137°49’E, 60 m alt., 2013, G. Kantvilas 288/13 (HO, KW).

Caloplaca kilcundaensis S.Y. Kondr. & Kärnefelt

On coastal rocks, usually in nutrient-enriched situations. Characterised by the rather thick, pale greyish brown thallus containing lichexanthone, dull, rusty orange-brown apothecia, usually with a thin, pale grey, thalline margin, a hymenium inspersed with oil droplets, slender paraphyses, and ascospores 11–18 × 5–7 µm. Kondratyuk et al. (2014) transferred this species to the genus Franwilsia. Fig. 26E.

Hog Bay, Penneshaw, 35°43’S 137°56’E, 2 m alt., 1985, J.A. Elix 19672 & L.H. Elix (CANB) [as C. bastowii S.Y. Kondr. & Kärnefelt]; Point Ellen, 36°00’S 137°11’E, 200 m alt., 2012, G. Kantvilas 759/12 & B. de Villiers (HO, KW); Penneshaw, foreshore near Frenchmans Rock, 35°43’S 137°57’E, 2 m alt., 2013, G. Kantvilas 197/13 (AD, HO, KW); Cape St Albans, 35°48’S 138°07’E, 40 m alt., 2015, G. Kantvilas 397/15 (AD, HO, KW).

Caloplaca lateritia (Taylor) Zahlbr.

On non-calcareous rocks in rough pasture, heathland and dry sclerophyll forest. Characterised by a relatively inconspicuous thallus composed of scattered, orange-brown areoles, with orange-brown, biatorine apothecia, slender paraphyses lacking oil vacuoles, and ascospores 12–20 × 5.5–9.5 µm, with a relatively broad septum 3–5 µm wide. Variability in this species and its putative relatives are discussed by Kantvilas (2016a). Kondratyuk et al. (2017a) include this species in the genus Nevilleiella. Fig. 26F.

Approx. 2 km SW of Cape St Albans, 35°49’S 138°07’E, 60 m alt., 2011, G. Kantvilas 353/11, 354/11 (HO, KW); northern end of Antechamber Bay, 35°47’S 138°04’E, 5 m alt., 2011, G. Kantvilas 394/11A (HO); same locality, 2015, G. Kantvilas 479/15 (HO, KW); c. 3.5 km NE of Stokes Bay, 35°37’S 137°13’E, 50 m alt., 2012, G. Kantvilas 537/12 (HO, KW); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 759/12 & B. de Villiers (HO, KW); Western River Cove, summit of cliffs E of beach, 35°40’S 136°58’E, 50 m alt., 2015, G. Kantvilas 403/15 (AD, HO, KW); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 759/12 & B. de Villiers (HO, KW);

Caloplaca maccarthyi S.Y. Kondr., Kärnefelt & Elix

On the bark and wood of shrubs in heathland and mallee. Characterised by a greyish thallus, tiny (<0.5 mm wide), often semi-immersed, lecanorine to zeorine apothecia with a usually yellow disc, paraphyses with scattered oil vacuoles, and ascospores 10–15 × 5–8 µm, with a relatively wide septum, 4–6 µm. Arup et al. (2013) classified this species together with several saxicolous littoral taxa in the genus Sirenophila. Fig. 27.

1 km N of Flour Cask Bay, 35°52’S 137°42’E, 1986, D.N. Krachenbuehl (MEF); Cape St Albans, 35°48’S 138°07’E, 90 m alt., 2011, G. Kantvilas 357/11 (AD, HO, KW); Creek Bay Farm, headwaters of Lubra Creek, 35°49’S 138°06’E, 40 m alt., 2011, G. Kantvilas 388/11 (AD, HO, KW); W of Windmill Bay, 35°51’S 138°07’E, 40 m alt., 2012, G. Kantvilas 498/12 (HO, KW); northern end of Antechamber Bay, 35°46’S 138°04’E, 5 m alt., 2013, G. Kantvilas 274/13 (HO); Red House Bay, 35°49’S 138°06’E, 15 m alt., 2013, G. Kantvilas 321/13 (HO).
Caloplaca mereschkowskiana S.Y.Kondr. & Kärnefelt
On limestone in coastal heathland and rough pasture. Characterised by an indistinct, whitish thallus, orange-yellow to reddish orange, biatorine apothecia, and relatively small ascospores, 9–13 × 5–7 µm. Arup et al. (2013) classify this taxon in the genus Flavoplaca.

Windmill Bay, 35°51'S 138°07'E, 20 m alt., 2012, G. Kantvilas 474/12 (AD, HO, KW); near Pelican Lagoon, summit of hill above the Tiger Simpson memorial, 35°50'S 137°49'E, 60 m alt., 2013, G. Kantvilas 289/13 (HO).

Caloplaca montisfracti S.Y.Kondr. & Kärnefelt
In sheltered underhangs on rocks in rough pasture. This is a very distinctive species due to its small (to 1 cm wide), greyish pink to pale orange-pink thalli, with red apothecia sunken in the central parts of the thallus. It is classified in the genus Neobrowniella by Kondratyuk et al. (2015). Fig. 28A.

Approx. 2 km SW of Cape St Albans, 35°49'S 138°07'E, 60 m alt., 2011, G. Kantvilas 355/11 (AD, HO, KW).

†Caloplaca piscatoria Kantvilas & S.Y.Kondr.
On sea-shore rocks, mostly in more sheltered microhabitats; also collected in damp habitats away from the littoral zone. Recognised by the absence of a visible thallus and by the scattered, persistently biatorine, lemon-yellow apothecia that resemble those of a species of Candelariella (Kantvilas & Kondratyuk 2013). Known only from the island but probably more widespread. Fig. 28B.

Northern end of Antechamber Bay, 35°47'S 138°04'E, 2011, G. Kantvilas 489/11 (HO, LD, KW); same locality, 2012, G. Kantvilas 510/12 (AD, HO, KW) [type]; Ravine des Casoars, c. 0.5 km inland from coast, 35°48'S 136°35'E, 15 m alt., 2012, G. Kantvilas 481/12 & B. de Villiers (AD, HO, KW).

Caloplaca rexfilsonii S.Y.Kondr. & Kärnefelt
On coastal rocks; more rarely on consolidated soil. This species is characterised by a thallus of dispersed to contiguous, brownish orange squamules, biatorine to zeorine apothecia, a non-inspersed hymenium, slender paraspires lacking oil vacuoles, and ascospores 12–18 × 6–9 µm, with a thick septum 2–6 µm wide. It is classified in the genus Filsoniana by Kondratyuk et al. (2013). Fig. 28C.

Northern end of Antechamber Bay, 35°47'S 138°04'E, 1 m alt., 2011, G. Kantvilas 394/11 (HO, KW); same locality, 35°46'S 138°04'E, 5 m alt., 2013, G. Kantvilas 266/13 (AD, HO); Cape St Albans, 35°48'S 138°07'E, 40 m alt., 2015, G. Kantvilas 396/15 (HO, KW); Lashmar Conservation Park, c. 2 km S of Cape Coutts, 35°47'S 138°04'E, 50 m alt., 2015, G. Kantvilas 428/15 & B. de Villiers (HO).

†Caloplaca sergeyana Kantvilas
On sandstone boulders in mallee woodland. Superficially very similar to the common corticolous species, C. dabitii, and likewise with biatorine, orange to orange-yellow apothecia. It differs chiefly by its substrate ecology, and by having a scurfy, poorly developed thallus that lacks licheanxthane (Kantvilas 2016a). Kondratyuk et al. (2017b) transferred this species to the genus Eiifilisthalia. Fig. 28D.

Creek Bay Farm, 35°50'S 138°06'E, 85 m alt., 2013, G. Kantvilas 378/13 (HO, KW) [type].

Caloplaca sublobulata (Nyl.) Zahlbr.
On coastal rocks. Distinguished from the orange species, C. eos and C. gallocatea, with which it grows, by the bright yellow, areolate, papillate to subfruticose thallus, typically surrounded by a yellow, spidery or effigurate prothallus. The application in Australasia of this name, based on a South American type, is discussed by Kantvilas (2016a). Kondratyuk et al. (2014) transferred this species to the genus Gondwania. Fig. 28E.

Stokes Bay, 35°37'S 137°12'E, 2 m alt., 1985, J.A. Elix 19662 & L.H. Elix (CANB) [as C. conranii]; Hog Bay, Penneshaw, 35°43'S 137°56'E, 2 m alt., 1985, J.A. Elix 19675 & L.H. Elix (CANB) [as C. conranii]; American River, 35°46'S 137°47'E, 2007, R.W. Rogers, 15517 (BRI); Windmill Bay, 35°51'S 138°07'E, 2 m alt., 2011, G. Kantvilas 407/11A (HO); same locality, 2012, G. Kantvilas 495/12 (AD, HO, KW); Penneshaw foreshore near Frenchmans Rock, 35°43'S 137°57'E, 2 m alt., 2013, G. Kantvilas 198/13 (AD, HO, KW); Cape St Albans, 35°48'S 138°07'E, 2 m alt., 2013, G. Kantvilas 213/13 & B. de Villiers (AD, HO, KW); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46'S 137°48'E, 0.5 m alt., 2013, G. Kantvilas 340/13 & B. de Villiers (HO, KW).

Caloplaca subluteoalba S.Y.Kondr. & Kärnefelt
On the bark and wood of shrubs in coastal heathland. Characterised by the inconspicuous to absent thallus, persistently biatorine, yellow to yellow-orange apothecia, and relatively small ascospores, 7.5–11 × 4–6 µm. Arup et al. (2013) classified this species in the genus Ceratobasid. W of Windmill Bay, 35°51'S 138°07'E, 40 m alt., 2012, G. Kantvilas 498/12A, 500/12 (HO, KW).

Caloplaca tibellii S.Y.Kondr. & Kärnefelt
On bark in heathland. Characterised by the endophloeodal thallus with bright yellow, K+ purple soredia that occur in scattered, granular clusters, not unlike those of a species of Candelariella (which is K–). This species is discussed further by Kantvilas (2016a).

Cape Gantheaume Conservation Park, road to Bales Beach, 35°59'S 137°21'E, 1982, K. Stove 19662 (CANB); W of Windmill Bay, 35°51'S 138°07'E, 40 m alt., 2012, G. Kantvilas 498/12B (HO).

Caloplaca tomareanae S.Y.Kondr. & Kärnefelt
On coastal rocks, especially granite. Easily recognised by the greenish yellow to yellowish orange, subfoliaceous thallus with plicate, radiating, convex to plane marginal lobes that are 0.3–0.8 mm wide. Synonymy and alternative generic placements of this taxon in Sirenonopila (Arup et al. 2013) and Tarasginia (Kondratyuk et al. 2015) are discussed by Kantvilas (2016a). Fig. 29.
Point Ellen, 36°00’S 137°10’E, 10 m alt., 2007, R.W. Rogers 15518A (BRI, HO); Point Ellen, 36°00’S 137°11’E, 2 m alt., 2012, G. Kantvilas 464/12, 462/12 & B. de Villiers (HO, KW); W of Windmill Bay, 35°51’S 138°07’E, 40 m alt., 2012, G. Kantvilas 506/12A, 507/12 (AD, HO, KW); Cape St Albans, 35°48’S 138°07’E, 2 m alt., 2013, G. Kantvilas 211/13 & B. de Villiers (AD, HO); Windmill Bay, 35°51’S 138°07’E, 0 m alt., 2013, G. Kantvilas 238/13 & B. de Villiers (AD, HO).

**Caloplaca wilsonii** S.Y.Kondr. & Kärnefelt

On eucalypt bark in dry sclerophyll forest; uncommon or overlooked. This species is easily recognised by the round, crater-like, yellowish soralia to c. 0.4 mm wide. In their new classification of the Teloschistaceae, Arup

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et al. (2013) introduce the name *Blastenia circumpolaris* Søchting et al. for this species.

Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 775/12 (HO).

**Caloplaca yorkensis** S.Y.Kondr. & Kärnefelt

On limestone in coastal heathland. Characterised by an inapparent thallus, yellow, biatorine apothecia, a non-inspersed hymenium, paraphyses that lack oil vacuoles, and relatively small ascospores, 8–11 × 3.5–5 µm. This species was placed in the genus *Cerothallia* by Arup et al. (2013). Fig. 28F.

Point Ellen, 36°00’S 137°11’E, 10 m alt., 2007, R.W. Rogers 15513 (BRI); Ravine des Casoars, at the coast, 35°48’S 136°35’E, 5 m alt., 2012, G. Kantvilas 454/12 & B. de Villiers (AD, HO, KW); same locality, 5 m alt., 2012, G. Kantvilas 458/12 (AD, HO, KW); Windmill Bay 35°51’S 138°07’E, 20 m alt., 2012, G. Kantvilas 473/12 (AD, HO, KW).

**Candelariella aurella** (Hoffm.) Zahlbr.

On limestone outcrops in pasture. The bright yellow apothecia that react K–, and the asci with eight simple ascospores readily distinguish this lichen from similarly yellowish species of *Caloplaca* with which it usually occurs. **Illustration:** Brodo et al. (2001: Fig. 176).

Slopes above Red House Bay, 35°49’S 138°07’E, 50 m alt., 2012, G. Kantvilas 444/12 (HO).

**Candelariella vitellina** (Hoffm.) Müll.Arg.

On rocks, often in nutrient-enriched microhabitats. This is a vivid, egg-yolk yellow, crustose species, best characterised by its polysporous asci. **Illustration:** Brodo et al. (2001: Fig. 180).

Creek Bay Farm, 35°50’S 138°06’E, 85 m alt., 2013, G. Kantvilas 369/13 (HO); northern end of Antechamber Bay, 35°47’S 138°04’E, 5 m alt., 2015, G. Kantvilas 480/15 (HO).

**Candelariella xanthostigmoides** (Müll.Arg.) R.W.Rogers

Widespread on wood and bark, especially on the trunks of understorey trees such as *Exocarpos* in woodland and mallee where its powdery, egg-yolk-coloured thallus can form an extensive and continuous cover. Apothecia with their diagnostic 8-spored asci are typically uncommon. Further study may well reveal that the older name, *C. reflexa* (Nyl.) Lettau, based on a European type, is applicable to Australian collections. **Fig. 30A.**

Approx. 2.5 km SW of Cape St Albans, 35°49’S 138°07’E, 100 m alt., 2010, G. Kantvilas 201/10 (AD, HO); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 777/12 (HO); Creek Bay Farm, 35°50’S 138°05’E, 65 m alt., 2013, G. Kantvilas 362/13 (HO); Hanson Bay Track, c. 1 km S of Grassdale Homestead, 36°00’S 136°52’E, 5 m alt., 2015, G. Kantvilas 364/15 & B. de Villiers (AD, HO).

**Carbonia latypizodes** (Nyl.) Knopf & Rambold

Widespread and locally abundant on rocks in scrubby coastal vegetation and dry sclerophyll forest. Characterised by the grey, crustose thallus containing atranorin and 2′-O-methylperlatolic acid, and by the black apothecia with a blue-green epihymenium, yellow-brown hypothecium, *Lecanora*-type asci and simple, hyaline ascospores, 10–16 × 5–10 µm.

Northern end of Antechamber Bay, 35°46’S 138°04’E, 5 m alt., 2009, G. Kantvilas 362/09 (AD, HO); same locality, 2015, G. Kantvilas 478/15 (AD, HO); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 560/12, 756/12 & B. de Villiers (AD, HO); Western River Cove, summit of cliffs E of beach, 35°40’S 136°58’E, 50 m alt., 2015, G. Kantvilas 404/15 (AD, HO); Rocky River, 35°57’S 136°40’E, 35 m alt., 2015, G. Kantvilas 533/15 (HO).

**Carbonicola foveata** (Timdal) Bendiksby & Timdal

On charred eucalypt wood in dry sclerophyll forest. This common, widespread and characteristically Australian crustose species was previously included in the genus *Hypocenomyce* (Bendiksby & Timdal 2013). **Fig. 30B.**

West Bay, 15 km SSW of Cape Borda, 35°53’S 136°33’E, 40 m alt., 1994, H.T. Lombich 10919, A. Dickhäuser & H. Streimann (CANB); Billygoat Falls, 35°42’S 136°55’E,
200 m alt., 2012, G. Kantvilas 582/12 & B. de Villiers (AD, HO); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 340/15 (HO).

Catillaria austrolittoralis Kantvilas & van den Boom
Widespread and common on non-calcareous coastal rocks, forming dull olive-brown thalli in close association with orange Caloplaca species and the whitish Tylothallia verrucosa. Less commonly, it may also occur in more inland areas. The black, lecideine apothecia resemble those of an Amandinea or Buellia, but this species is easily distinguished by having Catillaria-type asci, dark brown-pigmented, capitellate paraphyses, and hyaline, 1-septate ascospores. Whereas in Tasmania, this species contains either pannarin or argopsin, all Kangaroo Island specimens analysed contain only the former substance. This species also occurs in southern New South Wales, Victoria, the Bass Strait islands and Tasmania (Kantvilas & van den Boom 2013). Fig. 30C.

Point Ellen, 2 km S of Vivonne Bay, 36°00’ 137°11’E, 4 m alt., 1985, J.A. Elix 19595 & L.H. Elix (CANB); Stokes Bay, 35°37’S 137°12’E, 2 m alt., 1985, J.A. Elix 19661 & L.H. Elix (CANB); Hog Bay, 35°43’S 137°57’E, 2 m alt., 1985, J.A. Elix 19670 & L.H. Elix (CANB); Cape Willoughby, 35°50’S 138°08’E, 2008, G. Kantvilas 331/08 (HO); Antechamber Bay, 35°47’S 138°05’E, sea-level, 2008, G. Kantvilas 333/08 (HO); near King George Beach, 35°39’S 137°07’E, 2 m alt., 2011, G. Kantvilas 328/11 (AD, herb. v.d.Boom, HO); Ravine des Casoars, 35°48’S 136°35’E, 15 m alt., 2012, G. Kantvilas 479/12 & B. de Villiers (herb. v.d.Boom, HO); Windmill Bay, 35°51’S 138°07’E, 1 m alt., 2012, G. Kantvilas 493/12 (HO); Stokes Bay, 35°37’S 137°13’E, 1 m alt., 2012, G. Kantvilas 514/12 & B. de Villiers (AD, BM, CANB, herb. v.d.Boom, HO, MSC, UPS) [type]; Penneshaw foreshore near Frenchmans Rock, 35°43’S 137°57’E, 2 m alt., 2013, G. Kantvilas 194/13 (AD, HO); Ironstone Hills, 35°44’S 137°57’E, 70 m alt., 2015, G. Kantvilas 374/15 (HO); Rocky River, c. 250 m from mouth, 35°58’S 136°39’E, 10 m alt., 2015, G. Kantvilas 514/15 & B. de Villiers (HO); Rocky River, 35°57’S 136°40’E, 35 m alt., 2015, G. Kantvilas 535/15 (HO).

Catillaria nigroclavata (Nyl.) Schuler
Occasional on twigs of Melaleuca in coastal heathland and on fibrous bark at the bases of eucalypts in mallee. This is the first Australian record of this widespread, chiefly Northern Hemisphere taxon. It is recognised by the crustose, immersed, ± inapparent thallus, the

tiny, black lecideine apothecia, 0.1–0.3 mm wide, the Catillaria-type asci, paraphyses with markedly capitate, brown apices, the pale brown hypothecium and 1-septate ascospores, 8–10 × 2.5–3 µm (see Fletcher & Copps 2009a for further descriptive data).

Cape Borda, 35°45'S 136°35'E, 100 m alt., 1994, H. Streimann 54902 p.p. (AD, HO); Moffatt Road, 35°49'S 138°00'E, 70 m alt., 2011, G. Kantvilas 254/11 © B. de Villiers (HO).

'Catinaria atropurpurea' (Schae.) Vězda & Poelt

On bark and wood in dry sclerophyll forest and mallee. Characterised by the scurfy to minutely granular thallus, dark reddish brown to blackish, biatorine apothecia, 8-spored, Catillaria-type asci and thick-walled, hyaline, 1-septate ascospores, 10–15 × 5–7 µm, with a gelatinous halo. **Fig. 30D.**

Billygoat Falls, 35°42'S 136°55'E, 200 m alt., 2012, G. Kantvilas 781/12 (HO); Grassdale Lagoon, 36°00'30"S 136°53'E, 20 m alt., 2015, G. Kantvilas 313/15, 342/15 (HO).

**Chrysothrix xanthina** (Vain.) Kalb.

On the bark of larger, older trees in oldgrowth mallee and Callitris-dominated woodland. The sterile, powdery, bright yellow thallus of this species produces a diagnostic bright yellow acetone extract, which distinguishes it from other, potentially-confusing taxa.

The old cannery, American River, c. 1 km SW of Ballast Head, 35°46'S 137°48'E, 3 m alt., 2013, G. Kantvilas 352/13 © B. de Villiers (HO); Pelican Lagoon Conservation Park, along Mitchell Drive, 35°48'S 137°48'E, 10 m alt., 2015, G. Kantvilas 308/15 (AD, HO, NY).

**Cladia aggregata** (Sw.) Nyl.

Widespread on soil or at the bases of trees in heathland, mallee and dry sclerophyll forest. This is a very variable species, morphologically and chemically, with several of the variants recognised at specific rank (Kantvilas & Elix 1999). However, all specimens from Kangaroo Island are remarkably uniform and invariably contain barbatic acid, the most common chemosyndrome.

Recent research by Parnmen et al. (2013) has led to further subdivision of Cladia aggregata, essentially on the basis of DNA-sequence data. It also suggests that the name C. aggregata itself (based on a type from the West Indies) should not be applied in Australia. However, many aspects of this work are, in my opinion, inconclusive and poorly explained, and offer little or no correlation between molecular data, morphology and chemistry. Until some of these issues are resolved, I have elected to retain the concept of *C. aggregata* as applied by lichenologists in Australia over the past two decades (see Kantvilas & Elix 1999). **Fig. 31.**

Near Western Cove, 35°42'S 137°38'E, 1884, J.G.O. Tepper 1332 (AD); [Rocky River area], 1940, J.B. Cleland s.n. (AD); Rocky River, 1948, J.B. Cleland s.n. (AD); base of Mt Taylor, 1971, G. Jackson 761 (AD); Kingscote Council quarries, 35°39'S 137°38'E, 1971, G. Jackson 766 (AD); N of Mt Taylor, 1971, G. Jackson 805 (AD); Rocky River Koala Sanctuary, 1971, R.D. Seppelt 960 (HO); c. 4 km S of Emu Bay, 35°39'S 137°30'E, 1972, R.D. Seppelt 700 (HO); 10 km SSE of Western River, 35°46'S 137°01'E, 1972, R.D. Seppelt 792, 793 (AD); 11 km S of Western River, 1972, R.D. Seppelt 831 (HO); 6 km E of Cape Borda, 1972, R.D. Seppelt 867, 869 (HO); c. 10 km E of Cape Borda, 35°45'S 136°42'E, 1972, R.D. Seppelt 868 (AD, MEL); 30 km ESE of Cape Borda, 35°51'S 136°54'E, 1972, R.D. Seppelt 891 (AD); c. 1.5 km W of Kingscote Airport, 1972, R.D. Seppelt 2108 (MEL); c. 21 km SSW of American River, 35°53'S 137°36'E, 1972, R.D. Seppelt 2192 (HO); eastern end, 1974, M. Allender s.n. (MEL); Western River, 1974, M. Allender s.n. (MEL); between Cape Hart and Cape Willoughby, 35°52'S 138°05'E, 1982, K. Stove 1435 (AD); Parrndana Conservation Park, 35°45'S 137°19'E, 1982, K. Stove 1560 (AD); W of Yacca Flat, 36°01'S 136°44'E, 1982, K. Stove 1586 (AD); clay pan, c. 4 km ESE of car park at West Bay, 35°45'S 136°35'E, 1982, K. Stove 1681 (AD); Ravine des Casoars, 35°48'S 136°37'E, 1982, K. Stove 1698 (AD); E side of Middle River, between dam and Strepera Waterfall, 35°43'S 137°06'E, 1982, K. Stove 1776 (AD); D’Estrees Bay, 35°56'S 137°37'E, 1984, G. Jackson 1529 (AD); Playford Hwy, 1 km W of Parndana, 35°47'S 137°15'E, 160 m alt., 1985, J.A. Elix 19665 © L.H. Elix (CANB); Scotts Cove Lookout, 35°46’5’’S 136°37’’E, 120 m alt., 1985, J.A. Elix 19713 © L.H. Elix (CANB); Ravine des Casoars, 35°48’S 136°37’’E, 1985, J.A. Elix 19728 © L.H. Elix (CANB); 1 km N of Flour Cask Bay, 35°52’S 137°42’’E, 1986, D.N. Krachenbuehl s.n. (MEL); along banks of Middle River, 35°44’S 137°04’’E, 1989, D.N. Krachenbuehl 5173, 5170 (AD); mouth of De Mole River, 35°43’S 136°46’’E, 20 m alt., 1994, H. Streimann 55126 (CANB);
Ravine des Casoars, 35°48’S 136°37’E, 70 m alt., 1994, H. Streimann 54910 (CANB); about 2 km W of South West River, 35°59’S 136°50’E, 50 m alt., 2007, R.W. Rogers 11512 (BRI); Lesueur Conservation Park, c. 3.5 km SW of Cape Willoughby, 35°51’S 138°06’E, 10 m alt., 2009, G. Kantvilas 354/09, 355/09 (AD, HO); Lades Road, 35°52’S 137°30’E, 30 m alt., 2011, G. Kantvilas 322/11 (HO); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 567/12 & B. de Villiers (HO).

**Cladia ferdinandii** (Müll.Arg.) Filson

This striking species of ‘coral lichen’ was searched for extensively without success and is presumed to be now extinct on the island. Although its known locations are rather vague, the general areas they represent have been severely modified or degraded. It could be expected to have occurred near the coast on sandy open ground in heathland or beneath sparse *Melaleuca*. [Fig. 32.](#)

[without date or location], Täte s.n. (MEL); Muston Gypsum Mine, 35°49’S 137°44’E, 1976, G. Jackson 1071 (AD, MEL); c. 5 km ESE of Kingscote Aerodrome, adjacent to Western Cove, 35°43’S 137°34’E, 1995, L. Zinnack s.n. (AD).

**Cladia schizopora** (Nyl.) Nyl.

On burnt or rotting wood in dry sclerophyll forest and mallee. [Fig. 33.](#)


**Cladonia capitellata** var. *squamatica* A.W.Archer

On soil. This yellow, clump-forming lichen tends to be common and widespread in southern Australia, yet the single Kangaroo Island specimen dates from the 19th century. [Fig. 34.](#)

Near Western Cove, 1884, J.G.O. Tepper 1331 (AD).

**Cladonia enantia** Nyl. *var. enantia*

Occasional on soil and burnt wood in mallee woodland and coastal heathland. Characterised by esorediate, corticate podetia that are frequently vertically fissured, capped with brown apothecia or clusters of apothecia,
and contain fumarprotocetraric acid as the sole dominant compound (cortex P+ red). It frequently occurs as mats of sterile squamules only. Fig. 35A.

N of Murray Lagoon, 35°55’S 137°25’E, 1972, R.D. Seppelt 2074 (MEL); Vivonne Bay, 1972, R.D. Seppelt 2122 (HO); [no specific locality], 1978, E.M. Martin 1.2 (AD); corner of Playford Hwy, Birchmore Hwy and road to Kingscote aerodrome, 35°42’S 137°31’E, 1982, K. Stove 1795 (AD); Point Ellen, 36°00’S 137°11’E, 3 m alt., 2013, G. Kantvilas 217/13 (AD, HO); near Kingscote Airport along Aranmore Road, 35°42’S 137°32’E, 5 m alt., 2015, G. Kantvilas 500/15 & B. de Villiers (HO).

**Cladonia humilis** (With.) J.R.Laundon

On soil in dry sclerophyll forest. Characterised by the neatly cup-shaped podetia containing atranorin and fumarprotocetraric acid. Fig. 35B.

Mouth of De Mole River, 35°43’S 136°46’E, 20 m alt., 1994, H. Streimann 55111 (AD, CANB); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 568/12, 569/12 & B. de Villiers (AD, HO).

*Cladonia macilenta* Hoffm.

Recorded from a rotted *Melaleuca* trunk in swampy woodland. This is one of relatively few red-fruited species of *Cladonia*, further characterised by short (mostly to 2 mm) podetia that are sorediate in the upper part, and by a distinctive chemistry comprising thamnolic, barbatic and didymic acids. The Kangaroo Island specimen is poorly developed and was identified chiefly by its chemical composition. **Illustration:** Stenroos et al. (2016: 187).

Lashmar Lagoon, 35°48’S 138°04’E, 10 m alt., 2011, G. Kantvilas 255/11 (HO).

**Cladonia neozelandica** var. *striata* (A.W.Archer) Kantvilas

On sandy soil in heathland and woodland. This lichen commonly occurs as a mat of basal squamules only and is recognised by its characteristic chemistry of atranorin and bourgeanic acid, together with norstictic and connorstictic acids (squamules K+ yellow–red).
Willson River Road, c. 1 km SE from Pigs Head Corner, 35°47'S 137°58'E, 1982, K. Stove 1470 (AD); Cape Gantheaume Conservation Park, c. 2 km from entrance, 36°00'0'S 137°30'E, 1982, K. Stove 1512 (AD); 3 km E of Seal Bay, 36°00'0'S 137°21'E, 30 m alt., 1985, J.A. Elix 19590 & L.H. Elix (CANB); Rocky River, 35°58'S 136°39'E, 40 m alt., 1994, H. Streimann 55055A (CANB); North Cape Road, 35°36'S 137°35'E, 5 m alt., 2013, G. Kantvilas 253/13 & B. de Villiers (AD, HO); c. 1.5 km SW of Point Ellen, 36°00'0'S 137°11'E, 10 m alt., 2015, G. Kantvilas 439/15 (AD, HO).

*Cladonia neozelandica var. sulcata* (A.W.Archer) Kantvilas

On sandy soil in heathland and woodland. Like other varieties of this species, this lichen commonly occurs as a mat of basal squamules only and is recognised by its characteristic chemistry of atranorin and bourgeanic acid, together with psoromic acid (squamules P+ yellow) (Kantvilas 2013).

Harveys Return, 35°46'S 136°34'E, 50 m alt., 1985, J.A. Elix 19736 & L.H. Elix (CANB); Cape Borda, 35°45'S 136°36'E, 120 m alt., 2010, G. Kantvilas 210/13 (HO); North Cape Road, 35°36'S 137°35'E, 5 m alt., 2013, G. Kantvilas 259/13 & B. de Villiers (HO).

*Cladonia ochrochlora* Flörke

On wood and soil, sometimes over rock outcrops, in dry sclerophyll forest. This variable species is recognised by the discrete patches of farinose soredia that occur in the upper part of the simple to sparingly branched podetia and at the margin of its narrow, abruptly flaring terminal cups; it contains fumarprotocetraric acid together with traces of quasicitic acid.

Mouth of De Mole River, 35°43'S 136°46'E, 20 m alt., 1994, H. Streimann 55095, 55107, 55124 (AD, CANB).

*Cladonia praetermissa* A.W.Archer var. praetermissa

On soil in gaps in mallee woodland. Recognised by the prominent basal squamules with rather club-shaped podetia that have coarsely sorediate apices; it contains atranorin and fumarprotocetraric acid.

Vivonne Bay, 1972, R.D. Seppelt 2127 (HO); Hog Bay Road, 35°46'S 136°37'E, 20 m alt., 2013, G. Kantvilas 210/13 (HO); Hanson Bay Track, c. 1 km S of Grassdale Homestead, 36°00'0'S 136°52'E, 5 m alt., 2015, G. Kantvilas 370/15 & B. de Villiers (HO).

*Cladonia rigida* var. acuta (Taylor) A.W.Archer

On charred or rotted wood in eucalypt woodland. This species is recognised by its acute, ecorticate, squamulose to coarsely granular podetia that contain thamnolic and homosekikaic acids, with additional barbatic acid found only in the apothecia.

Flinders Chase, [Rocky River] Koala Sanctuary, 1971, G. Jackson 823 (AD); same locality, 1972, R.D. Seppelt 972 (HO); 4 km W of Rocky River Homestead, 35°57'S 136°42'E, 50 m alt., 1985, J.A. Elix 19623 & L.H. Elix (CANB).

*Cladonia subradiata* (Vainio) Sanstede

On rotted wood, mostly in moister sites in old woodlands such as those dominated by *Callitris*. This is a complex and, in many respects, poorly understood taxon (e.g. see Ahti 2000). Specimens from Kangaroo Island contain fumarprotocetraric acid (P+ red) and have greyish green, erect, mostly simple podetia to

Fig. 36. *Cladonia subradiata*. Scale = 10 mm. Photo: J. Jarman.
c. 15 mm tall, that are corticate at the very base, have a few squamules and are densely farinose sorediate in the upper part, typically terminating with acute or minutely cup-shaped apices. However, occasionally, well-developed cups to c. 3 mm wide may also be present, rarely also with marginal proliferations. **Fig. 36.**

Brown Beach, 35°48′S 137°50′E, 10 m alt., 2012, G. Kantvilas 441/12 & B. de Villiers (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46′S 137°48′E, 3 m alt., 2013, G. Kantvilas 357/13 & B. de Villiers (AD, HO); Pelican Lagoon Conservation Park, along Mitchell Drive, 35°48′S 137°48′E, 10 m alt., 2015, G. Kantvilas 305/15 (AD, HO).

**Cladonia verticillata** (Hoffm.) Schäer.

Widely scattered on soil, especially in mallee woodland and dry sclerophyll forest. This is the most common species of *Cladonia* on the island, characterised by rather slender, cup-shaped, centrally-proliferating podetia with a continuous to areolate cortex throughout, brown apothecia, and containing fumarprotocetraric acid as the sole dominant compound. In Australasian literature (e.g. McCarthy 2018), this taxon is often referred to as *C. cervicornis* subsp. *verticillata* (Hoffm.) Ahti. **Fig. 35C.**

Rocky River, 1948, J.B. Cleland s.n. (AD); 4 km S of Emu Bay, 35°39′S 137°30′E, 1972, R.D. Seppelt 703 (HO); N of Murray Lagoon, 35°55′S 137°25′E, 1972, R.D. Seppelt 2073 (MEL); 1.5 km W of Kingscote Airport, 35°43′S 137°30′E, 1972, R.D. Seppelt 2106 (MEL), 2107 (AD); Vivonne Bay, 1972, R.D. Seppelt 2123 (HO); clay pan c. 4 km ESE from West Bay car park, 35°54′S 136°35′E, 1982, K. Stove 1682 (AD); 1 km N of Flouro Cask Bay, 35°52′S 137°42′E, 1986, D.N. Krahnenbuehl s.n. (MEL); mouth of De Mole River, 35°43′S 136°46′E, 20 m alt., 1994, H. Streimann 55098 (AD, CANB); c. 2.5 km SW of Cape St Albs 35°49′S 138°07′E, 100 m alt., 2010, G. Kantvilas 198/10 (AD, HO); Brown Beach, 35°48′S 137°50′E, 10 m alt., 2012, G. Kantvilas 440/12 & B. de Villiers (AD, HO); Billygoat Falls, 35°42′S 136°55′E, 200 m alt., 2012, G. Kantvilas 566/12 & B. de Villiers (AD, HO); Pelican Lagoon Conservation Park, along Mitchell Drive, 35°48′S 137°48′E, 10 m alt., 2015, G. Kantvilas 304/15 (AD, HO).

*Clausadea metzleri* Clausade & Cl. Roux ex D. Hawksw.

On limestone. Recognised by the superficial to only slightly immersed, black-brown apothecia <0.4 mm wide, the *Porpidia*-type asci and simple ascospores, 18–32 × 8–14 µm (see Meyer 2002 for further descriptive data).

Approx. 3.5 km NE of Stokes Bay, 35°37′S 137°13′E, 50 m alt., 2012, G. Kantvilas 530/12 (HO).

*Clostriumum griffithii* (Sm.) Coppins

On bark in a remnant *Callitris* stand and in old mallee woodland. This tiny crustose species is characterised by its biontine, pink, pale grey or blackish apothecia, *Biatora*-type asci and mostly 1-septate, hyaline ascospores, 8–16 × 2.5–5 µm (Kantvilas & Elix 1995).

Brown Beach, 35°48′S 137°50′E, 10 m alt., 2012, G. Kantvilas 425/12 & B. de Villiers (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46′S 137°48′E, 3 m alt., 2013, G. Kantvilas 349/13 & B. de Villiers (AD, HO).

**Coenogonium australiense** Kantvilas & Lücking

On the bark of old, fissured *Callitris* trunks in remnant stands of confierous woodland. This is a remarkable record for the island of a genus which is generally found in wet forests worldwide. It is characterised by a thin thallus with a *Trentepohlia* photobiont, biontine, orange apothecia to 2.5 mm wide, and hyaline, 1-septate ascospores, 10–14 × 3–4 (–4.5) µm, and has also been recorded from Tasmania and New South Wales (Kantvilas et al. 2018). **Fig. 37.**

Brown Beach, 35°48′S 137°50′E, 10 m alt., 2012, G. Kantvilas 439/12 & B. de Villiers (HO); Pelican Lagoon Conservation Park, along Mitchell Drive, 35°48′S 137°48′E, 10 m alt., 2015, G. Kantvilas 316/15 & B. de Villiers (AD, HO).

**Collema coccophorum** Tuck.

On consolidated soil and limestone. Otálora et al. (2014) reinstated the genus *Enchylium* for this taxon, but I have elected to retain the more conservative taxonomy at this stage.

4 km S of Emu Bay, 1972, R.D. Seppelt 698A (HO); Stokes Bay, 35°34′S 137°13′E, 1972, R.D. Seppelt 751A (HO); Flinders Chase National Park, car park on Rocky River, 35°57′S 136°42′E, 1982, K. Stove 1635 (AD); Ravine des Casoars, 35°48′S 136°35′E, 10 m alt., 2012, G. Kantvilas 455/12 (AD, HO).

**Collema glucophthalmum** Nyl. var. *glucophthalmum*

Common on bark in coastal scrub, especially on shrubs with fibrous bark such as *Leucopogon* and *Melaleuca*. It is typically intermixed with variety *implicatum*, with which it shares an identical black, puckered and blistered, foliose thallus, but from which it differs by having grey pruinose apothecia. **Fig. 38.**

3 km E of Seal Bay, 35°59′S 137°21′E, 30 m alt., 1985, J.A. Elix 19585 & L.H. Elix (CANB); D’Estrees Bay, 35°56′S 137°36′E, 2 m alt., 1985, J.A. Elix 19707 & L.H. Elix
G. Kantvilas Swainsona 32 (2019)

(CANB); West Bay, 15 km SSW of Cape Borda, 35°53'S 136°33'E, 40 m alt., 1994, H. Streimann 55023 p.p. (CANB); Cape du Couedic Road, 35°56'S 136°45'E, 100 m alt., 2007, R.W. Rogers 11510A (BRI).

Collema glaucophthalmum var. implicatum (Nyl.) Degel.

Rather common and widespread on bark, mostly in coastal scrub, but also occasional in damper places in mallee woodland where it may grow on the bases of eucalypts.

Bunker Hill, c. 7 km S of Rocky River Homestead, 36°01'S 136°44'E, 1982, K. Store 1606 (AD); 3 km E of Seal Bay, 35°29'S 137°21'E, 30 m alt., 1985, J.A. Elix 19586 & L.H. Elix (CANB); D’Estrees Bay, 35°56'S 136°36'E, 2 m alt., 1985, J.A. Elix 19706 & L.H. Elix (CANB); West Bay, 15 km SSW of Cape Borda, 35°53'S 136°33'E, 40 m alt., 1994, H. Streimann 55023 p.p. (CANB); same locality, 1994, H.T. Lumbsch 10920b, A. Dickhäuser & H. Streimann (CANB); Cape du Couedic Road, 35°56'S 136°45'E, 100 m alt., 2007, R.W. Rogers 11510B (BRI); Hog Bay, Penneshaw, 35°43'S 137°56'E, 2 m alt., 1985, J.A. Elix 19678 & L.H. Elix (CANB); northern end of Antechamber Bay, 35°46'S 138°04'E, 5 m alt., 2009, G. Kantvilas 363/09 (AD, HO); Antechamber Bay near The Kona, 35°49'S 138°06'E, 10 m alt., 2010, G. Kantvilas 208/10 (AD, HO); Pelican Lagoon, 35°49'S 137°48'E, 10 m alt., 2012, G. Kantvilas 407/12 & B. de Villiers (AD, HO); Point Ellen, 36°00'S 137°11'E, 2 m alt., 2012, G. Kantvilas 460/12 & B. de Villiers (AD, HO); Strawbridge Point, 35°47'S 137°47'E, 5 m alt., 2012, G. Kantvilas 540/12 & B. de Villiers (HO); southern end of Antechamber Bay, 35°48'S 138°06'E, 10 m alt., 2013, G. Kantvilas 203/13 (HO); Red House Bay, 35°49'S 138°06'E, 15 m alt., 2013, G. Kantvilas 315/13, 316/13 (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46'S 137°48'E, 5 m alt., 2013, G. Kantvilas 353/13 & B. de Villiers (AD, HO); Eastern Cove, c. 2.5 km NE of American River, 35°46'S 137°47'E, 5 m alt., 2015, G. Kantvilas 493/15 (AD, HO).

Collema subflaccidum Degel.

On the bark of Melaleuca at the coast. Recognised by the rounded, olive-black lobes densely covered with granular isidia. Illustration: Brodo et al. (2001: Fig. 200).

D’Estrees Bay, 35°56'S 137°36'E, 2 m alt., 1985, J.A. Elix 19708 & L.H. Elix (CANB).

Collemopsisidium sp.

On rocks in dry sclerophyll forest, growing amongst thalli of Byssoloma subsidicordans. Characterised by the cyanobacterial photobiont, the tiny, black perithecia and 1-septate, fusiform ascospores, 20–26 × 5–8 µm.

Bilbygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 563/12A (HO).

S Cyphelium trachylioides (Nyl.) Erichsen ex Keissl.

On bleached eucalypt wood such as old fence posts. Recognised by the crustose or inapparent thallus with black sessile, powdery mazaedia to c. 0.5 mm wide, with brown, broadly ellipsoid, 1-septate, smooth-walled ascospores, 18–24 × 10–14 µm (Tibell 1987).

E of Wisanger Park Homestead, 35°37’S 137°28’E, 80 m alt., 1985, J.A. Elix 19630 & L.H. Elix (CANB).

Diploicia canescens (Dicks.) A.Massal.

Locally common on rocks, bark and wood, especially near the coast. Fertile material is relatively uncommon although apothecia occur on some corticulous specimens. I have not attempted to apply the chemically-defined subspecific ranks (Elix et al. 1988) to the collections, although both subspecies canescens and subspecies australasicus Elix & Lumbsch (as determined by J. Elix, pers. comm.) occur on the island. Fig. 39A.

Hog Bay, Penneshaw, 35°43’S 137°56’E, 2 m alt., 1985, J.A. Elix 19678 & L.H. Elix (CANB); northern end of Antechamber Bay, 35°46’S 138°04’E, 5 m alt., 2009, G. Kantvilas 363/09 (AD, HO); Antechamber Bay near The Kona, 35°49’S 138°06’E, 10 m alt., 2010, G. Kantvilas 208/10 (AD, HO); Pelican Lagoon, 35°49’S 137°48’E, 10 m alt., 2012, G. Kantvilas 407/12 & B. de Villiers (AD, HO); Strawbridge Point, 35°47’S 137°47’E, 5 m alt., 2012, G. Kantvilas 540/12 & B. de Villiers (HO); southern end of Antechamber Bay, 35°48’S 138°06’E, 10 m alt., 2013, G. Kantvilas 203/13 (HO); Red House Bay, 35°49’S 138°06’E, 15 m alt., 2013, G. Kantvilas 315/13, 316/13 (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 5 m alt., 2013, G. Kantvilas 353/13 & B. de Villiers (AD, HO); Eastern Cove, c. 2.5 km NE of American River, 35°46’S 137°47’E, 5 m alt., 2015, G. Kantvilas 493/15 (AD, HO).

3 Diploicia gyrophorica Lumbsch & Elix

On non-calcareous rocks in mallee woodland and dry sclerophyll forest. Characterised by the immersed, perithecoid ascomata and the presence of gyrophoric acid (see Mangold et al. 2009). Fig. 39B.

Cape Willoughby Road, 35°50’S 137°06’E, 110 m alt., 2011, G. Kantvilas 326/11 (AD, HO); Bilbygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 556/12 & B. de Villiers (AD, HO); Creek Bay Farm, 35°50’S 138°06’E, 85 m alt., 2013, G. Kantvilas 374/13 (AD, HO); northern end of Antechamber Bay, 35°47’S 138°04’E, 5 m alt., 2015, G. Kantvilas 481/15 (HO).

3 Diploicia muscorum (Scop.) R.Sant. subsp. bartletti Lumbsch

On consolidated soil in mallee woodland. Characterised by the urceolate apothecia and the presence of lecanoric and diplochistid acids (appearing as a pair of yellowish spots on developed t.l.c. plates). This species is very similar to D. thunbergianus (see below) from which it differs chiefly by being associated with the basal squamules of Cladonia (at least when juvenile) and by having invariably 8-spored (rather than 4- or 8-spored) asci. Fig. 39C.
North Cape Road, 35°36'S 137°35'E, 5 m alt., 2013, G. Kantvilas 258/13 & B. de Villiers (HO); Hanson Bay Track, c. 1 km S of Grassdale Homestead, 36°00'S 136°52'E, 5 m alt., 2015, G. Kantvilas 371/15 & B. de Villiers (HO); near Kingscote Airport, Aranmore Road, 35°42'S 137°32'E, 5 m alt., 2015, G. Kantvilas 502/15 & B. de Villiers (AD, HO).

**Diploschistes thunbergianus** Lumbsch & Vězda

On consolidated soil in open areas such as rough pasture and gaps in woodland; uncommon and highly localised. Very similar to the preceding species, although when both are present, they can usually be distinguished in situ by being somewhat different shades of grey.

Diplotomma alboatrum (Hoffm.) Flot.

On coastal limestone; more rarely on bark in rather nutrient-enriched situations. With its thick, chalky white thallus, this species resembles the common Buellia albula, but can be easily distinguished by the lack of lichen substances and by its brown, muriform ascospores.

Ravine des Casoars, 35°48'S 136°35'E, 2 m alt., 2012, G. Kantvilas 450/12 (AD, HO); W of Windmill Bay, 35°51'S 138°07'E, 40 m alt., 2012, G. Kantvilas 496/12 (AD, HO); Point Ellen, 36°00'S 137°11'E, 3 m alt., 2013, G. Kantvilas 221/13A (HO); near Pelican Lagoon, summit of hill above the Tiger Simpson memorial, 35°50'S 137°49'E, 60 m alt., 2013, G. Kantvilas 275/13 (AD, HO).

**Endocarpon simplicatum** (Nyl.) Nyl. var. simplicatum

On consolidated soil in grassy woodland and rough pasture. This is one of several brownish, squamulose members of the Verrucariaceae, distinguished in the Kangaroo Island flora by its muriform ascospores that occur singly in the ascus (McCarthy 2001).

Kingscote, slopes of old quarry, 1972, R.D. Seppelt 659 (HO); 4 km S of Emu Bay, 1972, R.D. Seppelt 698 (HO); Hog Bay, 3 km E of Penneshaw, 35°43'S 137°56'E, 15 m alt.,
1994, H. Streimann 54862 (AD, CANB); track to Ironstone Hills, 35°43’S 137°57’E, 20 m, 2011, G. Kantvilas 310/11 (AD, HO); Lashmar Conservation Park, c. 2 km S of Cape Coutts, 35°47’S 138°04’E, 50 m alt., 2015, G. Kantvilas 430/15 & B. de Villiers (HO).

**Endocarpon simplicatum var. bisporum P.M.McCarthy**

On consolidated soil amongst limestone outcrops in coastal heathland. Distinguished from the preceding taxon by having 2-spored asci. **Illustration:** Eldridge & Tozer (1997: Fig. 4.5).

Rocky River Track, c. 1 km S of Snake Lagoon, 35°58’S 136°39’E, 50 m alt., 2015, G. Kantvilas 509/15 & B. de Villiers (HO).

**Enterographa divergens** (Müll.Arg.) Redinger

Widespread but inconspicuous on twigs, usually on seashore trees and shrubs. This species is recognised by the pale grey to pinkish brown crustose thallus, elongate apothecia occurring in thalline warts, and 5–7-septate, fusiform ascospores, 26–34 × 4–5 µm. The ascospores are somewhat larger than cited by Sparrius (2004) but correspond with those observed in the type specimen from Victoria. **Fig. 39D.**

The Red Banks, 35°45’S 137°43’E, 2008, G. Kantvilas 328/08 (HO); c. 2.5 km SW of Cape St Albans, 35°49’S 138°07’E, 120 m alt., 2011, G. Kantvilas 283/11 & B. de Villiers (HO); North Cape area, 3 km N of Cape Rouge, 35°35’S 137°38’E, 10 m alt., 2013, G. Kantvilas 249/13 (HO).

**Ephebe ocellata** Henssen

An aquatic, cyanophilic species that forms tufts of black or olive-black, entangled filaments to c. 0.12 mm wide on rocks submerged in flowing fresh water. The fungal hyphae in this species form a network over the filaments of the *Stigonema* photobiont (Henssen 1963). **Fig. 40.** Rocky River, 35°57’S 136°40’E, 35 m alt., 2015, G. Kantvilas 542/15 (AD, HO).

**Fellhanera sp.**

On sandstone outcrops in dry sclerophyll forest, growing together with *Byssoloma subdiscordans*. This collection almost certainly represents an undescribed species (P.M. McCarthy, pers. comm.), although the material is too scant for a formal description. It has an indistinct thallus with a trebouxioid photobiont, asci of the Pilocarpaceae-type, a purple, K+ greenish epitheium, a coherent hymenium, ellipsoid, 1–3-septate ascospores, 9–12 × 4–5 µm, and bacilliform conidia, 8 × 0.5 µm. No species of the genus has hitherto been recorded for South Australia.

Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 562/12 & B. de Villiers (HO).

**Flavoparmelia haysomii** (C.W.Dodge) Hale

Widespread on rocks, especially near the coast, where it is associated with species of *Xanthoparmelia*. This large, lemon-yellow, foliose lichen with a black lower surface is readily recognised by having dactyls that become erumpent, abraded and sorediate.

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**Fig. 40. *Ephebe ocellata*. Scale = 2 mm. Photo: J. Jarman.**
Near American River, 1962, *M. McKay* s.n. (AD); W end of Antechamber Bay, 35°48′S 138°05′E, 2 m alt., 1985, *J.A. Elix* 19686 & *L.H. Elix* (CANB); Chapman River Estuary, 35°50′S 138°05′E, 3 m alt., 1985, *J.A. Elix* 19694 & *L.H. Elix* (CANB); mouth of De Mole River, 18 km SSE of Cape Borda, 35°43′S 136°46′E, 20 m alt., 1994, *H. Streimann* 55062, 55125 (CANB); Windmill Bay, 35°51′S 138°07′E, 2 m alt., 2011, *G. Kantvilas* 405/11 (HO).

*Flavoparmelia rutidota* (Hook.f. & Taylor) Hale

A very common and widespread, epiphytic, yellow-green, foliose lichen, typically colonising trees such as *Callitris*, *Exocarpos*, *Melaleuca* and *Allocasuarina* in dry sclerophyll forest, mallee, *Melaleuca* woodland and at the margins of paddocks. **Fig. 41.**

[Rocky River area], 1940, *J.B. Cleland* s.n. (AD); banks of Cygnet River near Lockwood Corner, 35°39′S 137°38′E, 1967, *G. Jackson* 526 (AD); 13 km E of Vivonne Bay, 35°55′S 137°16′E, 30 m alt., 1985, *J.A. Elix* 19579 & *L.H. Elix* (CANB); E of Wisanger Park Homestead, 35°37′S 137°28′E, 80 m alt., 1985, *J.A. Elix* 19633 & *L.H. Elix* (CANB); Harveys Return, 35°45′S 136°37′E, 1985, *J.H. Willis* s.n. (MEL); adjacent to Eleanor River, 3 km E of Little Sahara dunes, 35°57′S 137°17′E, 1989, *D.N. Kraehenbuehl* 5180 (AD); about 2 km W of South West River, 35°59′S 136°50′E, 2007, *R.W. Rogers* 11498 p.p. (BRI); The Kona, Antechamber Bay, 35°49′S 138°05′E, 50 m alt., 2010, *G. Kantvilas* 195/10 (AD, HO); Lashmar Lagoon, 35°49′S 138°04′E, 10 m alt., 2011, *G. Kantvilas* 273/11 & *B. de Villiers* (AD, HO); Pelican Lagoon, 35°49′S 137°48′E, 10 m alt., 2012, *G. Kantvilas* 404/12 & *B. de Villiers* (AD, HO); Brown Beach, 35°48′S 137°50′E, 10 m alt., 2012, *G. Kantvilas* 416/12 & *B. de Villiers* (AD, HO).

*Flavoparmelia soredians* (Nyl.) Hale

Recorded from a solitary *Allocasuarina* tree at the edge of a paddock. Distinguished from the common *F. rutidota* by the sorediate thallus where the medulla reacts K+ yellow→red, P+ orange (salazinic acid). **Fig. 42.**

Off Cape Willoughby Road at the Dudley Cellar Door, 35°45′S 138°02′E, 140 m alt., 2012, *G. Kantvilas* 403/12 & *B. de Villiers* (AD, HO).

*Flavoparmelia springtonensis* (Elix) Hale

Seemingly uncommon and collected from wood and bark at the margins of mallee woodland. This sorediate, yellow, foliose lichen is very similar to *F. soredians*, but is distinguished by the presence of physodic acid (K+ yellow-brown, P+ red).

Hanson Bay Track, c. 1 km S of Grassdale Homestead, 36°00′S 136°32′E, 5 m alt., 2015, *G. Kantvilas* 366/15 & *B. de Villiers* (AD, HO); near Kingscote Airport, 35°43′S 137°32′E, 5 m alt., 2015, *G. Kantvilas* 496/15 & *B. de Villiers* (AD, HO).

*Fuscopannaria decipiens* (P.M.Jørg. & D.J. Galloway) P.M.Jørg.

In moister microhabitats, on the bases of mature *Melaleuca* in mallee woodland; more rarely overgrowing bryophytes on rocks. The genus *Fuscopannaria* is distinguished from superficially similar genera of the family Pannariaceae by having asci with an amyloid ring structure. Published accounts of the genus (Jørgensen & Galloway 1992; Jørgensen 1999, 2001) cite, inter alia, ascospore size as a distinguishing character for
this species, although I have been unable to confirm this in my own observations. *Fuscopannaria decipiens* is better recognised by having grey, incised squamules distributed over a black prothallus, apothecia with a persistent, crenulate, lecanorine margin, and ascospores 15–20 (–22) × 6–10 µm.

Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 784/12 (AD, HO); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 321/15 & B. de Villiers (AD, HO).

1*Fuscopannaria minor* (Darb.) P.M.Jørg.

On the bases of mature *Eucalyptus* and *Melaleuca* trees in moister, older mallee woodland and dry sclerophyll forest. This species is distinguished from *F. decipiens* by having a gnarled, subcrustose, dark grey to dark brown thallus, and apothecia where the disc typically becomes strongly convex and the lecanorine apothecial margin is excluded. Ascospore size was measured as 15–20 × 7–9 µm. **Fig. 43A.**

Hanson Bay Track, c. 1 km SW of Grassdale Lagoon, 36°00’S 136°52’E, 50 m alt., 2015, G. Kantvilas 297/15, 298/15 & B. de Villiers (AD, HO); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 322/15, 349/15 & B. de Villiers (AD, HO).

**Glonium sp.**

On loose mallee roots on the ground in rough pasture. This genus of doubtfully lichenised hystérieaceous fungi is characterised by black, aggregated, lirelliform ascomata with a carbonised, brittle excipulum, cylindrical, non-amyloid asci, branched and anastomosed paraphyses, and 1-septate, centrally-constricted, hyaline ascospores. Since this genus was brought to the attention of lichenologists by Kantvilas & Coppins (1997), many collections, probably referable to several species, have been made. The Kangaroo Island specimen is distinguished by having fusiform ascospores, 18–23 × 3–4 µm.

Slopes above Red House Bay, 35°49’S 138°07’E, 50 m alt., 2012, G. Kantvilas 592/12 (HO).

**Gyalolechia cranfieldii** (S.Y.Kondr. & Kärnefelt) Sochting, Frödén & Arup

On consolidated soil, mostly in the vicinity of limestone, in gaps in open woodland and sparse heathland; also on soft, weathered limestone in sheltered crevices and underhangs. This species is highly localised on the island, and its potential range appears to have been severely reduced by habitat degradation. All populations observed were small and extremely
fragmented. The genus *Gyalolechia* now accommodates all taxa previously included in *Fulgensia* (Arup et al. 2013). **Fig. 44.**

King George Beach (sandhills E of creek), 35°39’S 137°07’E, 1971, G. Jackson 814 (AD); Stokes Bay, 35°34’S 137°13’E, 1972, R.D. Seppelt 751B (HO); Western River, 35°43’S 136°55’E, 1974, M. Allender s.n. (MEL); near King George Beach, 35°39’S 137°07’E, 10 m alt., 2011, G. Kantvilas 333/11 & B. de Villiers (AD, MEL); Stokes Bay, 35°37’S 137°13’E, 50 m alt., 2012, G. Kantvilas 528/12 & B. de Villiers (HO); c. 3.5 km NE of Stokes Bay, 35°37’S 137°13’E, 50 m alt., 2012, G. Kantvilas 532/12 & B. de Villiers (AD, HO); Ravine des Casoars, 35°48’S 136°35’E, 15 m alt., 2012, G. Kantvilas 478/12 & B. de Villiers (AD, HO); Penneshaw foreshore near Frenchmans Rock, 35°43’S 137°57’E, 2 m alt., 2013, G. Kantvilas 196/13 (HO); Ironstone Hills, 35°44’S 137°47’E, 60 m alt., 2015, G. Kantvilas 386/15 & B. de Villiers (HO); Rocky River, 35°57’S 136°40’E, 35 m alt., 2015, G. Kantvilas 534/15 (HO).

*Hertelidea aspera* (Müll.Arg.) Kantvilas & Elix

An inconspicuous crustose species typically found on rotting wood or soil, recorded on the island from *Melaleuca* in swampy woodland. It is characterised by a granular, often abraded thallus containing perlatolic acid, red-brown to black-brown, biatorine apothecia to c. 0.5 mm wide, Pilocarpaceae-type asci and usually simple ascospores, (8–) 10–14.5 (–15) × (3–) 4–4.5 µm (Kantvilas & Elix 2005).

Lashmar Lagoon, 35°49’S 138°04’E, 10 m alt., 2011, G. Kantvilas 271/11 & B. de Villiers (AD, HO).

**Hertelidea pseudobotryosa** R.C.Harris, Ladd & Printzen

On bark, wood and charcoal in woodland. It differs from the preceding species chiefly by being sorediate and having smaller ascospores, (6–) 7–10 (–13) × 3–4.5 (–5) µm. Separation of the two taxa can be tricky (Kantvilas & Elix 2005). **Fig. 43C.**

About 2 km W of South West River, 35°59’S 136°50’E, 2007, R.W. Rogers 11498 p.p. (BR); Western Cove Road, 35°44’S 137°35’E, 2 m alt., 2011, G. Kantvilas 308/11 (AD, HO); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 581/12 & B. de Villiers (HO); Pelican Lagoon Conservation Park, along Mitchell Drive, 35°48’S 137°48’E, 10 m alt., 2015, G. Kantvilas 307/15 (AD, HO); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 344/15 (AD, HO).

**Fig. 44.** *Gyalolechia* (*Fulgensia*) *cranfieldii*, showing schizidiate thallus with radiating, marginal lobes (A) and apothecia with an involuted, crenulate thalline margin (B). Scale = 2 mm. Photos: J. Jarman.
Heteroderma hybocarponica Elix
On sheltered rocks, mostly near the coast. This sorediate species has an ecorticate lower surface with patchy orange-yellow pigment that reacts K– or ± brownish. Illustration: Elix (2010: Fig. 1).

Mouth of De Mole River, 18 km SSE of Cape Borda, 35°43′S 136°46′E, 20 m alt., 1994, H. Streimann 55096 (AD, CANB).

Heteroderma obscurata (Nyl.) Trevis.
On sheltered rocks, mostly near the coast. Readily distinguished from other sorediate species of the genus by the orange, K+ purple, ecorticate underside.
Mouth of De Mole River, 18 km SSE of Cape Borda, 35°43′S 136°47′E, 20 m alt., 1994, H.T. Lumbsch 10922p, A. Dickhäuser & H. Streimann (CANB); same locality, 1994, H. Streimann 55060 (AD, CANB); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46′S 137°48′E, 3 m alt., 2013, G. Kantvilas 395/13 (HO).

Heteroderma tremulans (Müll.Arg.) W.L.Culb.
Locally common and widespread on rocks and trees, especially near the coast. Characterised by the labriform, marginal soredia and pale to brown, corticate lower surface. Fig. 45.
Northern end of Antechamber Bay, 35°46′S 138°04′E, 5 m alt., 2009, G. Kantvilas 361/09 (AD, HO); Harveys Return, 35°45′S 136°38′E, 100 m alt., 2010, G. Kantvilas 184/10 (AD, HO); Lashmar Lagoon, 35°49′S 138°04′E, 10 m alt., 2011, G. Kantvilas 263/11, 276/11 & B. de Villiers (AD, HO); Ironstone Hills, 35°43′S 137°58′E, 90 m alt., 2011, G. Kantvilas 315/11 (HO); northern end of Antechamber Bay, 35°46′S 138°04′E, 5 m alt., 2013, G. Kantvilas 265/13 (HO); Cape St Albans, 35°48′S 138°07′E, 40 m alt., 2015, G. Kantvilas 394/15 (HO).

Heteroplacidium contumescens (Nyl.) Breuss
Uncommon; on consolidated soil, growing amongst thalli of Psora, Endocarpon and Placidium. This species is superficially similar to other terricolous, squamulose taxa of the Verrucariaceae and is distinguished chiefly by having simple ascospores, arranged biseriately within clavate asci.
Lashmar Conservation Park, c. 2 km S of Cape Coutts, 35°47′S 138°04′E, 50 m alt., 2015, G. Kantvilas 431/15 & B. de Villiers (HO).

Hymenelia lacustris (With.) M. Choisy
Highly localised on semi-submerged rocks in flowing fresh water. This pantemperate, semi-aquatic species is recognised by its pale to bright orange, crustose thallus, immersed, crater-like, aspicilioid apothecia and simple ascospores. Fig. 43D.
Rocky River, 35°57′S 136°40′E, 35 m alt., 2015, G. Kantvilas 546/15 (AD, HO).

Hyperphyscia adglutinata (Flörke) H. Mayrhofer & Poelt
A minute, dark olive-grey, foliose species, locally common on twigs, usually occurring in eutrophicated habitats such as on trees at the edge of sheep paddocks; also found on coastal trees and shrubs.
Pelican Lagoon, 35°49′S 137°48′E, 10 m alt., 2011, G. Kantvilas 279/11 (AD, HO); Creek Bay Farm, 35°49′S 138°06′E, 40 m alt., 2011, G. Kantvilas 380/11 (AD, HO); Strawbridge Point, 35°47′S 137°47′E, 5 m alt., 2012, G. Kantvilas 541/12 & B. de Villiers (HO).

Hypocenomyce australis Timdal
On bleached eucalypt lignin in dry sclerophyll forest. This is a distinctive, pale yellowish, small squamulose lichen containing lecanoric acid (C+ red) with black, adnate apothecia that have a plane disc and flexuose margin. Fig. 46.
Grassdale Lagoon, 36°00'S 136°53'E, 20 m alt., 2015, G. Kantvilas 327/15 (HO).

*Hypotrachyna revoluta* (Flörke) Hale

Epiphytic at the margins of mallee woodland. This species is characterised by the grey, rather elongate lobes with ascending, revolute apices and rounded soralia that become abraded and dull green to blackened. It contains gyrophoric acid (medulla C± red).

**Illustration:** Kantvilas et al. (2002: 56).

Hanson Bay Track, c. 1 km S of Grassdale Homestead, 36°00'S 136°52'E, 5 m alt., 2015, G. Kantvilas 362/15 & B. de Villiers (AD, HO).

*sJapewiella pruinosula* (Müll.Arg.) Kantvilas

Occasional on twigs in mallee woodland. The single Kangaroo Island specimen of this small, brown-fruited crustose lichen is very poorly developed and has somewhat smaller than usual ascospores (12–16 × 8–9 µm; see Kantvilas 2011).

**Illustration:** Kantvilas (2011: Fig. 1).

Lecania cyrtella (Ach.) Th.Fr.

On twigs of *Leucopogon parviflorus* in coastal heathland. This tiny, inconspicuous crustose lichen is typically associated with nutrient-enriched habitats. Although superficially resembling a species of *Lecanora*, it is recognised by its 1-septate ascospores, 10–16 × 3–5 µm, and *Bacidia*-type asci (see also Fletcher et al. 2009).

**Illustration:** Lumbsch et al. (2001: 12).

Ravine des Casoars, 35°48'S 136°35'E, 5 m alt., 2012, G. Kantvilas 445/12 (AD, HO).

*Lecania inundata* (Hepp ex Körb.) M.Mayrhofer

On coastal laterite, often in sites subject to eutrophication by birds. The pale grey, areolate thallus, and the apothecia with a thin, thalline margin are suggestive of a species of *Rinodina*, but this species has hyaline, (0–) 1-septate ascospores, 10–19 × 4–7 µm, and *Bacidia*-type asci (Kantvilas & van den Boom 2015). **Fig. 47A.**

Northern end of Antechamber Bay, 35°46'S 138°04'E, 5 m alt., 2013, G. Kantvilas 270/13 (herb. v.d.Boom, HO); same locality, 2015, G. Kantvilas 476/15 (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46'S 137°48'E, 2 m alt., 2013, G. Kantvilas 333/13 & B. de Villiers (herb. v.d.Boom, HO).

*Lecania koerberiana* Lahm

On *Melaleuca* in coastal woodland. Characterised by a scurfy, pale greyish, crustose thallus, apothecia initially with an incomplete thalline margin, soon becoming biatorine, a brown to blackish, sometimes piebald disc, simple, capitulate paraphyses, *Bacidia*-type asci, (0–1–) 3-septate ascospores, 12–17 × 5–6 µm, and thread-like conidia, 15–20 µm long.


*Lecania maritima* Kantvilas & van den Boom

On limestone boulders in rough pasture. Characterised by the indistinct, endolithic thallus, biatorine, grey-pruinose apothecia with a prominent, persistent proper excipulum that is opaque red-brown in section, *Bacidia*-type asci, and 1-septate, ellipsoid ascospores, 10–15 (–16) × 4.5–6 µm (Kantvilas & van den Boom 2015). It is also known from Flinders Island in Bass Strait. **Fig. 47B.**

**Lecania polycarpa** (Müll.Arg.) Kantvilas & van den Boom
On limestone, in coastal heathland or rough, stony paddocks. Characterised by the numerous, black, scattered apothecia, at most with a sparse, discontinuous grey pruina, which stand out starkly against the white limestone substratum, the lack of any detectable thallus, and, anatomically, by the absence of photobiont cells in the apothecial margin, the *Bacidia*-type asci and the (0–) 1-septate ascospores, 10–14.5 (–15) × 4–5.5 (–6) μm (Kantvilas & van den Boom 2015). Fig. 47C.

**Lecania turicensis** (Hepp) Müll.Arg.
On limestone outcrops in rough sheep pasture, degraded woodland and heathland. Characterised by a pale grey, granular-areolate thallus with greyish-pruinose, lecanorine apothecia in which the thalline margin often becomes excluded. Fig. 47D.

**Lecanora andina** Räsänen
On eucalypt twigs in mallee woodland. This small crustose species has a whitish thallus containing atranorin only, and apothecia with a red-brown epruinose disc, large, KOH-insoluble crystals in the margin, but lacking crystals in the ephymenium. Hog Bay Road, 35°46’S 137°37’E, 20 m alt., 2013, G. Kantvilas 209/13 (HO).

**Lecanora caesiorubella** Ach.
On smooth-barked twigs in mallee woodland. Recognised by the whitish grey thallus (usually P+ orange-red) and whitish pink, pruinose apothecia. Illustration: McCarthy & Mallet (2004: pl. 18).
Flinders Chase area, 1945, J.B. Cleland s.n. (AD); Beyeria Conservation Park 35°47’S 137°36’E, 50 m alt., 2010, G. Kantvilas 213/10 (AD, HO).
Lecanora casuarinophila Lumbsch
Uncommon; collected in remnant Callitris woodland and from coastal laterite outcrops, an unusual substratum for this normally corticolous lichen. This species is characterised by a totally lepore or coarsely sorediate, greenish grey thallus containing atranorin and zeorin (Lumbsch & Elix 2004).

Northern end of Antechamber Bay, 35°46’S 138°04’E, 5 m alt., 2009, G. Kantvilas 365/09 (HO); Brown Beach, 35°48’S 137°50’E, 10 m alt., 2012, G. Kantvilas 436/12 & B. de Villiers (HO).

Lecanora crenulata (Dicks.) Hook.
On limestone. Distinguished from the superficially similar L. dispersa (below) by having apothecia with a coarsely grey-pruinose disc and a crenulate, scabrid, radially fissured thalline margin (Edwards et al. 2009).

Lumbsch & Elix (2004) did not accept this species for Australia although it was cited in earlier accounts (e.g. McCarthy 2003a) as occurring in Victoria, South Australia and Tasmania.

Fig. 48A.

Windmill Bay, 35°51’S 138°07’E, 10 m alt., 2013, G. Kantvilas 236/13A & B. de Villiers (AD, HO); Cape Willoughby, 35°51’S 138°08’E, 10 m alt., 2013, G. Kantvilas 243/13 & B. de Villiers (HO).

Lecanora dispersa (Pers.) Sommerf.
On rocks and wood, often associated with eutrophicated conditions. This variable species is characterised by an inconspicuous to ± absent thallus and scattered apothecia with a whitish grey margin and pinkish brown disc. It is rather more widespread than the specimens cited indicate, as its scattered apothecia are seen frequently on specimens of other taxa.

Illustration: McCarthy & Mallet (2004: pl. 10).

Mouth of De Mole River, 18 km SSE of Cape Borda, 35°43’S 136°47’E, 20 m alt., 1994, H. T. Lumbsch 10922c p.p., A. Dickhäuser & H. Steimmann (CANB); Cape St Albans, 35°48’S 138°08’E, 40 m alt., 2011, G. Kantvilas 364/11 (HO); Windmill Bay, 35°51’S 138°07’E, 40 m alt., 2012, G. Kantvilas 502/12 (HO); Penneshaw foreshore near Frenchmans Rock, 35°43’S 137°57’E, 2 m alt., 2013, G. Kantvilas 195/13 (AD, HO); northern end of Antechamber Bay, 35°46’S 138°04’E, 5 m alt., 2013, G. Kantvilas 271/13 (HO).

Lecanora elaphaea Stizenb.
On Melaleuca bark in scrubby woodland near the coast. Similar to L. andina in its whitish thallus and red-brown apothecial disc, this species differs by containing small, KOH-soluble crystals in the apothecial margin, and by containing unknown terpenes in addition to atranorin.

Muston, 35°49’S 137°45’E, 10 m alt., 2011, G. Kantvilas 278/11 (F, HO); Stokes Bay, 35°37’S 137°13’E, 60 m alt., 2013, G. Kantvilas 290/13 & B. de Villiers (HO).

Lecanora farinacea Fée
Locally common on non-calcareous rocks in dry sclerophyll forest. When well-developed, this species forms extensive, conspicuous, whitish grey thalli with scattered, concolorous, grey-pruinose apothecia; it typically contains atranorin and norstictic acid (K+ yellow–red).

Illustration: McCarthy & Mallet (2004: pl. 9).

Waterfall Creek, 30 km ENE of Cape Borda, 35°42’S 136°54’E, 140 m alt., 1994, H. Steimmann 54945, 54947, 54948, 54950 (CANB); mouth of De Mole River, 18 km SSE of Cape Borda, 35°43’S 136°46’E, 20 m alt., 1994, H. Steimmann 55080, 55085, 55086, 55089 (CANB); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 553/12 & B. de Villiers (AD, HO); Cannery Walking Track, American River, 2013, A. Wells s.n. (HO).

Lecanora flaviodermarginata B. de Lesd.
On young branches of Allocasuarina in woodland. The lecanorine apothecia with a prominent thalline margin and pinkish, white-pruinose disc somewhat resemble those of a species of Ochrolechia, but this species can be distinguished chemically (it is C– and contains zeorin with traces of atranorin and usnic acid) and by its relatively small ascospores (11.5–14.5 × 6–7.5 µm) (Lumbsch & Elix 2004). Fig. 48B.

S of Wisangher Hills Homestead, 35°37’S 137°27’E, 80 m alt., 1985, J.A. Elix 19652 & L.H. Elix (CANB); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 323/15 & B. de Villiers (AD, HO).

Lecanora flavopallida Stirt.
Very common in coastal vegetation on twigs and small diameter tree trunks. Easily recognised by the pale greyish to yellowish crustose thallus and by the apothecia with pale brownish disc and whitish margin that often becomes excluded.

Fig. 48C.

Clay pan, c. 4 km ESE of car park at West Bay, 35°54’S 136°35’E, 1982, K. Stove 1677 p.p. (AD); Cape Gantheaume Conservation Park, c. 2 km S of entrance, 36°00’S 137°36’E, 1982, K. Stove 4363 (AD); adjacent to Eleanor River, 3 km E of Little Sahara dunes, 35°57’S 137°17’E, 1899, D.N. Kratenbuehle 5181 p.p. (AD); Brown Beach, 35°48’S 137°50’E, 10 m alt., 2012, G. Kantvilas 415/12 & B. de Villiers (AD, HO); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 347/15 & B. de Villiers (AD, HO); c. 1.5 km SW of Point Ellen, 36°00’S 137°11’E, 10 m alt., 2015, G. Kantvilas 446/15 (AD, HO).

Lecanora galactiniza Nyl.
On hard, non-calcareous rocks, especially granite, near the coast. Very similar to L. pseudistera (see below) and likewise with large crystals in the apothecial margin but differing by containing atranorin only, and by having numerous, small, KOH-soluble crystals in the epithymenium (Lumbsch & Elix 2004).

Windmill Bay, 35°51’S 138°07’E, 20 m alt., 2012, G. Kantvilas 468/12 (HO); Eastern Cove, c. 2.5 km NE of American River, 35°46’S 137°47’E, 2 m alt., 2015, G. Kantvilas 490/15 (AD, HO).

Lecanora helva Stizenb.
On Callitris in relic coniferous woodland. Characterised by containing atranorin and 2’-O-methylperlatolic acid, and by having apothecia with large, KOH-insoluble crystals in the margin, and small crystals that dissolve yellowish in KOH in the epithymenium.

Brown Beach, 35°48’S 137°50’E, 10 m alt., 2012, G. Kantvilas 426/12 & B. de Villiers (AD, HO).
**Lecanora mobergiana** Lumbsch & Elix

On sandstone in dry sclerophyll forest and mallee woodland. This species is found mostly sterile or at best only sparingly fertile, and is characterised by the dull grey-green, areolate thallus with conspicuous, pale yellowish to yellowish green, orbicular soralia to 1–1.5 mm wide that are initially discrete but eventually coalesce; it contains atranorin and usnic acid.


Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 555/12; same locality, 2012, G. Kantvilas 767/12 & B. de Villiers (HO); Creek Bay Farm, 35°50’S 138°06’E, 85 m alt., 2013, G. Kantvilas 373/13 (AD, HO).

**Lecanora pseudistera** Nyl.

Locally common on exposed, non-calcareous rocks or, less commonly, consolidated soil, especially near the coast, where it forms conspicuous whitish thalli with
abundant apothecia with a red-brown disc and whitish margin. It is characterised by containing atranorin and 2′-O-methylperlatolic acid, and by having apothecia with large, KOH-insoluble crystals in the margin, and a non-granular ephymenium. In Tasmania, the thallus of this species is sometimes infected with the tiny, black apothecia of the parasite Tephromela campestrica (Nyl.) Rambold & Triebel (Kantvilas 2015).

Mouth of De Mole River, 18 km SSE of Cape Borda, 35°43′S 136°46′E, 20 m alt., 1994, H. Streimann 55102 (CANB); northern end of Antechamber Bay, 35°47′S 138°04′E, 5 m alt., 2011, G. Kantvilas 403/11 (AD, HO); Cape Willoughby, 35°51′S 138°07′E, 10 m alt., 2011, G. Kantvilas 411/11 (AD, HO); Western River Cove, summit of cliffs E of beach, 35°40′S 136°58′E, 50 m alt., 2015, G. Kantvilas 401/15, 405/15 (AD, HO).

**Lecanora saligna** (Schrad.) Zahlbr.

On bleached eucalypt wood, such as old fenceposts, exposed mallee roots or logs, in rough pasture, woodland and forest. Characterised by an inconspicuous, rather dispersed thallus containing isousnic acid, and by red-brown apothecia in which the margin contains small, KOH-soluble crystals and becomes ± excluded with age. 13 km NE of Vivonne Bay, 32°52′S 137°16′E, 60 m alt., 1985, J.A. Elix 19577 & L.H. Elix (CANB); Creek Bay Farm, 35°51′S 138°06′E, 100 m alt., 2011, G. Kantvilas 419/11 (HO); Grassdale Lagoon, 36°00′S 136°53′E, 20 m alt., 2015, G. Kantvilas 330/15, 344/15 (AD, HO).

**Lecanora sphaerospora** Müll.Arg.

Very common on limestone. Together with Buellia alillula, this species contributes to the distinctive white colour of limestone outcrops. It has characteristic, grey-pruinose apothecia. **Fig. 48E.**

Cape Du Couedic, 36°03′S 136°42′E, 80 m alt., 1985, J.A. Elix 19618 & L.H. Elix (CANB); Stokes Bay, 35°37′S 137°12′E, 2 m alt., 1985, J.A. Elix 19655 & L.H. Elix (CANB); Cape Borda, 35°45′S 136°35′E, 100 m alt., 1994, H. Streimann 54957 (AD, CANB); same locality, 2010, G. Kantvilas 187/10 (AD, HO); Cape St Albans, 35°48′S 138°07′E, 20 m alt., 2010, G. Kantvilas 171/10 (AD, HO); Ravine des Casoars, 35°48′S 136°35′E, 5 m alt., 2012, G. Kantvilas 447/12 (AD, HO); c. 3.5 km NE of Stokes Bay, 35°37′S 137°13′E, 50 m alt., 2012, G. Kantvilas 531/12 (AD, HO); Cape Willoughby, 35°51′S 138°08′E, 10 m alt., 2013, G. Kantvilas 240/13 & B. de Villiers (AD, HO); near Pelican Lagoon, summit of hill above the Tiger Simpson memorial, 35°50′S 137°49′E, 60 m alt., 2013, G. Kantvilas 276/13 (AD, HO).

*Lecanora subsecta* (Stirt.) Kantvilas & LaGreca

On twigs and decorticated wood in exposed habitats in inland areas. This species is recognised by its esorediate, glaucous grey, rather inapparent thallus containing usnic acid and zeorin, the orange-pink to yellowish, biatorine apothecia, typically with a lemon-yellow pruina, and ascospores 8–15 × 3–5 (–5.5) µm. **Illustration:** Kantvilas & LaGreca (2008: Fig. 1).

Mt Taylor Conservation Park, hillside near cave, 35°56′S 137°03′E, 1982, K. Stove 1755 p.p. (AD, HO); 13 km NE of Vivonne Bay, 32°55′S 137°16′E, 60 m alt., 1985, J.A. Elix 19578, 19580 & L.H. Elix (CANB).

**Lecanora symmicta** (Arch.) Ach.

On eucalypt wood in pasture. Characterised by a yellowish green, leprose-sorediate thallus containing usnic acid and zeorin, biatorine, epruinose, milky white apothecia, and ascospores 11–16 × 4–6 µm. This species is closely related to *L. subsecta* (see above), and variation in the group is discussed by Kantvilas & LaGreca (2008).

Ravine des Casoars, 6 km SE of Cape Borda, 1994, H.T. Lumbsch 10906c, A. Dickhäuser & H. Streimann (herb. Lumbsch); Creek Bay Farm, 35°50′S 138°06′E, 65 m alt., 2013, G. Kantvilas 361/13 (AD, HO).

**Lecidea capensis** Zahlbr.

On consolidated soil and stones. Recognised by the pale brown thallus of contiguous, rather angular, subquamulose areoles containing 2′-O-methylperlatolic acid, with sessile to subimmersed, black apothecia (see Rambold 1989). **Fig. 48F.**

Western River Cove, summit of cliffs E of beach, 35°40′S 136°58′E, 50 m alt., 2015, G. Kantvilas 402/15 (AD, HO).

**Lecidea fuscoatra** Nyl.

On sandstone in dry sclerophyll forest. Distinguished from several superficially similar species (see Rambold 1989) by the I+ violet medulla and the presence of 2′-O-methylmicrophyllinic acid (visible as a bright UV+ blue spot on developed t.l.c. plates). **Illustration:** Lumbsch et al. (2001: 32).

Billygoat Falls, 35°42′S 136°55′E, 200 m alt., 2012, G. Kantvilas 777/12 & B. de Villiers (HO); Lathami Conservation Park, 35°38′S 137°14′E, 160 m alt., 2015, G. Kantvilas 294/15 & B. de Villiers (HO).

**Lecidea ochroleuca** Pers.

On consolidated soil and rock in mallee woodland. Rambold (1989) discussed this species and the related *L. terrena* (see below). He noted that although morphologically and anatomically indistinguishable, *L. ochroleuca* occurs mainly on soil and contains gyrophoric acid, whereas *L. terrena* occurs mostly on rock and contains confluentic acid; specimens lacking lichen substances were determined on the basis of substratum. This approach is essentially followed here except that, in my opinion, the substratum offers little insight into which species is present, and all specimens examined contained lichen substances, albeit often only in trace concentrations.

Murray Lagoon, 23 km SE of Parndana, 35°55′S 137°25′E, 20 m alt., 1985, J.A. Elix 19605 & L.H. Elix (CANB); Cape St Albans, 35°48′S 138°07′E, 20 m alt., 2010, G. Kantvilas 171/10 (AD, HO); Ravine des Casoars, 35°48′S 136°35′E, 5 m alt., 2012, G. Kantvilas 447/12 (AD, HO); Cape Willoughby, 35°51′S 138°08′E, 10 m alt., 2013, G. Kantvilas 240/13 & B. de Villiers (AD, HO); near Pelican Lagoon, summit of hill above the Tiger Simpson memorial, 35°50′S 137°49′E, 60 m alt., 2013, G. Kantvilas 276/13 (AD, HO).

**Lecidea sarcogynoides** Körb.

On rocks in rough pasture. The Kangaroo Island specimens accord well with the general concept of this cosmopolitan species, especially with respect to the dilute crimson hymenium, the excipulum with an opaque crimson-black outer edge but hyaline to dilute crimson...
within, the brown-black hypothecium and rather oblong ascospores (see Aptroot et al. 2009), but differ in having an unusually thick, pale beige-brown thallus.

S of Wisanger Hills Homestead, 7 km WSW of Emu Bay, 35°37’S 137°27’E, 80 m alt., 1985, J.A. Elix 19647 & L.H. Elix (CANB); mouth of De Mole River, 18 km SSE of Cape Borda, 35°43’S 136°47’E, 20 m alt., 1994, H.T. Lumbsch 10922c, A. Dickhäuser & H. Streimann (CANB); Cape Willoughby Road, 35°50’S 138°06’E, 110 m alt., 2011, G. Kantvilas 324/11 (HO, MSC); Cape Borda, 35°50’S 138°06’E, 85 m alt., 2011, G. Kantvilas 324/11 (HO, MSC); c. 2.5 km SW of Cape St Albans, 35°49’S 138°07’E, 60 m alt., 2011, G. Kantvilas 352/11 (AD, HO, MS).

Lecidella terrena Nyl.

On consolidated soil and non-calcareous rocks in dry sclerophyll woodland. The presence of confluent acid (often only in trace amounts) separates this species from the related L. ochroleuca (see above and Rambold 1989).

Scouts Cove Lookout, 3 km E of Cape Borda, 35°46’S 136°37’E, 120 m alt., 1985, J.A. Elix 19720 & L.H. Elix (CANB); Rocky River, 35°58’S 136°39’E, 40 m alt., 1994, H. Streimann 55030 (CANB).

Lecidella destituta Kantvilas & Elix

Rather common and widespread on twigs in heathland and mallee where it occurs as part of a diverse community of crustose lichens, including superficially similar but unrelated taxa such as Buellia dissa and species of Bacidia. Characterised by containing atranorin only (other species of the genus typically contain xanthones and are C+ orange) and by having a hymenium inspersed with oil droplets and crystals.

Illustration: Kantvilas & Elix (2013: Fig. 1A).

End of Old Bullock Track, 35°39’S 137°38’E, 1967, G. Jackson 533 (AD); corner of Playford Hwy, Birchmore Hwy and road to Kingscote aerodrome, 35°42’S 136°50’E, 1982, K. Stone 1789 p.p. (AD); 3 km E of Seal Bay, 35°40’S 137°21’E, 30 m alt., 1985, J.A. Elix 19589 & L.H. Elix (CANB, HO); Weir Cove, 2 km E of Cape de Couedic, 36°03’S 136°43’E, 40 m alt., 1994, H. Streimann 54981 (CANB, HO); West Bay, 35°53’S 136°33’E, 10 m alt., 2011, G. Kantvilas 297/11 (AD, HO).

Lecidella enteroleucella (Nyl.) Hertel

On rocks in Allocasuarina woodland. The single Kangaroo Island specimen is a tiny fragment but nevertheless displays the diagnostic features of this species: a pale yellowish, rimose-areolate thallus containing atranorin, arthothelin and thuringione, and apothecia with a colourless hypothecium. On Kangaroo Island, the presence of atranorin helps distinguish this species from L. granulosa (Kantvilas & Elix 2014).

Ironstone Hills, 35°44’S 137°57’E, 70 m alt., 2015, G. Kantvilas 375/15 (AD, HO).

Lecidella flavovirens Kantvilas & Elix

Occasional on wood and bark in mallee woodland and dry sclerophyll forest, especially on Banksia. This species is most frequently encountered as a sterile, yellowish, sorediate crust containing xanthones (C+ orange). Fig. 49A.

Creek Bay Farm, headwaters of Lubra Creek, 35°49’S 138°06’E, 40 m alt., 2011, G. Kantvilas 374/11, 377/11 (AD, HO); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 575/112, 585/12 & B. de Villiers (AD, HO); c. 1 km SSW of Kelly Hill Caves, 36°00’S 136°54’E, 40 m alt., 2015, G. Kantvilas 357/15 & B. de Villiers (AD, HO).

Lecidella granulosula (Nyl.) Knopf & Leuckert var. granulosula

On rocks, especially in sheltered overhangs. Distinguished from other saxicolous species of the genus chiefly by having a granular thallus containing xanthones (C+ orange) and a colourless or pale hypothecium. Fig. 49B.

Northern end of Antechamber Bay, 35°47’S 138°04’E, 5 m alt., 2011, G. Kantvilas 399/11 (HO); Creek Bay Farm, 35°50’S 138°06’E, 85 m alt., 2013, G. Kantvilas 365/13 (HO); Ironstone Hills, 35°44’S 137°57’E, 70 m alt., 2015, G. Kantvilas 377/15 (AD, HO); Western River Cove, E of beach, 35°41’S 136°58’E, 20 m alt., 2015, G. Kantvilas 407/15 (AD, HO).

Lecidella granulosula var. lecanorina Kantvilas & Elix

In sheltered microhabitats on coastal rocks or on outcrops in mallee woodland. It differs from variety granulosula chiefly by having a colourless (instead of black) apothecial margin (Kantvilas & Elix 2014). Also known from the south coast of New South Wales. Fig. 49C.

Northern end of Antechamber Bay, 35°46’S 138°04’E, 5 m alt., 2013, G. Kantvilas 264/13 (HO); Creek Bay Farm, 35°50’S 138°06’E, 85 m alt., 2013, G. Kantvilas 375/13 (HO) [type].

Lecidella leucomarginata Kantvilas & Elix

Known from a bleached, dead, remnant stag of a Melaleuca in a highly degraded salt marsh. Also recorded from south-western Western Australia (Kantvilas & Elix 2014). This species is distinguished by its yellowish, esorediate thallus and by its distinctive apothecia that have a colourless, almost translucent proper margin. Fig. 49D.

Western Cove, 35°44’S 137°35’E, 0.5 m alt., 2013, G. Kantvilas 234/13 (AD, BM, HO) [type].

Lecidella sublapicida (C.Knight) Hertel

On rocks, often in eutrophicated conditions. Characterised by the dark brown to yellow-brown hypothecium, in combination with the presence of vicaminic. Fig. 49E.

Northern end of Antechamber Bay, 35°47’S 138°04’E, 5 m alt., 2011, G. Kantvilas 401/11 (HO); Creek Bay Farm, 35°50’S 138°06’E, 85 m alt., 2013, G. Kantvilas 371/13 (HO).

Lecidella xylogena (Müll.Arg.) Kantvilas & Elix

A tiny, inconspicuous, easily-overlooked crustose lichen occurring on twigs, branches and standing dead trunks of eucalypts in mallee woodland and dry sclerophyll forest. Distinguished best in thin apothecial sections by the paraphyses that have internally pigmented, clavate apices. Fig. 49F.
Mt Taylor Conservation Park, 35°56′S 137°03′E, 1982, K. Stove 1755 p.p. (AD); Creek Bay Farm, 35°49′S 138°06′E, 40 m alt., 2011, G. Kantvilas 382/11 (HO); Billygoat Falls, 35°42′S 136°55′E, 200 m alt., 2012, G. Kantvilas 586/12 & B. de Villiers (HO).

*Leimonis erratica* (Körb.) R.C.Harris & Lendemer
On stones on the ground in dry sclerophyll forest. Characterised by scattered, black apothecia to c. 0.5 mm wide, with a persistent margin and plane disc, a greenish, N+ crimson-red epihymenium, brown hypothecium, asci of the Pilocarpaceae-type, and simple ascospores, (5–) 6–8 (–9) x 3–3.5 (–4) µm (Harris 2009). Although apothecia are usually abundant, well-formed asci with ascospores tend to be relatively few.

Rocky River Track, 35°57′S 136°40′E, 40 m alt., 2015, G. Kantvilas 522/15 (HO).

*Lepra erubescens* (Hook.f. & Taylor) A.W.Archer & Elix
On sandstone in dry sclerophyll forest. Characterised by a brownish or olive-grey, sometimes rather papillate...
thallus containing norstictic and connorstictic acids, immersed, rather deformed, disciform apothecia, a brownish, K+ crimson epithecium, 8-spored asci, ellipsoid ascospores, 26–44 × 14–26 µm, and filiform conidia, 20–25 µm long. Until recently, this species was included within a broad concept of the genus Pertusaria. Recent work (Wei et al. 2017) has seen the transfer of taxa with disciform apothecia to the genus Lepra (see also Archer & Elix 2018).

Fig. 50A. Mouth of De Mole River, 35°43’S 136°46’E, 1994, H. Streimann 55081 (CANB); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 557/12, 757/12 & B. de Villiers (HO).

Lepra leucosorodes (Nyl.) I.Schmitt, Hodkinson & Lumbsch
Recorded from a rotting log in mallee woodland. Characterised by a white, crustose thallus containing thamnolic acid and lichexanthone, and the flattened, roundish soralia to 1.5 mm wide. Previously referred to in Australian literature as Pertusaria scaberula A.W. Archer, but that name was placed in synonymy with P. leucosorodes by Archer & Elix (2016).

Illustration: Archer & Elix (2016: Fig. 64).

The old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 3 m alt., 2013, G. Kantvilas 335/13 & B. de Villiers (AD, HO).

Lepraria coriensis (Hue) Sipman
Rather common on consolidated soil, especially near the coast, typically in sheltered rock crevices but rarely also on the ground where it is associated with species of Pora and Diploschistes. Species of Lepraria have a powdery, sterile thallus; this species is one of the few yellowish species and contains usnic acid and zeorin. It also tends to have a minute lobed thallus margin (Elix 2009a).

Lesueur Conservation Park, c. 3.5 km SW of Cape Willoughby, 35°51’S 138°06’E, 10 m alt., 2009, G. Kantvilas 356/09, 357/09 (AD, HO); Harveys Return, 35°45’S 136°38’E, 10 m alt., 2010, G. Kantvilas 183/10 (AD, HO); near King George Beach, 35°39’S 137°07’E, 10 m alt., 2011, G. Kantvilas 335/11 & B. de Villiers (HO); Rocky River, 35°57’S 136°40’E, 35 m alt., 2015, G. Kantvilas 540/15 (HO).

Lepraria finkii (B. de Lesd.) R.C.Harris
On the trunks of grass trees (Xanthorrhoea) in dry sclerophyll forest and, less commonly, on soil and detritus. Characterised chemically by the presence of atranorin and zeorin, together with stictic and constictic acids. Until the monograph of Lendemer (2013), this species was referred to by most authors in Australasia as L. lobificans Nyl.

Bilgoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 589/12 & B. de Villiers (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 3 m alt., 2013, G. Kantvilas 325/13 & B. de Villiers (HO); same locality, 2015, G. Kantvilas 484/15 (AD, HO).

Leptogium aff. biatorinum (Nyl.) Leight.
According to its label, this unusual specimen was collected from sandstone amongst Olearia shrubs on sand dunes. The determination is tentative because the specimen consists of only a few thallus and rock fragments from which it is hard to reconstruct the overall appearance of the species. It has the following salient characters: thallus subsquamulose, with minute lobes c. 0.1–0.2 mm wide; apothecia 0.8–1.2 mm wide, with disc red-brown, plane or convex, with an excluded margin; ascospores submuriform, 24–32 × 10–15 µm, mostly ellipsoid but occasionally centrally constricted or attenuated at one end, with 3 transverse and 0–1 longitudinal septa. The specimen compares...
favourably to the description of *L. biatorinum* provided by Jørgensen (2007) who also concurred with its determination (P.M. Jørgensen, pers. comm.).

Cape Gantheaume Conservation Park, c. 2 km S of entrance, 36°00’S 137°36’E, 1982, *K. Stove* 1490 (AD).

*sLeptogium crispatellum* Nyl.
On soil, leaf litter and the bases of trees and shrubs in moist, sheltered habitats. Characterised by the non-wrinkled, lead-grey to brown-grey lobes with numerous lobules and squamiform isidia, the red-brown, concave to plane apothecia to 1–2 mm wide, and the ellipsoid, submuriform ascospores, 16–26 × 8–10 µm, with 4–5 transverse and 0–1 longitudinal septa; some specimens have a patchy, sparse tomentum of silky white hairs on the underside.


*Lichina intermedia* (C.Bab.) M.Schultz
On intertidal rocks, forming black tufts or swards of rather knobbly, terete, olive-black, shrubby lobes to c. 10 mm tall and 0.3 mm thick. In the Australasian region, this widespread species was traditionally referred to under the cosmopolitan name *L. confinis* (O.F. Müll.) C.Agardh. Recent research by Schultz (2017) indicates that it is a distinct taxon. Fig. **51**.


**Leptogium schraderi** (Bernh.) Nyl.
On sandy soil in gaps of coastal *Melaleuca* woodland. This is the first Australian record of this inconspicuous species that is widespread in the Northern Hemisphere. It has the following salient characters: thallus forming tufts or sparse swards a few centimetres wide, comprised of ascending to erect lobes arising from an inconspicuous, squamulose primary thallus; lobes to 2.5 mm tall, unevenly 0.3–0.7 mm wide, rather glossy dark reddish brown, intensely wrinkled and furrowed, beset with scattered, black, glossy, subglobose isidia, 50–200 µm diam. The single, small specimen seen is sterile. Otálora *et al.* (2014) include this species in the reinstated genus *Scytinium*.

North Cape Road, 35°36’S 137°35’E, 5 m alt., 2013, *G. Kantvilas* 254/13 & *B. de Villiers* (HO).

**Lichina intermedia** (C.Bab.) M.Schultz
On intertidal rocks, forming black tufts or swards of rather knobly, terete, olive-black, shrubby lobes to c. 10 mm tall and 0.3 mm thick. In the Australasian region, this widespread species was traditionally referred to under the cosmopolitan name *L. confinis* (O.F. Müll.) C.Agardh. Recent research by Schultz (2017) indicates that it is a distinct taxon. Fig. **51**.


**Megalaria grossa** (Pers. ex Nyl.) Hafellner
Epiphytic in damper microhabitats, especially on soft, thick bark, such as on the bases of eucalypts and on *Melaleuca*. Characterised by an effuse, smooth to rather warty thallus with black, lecideine apothecia, typically with a plane disc and persistent margin, and by the ellipsoid, 1-septate ascospores, 20–30 × 10–15 µm. In

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**Fig. 51.** *Lichina intermedia* habit (A) and detail of lobes and apothecia (B). Scales = 2 mm. Photos: J. Jarman.
section, the epihymenium, hypothecium and inner and outer edges of the excipulum are pigmented intensely blue-black, N+ crimson (it is colourless within), features that distinguish this species from other, superficially similar members of the genus (Kantvilas 2016b). Fig. 52.

Dudley Peninsula, 35°50’S 138°05’E, 100 m alt., 1985, J.A. Elix 19704 & L.H. Elix (CANB); D’Estrees Bay, 35°56’S 137°36’E, 2 m alt., 1985, J.A. Elix 19711 & L.H. Elix (CANB); Ravine des Casoars, 35°48’S 136°37’E, 20 m alt., 1985, J.A. Elix 19732 & L.H. Elix (CANB); adjacent to Eleanor River, 35°59’S 136°50’E, 50 m alt., 2007, R.W. Rogers 11488 p.p. (HO); c. 2.5 km SW of Cape St Albans, 35°49’S 138°07’E, 120 m alt., 2011, G. Kantvilas 285/11, 290/11 & B. de Villiers (HO); Brown Beach, 35°48’S 137°50’E, 10 m alt., 2012, G. Kantvilas 431/12 & B. de Villiers (HO); Creek Bay Farm, 35°50’S 138°06’E, 85 m alt., 2013, G. Kantvilas 377/13 (HO); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 325/15 (AD, HO); South West River, 36°01’S 136°52’E, 10 m alt., 2015, G. Kantvilas 420/15 (AD, HO).

Menegazzia caesiopruinosa P.James

Widely scattered and locally common, especially on understorey trees such as Exocarpos and Allocasuarina, mostly in denser, taller or moister woodland. Recognised by the grey foliose thallus containing the stictic acid chemosyndrome, with round holes in the upper surface, and with soralia that form on helmet-shaped vesicles. Fig. 53.

Approx. 0.75 km SE of Amen Corner, 35°41’S 137°12’E, 1982, K. Stove 1780 p.p. (AD); Bunker Hill, 7 km NE of

Fig. 52. Megalaria grossa. Scale = 2 mm. Photo: J. Jarman.

Fig. 53. Menegazzia caesiopruinosa. Scale = 5 mm. Photo: B. de Villiers.
Cape de Couedic, 36°01'S 136°44'E, 100 m alt., 1994, H. Streimann 54991 (CANB); Kelly Hill Caves, 35°58'S 136°54'E, 1994, P.C. Heyligers L257 (CANB); c. 2 km W of South West River, 35°59'S 136°50'E, 50 m alt., 2007, R.W. Rogers 11507, 11508 (BRI, HO); Red House Bay, 35°49'S 138°06'E, 10 m alt., 2010, G. Kantvilas 177/10 (AD, HO); Cape Borda lighthouse cemetery, 35°45'S 136°38'E, 90 m alt., 2010, G. Kantvilas 191/10 (HO); c. 2.5 km SW of Cape St Albans, 35°49'S 138°07'E, 100 m alt., 2010, G. Kantvilas 200/10 (AD, HO); Lades Road, 35°52'S 137°30'E, 30 m alt., 2011, G. Kantvilas 318/11 (AD, HO); Rocky River, 35°57'S 136°40'E, 35 m alt., 2015, G. Kantvilas 545/15 (HO).

**Micarea denigrata (Fr.) Hedl.**
A species of dead, bleached eucalypt wood, characterised by a grey-green areolate thallus that contains gyrophoric acid, apothecia with a grey, C+ violet, brown epilayers, and 0–1-septate ascospores that are 10–12 × 3–4 µm and sometimes a little curved (Czarnota 2007; Coppins 2009).

Antechamber Bay, near The Kona, 35°49'S 138°05'E, 20 m alt., 2010, G. Kantvilas 207/10 (AD, HO); Billygoat Falls, 35°42'S 136°55'E, 200 m alt., 2012, G. Kantvilas 584/12 & B. de Villiers (AD, HO).

**Micarea globulosella (Nyl.) Coppins**
On fragments of eucalypt wood in a sheep paddock. Characterised as follows: thallus subsquamulose-areolate, dull olive-grey, C+ red in section; photobiont cells 5–10 µm; apothecia black, subglobose, to 0.3 mm wide, C+ red in section, with the epilayers K+, C+ violet; ascospores fusiform, 1–3 (7)-septate, 15–28 × 2.5–3 µm; macroconidia curved, 18–23 × 1–1.5 µm (for additional descriptive data, see Czarnota 2007 and Coppins 2009). The thallus of the Kangaroo Island specimen is rather better developed than is usual in this species.

Creek Bay Farm, 35°50'S 138°05'E, 65 m alt., 2013, G. Kantvilas 363/15 (AD, HO).

**Micarea kartana Kantvilas & Coppins**
On a rotted, charred eucalypt log in dry sclerophyll forest. This species is a member of the *M. prasina* complex and is characterised by a goniocyst-like thallus that contains glyrophoric acid (C+ red) and *sedifolia*-grey pigment (C+ violet), grey to blackish apothecia steeped in a unique olivaceous pigment that reacts K–, N–, C+ yellowish brown, and 0–1-septate ascospores, 10–14 × 4–5.5 µm (Kantvilas 2018d). It is known only from the type locality. Fig. 54A.
Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 338/15 [type], 337/15 (AD, E, HO).

*Micarea melaneida* (Nyl.) Coppins
On consolidated soil in mallee woodland, growing amongst the squamules of *Psora decipiens*. Characterised by a rather scurfy, granular, inconspicuous thallus with photobiont cells 4–7 µm diam., black, convex apothecia, internally pigmented red-brown, K*+* intensifying, N*+* orange-red, most intensely so in the hypothecium and ephymenium but only dilutely in the hymenium, and broadly ellipsoid, 1-septate ascospores, 9–12 × 5–6 µm; no pycnidia were observed.

Lashmar Conservation Park, c. 2 km S of Cape Couurts, 35°47’S 138°04’E, 50 m alt., 2015, G. Kantvilas 429/15 & B. de Villiers (HO).

*Micarea micrococca* (Körb.) Gams ex Coppins aggr.  
Collected from the very dry bark of an old, fissured *Callitris* trunk in a small remnant stand of coniferous coastal woodland. This is a remarkable record for Kangaroo Island of a widespread ‘old forest’ species. It is characterised by a granular-leprose, green thallus containing methoxymicareic acid (C–), and typically internally unpigmented, immarginate apothecia with 0–1-septate ascospores, which, in the Kangaroo Island specimen, are 7–9 × 3–3.5 µm. Further descriptive data for this complex and variable taxon are given by Coppins (2009), Kantvilas (2018d) and Launis et al. (2019). Fig. 54B.

Brown Beach, 35°48’S 137°30’E, 10 m alt., 2012, G. Kantvilas 437/12 & B. de Villiers (AD, HO).

*Monerolechia badia* (Fr.) Kalb
On rocks in coastal and open woodland habitats. Although commonly keyed out as being parasitic on other lichens (e.g. Elix et al. 2017), in my experience, this species occurs mostly independently and is characterised by a brown or brownish grey, squamulose thallus lacking lichen substances, black apothecia with a carbonised excipulum, *Lecanora*-type asci and relatively small, *Buellia*-type ascospores, 9–15 × 5–8 µm, and bacilliform conidia, 3–5 × 0.5–1.5 µm (Elix 2015).

Fig. 55. *Mycocalicium victoriae*. Scale = 1 mm. Photo: J. Jarman.

Bilbygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 761/12 & B. de Villiers (HO); northern end of Antechamber Bay, 35°46’S 138°04’E, 5 m alt., 2013, G. Kantvilas 267/13 (HO); Rocky River, 35°57’S 136°40’E, 35 m alt., 2015, G. Kantvilas 544/15 (HO).

On bleached eucalypt wood. This species is non-lichenised but it is frequently included in lichen checklists on account of its close ecological relationship and morphological similarity to lichenised calicioid genera such as *Calicium* and *Chaenotheca*. It is characterised by shiny, dark reddish black, stalked mazaedia to c. 1 mm tall, with a cellular excipulum and brown, simple, ellipsoid ascospores, 6–8 × 3–3.5 µm. This species is separated from the very similar *M. albonigrum* (Nyl.) Tibell by having the central part of the stalk composed of interwoven, hyaline (rather than dark brownish or greenish) hyphae (Tibell 1987). Fig. 55.

West Bay, 15 km SSW of Cape Borda, 35°53’S 136°33’E, 40 m alt., 1994, H.T. Lumbsch 10918, A. Dickhäuser & H. Streimann (CANB); mouth of De Mole River, 18 km SSE of Cape Borda, 35°43’S 136°46’E, 20 m alt., 1994, H. Streimann 55128 (AD, CANB); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 345/15 (AD, HO, UPS); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 30 m alt., 2015, G. Kantvilas 485/15 (AD, HO).

*Notocladosia cochleata* (Müll.Arg) S.Hammer
On consolidated soil in mallee woodland. The single specimen seen is extremely juvenile and comprised of basal squamules with incipient podetia, but its identity was confirmed by the presence of usnic and divicaric acids. Until the work of Hammer (2003), this characteristically Australasian lichen was included in the Neotropical genus *Ramatea* Nyl.

Beyeria Conservation Park, 35°47’S 137°36’E, 50 m alt., 2013, G. Kantvilas 228/13A & B. de Villiers (HO).

*Notoparmelia erumpens* (Kurok.) A.Crespo, Ferencova & Divakar
On rocks in dry sclerophyll forest. This grey, foliose species is easily recognised by its laminal, coarse, granular pseudocyphellae, and by the presence of salazinic acid (medulla K*+* yellow-red). It is unusual that this is the only species of this large genus to have been recorded from the island. Until recently, it was included in the genus *Parmelia* (Ferencova et al. 2014). Fig. 56.

Mouth of De Mole River, 18 km SSE of Cape Borda, 35°43’S 136°46’E, 20 m alt., 1994, H. Streimann 55091 (CANB); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 2 m alt., 2013, G. Kantvilas 328/13 & B. de Villiers (HO).

*Ochrolechia africana* Vain.
On *Melaleuca* trunks in swampy woodland and saltmarsh. The specimens from Kangaroo Island of this non-sorediate, fertile species contain gyrophoric acid only.

Western Cove Road, 35°54’S 137°35’E, 2 m alt., 2011, G. Kantvilas 306/11 (AD, HO); Chapman River, 35°48’S
Ochrolechia gyrophorica (A.W.Archer) A.W.Archer & Lumbsch

On the bark and wood of older trees, especially on the basal, rough-barked stockings of eucalypts. This species is characterised by a white, sorediate thallus containing gyrophoric acid, sometimes with additional traces of 5–O–methylhiascic acid, by the 6 (–8)-spored asci and the large ascospores, 30–60 × 20–30 µm. Most of the specimens seen are sterile.

Ravine des Casoars, 35°48’S 136°37’E, 20 m alt., 1985, J.A Elix 19735 & L.H. Elix (CANB); Waterfall Creek, 30 km ENE of Cape Borda, 35°42’S 136°54’E, 140 m alt., 1994, H.T. Lumbsch 10908b, A. Dickhäuser & H. Streimann (CANB); West Bay, 15 km SSW of Cape Borda, 35°53’S 136°33’E, 40 m alt., 1994, H.T. Lumbsch 10917, A. Dickhäuser & H. Streimann (CANB); 1 km S of Rocky River Settlement, 35°57’S 136°44’E, 70 m alt., 1994, H. Streimann 55010A (CANB); Creek Bay Farm, headwaters of Lubra Creek, 35°49’S 138°06’E, 40 m alt., 2011, G. Kantvilas 375/11, 376/11, 377/11 (AD, HO); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 587/12, 774/12 & B. de Villiers (AD, HO); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 319/15, 348/15 & B. de Villiers (AD, HO); c. 1 km SSW of Kelly Hill Caves, 36°00’S 136°54’E, 40 m alt., 2015, G. Kantvilas 356/15 & B. de Villiers (AD, HO); South West River, 36°01’S 136°52’E, 10 m alt., 2015, G. Kantvilas 424/15 (HO).

Ochrolechia insularis Kantvilas & Elix

Known only from Kangaroo Island, where it is very localised on large granite boulders along the cliff edge at Cape Willoughby (see Lumbsch et al. 2011). I have

Fig. 56. Notoparmelia erumpens. A Habit. B Detail, showing the coarse, laminal, granular soredia. Scale = 10 mm. Photos: J. Jarman.

Fig. 57. Ochrolechia insularis. A General habit, growing on a coastal granite boulder. B Detail of the nodulose, plicate thallus. Scale = 2 mm. Photo (B): J. Jarman.
sought for it elsewhere on the island without success. This species is not known to have apothecia and has a nodulose, papillose or plicate thallus containing gyrophoric acid (C+ red). It is rather similar to *O. apiculata* Verseghy, which is very common and widespread on coastal rocks in south-eastern Australia and Tasmania, but which, curiously, has not been recorded from Kangaroo Island. That species differs chiefly by being abundantly fertile and having a rimose-areolate to verruculose thallus (see McCarthy et al. 2017).

Fig. 57.

Cape Willoughby, 35°50’S 138°08’E, 50 m alt., 2008, G. Kantvilas 332/08 (AD, HO); same locality, 2009, G. Kantvilas 367/09 (AD, CANB, HO) [type].

*B* *Opegrapha atra* Pers.

Found mostly on smooth-barked twigs and trunks in mallee, dry sclerophyll forest and *Callitris* woodland. The general habit, the K+ olive-green excipulum, and the 3-septate ascospores, 12–19 × 3–5 µm, all accord with the cosmopolitan species *O. atra* (see Pentecost & James 2009), but the conidia are variable, suggesting that more than one taxon is represented: in specimens from eucalypts, they are distinctly curved, 5–8 × 1–1.5 µm; in one specimen from coastal Myoporum, they are straight and 6–8 × 2 µm; whereas in a specimen from *Callitris* they are bacilliform and 4–6 × 0.7–1 µm. Phylogenetic research (Ertz et al. 2009) indicates that *Opegrapha* in the traditional sense is polyphyletic, necessitating the transfer of some species to other genera, notably of *O. atra* to *Arthonia*. However, pending a review of all Australian taxa, I have elected to retain the genus *Opegrapha* in its broader sense.

Fig. 58A.

Approx. 2.5 km SW of Cape St Albans, 35°49’S 138°07’E, 100 m alt., 2010, G. Kantvilas 204/10 (AD, BR, HO); Beyeria Conservation Park, 35°47’S 137°36’E, 50 m alt., 2010, G. Kantvilas 218/10 (AD, BR, HO); northern end of Antechamber Bay, 35°47’S 138°04’E, 10 m alt., 2012, G. Kantvilas 508/12 (AD, HO); Strawbridge Point, 35°47’S 137°47’E, 5 m alt., 2012, G. Kantvilas 545/12 & B. de Villiers (AD, HO); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 782/12 (HO); Red House Bay, 35°49’S 138°06’E, 15 m alt., 2013, G. Kantvilas 320/13 (HO); near Kingscote Airport along Aranmore Road, 35°43’S 137°33’E, 5 m alt., 2015, G. Kantvilas 499/15 & B. de Villiers (HO).

*B* *Opegrapha dolomitica* (Arnold) Clauzade & Cl.Roux

In sheltered, moist underhangs on coastal limestone. Characterised by the black, contorted, sulcate lirellae, the K– excipulum, the hyaline, 3-septate ascospores, 16–22 × 4–6 µm, and the bacilliform conidia, 4–6 × 0.8 µm. The ascospores are somewhat shorter than cited in European floras (Pentecost & James 2009).

Fig. 58B.

West Bay, 35°53’S 136°33’E, 3 m alt., 2011, G. Kantvilas 293/11 (AD, BR, HO); Ravine des Casoars, 35°48’S 136°48’E, 2 m alt., 2012, G. Kantvilas 452/12 & B. de Villiers (AD, HO); Point Ellen, 36°00’S 137°11’E, 5 m alt., 2013, G. Kantvilas 216/13 (AD, HO).

*B* *Opegrapha niveoatra* (Borrer) Laundon

On wood and bark in woodland. Characterised by the mostly simple, straight or curved lirellae, 0.4–1 mm long, with a black excipulum, K+ olive in section, and the (3–) 7-septate ascospores, 22–40 × 3.5–4 µm; black, speck-like pycnidia are usually abundant, and two types of conidia have been observed: curved, 7–9 × 1–1.5 µm; and ellipsoid, 4–5 × 1.5–2 µm.

Approx. 2.5 km SW of Cape St Albans, 35°49’S 138°07’E, 120 m alt., 2011, G. Kantvilas 284/11 & B. de Villiers (BR, HO); Chapman River, 35°48’S 138°04’E, 10 m alt., 2012, G. Kantvilas 399/12 & B. de Villiers (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 30 m alt., 2015, G. Kantvilas 486/15 (HO).

*B* *Opegrapha rupestris* Pers.

Occurring as a parasite on *Verrucaria muralis* on limestone; the tiny, black lirellae occur in clusters amongst the black perithecia of the *Verrucaria*. Although somewhat similar to *O. calcarea* Turn. ex Sm., *O. rupestris* differs by lacking a *Trentepohlia* photobiont,

Fig. 58. A *Opegrapha atra*. B *Opegrapha dolomitica*. Scales = 2 mm. Photos: J. Jarman.
and by having an exciple that is K+ brownish black, and 3-septate ascospores, 17–21 × 6–8 µm, that become brownish grey when older.

Flour Cask Bay, 2013, A. Wells s.n. (HO).

*Opegrapha spodopilia* Nyl.

In shaded underhangs on non-calcareous, coastal rocks. Hitherto recorded only from New Zealand (Galloway 2007), this species is characterised by a scaly thallus lacking lichen substances, simple, stellate to contorted lirellae, 0.5–0.8 mm long, with an open base and a K+ olive excipulum, a hymenium inspersed with oil droplets, fusiform, 4–6-septate ascospores, 20–30 × 5–7 µm, with the cells ± equal, and rod-shaped conidia, 5–7 × 0.5–1 µm. The Kangaroo Island specimens have been compared with Nylander’s type specimen (in H).

Mouth of De Mole River, 18 km SSE of Cape Borda, 35°43’S 136°46’E, 20 m alt., 1994, H. Streimann 55068 (AD, CANB); Rocky River, 35°58’S 136°39’E, 10 m alt., 2015, G. Kantvilas 512/15, 515/15 & B. de Villiers (AD, HO).

*Opegrapha varia* Ach. sens. lat.

On wood and bark in coastal *Melaleuca* woodland. Characterised by the simple or forked, often rather short and ellipsoid lirellae in which the black disc is frequently exposed, the K+ brown excipulum, the fusiform 4–6-septate ascospores, 18–38 × 6–8 µm, in which the central cell is noticeably enlarged, and the bacilliform to fusiform conidia, 4–5 × 0.5–1.5 µm.

Chapman River estuary, 35°50’S 138°05’E, 3 m alt., 1985, J.A. Elix 19690 & L.H. Elix (CANB); West Bay, 15 km SSW of Cape Borda, 35°53’S 136°33’E, 40 m alt., 1994, H.T. Lumbsch 10920d, 10920f, A. Dickhäuser & H. Streimann (CANB); Pelican Lagoon, 35°49’S 137°48’E, 10 m alt., 2012, G. Kantvilas 411/12 & B. de Villiers (AD, HO); Ravine des Casoars, 35°48’S 136°35’E, 15 m alt., 2012, G. Kantvilas 489/12 & B. de Villiers (AD, HO); Hanson Bay Track, c. 1 km SW of Grassdale Lagoon, 36°00’S 136°52’E, 50 m alt., 2015, G. Kantvilas 300/15 & B. de Villiers (HO).

**Pannaria obscura** Müll.Arg.

Locally abundant on bark, especially in older mallee eucalypts. This attractive, small, grey, foliose species is one of relatively few cyanolichens recorded for the island. Its presence is often an indicator of a habitat that potentially supports other unusual or uncommon lichens. **Fig. 59.**

Bunker Hill, 36°01’S 136°44’E, 1982, K. Stone 1603 (AD); Rocky River, 4 km W of Rocky River Homestead, 35°57’S 136°42’E, 50 m alt., 1985, J.A. Elix 19621 & L.H. Elix (CANB); D’Estrees Bay, 35°56’S 137°36’E, 2 m alt., 1985, J.A. Elix 19712 & L.H. Elix (CANB); West Bay, 35°53’S 136°33’E, 40 m alt., 1994, H.T. Lumbsch 10920a, A. Dickhäuser & H. Streimann (CANB); same locality, 1994, H. Streimann 55022 (CANB); same locality, 2011, G. Kantvilas 294/11 (AD, HO); 7 km NE of Cape Coudedic, 36°01’S 136°44’E, 100 m alt., 1994, H. Streimann 54992 (AD, CANB); 24 km SSW of Cape Borda, 35°57’S 136°39’E, 40 m alt., 1994, H. Streimann 55048 (AD, CANB); Cape du Coudedic Road, 35°56’S 136°45’E, 100 m alt., 2007, R.W. Rogers 11494, 11496 (BRI); c. 2 km W of South West River, 35°59’S 136°50’30’E, 50 m alt., 2007, R.W. Rogers 11495 (BRI); Moffatt Road, 35°49’S 138°00’E, 70 m alt., 2011, G. Kantvilas 252/11 & B. de Villiers (HO); Laslamar Lagoon, 35°49’S 138°04’E, 10 m alt., 2011, G. Kantvilas 277/11 & B. de Villiers (HO); Brown Beach, 35°48’S 137°50’E, 10 m alt., 2012, G. Kantvilas 419/12 & B. de Villiers (AD, HO); Red House Bay, 35°49’S 138°06’E, 15 m alt., 2013, G. Kantvilas 314/13 (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 3 m alt., 2013, G. Kantvilas 341/13 & B. de Villiers (AD, HO); South West River, 36°01’S 136°52’E, 10 m alt., 2015, G. Kantvilas 418/15 (AD, HO).

*Paraporpidia glauca* (Taylor) Rambold

On consolidated soil in gaps in mallee woodland, where it forms a thick, glaucous grey crust, associated with species of *Psora* and *Diploschistes*. All Kangaroo Island specimens seen are sterile and their identification is based on thallus morphology, habitat ecology and chemical composition (2’-O-methylperlatolic or confluentic acids).

Willson River Road, 35°50’S 138°01’E, 30 m alt., 2011, G. Kantvilas 248/11 (HO); Beyeria Conservation Park, 35°47’S 137°36’E, 50 m alt., 2013, G. Kantvilas 228/13 & B. de Villiers (AD, HO); Laslamar Conservation Park, c. 2 km S of Cape Coutts, 35°47’S 138°04’E, 50 m alt., 2015, G. Kantvilas 434/15 & B. de Villiers (HO); near Kingscote Airport along Aranmore Road, 35°42’S 137°32’E, 5 m alt., 2015, G. Kantvilas 501/15 & B. de Villiers (HO).
**Paraporpidia leptocarpa** (C.Bab. & Mitt.) Rambold & Hertel
Locally abundant on exposed non-calcareous rocks, mainly in more inland areas in dry sclerophyll forest. Although seemingly very well-developed, with a thick, glaucous grey crustose thallus containing 2'-O-methylperlatolic or confluentic acids, and with abundant, plane, black apothecia, none of the many specimens studied has mature ascospores or asci. 

Fig. 60.

S of Wisanger Hills Homestead, 7 km WSW of Emu Bay, 35°37'S 137°27'E, 80 m alt., 1985, J.A. Elix 19639, 19642 & L.H. Elix (CANB); Ballast Head, American River, 35°45'S 137°48'E, 1986, D.N. Kraehenbuehl s.n. (MEL); along banks of Middle River, 35°44'S 137°04'E, 1989, D.N. Kraehenbuehl 5161 (AD); near Bark Hut Road, 33 km WSW of Kingscote, 35°43'S 137°16'E, 160 m alt., 1994, H. Streimann 54880, 54954 (CANB); Cygnet River, Stokes Bay Road, 41 km WSW of Kingscote, 35°44'S 137°13'E, 110 m alt., 1994, H. Streimann 54887, 54890, 54891, 54892, 54893, 54894, 54955 (AD, CANB); Ravine des Casoars, 35°48'S 136°37'E, 70 m alt., 1994, H. Streimann 54959 (CANB); mouth of De Mole River, 18 km SSE of Cape Borda, 35°43'S 136°46'E, 20 m alt., 1994, H. Streimann 55071, 55105 (CANB); Binygool Falls, 35°42'S 136°55'E, 200 m alt., 2012, G. Kantvilas 550/12 & B. de Villiers (AD, HO); Cannery Walking Track, American River, 2013, A. Wells s.n. (HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46'S 137°48'E, 5 m alt., 2013, G. Kantvilas 3326/13 & B. de Villiers (HO).

**Parmotrema cetratum** (Ach.) Hale
On rocks in dry sclerophyll forest. Characterised by broadly rounded, non-sorediate, grey lobes to 15 mm wide, with a reticulately maculate upper surface, black underside and conspicuous, marginal cilia; it contains salazinic acid (medulla K+ yellow→red). Fig. 61A.

**Parmotrema cooperi** (J.Steiner & Zahlbr.) Sérus.
A conspicuous and highly attractive, large, grey, foliose lichen with a C+ red medulla, found on bark or rocks in moist woodland habitats.

American River, 35°46’S 137°47’E, 2007, R.W. Rogers 11500 (BRI); Lashmar Lagoon, 35°49’S 138°04’E, 10 m alt., 2011, G. Kantvilas 262/11, 274/11 & B. de Villiers (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 3 m alt., 2013, G. Kantvilas 329/13 & B. de Villiers (HO).

**Parmotrema neopustulatum** Kurok.
On rocks in dry sclerophyll forest; more rarely on bark. This species is similar to *P. reticulatum* (below) but differs in having a rather wrinkled and flaking upper surface and coarse soredia that often become ± corticate.
Chapman River estuary, 35°50’S 138°05’E, 3 m alt., 1985, J.A. Elix 19691, 19696 & L.H. Elix (CANB); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 549/12 & B. de Villiers (AD, HO); northern end of Antechamber Bay, 35°46’S 138°04’E, 5 m alt., 2013, G. Kantvilas 263/13 (HO); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 314/15 (AD, HO).

*Parmotrema ochrocrinitum* Elix & J.Johnst.

Occasional on trees, especially in *Callitris* woodland and swampy *Melaleuca* woodland. This attractive, grey, foliose lichen has very distinctive ciliate isidia and contains an orange, K+ purple pigment (in addition to stictic acid and associated substances) that is visible in areas where the black undersurface has been torn or abraded. Fig. 61B.

Lashmar Lagoon, 35°48’S 138°04’E, 10 m alt., 2011, G. Kantvilas 260/11 & B. de Villiers (HO); Western Cove Road, 35°44’S 137°35’E, 2 m alt., 2011, G. Kantvilas 304/11 (AD, HO); Pelican Lagoon, 35°49’S 137°48’E, 10 m alt., 2012, G. Kantvilas 408/12 & B. de Villiers (HO); Brown Beach, 35°48’S 137°50’E, 10 m alt., 2012, G. Kantvilas 420/12 & B. de Villiers (AD, HO); Red House Bay, 35°49’S 138°06’E, 15 m alt., 2013, G. Kantvilas 313/13, 317/13, 318/13 (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 3 m alt., 2013, G. Kantvilas 343/13 & B. de Villiers (AD, HO); Pelican Lagoon Conservation Park, along Mitchell Drive, 35°48’S 137°48’E, 10 m alt., 2015, G. Kantvilas 309/15 (HO).

*Parmotrema perlatum* (Huds.) M. Choisy

On trees, shrubs and rocks in woodland. This common, large, grey, foliose lichen is easily recognised by its broadly rounded lobes (to 8 mm wide) with conspicuous marginal cilia, linear to oval marginal soralia on the tips of upturned lobes, and the presence of stictic acid (medulla K+ yellow). Fig. 62.

Near American River, 35°47’S 137°46’E, 1962, M. McKay s.n. (AD); E of Penneshaw on Willoughby Road, 35°45’S 137°58’E, 2007, R.W. Rogers 11499 (BRI); American River, 35°46’S 137°47’E, 2007, R.W. Rogers 11501 (BRI); c. 2.5 km SW of Cape St Albans, 35°49’S 138°07’E, 120 m alt., 2011, G. Kantvilas 287/11 & B. de Villiers (AD, HO); Western Cove Road, 35°44’S 137°35’E, 2 m alt., 2011, G. Kantvilas 303/11 (HO); American River, 35°49’S 138°06’E, 70 m alt., 2015, G. Kantvilas 504/15 (AD, HO).

*Parmotrema reticulatum* (Taylor) M. Choisy

A widespread and rather common grey foliose species on trees and rocks, recognised by broadly rounded, loosely attached lobes with a network of fine cracks on the upper surface, usually prominently ciliate margins, and linear margarol. It is most easily confused with *P. perlatum*, from which it differs by containing salazinic acid (medulla K+ yellow→red). Fig. 63.

Chapman River estuary, 35°50’S 138°05’E, 3 m alt., 1985, J.A. Elix 19691, 19696 & L.H. Elix (CANB); Waterfall Creek, 30 km ENE of Cape Borda, 35°42’S 136°54’E, 140 m alt., 1994, H. Streimann 54939 (CANB); mouth of De Mole River, 18 km SSE of Cape Borda, 35°43’S 136°46’E, 20 m alt., 1994, H. Streimann 55061, 55063, 55065 (AD, CANB); Billygoat Gully, Western River Conservation Park, 35°41’S 136°54’E, 1995, P.C. Heyligers L258 (CANB); E of Penneshaw, 35°43’S 137°57’E, 1997, R.I. Bates 48403 (AD); American River, 35°46’S 137°47’E, 2007, R.W. Rogers 11497 (BRI); Lashmar Lagoon, 35°48’S 138°04’E, 10 m alt., 2012, G. Kantvilas 259/11 & B. de Villiers (AD, HO); Strawbridge Point, 35°47’S 137°47’E, 5 m alt., 2012, G. Kantvilas 539/12 & B. de Villiers (HO).
**Pertusaria albissima Müll.Arg.**  
On *Melaleuca* in mallee woodland. This rare species is characterised by a whitish crustose thallus, rather flattened, verruciform apothecia, 8-spored asci and large ascospores, 50–74 × 20–30 µm. The absence of lichen substances best distinguishes it from the common *P. pertractata*.

Grassdale Lagoon, 36°00′S 136°53′E, 20 m alt., 2015, G. Kantvilas 317/15 & B. de Villiers (HO).

**Pertusaria crassilabra Müll.Arg.**  
= *Pertusaria melanopora var. sorediata* Elix & A.W. Archer  
On coastal rocks. Characterised by a dull yellowish, C+ orange thallus with sparse, coarse soredia, verruciform apothecia with conspicuous, usually gaping, black ostioles, and brownish to blue-grey ascospores, 40–76 × 24–42 µm (Kantvilas 2018b). One collection (*Streimann 55087*) is infected with the lichenicolous fungus *Skyttea mayrhoferi* Diederich & Etayo. **Fig. 64.**

Hog Bay, Penneshaw, 35°43′S 137°56′E, 2 m alt., 1985, J.A. Elix 19682 & L.H. Elix (CANB); same locality, 15 m alt., 1994, H. Streimann 54865, 54868 (AD, CANB); mouth of De Mole River, 18 km SSE of Cape Borda, 35°43′S 136°46′E, 20 m alt., 1994, H. Streimann 55087 (CANB); Cape St Albans, 35°48′S 138°07′E, 20 m alt., 2010, G. Kantvilas 176/10 (AD, HO) [type of *P. melanopora var. sorediata*]; Windmill Bay, 35°51′S 138°07′E, 20 m alt., G. Kantvilas 469/12 (AD, HO); c. 3.5 km NE of Stokes Bay, 35°37′S 137°13′E, 50 m alt., 2012, G. Kantvilas 536/12 & B. de Villiers (AD, HO); Western River Cove, W end of beach, 35°40′S 136°58′E, 2 m alt., 2015, G. Kantvilas 413/15 & B. de Villiers (HO).

**Pertusaria krogiae** A.W. Archer, Elix, Eb.Fisch., Killman & Sérsus.  
Collected from a rotting log in degraded mallee woodland. Characterised by a white crustose thallus containing atranorin (sometimes with lichesterinic acid), and the roundish, tuberculate soralia. The relationships of this species in the light of the recent subdivision of *Pertusaria* (Wei et al. 2017) are yet to be determined. *Pertusaria krogiae* was first described from East Africa (Archer et al. 2009), and has also been collected in Tasmania (G. Kantvilas, unpubl. observations). Chemical characters are the most reliable means of distinguishing it from the morphologically very similar *Lepra leucosorodes* (above).

Near Kingscote Airport, 35°43′S 137°32′E, 5 m alt., 2015, G. Kantvilas 495/15 & B. de Villiers (HO).

**Pertusaria lophocarpa** Körb.  
On rocks in dry sclerophyll forest. Characterised by the pale yellowish, crustose thallus containing 4,5-dichlorolichexanthone and 2′-O-methylperlatolic acid, with verruciform apothecia, 8-spored asci and ascospores 45–70 × 25–40 µm. **Fig. 65.**

Western River, 1972, R.D. Seppelt 820B (HO); Western River Road near Weir Cove, 36°02′S 136°44′E, 20 m alt., 1986, R.D. Seppelt 820B (HO); Western River, 1972, R.D. Seppelt 54963 (CANB); mouth of De Mole River, 18 km SSE of Cape Borda, 35°43′S 136°46′E, 20 m alt., 1994, H. Streimann 55082, 55085 (CANB); Billygoat Falls, 35°42′S 136°55′E, 200 m alt., 2012, G. Kantvilas 751/12 & B. de Villiers (AD, HO).

**Pertusaria pertractata** Stirt.  
Widespread on twigs and trunks of understory trees and shrubs in mallee woodland and dry sclerophyll forest. This is the most common epiphytic member of the large crustose genus *Pertusaria*. It has verruciform apothecia, 8-spored asci, ascospores c. 30–70 × 20–35 µm, and contains 4,5-dichlorolichexanthone and 2′-O-methylperlatolic acid. **Illustration:** Archer (2004: 103).

Corner of Playford Hwy, Birchmore Hwy and road to Kingscote aerodrome, 35°42′S 137°31′E, 1982, K. Stove 1789 p.p. (AD); 3 km E of Seal Bay, 36°00′S 137°21′E, 30 m alt., 1985, J.A. Elix 19588 & L.H. Elix (CANB); D’Estrees Bay, 35°36′S 137°36′E, 2 m alt., 1985, J.A. Elix 19710 & L.H. Elix (CANB); 1 km N of Flour Cask Bay, 35°52′S 137°42′E, 1986, D.N. Krachenbuehl s.n. p.p. (MEL 1052177); mouth of De Mole River, 18 km SSE of Cape Borda, 35°43′S 136°46′E, 20 m alt., 1994, H. Streimann 55116A (CANB); near mouth of Willson River, 35°52′S 137°56′E, 1997, R.J. Bates 48370 (AD); c. 2.5 km SW of Cape St Albans, 35°49′S 138°07′E, 120 m alt., 2011, G. Kantvilas 288/11 & B. de Villiers (HO);
Brown Beach, 35°48'S 137°50'E, 10 m alt., 2012, G. Kantvilas 427/12, 434/12 & B. de Villiers (AD, HO); Billygoat Falls, 35°42'S 136°55'E, 200 m alt., 2012, G. Kantvilas 576/12 & B. de Villiers (AD, HO); southern end of Antechamber Bay, 35°48'S 138°06'E, 10 m alt., 2013, G. Kantvilas 200/13 (HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46'S 137°48'E, 3 m alt., 2013, G. Kantvilas 335/13 & B. de Villiers (AD, HO); Ironstone Hills, 35°44'S 137°57'E, 70 m alt., 2015, G. Kantvilas 384/15 (HO).

\textit{sPhaeophyscia endococcinodes} (Poelt) Essl.

On rocks in rough pasture; very rare. This small, dark grey foliose lichen can be recognised by its bright orange, K+ purple underside.

Ironstone Hills, 35°44'S 137°57'E, 60 m alt., 2015, G. Kantvilas 384/15 & B. de Villiers (HO).

\textit{Physcia adscendens} (Fr.) H.Olivier

On trees or, more rarely, on rocks, usually in habitats subject to eutrophication such as in the vicinity of sheep paddocks. This cosmopolitan, foliose lichen with diagnostic, helmet-shaped soralia seems to be surprisingly uncommon on the island, even though its typical habitat (e.g. trees fringing pasture) is extremely common.

King George Beach, 35°40'S 137°04'E, 2 m alt., 1985, J.A. Elix 19752, 19758 & L.H. Elix (CANB); Chapman River estuary, 35°50'S 138°05'E, 3 m alt., 1985, J.A. Elix 19692 & L.H. Elix (CANB); Flinders Chase National Park, 35°51'S 136°52'E, 1995, P.C. Heyligers L256 (CANB); c. 2 km W of South West River, 35°59'30"S 136°50'30"E, 50 m alt., 2007, R.W. Rogers 11505 (BRI, HO); Cape Willoughby Road, 35°45'S 137°58'E, 2007, R.W. Rogers 11506 (BRI); Creek Bay Farm, headwaters of Lubra Creek, 35°49'3'13"S 137°38'40"E, 15 m alt., 2011, G. Kantvilas 1105/12, 1118/12, 1120/12 (BRI, HO); 3 km E of Seal Bay, 35°59'S 137°21'E, 30 m alt., 1985, J.A. Elix 19587 & L.H. Elix (CANB); Dudley

\textit{Physcia albata} (F.Wilson) Hale

On foreshore rocks; uncommon. A distinctive, grey foliose species with a pale underside, broadly rounded lobes and laminal soredia.

Western end of Antechamber Bay, 35°48'S 138°05'E, 2 m alt., 1985, J.A. Elix 19689 & L.H. Elix (CANB).

\textit{Physcia neonubila} Elix

Widespread on twigs and, more rarely, on rocks, and recognised by the small, grey foliose thallus of narrow lobes with marginal soralia and a pale underside. It contains the ‘speciosa’ chemosyndrome (Elix 2011), which distinguishes it from the superficially similar \textit{P. nubila} Moberg.

\textit{Physcia poncinsii} Hue

Widespread and common on twigs and trunks, especially in mallee and eucalypt woodland. This is the most common species of \textit{Physcia} on the island, easily recognised by its small foliose thallus with a pale undersurface and roundish, laminal, crater-like soralia.

\textbf{Fig. 65.} \textit{Pertusaria lophocarpa}. A Habit. B Detail. Scale = 5 mm.
Peninsula, 4 km W of Cape Willoughby, 35°50'S 138°05'E, 100 m alt., 1985, J.A. Elix 19701, 19702 & L.H. Elix (CANB); 1 km N of Flour Cask Bay, 35°52'S 137°42'E, 1986, D.N. Kraehenbuehl s.n. p.p. (MEL); adjacent to American River aerodrome, 35°46'S 137°46'E, 1986, D.N. Kraehenbuehl s.n. p.p. (MEL); adjacent to Eolian River, 3 km E of Little Sahara dunes, 35°57'S 137°17'E, 1989, D.N. Kraehenbuehl 5181 p.p. (AD); Cape Borda, 35°45'S 136°35'E, 100 m alt., 1994, H. Streimann 54902 p.p. (AD, CANB); Weir Cove, 36°03'S 136°43'E, 40 m alt., 1994, H. Streimann 54980 (CANB); Cape du Couedic Road, 35°46’S 137°47’E, 2007, R.W. Rogers 11504 (BRI); The Red Banks, 35°45’S 137°43’E, 2008, G. Kantvilas 327/08 (AD, HO); Cape Borda lighthouse cemetery, 35°45’S 136°38’E, 90 m alt., 2010, G. Kantvilas 192/10 (AD, HO); Murray Lagoon, Timber Creek, 35°55’S 137°26’E, 15 m alt., 2011, G. Kantvilas 340/11 & B. de Villiers (AD, HO); southern end of Antechamber Bay, 35°48’S 138°06’E, 10 m alt., 2013, G. Kantvilas 201/13 (HO); North Cape area, 3 km N of Cape Rouge, 35°35’S 137°38’E, 10 m alt., 2013, G. Kantvilas 247/13 (AD, HO).

Placidium pilosellum (Breuss) Breuss
On consolidated calcareous soil and soft, coarse-grained limestone in coastal heathland, mostly in sheltered crevices. The genus Placidium is distinguished from other squamulose members of the Verrucariaceae by having uniseriate, simple ascospores in cylindrical asci. Placidium pilosellum is distinguished from P. squamulosum (below) by having pycnidia that are marginal and protruding (rather than laminal and immersed) (Breuss 2001).

Stokes Bay, 35°34’S 137°13’E, 1972, R.D. Seppelt 751 (HO); Cape Du Couedic, 36°03’S 136°42’E, 80 m alt., 1985, J.A. Elix 19619 & L.H. Elix (CANB); Stokes Bay, 35°37’S 137°13’E, 50 m alt., 2012, G. Kantvilas 527/12 & B. de Villiers (HO); same locality, 2013, G. Kantvilas 391/15 & B. de Villiers (HO); Cape du Couedic Road, 35°46’S 138°07’E, 40 m alt., 2015, G. Kantvilas 343/15 (AD, HO).

Placidium squamulosum (Ach.) Breuss
On consolidated soil in a gap in mallee woodland, associated with Pora decipiens. The single specimen seen is sterile, and so the determination is tentative.

Lashamar Conservation Park, c. 2 km S of Cape Coufts, 35°47’S 138°04’E, 50 m alt., 2015, G. Kantvilas 433/15 & B. de Villiers (HO).

Placynthiella icmalea (Ach.) Coppins & PJames
On the bark of Exocarpos in dry sclerophyll forest. This species typically occurs on rotting logs, charcoal or on soil with a high organic content, so this Kangaroo Island record is unusual. The single specimen is sterile but nevertheless displays the characteristic granular-coralloid thallus that contains glyrophoric acid.

Rocky River near bridge on West Bay Road, 35°56’S 136°37’E, 10 m alt., 2015, G. Kantvilas 520/15 (HO).

Placynthium nigrum (Huds.) Gray sens. lat.
On outcrops of limestone in coastal heathland and rough pasture. The taxon recorded from Kangaroo Island (and also known from Tasmania) has a granular-isidiate thallus, lacks a prothallus and has exclusively

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Fig. 66. A Physcia ponceinii. B Physcia rolandii. Scales = 2 mm. Photos: J. Jarman.
1-septate ascospores, (9–) 10–13 × 6–7.5 (–8) μm, that are slightly constricted at the septum. Placynthium nigrum in the strict sense has 1–3-septate ascospores that are somewhat narrower (4–6 μm; McCarthy & Kantvilas 2014).

Cape Borda, 35°45’S 136°35’E, 100 m alt., 1994, H. Streimann 54956 (AD, CANB); track to Cape Gantheaume, 36°04’S 137°27’E, 2008, G. Kantvilas 321/08 (AD, HO); Ravine des Casoars, 35°48’S 136°35’E, 5 m alt., 2012, G. Kantvilas 453/12 & B. de Villiers (AD, HO); Point Ellen, 36°00’S 137°11’E, 5 m alt., 2013, G. Kantvilas 214/13 (AD, HO).

Polymeridium catapastum (Nyl.) R.C.Harris
An inconspicuous pyrenocarpous crustose lichen found on wood and bark in pasture, mallee woodland and dry sclerophyll forest. It has Trentepohlia as the photobiont, branched and anastomosing paraphysoids and 3-septate ascospores, 20–32 × 5–10 μm. Approx. 2.5 km SW of Cape St Albans, 35°49’S 138°07’E, 100 m alt., 2010, G. Kantvilas 202/10 (HO); Pelican Lagoon, 35°49’S 137°48’E, 10 m alt., 2011, G. Kantvilas 320/08 (AD, HO); Beyeria Conservation Park, 35°47’S 137°36’E, 50 m alt., 2013, G. Kantvilas 230/13 & B. de Villiers (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 5 m alt., 2013, G. Kantvilas 355/13 & B. de Villiers (HO).

Porina corrugata Müll.Arg.
A rather common species on the twigs of coastal shrubs, recognised by the conspicuous, lumpy, wrinkled, grey-green perithecia with 3-septate ascospores, 19–23 × 3–6 μm. Fig. 67.

Frank Potts Gully, 35°49’S 137°19’E, 40 m alt., 2013, G. Kantvilas 291/13 & B. de Villiers (HO).

Porina whinrayi P.M.McCarthy
On rocks in shaded underhangs. This species is typically found at the coast whereas the single Kangaroo Island specimen seen is from the hinterland, near the base of a waterfall. It is readily distinguished from other Australian, black-fruited Porina species by its submuriform ascospores.

Porina subargillacea Müll.Arg.
A tiny, inconspicuous, crustose lichen with black perithecia and 7–9-septate, fusiform ascospores, 28–57 × 2.5–5.5 μm, found on twigs in woodland where it is associated with Pertusaria pertractata, Buellia dissa and species of Caloplaca.

Corner of Playford Hwy, Birchmore Hwy and road to Kingscote aerodrome, 35°42’S 137°31’E, 1982, K. Stowe 1789 p.p. (AD); Creek Bay Farm, headwaters of Lubra Creek, 35°49’S 138°06’E, 40 m alt., 2011, G. Kantvilas 379/11A (HO); Red House Bay, 35°49’S 138°06’E, 15 m alt., 2013, G. Kantvilas 319/13 (HO).

Pseudocyphellaria aurata (Sm.) Vainio
Extremely rare, and known today from a single, small population on a few old eucalypt trunks in moist mallee.
This highly conspicuous species has a bright green, lettuce-like thallus with a yellow underside and yellow, chiefly marginal soredia. It was the focus of several intensive searches in moist woodland habitats. The record dating from 1978, presumably from the vicinity of Lashmar Lagoon on the Dudley Peninsula, could not be reconfirmed, although the area, which was searched thoroughly, supports highly degraded, swampy *Melaleuca* woodland where *P. aurata* might well have occurred in the past. This species was recently transferred to the genus *Crocodia* by Galloway & Elix (2013), but I have elected to retain it in *Pseudocyphellaria* here. 

**Fig. 68.** Dudley Peninsula, 1.5 km along Lagoon Road, 1978, E.M. Martin (AD); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 3 m alt., 2013, G. Kantvilas 342/13 & B. de Villiers (AD, HO).

**Pseudocyphellaria neglecta** (Müll.Arg.) H.Magn.

On rocks, usually in moist, shaded microhabitats. This is a conspicuous, brown foliose lichen with marginal and laminal phyllidia and yellow, punctiform pseudocyphellae. 

**Fig. 69.** Mouth of De Mole River, 18 km SSE of Cape Borda, 35°43’S 136°46’E, 20 m alt., 1994, H. Streimann 55070 (AD, CANB); same locality, 1994, H.T. Lumbsch 10922 (AD, CANB); Pink Bay, 35°50’S 138°07’E, 10 m alt., 2010, G. Kantvilas 210/10 (AD, HO); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 783/12 (AD, HO).

**Psora decipiens** (Hedw.) Hoffm.

On consolidated soil, typically calcareous soil in open areas, such as lightly grazed, rough pasture, amongst rocks in heathland or at the margins of mallee woodland. This species is very localised on the island. It is characterised by roundish, pink, orange or reddish brown, often at least partially pale grey-pruinose squamules to c. 5 mm wide, with usually upturned, ragged or crenulate margins and blackish, marginal, immarginate apothecia to 2 mm wide (see Timdal 2002). This is a very variable species chemically and morphologically. Specimens

**Psora crystallifera** (Taylor) Müll.Arg.

On consolidated soil, typically associated with *P. decipiens*, *Diploschistes* and other terricolous crustose species. It is recognised by the squamulose thallus in which the upper surface is deeply cracked into irregular polygons, and by the absence of lichen substances. 

**Illustration:** Eldridge & Tozer (1997: Fig. 4.18).

Near King George Beach, 35°39’S 137°07’E, 10 m alt., 2011, G. Kantvilas 331/11 & B. de Villiers (AD, HO).
from Kangaroo Island contain norstictic acid, or an unknown substance (that appears as a slow-moving yellow spot on developed TLC plates), or nil substances, sometimes within the same population. Fig. 70.

4 km S of Emu Bay, 1972, R.D. Seppelt 697 (HO); 1.6 km from Seal Bay, 1972, R.D. Seppelt 2027 (HO); [without locality] 2000, E. Hogan s.n. (MEL); Willson River Road, 35°50’S 138°01’E, 30 m alt., 2011, G. Kantvilas 247/11 (AD, HO); near King George Beach, 35°39’S 137°07’E, 10 m alt., 2011, G. Kantvilas 332/11 & B. de Villiers (AD, HO); Stokes Bay, 35°37’S 137°13’E, 50 m alt., G. Kantvilas 523/12, 524/12 & B. de Villiers (AD, HO); North Cape Road, 35°36’S 137°35’E, 5 m alt., 2013, G. Kantvilas 255/13, 256/13 & B. de Villiers (HO); Hanson Bay Track, c. 1 km S of Grassdale Homestead, 36°00’S 136°52’E, 5 m alt., 2015, G. Kantvilas 369/15 & B. de Villiers (AD, HO); Lashmar Conservation Park, c. 2 km S of Cape Couatts, 35°47’S 138°04’E, 50 m alt., 2015, G. Kantvilas 435/15 & B. de Villiers (HO); c. 1.5 km SW of Point Ellen, 36°00’S 137°11’E, 10 m alt., 2015, G. Kantvilas 436/15 (AD, HO); Rocky River Track, c. 1 km S of Snake Lagoon, 35°58’S 136°39’E, 50 m alt., 2015, G. Kantvilas 508/15 & B. de Villiers (AD, HO).

*Psorograena halmaturina* P.M. McCarthy & Kantvilas

Known only from Kangaroo Island, where it was collected from the base of eucalypts in roadside mallee, and from the twigs of *Melaleuca* in coastal woodland. At both locations, the habitat was highly degraded and fragmented. This remarkable species is recognised by its granular to squamulose thallus, thin, blackish perithecia c. 0.3 mm wide, and 7-septate ascospores. Illustration: McCarthy & Kantvilas (2013a: Fig. 1).

Moffatt Road, 35°49’S 138°00’E, 70 m alt., 2011, G. Kantvilas 253/11 & B. de Villiers (HO) [type]; Ravine des Casoars, 35°48’S 136°35’E, 15 m alt., 2012, G. Kantvilas 487/12 & B. de Villiers (AD, HO).

*Punctelia borleri* (Sm.) Krog

On eucalypt bark in mallee woodland. The sole Kangaroo Island record is a fragment of thallus, separated from a specimen of *Physcia neonubila*; it nevertheless displays the diagnostic features of a grey foliose thallus with punctiform pseudocyphellae, a black underside and a C+ red medulla.


*Punctelia pseudocoralloidea* (Gyeln.) Elix & Kantvilas

On bark and wood, mainly in mallee woodland and dry sclerophyll forest. In the past, all sorediate Australian specimens of *Punctelia* with a pale lower surface and a C+ red medulla would have been ascribed to *P. subrudecta* (Nyl.) Krog, a name based on a type specimen from the island of St Paul in the southern Indian Ocean. That species is now perceived to be heterogeneous (van Herk & Aptroot 2000). The *P. subrudecta* complex and the placement of Kangaroo Island specimens is yet to be fully resolved, but the name *P. pseudocoralloidea* is based on a type from mainland Australia. Fig. 71.

American River, 35°46’S 137°47’E, 2007, R.W. Rogers 11502 (BR); The Kona, Antechamber Bay, 35°49’S 138°05’E, 50 m alt., 2010, G. Kantvilas 196/10 (AD, HO); Lashmar Lagoon, 35°48’S 138°04’E, 10 m alt., 2011, G. Kantvilas 261/11, 268/11 & B. de Villiers (AD, HO); Brown Beach, 35°48’S 137°50’E, 10 m alt., 2012, G. Kantvilas 424/12 & B. de Villiers (HO); Billiggoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 573/12 & B. de Villiers (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 3 m alt., 2013, G. Kantvilas 344/13 & B. de Villiers (AD, HO); Pelican Lagoon Conservation Park, along Mitchell Drive, 35°48’S 137°48’E, 10 m alt., 2015, G. Kantvilas 310/15 (AD, HO).

*Punctelia subalbicans* (Stirt.) D.J. Galloway

On Allocasuarina in dry sclerophyll forest; seemingly very rare on the island. Characterised by the esorediate, grey, foliose thallus with a pale underside, marginal pseudocyphellae and a C+ red medulla (lecannoric acid).

Billiggoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 571/12 & B. de Villiers (HO).

*Pyrenopsis* sp.

On seasonally submerged rocks in a fast-flowing freshwater stream. This species is a further member of a potentially rich but as yet under-collected assemblage of cyanophilic lichens which occurs in aquatic or semi-aquatic habitats (see Fig. 13). It is recognised by its blackish, crustose thallus that contains a reddish (in section) *Gloeocapsa* photobiont, and the immersed apothecia with 8-spored asci with a thickened apex. The genus is poorly known in the Australian region, but a similar species has been collected in Tasmania.

Rocky River, 35°57’S 136°40’E, 35 m alt., 2015, G. Kantvilas 547/15 (HO).

*Ramalina canariensis* J. Steiner

On twigs, mostly in coastal vegetation. This is the most common sorediate species of *Ramalina* recorded for the island. It is characterised by flattened, yellow-green lobes and by the presence of usnic and divaricatic acids.
The soredia arise at the thallus margins by the splitting apart of the upper and lower surfaces.

Lockwood Corner, 35°39’S 137°38’E, 1967, G. Jackson 522A (AD); Brown Beach, 35°46’S 137°53’E, 3 m alt., 1994, H. Streimann 55145, 55146, 55148, 55150 (CANB); Western Cove Road, 35°44’S 137°35’E, 2 m alt., 2011, G. Kantvilas 309/11 (HO); Pelican Lagoon, 35°49’S 137°48’E, 10 m alt., 2012, G. Kantvilas 405/12 & B. de Villiers (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46‘S 137°48’E, 3 m alt., 2013, G. Kantvilas 354/13 & B. de Villiers (HO).

*Ramalina celastri* (Spreng.) Krog & Swinscow

Widespread and common on twigs in mallee and eucalypt woodland. This species is characterised by the relatively broad, flat, strap-shaped, yellow-green lobes, the abundant laminal and marginal apothecia, and the presence of usnic acid only. Stevens (1987) recognised two subspecies of *R. celastri*, with all Kangaroo Island material ascribed to *R. celastri* subsp. *ovalis* (Hook.f. & Taylor). However, in accordance with recent regional floras (e.g. Galloway 2007), I am treating all specimens at specific rank only. Fig. 72.

End of Old Bullock Track, Kingscote, 35°39’S 137°38’E, 1967, G. Jackson 522 (AD); near Lockwood Corner, Kingscote, 35°39’S 137°38’E, 1967, G. Jackson 528 (AD); Kohinoor end of Old Bullock Track, 35°46’S 137°24’E, 1967, G. Jackson 571 (AD); N of Murray Lagoon, 35°55’S 137°25’E, 1972, R.D. Seppelt 2076 (MEL); W of Kingscote Airport, 35°43’S 137°30’E, 1972, R.D. Seppelt 2098, 2099 (MEL); Playford Hwy, 1 km W of Kingscote Airport, 35°43’S 137°31’E, 1985, J.A. Elix 19567 & L.H. Elix (CANB); Dudley Peninsula, 4 km W of Cape Willoughby, 35°50’S 138°05’E, 100 m alt., 1985, J.A. Elix 19698 & L.H. Elix (CANB); 1 km N of Fleur Cask Bay, 35°52’S 137°42’E, 1986, D.N. Kraehenbuehl s.n. (MEL); Brown Beach, 35°46’S 137°53’E, 3 m alt., 1994, H. Streimann 55151 (CANB); Brown Beach, 35°48’S 137°50’E, 5 m alt., 2007, R.W. Rogers 11492 (BRI); c. 2.5 km SW of Cape St Albans, 35°49’S 138°07’E, 100 m alt., 2010, G. Kantvilas 203/10 (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 3 m alt., 2013, G. Kantvilas 356/13 & B. de Villiers (AD, HO); near Kingscote Airport along Aranmore Road, 35°43’S 137°33’E, 5 m alt., 2015, G. Kantvilas 498/15 & B. de Villiers (HO).

**Ramalina fissa** (Müll.Arg.) Vainio

Widespread on twigs in mallee and scrubby heathland; the most common species of *Ramalina* found on the island. It is characterised by the rather cushion-like, compact, yellow-green thallus of flattened or inflated and lacerate lobes, with mostly terminal apothecia; the presence of salazinic acid (usually together with usnic acid) is diagnostic (see Stevens 1987). Several of the specimens examined also contain scabrosin. This species can be extremely variable morphologically. In exposed habitats, thalli are particularly compact and barely 1 cm tall; in moister or shaded habitats, the thallus becomes rather loose, inflated and up to 3 cm tall. The latter form resembles, and indeed has been mis-identified in herbarium collections as, *R. inflata*, but that species never contains salazinic acid (see below). Fig. 73.

Old Bullock Track, Kingscote, 35°39’S 137°38’E, 1967, G. Jackson 520 (AD); near Lockwood Corner, Kingscote, 35°39’S 137°38’E, 1967, G. Jackson 527 (AD); Kingscote Council quarries, 35°39’S 137°38’E, 1971, G. Jackson 773, 774, 775 (AD); Murray Lagoon, 35°55’S 137°25’E, 1972, R.D. Seppelt 2065, 2056 (MEL); W of Kingscote Airport, 35°43’S 137°30’E, 1972, R.D. Seppelt 2097, 2101 (MEL); Dudley Peninsula, 1.5 km along Lagoon Road, 1978, E.M. Martin (AD); D’Estrees Bay, 35°56’S 137°37’E, 1982, G. Jackson 1530 (AD); Bunker Hill, c. 7 km S of Rocky River Homestead, 36°01’S 136°44’E, 1982, K. Stove 1605 (AD); creek crossing on Amen Corner to Kohinoor Mine Road, 35°41’S 137°13’E, 1982, K. Stove 1779, 1781 (AD); Playford Hwy, 1 km W of Kingscote Airport, 35°43’S 137°31’E, 1985, J.A. Elix 19563, 19568, 19574, 19576, 19666 & L.H. Elix (J.A. Elix: Lich. Australas. Exsiccat.: 121) (CANB, HO, MEL); 13 km NE of Vivonne Bay, 35°55’S 137°16’E, 30 m alt., 1985, J.A. Elix 19582 & L.H. Elix (CANB); 3 km E of Seal Bay, 36°00’S 137°21’E, 30 m alt., 1985, J.A. Elix 19583 & L.H. Elix (CANB); S of W.Instiger Hills Homestead, 35°37’S 137°27’E, 80 m alt., 1985, J.A. Elix 19653 & L.H. Elix (CANB); Chapman River estuary, 35°50’S 138°05’E, 3 m alt., 1985, J.A. Elix 19695 & L.H. Elix (CANB); Dudley Peninsula, 4 km W of Cape Willoughby, 35°50’S 138°05’E, 100 m alt., 1985, J.A. Elix 19563 & L.H. Elix (CANB); S of W.Instiger Hills Homestead, 35°37’S 137°27’E, 80 m alt., 1985, J.A. Elix 19598 & L.H. Elix (CANB); adjacent to Eleanor River, 3 km E of Little Sahara sand dunes, 35°57’S 137°17’E, 1989, D.N. Kraehenbuehl s.n. (MEL); adjacent to Eleanor River, 3 km E of Little Sahara sand dunes, 35°57’S 137°17’E, 1989, D.N. Kraehenbuehl s.n. (MEL); Cape Willoughby Road, 35°50’S 138°06’E, 110 m alt., 2011, G. Kantvilas 323/11 (AD, HO); Murray Lagoon, Timber Creek, 35°55’S 137°26’E, 15 m alt., 2011, G. Kantvilas 338/11, 339/11 & B. de Villiers (AD, HO).

**Ramalina glaucescens** Kremp.

A common epiphytic species in woodland and coastal scrub, characterised by flat, strap-shaped, often lacerate

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Fig. 72. *Ramalina celastri*. Scale = 5 mm. Photo: J. Jarman.
branches with axillary, marginal or sub-terminal apothecia. It is chemically variable (Stevens 1987), but all specimens analysed from Kangaroo Island contain usnic acid only (typically only in trace amounts).

Fig. 74.

Lockwood Corner, 35°39’S 137°38’E, 1967, G. Jackson 524B (AD); end of Old Bullock Track, Kingscote, 35°39’S 137°38’E, 1967, G. Jackson 532 (AD); 17 km SSW of Kingscote, 1972, R.D. Seppelt 2232 (HO); Dudley Peninsula, 1.5 km along Lagoon Rd., 1978, E.M. Martin (AD); Playford Hwy, 1 km W of Kingscote Airport, 35°43’S 137°31’E, 1985, J.A. Elix 19566, 19668 & L.H. Elix (CANB); Cygnet River, 35°42’S 137°32’E, 1997, R.J. Bates 48339 (AD); Brown Beach, 35°48’S 137°50’E, 5 m alt., 2007, R.W. Rogers 11490 (BRI); Beyeria Conservation Park, 35°47’S 137°36’E, 50 m alt., 2010, G. Kantvilas 212/10 (AD, HO); Nepean Bay, 35°44’S 137°36’E, 2 m alt., 2011, G. Kantvilas 317/11 (HO); Timber Creek, Murray Lagoon, 35°55’S 137°26’E, 15 m alt., 2011, G. Kantvilas 342/11 & B. de Villiers (AD, HO); Brown Beach, 35°48’S 137°50’E, 10 m alt., 2012, G. Kantvilas 430/12, 432/12 & B. de Villiers (AD, HO); near Kingscote Airport along Aranmore Road, 35°43’S 137°33’E, 5 m alt., 2015, G. Kantvilas 497/15 & B. de Villiers (AD, HO).

\textit{Ramalina inflata} (Hook.f. \& Taylor) Hook.f. \& Taylor

Stevens (1987) recognised several infra-specific taxa within \textit{R. inflata}, of which two, subsp. \textit{inflata} and subsp. \textit{australis} G.N.Stevens, might well occur on Kangaroo Island. However, I have been unable to satisfactorily determine to which subspecies the specimens examined belong. All are significantly inflated and in part lacerate, and have been collected from twigs in mallee and scrub. Both divaricatic acid-containing and sekikaic acid-containing specimens have been collected.

Kohinoor end of Bullock Track, 35°39’S 137°38’E, 1967, G. Jackson 572 (AD); Cape Gantheaume Conservation Park, c. 2 km S of entrance, 36°00’S 137°36’E, 1982, K. Stove 1513 (AD); corner of Playford Hwy, Birchmore Hwy and road to Kingscote aerodrome, 35°42’S 137°31’E, 1982, K. Stove 1793 (AD); Harveys Return, 35°46’S 136°34’E, 60 m alt., 1985, J.A. Elix 19739 & L.H. Elix (CANB); along banks of Middle River, 35°44’S 137°04’E, 1989, D.N. Kraehenbuehl 5158 (AD); Weir Cove, 36°03’S 136°43’E, 40 m alt., 1994, H.T. Lumbsch 10914, A. Dickhäuser & H. Streimann (CANB); same locality, 1994, H. Streimann 54979 (CANB); Brown Beach, 35°46’S 137°53’E, 3 m alt., 1994, H. Streimann 55144, 55147 (CANB); c. 2 km W of South West River, 35°59’S 136°50’E, 50 m alt., 2007, R.W. Rogers 11489 (BRI).
**Ramalina unilateralis** F.Wilson
On twigs in dry sclerophyll forest. This species is similar to *R. canariensis* and is likewise sorediate and contains usnic and divaricatic acids. It differs by being more finely divided and having the soredia arising by the splitting open of the lower surface.

Approx. 2 km W of South West River, 35°59’S 136°50’E, 50 m alt., 2007, R.W. Rogers 11488 (BRI, HO).

**Ramboldia blastidiata** Kantvilas & Elix
On exposed rocks in dry sclerophyll forest, typically forming extensive, brown, sorediate-blastidiate thalli with red-brown apothecia and containing norstictic acid. It is noteworthy that the non-sorediate counterpart of this species, the widespread *R. petraeoides* (C.Bab. & Mitten) Kantvilas & Elix, has not been recorded for the island.

Cygnet River, Stokes Bay Road, 41 km WSW of Kingscote, 35°44’S 137°13’E, 110 m alt., 1994, H. Streimann 54888 (CANB); Waterfall Creek, 30 km ENE of Cape Borda, 35°42’S 136°54’E, 140 m alt., 1994, H. Streimann 54949 (CANB); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 554/12, 765/12 & B. de Villiers (AD, HO); Ironstone Hills, 35°44’S 137°57’E, 70 m alt., 2015, G. Kantvilas 383/15 (AD, HO).

**Ramboldia crassithallina** Kalb
Locally abundant on bleached or rotting wood in woodland and pasture. Recognised by the areolate-bullate, grey thallus containing thamnolic acid (K+ yellow) and the glossy black apothecia. Fig. 75A.

Clay pan, c. 4 km ESE of car park at West Bay, 35°54’S 136°35’E, 1982, K. Stove 1677 p.p. (AD); near mouth of Chapman River, 35°47’S 138°04’E, 10 m alt., 2009, G. Kantvilas 352/09 (AD, HO); Antechamber Bay near The Kona, 35°49’S 138°05’E, 20 m alt., 2010, G. Kantvilas 206/10 (AD, HO); Lashmar Lagoon, 35°48’S 138°04’E, 10 m alt., 2011, G. Kantvilas 258/11 & B. de Villiers (AD, HO, MSC); Chapman River, 35°48’S 138°04’E, 2 m alt., 2015, G. Kantvilas 328/15 (AD, HO).

**Ramboldia laeta** (Stirt.) Kalb, Lumbsch & Elix
A widespread crustose lichen on twigs in mallee and heathland. As with most species of the genus *Caloplaca*, *Ramboldia laeta* has vivid red apothecia that react K+ purple. However, it is easily distinguished by its simple (rather than polardiiblastic) ascospores and its *Lecanora*-type (rather than *Teloschistes*-type) ascii. Fig. 75B.

Approx. 0.75 km SE of Amen Corner, 35°41’S 137°12’E, 1982, K. Stove 1780 p.p. (AD); Ravine des Casoars, 35°48’S 137°35’E, 140 m alt., 1985, J.A. Elix 19730 & L.H. Elix (CANB); same locality, 70 m alt., 1994, H.T. Lumbsch 10906a (CANB); same locality, 70 m alt., 1994, H.T. Lumbsch 10906a (CANB); same locality, 70 m alt., 1994, H.T. Lumbsch 10906a (CANB); same locality, 70 m alt., 2011, G. Kantvilas 296/11 (HO); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 315/15 (HO).

**Ramboldia plicatula** (Müll.Arg.) Kantvilas & Elix
On rocks in dry sclerophyll forest. Characterised by the pale brownish, rather lumpy, crustose thallus containing baemomycesic and squamatic acids, and by the glossy, brown-black apothecia with simple ascospores. Fig. 75C.

Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 558/12 & B. de Villiers (AD, HO); Lathami Conservation Park, 35°38’S 137°14’E, 160 m alt., 2015, G. Kantvilas 292/15 & B. de Villiers (HO).
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Scales (B–D) = 2 mm. Photos: J. Jarman.

*Ramboldia sorediata* Kalb
On eucalypt lignin in mallee woodland. This species is readily distinguished from others in the genus by its whitish, finely sorediate thallus that contains thamnolic acid (K+ yellow), features that enable its identification even when it lacks its characteristic glossy, black apothecia.

Approx. 1 km SSW of Kelly Hill Caves, 36°00’S 136°54’E, 40 m alt., 2015, G. Kantvilas & B. de Villiers (HO).

*Ramboldia stuartii* (Hampe) Kantvilas & Elix
On bleached, dead eucalypt wood in dry sclerophyll forest. This very distinctive species is recognised by its rather adnate, glossy, black apothecia that contrast sharply with the pale substratum, and by the presence of hypothamnolic acid, detected in apothecial sections as K+ violet granules in the hypothecium.

Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 559/12 & B. de Villiers (HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 3 m alt., 2013, G. Kantvilas 327/13 & B. de Villiers (AD, HO); Lathami Conservation Park, 35°38’S 137°14’E, 160 m alt., 2015, G. Kantvilas 295/15 & B. de Villiers (HO).

*Rhizocarpon geographicum* (L.) DC.
On sandstone boulders in coastal heathland and dry sclerophyll forest. This is a most distinctive saxicolous crustose lichen, recognised by its speckled yellow-green and black thallus. Fig. 76A.

Approx. 3.5 km NE of Stokes Bay, 35°37’S 137°13’E, 50 m alt., 2012, G. Kantvilas 535/12 & B. de Villiers (AD, HO); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 754/12 & B. de Villiers (AD, HO); Ironstone Hills, 35°44’S 137°57’E, 60 m alt., 2015, G. Kantvilas 385/15 & B. de Villiers (HO).

*Rhizocarpon reductum* Th.Fr.
On sandstone in dry sclerophyll forest and mallee woodland. Characterised by the brownish or dull grey thallus containing stictic acid, the black, distinctly marginate apothecia, and the 8-spored asci with hyaline, muriform ascospores, 20–35 × 10–15 µm. Fig. 76B.

Bilbygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 559/12 & B. de Villiers (HO); Cannery Walking Track, American River, 2013, A. Wells s.n. (HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 3 m alt., 2013, G. Kantvilas 327/13 & B. de Villiers (AD, HO); Lathami Conservation Park, 35°38’S 137°14’E, 160 m alt., 2015, G. Kantvilas 295/15 & B. de Villiers (HO).

*Rinodina asperata* (Shirley) Kantvilas
On bark and dead wood in heathland, woodland and rough pasture. Characterised by the relatively scurfy,
crustose thallus, sessile apothecia with a prominent thalline margin, and brown, 2-celled ascospores of the Pachysporaria-type, 15–22 × 7–12 µm (Mayrhofer et al. 1999).

Strepera Waterfall on Middle River, 35°42’S 137°06’E, 1982, K. Stove 1762 (AD); Creek Bay Farm, 35°50’S 138°06’E, 70 m alt., 2013, G. Kantvilas 226/13 (HO); W of Windmill Bay, 35°51’S 138°07’E, 40 m alt., 2012, G. Kantvilas 499/12 (HO).

Rinodina blastidiata

Very common on coastal rocks, especially on granite and laterite, where its dark olive-brown, crustose thallus forms a mosaic with orange-coloured Caloplaca species, whitish Tylotothallia verrucosa and the greyish Xanthoparmelia conranensis. The ascospores of this species show a range of variation in the course of their development (termed Teichophila-type; Kaschik 2006), but pass through a distinctive stage when they are of the Mischoblastia-type (Matzer & Mayrhofer 1994).

Point Ellen, 2 km S of Vivonne Bay, 36°00’S 137°11’E, 4 m alt., 1985, J.A. Ellis 19597, 19597a & L.H. Ellis (CANB); mouth of De Mole River, 18 km SSE of Cape Borda, 35°43’S 136°47’E, 20 m alt., 1994, H.T. Lumbsch 10922k, A. Dickhäuser & H. Streimann (CANB); Cape Willoughby, 35°50’S 138°08’E, 2008, G. Kantvilas 329/08 (AD, HO); Windmill Bay, 35°51’S 138°07’E, 1 m alt., 2012, G. Kantvilas 492/12 (AD, HO).

Rinodina confagosula (Nyl.) Müll.Arg.

In sheltered underhangs on coastal rocks; uncommon (or overlooked). This species has a crustose, areolate to subsquamulose thallus, apothecia that may contain a greenish, N+ red pigment, and ascospores of the Tunicata-type (with very rounded lumina and a well-developed torus), 14–25 × 7.5–16 µm (Kaschik 2006).

The old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 3 m alt., 2013, G. Kantvilas 338/13 & B. de Villiers (HO).

Rinodina confusa H.Mayrhofer & Kantvilas

Recorded from an old Letescopogon shrub at the edge of an abandoned paddock. With its olive-grey, subsquamulose thallus, this species is superficially similar to the common R. australiensis, but differs from that species by having ascospores with Physcia-type (instead of Mischoblastia-type) thickening (Mayrhofer et al. 1999).

Hanson Bay Track, c. 1 km S of Grassdale Homestead, 36°00’S 136°52’E, 5 m alt., 2015, G. Kantvilas 365/15 & B. de Villiers (HO).

Rinodina obscura Müll.Arg.

Recorded from an old, bleached, split eucalypt fencepost in an abandoned paddock. This species is distinguished from other corticolous/lignicolous members of the genus by its inapparent, endophloeal thallus, apothecia in which the thalline margin is very poorly developed to almost absent, and by the Physcia-type ascospores, 16–20 × 6–9 µm (Mayrhofer et al. 1999).

Hanson Bay Track, c. 1 km S of Grassdale Homestead, 36°00’S 136°52’E, 5 m alt., 2015, G. Kantvilas 361/15 & B. de Villiers (HO).

5Rinodina oleae Bagl.

On rocks in eucalypt woodland and at the coast, often in sites subject to eutrophication. Characterised by the usually well-developed, pale greyish, rimose-areolate thallus and the Dirinaria-type ascospores, 11–18 × 6–11 µm (Kaschik 2006).

Mouth of De Mole River, 18 km SSE of Cape Borda, 35°43’S 136°47’E, 20 m alt., 1994, H.T. Lumbsch 10922c, A. Dickhäuser & H. Streimann (CANB); Penneshaw foreshore near Frenchmans Rock, 35°43’S 137°57’E, 2 m alt., 2013, G. Kantvilas 199/13 (HO); Western River Cove, E of beach, 35°41’S 136°58’E, 20 m alt., 2015, G. Kantvilas 411/15 (HO); northern end of Antechamber Bay, 35°47’S 138°04’E, 5 m alt., 2015, G. Kantvilas 482/15 (HO).
**Rinodina reagens** Matzer & H.Mayrhofer
Locally common on coastal limestone outcrops. This species has a thallus of dispersed, rather loosely attached, brownish areoles, numerous, sessile, lecanorine apothecia, and 1-septate, brown ascospores, 18–24 × 13–15 μm. It grows together with the whitish grey species, *Lecanora sphaerospora* and *Buellia albula*.

Cape St Albans, 35°48'S 130°07'E, 20 m alt., 2010, G. Kantvilas 172/10 (AD, CANB, HO); same locality, 2012, G. Kantvilas 401/12 (AD, HO); Rivane des Casoars, 35°48'S 136°35'E, 10 m alt., 2012, G. Kantvilas 457/12 (AD, HO); Stokes Bay, 35°37'S 137°13'E, 60 m alt., 2013, G. Kantvilas 295/13 & B. de Villiers (HO).

**Rinodina thiomela** (Nyl.) Müll.Arg.
On sandstone in dry sclerophyll woodland. This species is distinguished from other members of the genus by its pale mustard-yellow thallus. **Fig. 76D.**

Western River, 1972, R.D. Seppe 820C (HO); Mouth of De Mole River, 18 km SSE of Cape Borda, 35°43'S 136°46'E, 20 m alt., 1994, H. Streitmann 55083 (AD, CANB); Bilygoat Falls, 35°42'S 136°55'E, 200 m alt., 2012, G. Kantvilas 752/12 & B. de Villiers (AD, HO).

*N Rinodina williamsii* H.Mayrhofer
On coastal granite, forming small “islands” amongst the thalli of species of *Xanthoria, Caloplaca* and other crustose lichens. It is recognised by the dingy grey-brown, crustose thallus, lecanorine apothecia and *Pachysporaria*-type ascospores, 13–21 × 7.5–11 μm (Kaschik 2006).

Windmill Bay, 35°51'S 138°07'E, 20 m alt., 2012, G. Kantvilas 466/12 (AD, HO).

**Rinodinella fertilis** (Körb.) Elix var. *fertilis*
On coastal rocks. Characterised by a rather lumpy, pale brown to cream thallus containing norstictic acid, black, lecideine apothecia with *Lecanora*-type ascus, and thin-walled, pale brown, 1-septate ascospores, 10.5–15 × 5–7 μm.

Stokes Bay, 35°37'S 137°12'E, 2 m alt., 1985, J.A. Elix 19661 p.p. & L.H. Elix (CANB); Bog Bay, Penneshaw, 35°43'S 137°57'E, 2 m alt., 1985, J.A. Elix 19681 & L.H. Elix (CANB); W of Windmill Bay, 35°51'S 138°07'E, 40 m alt., 2012, G. Kantvilas 503/12 (HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46'S 137°48'E, 2 m alt., 2013, G. Kantvilas 332/13 & B. de Villiers (HO).

*N Rinodinella fertilis* var. *hypostictica* (Elix) Elix
In sheltered overhangs on coastal rocks. Morphologically identical to var. *fertilis* from which it differs by containing hypostictic and salinic acids.

Lesueur Conservation Park, c. 3.5 km SW of Cape Willoughby, 35°51'S 138°06'E, 10 m alt., 2009, G. Kantvilas 358/09 (AD, HO); northern end of Antechamber Bay, 35°47'S 138°04'E, 1 m alt., 2012, G. Kantvilas 511/12 (HO).

*Sarcogyne meridionalis* P.M.McCarthy & Kantvilas
On limestone boulders and outcrops, mostly in coastal pasture. Characterised by the endolithic to thinly subepilithic thallus, very small, immersed apothecia, <0.4 mm wide, with a dull black, deeply concave, epruinose disc and a usually thin, non-carbonised exciple. Also recorded from mainland South Australia, Flinders Island and the A.C.T. **Illustration:** McCarthy & Kantvilas (2013b: Fig. 2).

Pelican Lagoon, 35°48'S 137°48'E, 20 m alt., 2012, G. Kantvilas 413/12 & B. de Villiers (HO) [type]; slopes above Red House Bay, 35°49'S 138°07'E, 50 m alt., 2012, G. Kantvilas 443/12 (AD, HO); near Pelican Lagoon, summit of hill above the Tiger Simpson memorial, 35°50'S 137°49'E, 60 m alt., 2013, G. Kantvilas 279/13 (AD, HO); Flour Cask Bay, 2013, A. Wells s.n. (CANB).

**Sarcogyne sp.**
On limestone in coastal pasture and gaps in heathland. This unidentified species is characterised by a chiefly endolithic thallus, predominantly immersed, epruinose or occasionally thinly pruinose apothecia, 0.3–0.55 mm wide, with a comparatively thick exciple, c. 60 μm thick. It has also been recorded from mainland South Australia and south-western Western Australia. **Illustration:** McCarthy & Kantvilas (2013b: Fig. 3B).

West Bay, 15 km SSW of Cape Borda, 35°53'S 136°33'E, 40 m alt., 1994, H. Streitmann 55024 (AD, CANB); near Pelican Lagoon, summit of hill above the Tiger Simpson memorial, 35°50'S 137°49'E, 60 m alt., 2013, G. Kantvilas 278/13 (AD, HO); c. 1.5 km SW of Point Ellen, 36°00'S 137°11'E, 10 m alt., 2015, G. Kantvilas 443/15 (HO).

*Schismatomma occultum* (C.Knight & Mitten) Zahlbr.
On twigs in coastal woodland. Characterised by a crustose thallus with a *Trentepohlia* photobiont, irregularly roundish, “lecanoroid” ascomata, *myrticola*-type asci and 3-septate ascospores, 31–38 × 2–3 μm (see Kantvilas 2004). **Fig. 77A.**

Bunker Hill, c. 7 km S of Rocky River Homestead, 36°01'S 136°44'E, 1982, K. Sore 1605 p.p. (AD, HO); Bilygoat Falls, 35°42'S 136°55'E, 200 m alt., 2012, G. Kantvilas 779/12 (HO).

*Schismatomma rediunta* (Hasse) Tehler
In dry, sheltered microhabitats on the wood and bark of old dead trees in mallee woodland. This is the first record from the Southern Hemisphere of a species originally described from California. It has the following salient characters: thallus thin to endophloeodal; apothecia adnate to subimmersed, to 0.5 mm wide, with an irregularly roundish to subcircular, non-carbonised exciple, 1–1.5 μm. The Kangaroo Island specimens correspond well to the published description of this species (Tehler 1993). **Fig. 77B.**

The old cannery, American River, c. 1 km SW of Ballast Head, 35°46'S 137°48'E, 3 m alt., 2013, G. Kantvilas 351/13 & B. de Villiers (HO); same locality, 30 m alt., 2015, G. Kantvilas 487/15 (AD, HO); Grassdale Lagoon, 36°00'S 136°53'E, 20 m alt., 2015, G. Kantvilas 346/15 & B. de Villiers (AD, HO, UPS).
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Northern Hemisphere, especially in polluted areas (James Hemmisione of a highly inconspicuous, minute species is a remarkable first confirmed record for the Southern Hemisphere. This species occurs as a parasite on *Ochrolechia insularis*. Relationships to the superficially similar ‘pin lichens’. Although not strictly lichenised, this calicioid fungus is frequently listed with lichens on account of its attractive epiphytic lichens, found on twigs in woodland, mallee, heathland and on pasture trees, usually associated with species of *Ramalina*. It is recognised by its bright orange thallus of strap-shaped, ciliate lobes that form button-like clumps 1–2 cm wide, with prominent, ciliate apothecia to c. 5 mm wide. **Fig. 78.**

Teloschistes chrysophthalmus (L.) Th.Fr.

One of Kangaroo Island’s most common, widespread and attractive epiphytic lichens, found on twigs in woodland, mallee, heathland and on pasture trees, usually associated with species of *Ramalina*. It is recognised by its bright orange thallus of strap-shaped, ciliate lobes that form button-like clumps 1–2 cm wide, with prominent, ciliate apothecia to c. 5 mm wide. **Fig. 78.**

Near Lockwood Corner, 35°39’S 137°38’E, 1967, G. Jackson s.n., 523 (AD); Old Bullock Track, 35°39’S 137°38’E, 1967, G. Jackson 521, 574 (AD); Playford Hwy, 1 km W of Kingscote Airport, 35°43’S 137°31’E, 1965, J.A. Elix 16667 & L.H. Elix (J.A. Elix: Lich. Australas. Exsicc: 123) (HO); King George Beach, 35°40’S 137°04’E, 2 m alt., 1985, J.A. Elix 19757 & L.H. Elix (J.A. Elix: Lich. Australas. Exsicc: 124) (HO); 1 km N of Flouro Cask Bay, 35°52’S 137°42’E, 1986, D.N. Kraehenbuehl s.n. (MEL); adjacent to Eleanor River, 3 km E of Little Sahara sand dunes, 35°57’S 137°17’E, 1989, D.N. Kraehenbuehl 5178 (AD); Brown Beach, 35°48’S 137°50’E, 5 m alt., 2007, R.W. Rogers 11493 (BRI); The Red Banks, 35°45’S 137°43’E, 2008, G. Kantvilas 325/08 (AD, HO); Harveys Return, 35°45’S 136°38’E, 100 m alt., 2010, G. Kantvilas 318/15 (AD, HO); South West River, 36°01’S 136°52’E, 10 m alt., 2015, G. Kantvilas 422/15 (HO).

**Fig. 77.** A *Schismatoma occultum*. B *Schismatoma rediunta*. Scales = 1 mm. Photos: J. Jarman.

Teloschistes spinosus (Hook.f. & Taylor) J.S.Murray

On coastal rocks, forming swarms or tufts of entangled, bright orange, sorediate, flattened lobes beset with lateral spines. It is typically found on the more sheltered faces of large outcrops. **Fig. 79.**

Cape St Albans, 35°48’S 138°07’E, 40 m alt., 2015, G. Kantvilas 395/15 (AD, HO); northern end of
Antechamber Bay, 35°47’S 138°04’E, 3 m alt., 2015, G. Kantvilas 472/15 (HO).

*Tephromela alectoronica* Kalb

On wood and the bark of understorey trees in dry sclerophyll forest. This species is very similar to the widespread and common *T. atra* (see below), and likewise has a whitish or pale grey crustose thallus, lecanorine apothecia to 1.5 mm wide, with a black, undulate disc, a crimson epihymenium and hymenium, and simple ascospores. It differs chemically by

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Fig. 78. *Teloschistes chrysophthalmus*. Scale = 10 mm. Photo: J. Jarman.

Fig. 79. *Teloschistes spinosus*. A Cushion-like habit. B Detail. Scale = 5 mm.
containing atranorin and alectoronic acid; α-collatolic acid is lacking or present in trace concentrations only (Kantvilas 2015). Fig. 80.

Mouth of De Mole River, 18 km SSE of Cape Borda, 35°43’S 136°46’E, 20 m alt., 1994, H. Streimann 55127 (AD, CANB, HO); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 574/12 & B. de Villiers (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 3 m alt., 2013, G. Kantvilas 359/13 & B. de Villiers (AD, HO).

*Tephromela atra* (Huds.) Hafellner

Widespread and locally abundant in woodland where it grows on bark, wood and rocks. This species is morphologically ± identical to *T. alectoronica* (above), from which it is distinguished chemically by containing atranorin and α-collatolic acid, with or without additional alectoronic and/or bourgeanic acids. The concept of this species applied here essentially follows that of Muggia et al. (2013) and includes *T. bullata* Elix, an exclusively corticolous taxon based on a type from Eyre Peninsula, erected by Elix (2012). The status of *T. bullata* is discussed in detail by Kantvilas (2015). **Illustration:** McCarthy (2009: Fig. 4C).

Western River Road, 36 km SE of Cape Borda, 36°03’S 136°44’E, 20 m alt., 1994, H. Streimann 54966 [saxicolous] (CANB); mouth of De Mole River, 18 km SSE of Cape Borda, 35°43’S 136°46’E, 20 m alt., 1994, H. Streimann 55074 [saxicolous], 55116 (CANB); Red House Bay, 35°49’S 138°06’E, 10 m alt., 2010, G. Kantvilas 179/10 (AD, HO); Lashmar Lagoon, 35°48’S 138°04’E, 10 m alt., 2011, G. Kantvilas 256/11, 269/11 & B. de Villiers (AD, HO); Western Cove Road, 35°44’S 137°35’E, 2 m alt., 2011, G. Kantvilas 307/11 (AD, HO); Brown Beach, 35°48’S 137°50’E, 10 m alt., 2012, G. Kantvilas 418/12 & B. de Villiers (AD, HO); Strawbridge Point, 35°47’S 137°47’E, 5 m alt., 2012, G. Kantvilas 543/12 & B. de Villiers (AD, HO); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 762/12 & B. de Villiers (AD, HO) [saxicolous]; Pelican Lagoon Conservation Park, along Mitchell Drive, 35°48’S 137°48’E, 10 m alt., 2015, G. Kantvilas 312/15 (HO); Rocky River, 35°57’S 136°40’E, 35 m alt., 2015, G. Kantvilas 536/15 (HO) [saxicolous].

*Tephromela baudiniana* Kantvilas & Elix

Described from a single collection from coastal rocks on the banks of a fast-flowing, fresh-water stream. Distinguished from the morphologically similar *T. atra* by its unique chemical composition of atranorin, 9-O-methylalternariol and alternariol (Kantvilas & Elix 2017). **Fig. 81.**

Rocky River Track, c. 250 m from mouth of river, 35°58’S 136°39’E, 10 m alt., 2015, G. Kantvilas 511/15 & B. de Villiers (AD, HO) [type].
An annotated catalogue of the lichens of Kangaroo Island, South Australia

Stephromela sorediata Kalb & Elix
On bleached eucalypt wood in dry sclerophyll forest. Although sterile, the Kangaroo Island specimen is readily identifiable by its roundish, grey-green soralia and by the presence of atranorin and alectoronic acid. Illustration: Kantvilas (2015: Figs 5–6).

Billygoat Falls, 35°42'S 136°55'E, 200 m alt., 2012, G. Kantvilas 590/12 & B. de Villiers (AD, HO).

Thelenella tasmanica H. Mayrhofer & P. M. McCarthy
On non-calcareous rocks. Characterised by ± immersed perithecia, with non-amyloid, 8-spored asci and muriform ascospores, 22–32 × 10–16 µm (Mayrhofer & McCarthy 1991). In Tasmania, where this species is relatively abundant, it occurs mostly on coastal rocks. The two Kangaroo Island records are from rocks in woodland, albeit adjacent to or near the coast.

Billygoat Falls, 35°42'S 136°55'E, 200 m alt., 2012, G. Kantvilas 768/12 & B. de Villiers (AD, HO); shoreline of Eastern Cove, c. 2.5 km NE of American River, 35°46'S 137°11'E, 5 m alt., 2015, G. Kantvilas 444/15 (AD, HO).

Thelidium robustum P. M. McCarthy & Kantvilas
On limestone in coastal heathland. Characterised by a pseudosquamulose, greyish green thallus with small, black perithecia and 1-septate ascospores, 16–26 × 9–13 µm. Illustration: McCarthy & Kantvilas (2016b: Fig. 1).

Approx. 1.5 km SW of Point Ellen, 36°00'S 137°11'E, 10 m alt., 2015, G. Kantvilas 444/15 (HO) [holotype].

Thysanothecium sorediatum (Fr.) D. J. Galloway
On charred or rotting eucalypt lignin in dry sclerophyll forest and mallee woodland. This characteristic Australasian lichen is easily recognised by the yellowish thallus of rather nodulose squamules, from which arise fissured pseudopodetia to c. 15 mm tall, bearing peltate to fan-shaped apothecia. Fig. 82.

[Rocky River area], 1940, J. B. Cleland s.n. (AD); Rocky River, 1948, J. B. Cleland s.n. (AD); Flinders Chase area, 1955, J. B. Cleland s.n. (AD); c. 10 km ESE of Western River, 35°46'S 137°04'E, 1972, R. D. Seppelt 805 (AD); 30 km ESE of Cape Borda, 35°51'S 136°54'E, 1972, R. D. Seppelt 890 (AD); Rocky River Koala Sanctuary, 1972, R. D. Seppelt 959 (HO); Western River, 35°43'S 136°55'E, 1974, M. Allender s.n. (MEL); Ravine des Casoars, 35°48'S 136°37'E, 1982, K. Stove 1700 (AD); same locality, 20 m alt., 1985, J. A. Elix 19729 & L. H. Elix (CANB); c. 1 km E from Rocky River, 35°57'S 136°43'E, 1983, J. H. Willis s.n. (MEL); along banks of Middle River, 35°44'S 137°04'E, 1989, D. N. Kraehenbuehl 5160 (AD); Cape Hart, 35°54'S 138°03'E, 1997, R. J. Bates 48134 (AD); Stokes Bay, 35°37'S 137°13'E, 50 m alt., 2012, G. Kantvilas 521/12 & B. de Villiers (HO); Billygoat Falls, 35°42'S 136°55'E, 200 m alt., 2012, G. Kantvilas 580/12 & B. de Villiers (HO); Pelican Lagoon Conservation Park, along Mitchell Drive, 35°48'S 137°48'E, 10 m alt., 2015, G. Kantvilas 331/15 & B. de Villiers (HO); near Kingscote Airport, 35°43'S 137°32'E, 5 m alt., 2015, G. Kantvilas 494/15 & B. de Villiers (HO).

Thysanothecium scutellatum (Fr.) D. J. Galloway
This species has the stalked, terminal, ± peltate apothecia typical of the genus, but differs from the closely related T. sorediatum by having a sorediate basal thallus (Elix 2009b). The single collection is from charred wood.

Between dam on Middle River and Strepera Waterfall, 35°43'S 137°06'E, 1982, K. Stove 1775 (AD).
**Toninia aromatica** (Sm.) A.Massal.
Locally common on consolidated soil and soft, weathered limestone in rough pasture, coastal heathland and woodland. Also occasional on rocks in eutrophicated habitats, such as where birds roost. One collection is from an old termite nest. Characterised by the greenish, K– epihymenium and the 3-septate, fusiform ascospores, 12–23 × 4–5.5 µm (Timdal 1991). **Fig. 83A.**

Cape St Albans, 35°48’S 138°07’E, 20 m alt., 2010, G. Kantvilas 169/10 (AD, HO); same locality, 10 m alt., 2011, G. Kantvilas 356/11 (AD, HO); NW of Pink Bay, 35°50’S 138°07’E, 60 m alt., 2010, G. Kantvilas 209/10 (AD, HO); near King George Beach, 35°39’S 137°07’E, 10 m alt., 2011, G. Kantvilas 337/11 & B. de Villiers (AD, HO); Pelican Lagoon, 35°48’S 137°48’E, 20 m alt., 2012, G. Kantvilas 412/12 & B. de Villiers (AD, HO); Stokes Bay, 35°37’S 137°13’E, 50 m alt., 2012, G. Kantvilas 529/12 & B. de Villiers (HO); same locality, 60 m alt., 2013, G. Kantvilas 296/13 & B. de Villiers (AD, HO); Penneshaw foreshore near Frenchmans Rock, 35°43’S 137°57’E, 2 m alt., 2013, G. Kantvilas 192/13 (HO); Red House Bay, 35°49’S 138°06’E, 15 m alt., 2013, G. Kantvilas 305/13, 309/13 (AD, HO); northern end of Antechamber Bay, 35°47’S 138°04’E, 5 m alt., 2015, G. Kantvilas 475/15 (AD, HO).

**Trapelia coarctata** (Sm.) M.Choisy
On consolidated soil and rocks in mallee woodland and dry sclerophyll forest; this species is often one of the first colonisers following fire and other disturbance. Although frequently sterile, it can be recognised by its continuous grey thallus that contains gyrophoric acid (C+ red), and by its *Chlorella*-type photobiont. **Fig. 83B.**

Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 551/12 & B. de Villiers (AD, HO); Beyeria Conservation Park, 35°47’S 136°36’E, 50 m alt., 2013, G. Kantvilas 227/13 & B. de Villiers (AD, HO); Rocky River Track, 35°57’S 136°40’E, 40 m alt., 2015, G. Kantvilas 523/15 (HO).

**Trapelia crystallifera** Kantvilas & Elix
On consolidated calcareous soil in gaps in coastal woodland. One collection (204/13) is from roadside soil that was clearly imported from another site. **Fig. 83B.**

**Toninia australis** Timdal
On consolidated soil and limestone pebbles in coastal heathland. Characterised by the reddish brown, K+ crimson epihymenium and the 1-septate, fusiform ascospores, 10–20 × 3–5 µm (Timdal 1991). Approx. 1.5 km SW of Point Ellen, 36°00’S 137°11’E, 10 m alt., 2015, G. Kantvilas 438/15, 442/15 (AD, HO); Rocky River Track, c. 1 km S of Snake Lagoon, 35°58’S 136°39’E, 50 m alt., 2015, G. Kantvilas 510/15 & B. de Villiers (AD, HO); Stokes Bay, 35°37’S 137°13’E, 50 m alt., G. Kantvilas 522/12 & B. de Villiers (AD, HO).

**Trapeliopsis flexuosa**

**Tylothallia verrucosa**
Scales = 1 mm. Photos: J. Jarman.
An annotated catalogue of the lichens of Kangaroo Island, South Australia

Stokes Bay, 35°37’S 137°13’E, 50 m alt., 2012, G. Kantvilas & B. de Villiers (AD, HO); Chapman River, 35°47’S 138°04’E, 5 m alt., 2013, G. Kantvilas 204/13 (AD, HO); Lashmar Conservation Park, c. 2 km S of Cape Coutts, 35°47’S 138°04’E, 50 m alt., 2015, G. Kantvilas 432/15 & B. de Villiers (HO).

**Trapelia glebulosa** (Sm.) J.R.Laundon
On rocks and consolidated soil. Distinguished from *T. coarctata* chiefly by being composed of discrete or contiguous areoles and small squamules [see Kantvilas & Elix 2007, as *T. involuta* (Taylor) Hertel].

Northern end of Antechamber Bay, 35°47’S 138°04’E, 5 m alt., 2011, G. Kantvilas 404/11 (HO); Creek Bay Farm, 35°50’S 138°06’E, 85 m alt., 2013, G. Kantvilas 369/13 (AD, HO); Western River Cove, summit of cliffs E of beach, 35°40’S 136°58’E, 50 m alt., 2015, G. Kantvilas 400/15 (HO).

**Trapelia thieleana** Kantvilas, Lumbsch & Elix
On loose stones and small outcrops of ironstone in mallee woodland. This species can be distinguished from the superficially similar *T. coarctata* by the distinctive patches of bright yellow pigment on its upper surface (Kantvilas et al. 2015). Until recently it was known only from south-western Western Australia, where it grew on a very similar rock type. **Illustration:** Kantvilas et al. (2015: Figs 3B, 4).

Kelly Hill Conservation Park, c. 1 km SSW of Kelly Hill Caves, 36°00’S 136°54’E, 40 m alt., 2015, G. Kantvilas 432/15 & B. de Villiers (AD, HO).

**Trapeliopsis flexuosa** (Fr.) Coppins & P.James
On rotting or bleached dead wood, or occasionally on older living tree trunks in woodland. Often sterile but nevertheless recognised by the grey-green, areolate-crustose thallus containing gyrophoric acid (C+ red); some specimens also have dark green or bluish green soralia. **Fig. 83C.**

Antechamber Bay, near The Kona, 35°49’S 138°05’E, 20 m alt., 2010, G. Kantvilas 205/10A (AD, HO); Murray Lagoon, Timber Creek, 35°55’S 137°26’E, 15 m alt., 2011, G. Kantvilas 345/11 & B. de Villiers (HO); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 778/12 (AD, HO).

**Tylothallia verrucosa** (Müll.Arg.) Kantvilas
Very common and widespread, mostly on coastal rocks, where it is largely responsible for the white patches that contrast with the bright orange of *Caloplaca* species and the dull olive-brown hues of *Rinodina blastidiata* and *Catillaria austrolittoralis* (Kantvilas 2014). Less commonly it can be found away from the coast where the thallus becomes discoloured and poorly developed. **Figs 83D, 84.**

Point Ellen, 2 km S of Vivonne Bay, 36°00’S 137°11’E, 4 m alt., 1985, J.A. Elix 19594 & L.H. Elix (CANB); Hog Bay, Penneshaw, 35°43’S 137°57’E, 2 m alt., 1985, J.A. Elix 19680 & L.H. Elix (CANB); King George Beach, 35°40’S 137°04’E, 2 m alt., 1985, J.A. Elix 19754 & L.H. Elix (CANB); mouth of De Mole River, 18 km SSE of Cape Borda, 35°43’S 136°46’E, 20 m alt., 1994, H. Streimann 55076 (AD, CANB); Waterfall Creek, 30 km ENE of Cape Borda, 35°42’S 136°54’E, 140 m alt., 1995, H. Streimann 54946 (CANB); Rocky River, 24 km SSE of Cape Borda, 35°57’S 136°39’E, 40 m alt., 1994, H. Streimann 55029 (CANB); The Kona, Antechamber Bay, 35°47’S 138°05’E, 2008, G. Kantvilas 334/08 (AD, HO); W of Windmill Bay, 35°51’S 138°07’E, 40 m alt., 2012, G. Kantvilas 504/12 (AD, HO); Stokes Bay, 35°37’S 137°13’E, 50 m alt., 2012, G. Kantvilas 516/12 & B. de Villiers (AD, HO).

**Usnea cornuta** Körb.
Epiphytic in dry sclerophyll forest, *Callitris* forest and in *Melaleuca*-dominated swampy woodland.

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**Fig. 84.** Coastal rocks, covered in grey thalli of *Tylothallia verrucosa*, associated with the reddish *Caloplaca gallowayi.*
Characterised by a shrubby thallus containing usnic and salazinic acids (often together with scabrosins), usually with very abundant fibrils, rounded soralia and dense isidiomorphs on primary and secondary branches, on the fibrils and in and around the soralia. Identification of Usnea species is extremely complex and the interpretation of their highly variable morphology and chemical composition is challenging. Although Australian species were revised by Stevens (2004), I have relied more heavily on the accounts of Ohmura (2001) and Clerc (2004). Species names are applied to Kangaroo Island specimens with considerable caution.

Lashmar Lagoon, 35°49’S 138°04’E, 10 m alt., 2011, G. Kantvilas 267/11 & B. de Villiers (HO); Murray Lagoon, Timber Creek, 35°55’S 137°26’E, 15 m alt., 2011, G. Kantvilas 341/11 & B. de Villiers (HO); Brown Beach, 35°48’S 137°50’E, 10 m alt., 2012, G. Kantvilas 422/12, 423/12 & B. de Villiers (AD, HO); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 578/12, 579/12 & B. de Villiers (HO); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 334/15 (HO).

Usnea dasaea Stirt.
Occasional on trees and shrubs in open habitats, especially mallee woodland; very rarely also on rocks. This species is similar to U. cornuta and likewise has a subpendulous to shrubby, highly branched thallus, sparse to abundant fibrils, abundant punctiform soralia on the main and secondary branches, and numerous isidiomorphs scattered on the cortex and at the margins of the soralia. The cortex of the main branches has occasional annular cracks. It is distinguished from U. cornuta by containing usnic and norstictic acids, sometimes also with salazinic and/or galbinic acids.

Playford Hwy, 1 km W of Kingscote Airport, 35°43’S 137°31’E, 15 m alt., 1985, J.A. Elix 19575 & L.H. Elix (CANB); 3 km E of Penneshaw, 35°43’S 137°59’E, 1997, R.J. Bates 48357 (AD, HO); Red House Bay, 35°49’S 138°06’E, 10 m alt., 2010, G. Kantvilas 178/10 (HO); c. 2.5 km SW of Cape St Albans, 35°49’S 138°07’E, 120 m alt., 2011, G. Kantvilas 289/11A & B. de Villiers (HO); Lades Road, 35°52’S 137°30’E, 30 m alt., 2011, G. Kantvilas 319/11 (HO); Western Cove, 35°44’S 137°35’E, 1 m alt., 2013, G. Kantvilas 232/13, 232/13A (HO); Hanson Bay Track, c. 1 km SW of Grassdale Lagoon, 36°00’S 136°52’E, 50 m alt., 2015, G. Kantvilas 300/15 & B. de Villiers (AD, HO); Grassdale Lagoon, 36°00’S 136°53’E, 20 m alt., 2015, G. Kantvilas 335/15 (HO); summit of dunes overlooking Grassdale Lagoon, 36°00’S 136°53’E, 60 m alt., 2015, G. Kantvilas 351/15 (AD, HO).

Usnea inermis Motyka
This shrubby, highly variable, epiphytic species is widespread throughout drier areas of Australia. Most Kangaroo Island specimens contain psoromic acid (medulla P+ yellow) but one contains usnic acid only.

Fig. 85.
N of Murray Lagoon, 35°55’S 137°25’E, 1972, R.D. Seppelt 2075 (MEL); corner of Payford Hwy, Birchmore Hwy and road to Kingscote aerodrome, 35°42’S 137°31’E, 1982, E.N.S. Jackson 4533 (AD); Rocky River, 4 km W of Rocky River Homestead, 35°57’S 136°42’E, 50 m alt., 1985, J.A. Elix 19622 & L.H. Elix (CANB); Playford Hwy, 1 km W of Parndana, 35°47’S 137°15’E, 160 m alt., 1985, J.A. Elix 19664 & L.H. Elix (CANB); West Bay, 15 km SSW of Cape Borda, 35°55’S 136°33’E, 1994, H.T. Lumbsch 10916, A. Dickhäuser & H. Streitmann (CANB); c. 2.5 km SW of Cape St Albans, 35°49’S 138°07’E, 120 m alt., 2011, G. Kantvilas 289/11B & B. de Villiers (HO); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 577/12 & B. de Villiers (HO); Western Cove, 35°44’S 137°35’E, 1 m alt., 2013, G. Kantvilas 232/13B (HO) (usnic acid only); Hanson Bay Track, c. 1 km S of Grassdale Homestead, 36°00’S 136°52’E, 5 m alt., 2015, G. Kantvilas 367/15 & B. de Villiers (AD, HO).
Verrucaria alborimosa P.M. McCarthy & Kantvilas

Recently described from Flinders Island where it grew on coastal limestone (McCarthy & Kantvilas 2015), this species was recorded from deeply shaded crevices on non-calcareous littoral rocks. It can be distinguished from V. subdiscreta, the most common species in this habitat on the island, by its larger perithecia and broader ascospores. Illustration: McCarthy & Kantvilas (2015: Fig. 1).

Western River Cove, W end of beach, 35°40’S 136°58’E, 2 m alt., 2015, G. Kantvilas 417/15 (HO).

Verrucaria buelliicola P.M. McCarthy

On limestone in coastal pasture. The olive-black, areolate thallus forms extensive patches and contrasts with the thick, white thallus of Buellia albula on which it grows. Although seemingly not uncommon, it is rarely fertile and hence has been rarely collected. Illustration: McCarthy (2003b: Fig. 1).

Cape St Albans, 35°48’S 138°07’E, 20 m alt., 2010, G. Kantvilas 168/10 (AD, HO).

Verrucaria calciseda DC.

Widespread on limestone at the coast in pasture, heathland and gaps in woodland. This is perhaps the most common of several endolithic species with tiny, black perithecia sunken in pits in the surface of the substratum; others listed here include V. muralis (see below) and Bagliettoa baldensis (above). However, additional species, represented by minute fragments and therefore not identifiable with certainty, are also present among collections from the island (P.M. McCarthy, pers. comm.). Verrucaria calciseda can be characterised by having perithecia 0.2–0.3 (–0.4) mm wide, lacking an involucrellum and with ascospores 13–24 × 7–13 µm. Contrary to Gueidan et al. (2009) who place this species in Bagliettoa, I have elected to follow McCarthy (2012) who applies the genus Verrucaria in a broader sense.

Windmill Bay, 35°51’S 138°07’E, 10 m alt., 2013, G. Kantvilas 236/13 & B. de Villiers (AD, HO); near Pelican Lagoon, summit of hill above the Tiger Simpson memorial, 35°50’S 137°49’E, 60 m alt., 2013, G. Kantvilas 280/13, 284/13 (HO); Stokes Bay, 35°37’S 137°13’E, 60 m alt., 2013, G. Kantvilas 297/13 & B. de Villiers (HO); Red House Bay, 35°49’S 138°06’E, 15 m alt., 2013, G. Kantvilas 308/13 (HO).

Verrucaria compacta (A.Massal.) Jatta

On limestone in coastal heathland and pasture. This is a very distinctive species, recognised by its dark olive, subsquamulose thallus with immersed perithecia and subglobose ascospores, 8–13 µm wide.

Near Pelican Lagoon, summit of hill above the Tiger Simpson memorial, 35°50’S 137°49’E, 60 m alt., 2013, G. Kantvilas 283/13 (AD, HO); Stokes Bay, 35°37’S 137°13’E, 60 m alt., 2013, G. Kantvilas 301/13 & B. de Villiers (AD, CANB, HO).

Verrucaria fusconigrescens Nyl.

On boulders in sheltered underhangs, mostly at the edge of dry sclerophyll forest at the coast. This species

is recognised by the epilithic, rimose-areolate, brownish thallus, ± superficial, black perithecia, 0.2–0.4 mm wide, with an involucrellum, and by the 16–26 × 7–12 µm ascospores.

Mouth of De Mole River, 18 km SSE of Cape Borda, 35°43’S 136°46’E, 20 m alt., 1994, H. Streimann 55102 p.p. (CANB); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 3 m alt., 2013, G. Kantvilas 337/13 & B. de Villiers (AD, HO).

Verrucaria muralis Ach.

On limestone; recognised by the tiny black perithecia, 0.2–0.5 (–0.6) mm wide, semi-immersed into the surface of the rock, with an involucrellum and ascospores 19–28 × 9–15 µm. Illustration: Stenroos et al. (2016: 729).


Verrucaria papillosa Ach.

On limestone in coastal heathland. Characterised by an inconspicuous thallus and superficial, black perithecia with a well-developed involucrellum and relatively large ascospores, 23–37 × 14–21 µm.

Approx. 1.5 km SW of Point Ellen, 36°00’S 137°11’E, 10 m alt., 2015, G. Kantvilas 445/15 (HO).

Verrucaria subdiscreta P.M. McCarthy

This is the most common littoral species of Verrucaria found on the island, occurring on both non-calcareous and calcareous sea-shore rocks, well within the splash zone. The thallus forms extensive black patches, often in sheltered overhangs, with tiny black perithecia, <0.25 mm wide, and relatively small ascospores, 9–15 × 4–6.5 µm. Fig. 86.

Emu Bay, 35°35’S 137°31’E, 1957, H.B.S. Wommersley (AD); mouth of De Mole River, 18 km SSE of Cape Borda, 35°43’S 136°46’E, 20 m alt., 1994, H.T. Lumbsch 10922n, A. Dickhäuser & H. Streimann (CANB); Ravine

Fig. 86. Verrucaria subdiscreta. Scale = 1 mm. Photo: J. Jarman.
des Casoars, 35°48’S 136°35’E, 2 m alt., 2012, G. Kantvilas 451/12 (AD, HO); Point Ellen, 36°00’S 137°11’E, 2012, G. Kantvilas 465/12 & B. de Villiers (AD, HO); northern end of Antechamber Bay, 35°47’S 138°04’E, 2012, G. Kantvilas 510/12A (HO); Windmill Bay, 35°51’S 138°07’E, 0 m alt., 2013, G. Kantvilas 239/13 & B. de Villiers (AD, HO); the old cannery, American River, c. 1 km SW of Ballast Head, 35°46’S 137°48’E, 0.5–1 m alt., 2013, G. Kantvilas 324/13, 336/13, 339/13 & B. de Villiers (AD, HO); Cape St Albans, 35°48’S 138°07’E, 0 m alt., 2015, G. Kantvilas 390/15 (HO).

**Verrucaria sp. A**
On semi-inundated rocks in a fast-flowing fresh-water stream in dry sclerophyll forest. With its black thallus, minute but prominent perithecia, and 17–22 × 9–12 µm ascospores, this specimen appears to belong to the *V. nigrescens* Pers. complex (P.M. McCarthy, pers. comm.), although *V. nigrescens* in the strict sense is a species that grows mainly on limestone in terrestrial habitats.

Rocky River, 35°57’S 136°40’E, 35 m alt., 2015, G. Kantvilas 541/15 (AD, HO).

**Verrucaria sp. B**
On rather dry, exposed sandstone in grassy, dry sclerophyll forest. This unusual species is characterised by a very thin, dark grey, effuse thallus with minute, black perithecia, 0.1–0.18 mm wide, and ascospores 16–20 × 7–9 µm.


**Xanthoparmelia amplexula** (Stirt.) Elix & J.Johnst.
On exposed rocks. Characterised by the relatively broad, loosely attached lobes with abundant, slender isidia, a pale to dark brown underside, and by the presence of norlobaridone (medulla KC+ red).

Strepera Falls, 35°42’S, 137°06’E, 1982, K. Stove 1761 (AD); Cygnet River, 41 km WSW of Kingscote, 35°44’S 137°13’E, 110 m alt., 1994, H. Streimann 54889 (CANB).

**Xanthoparmelia australasica** D.J.Galloway
Widely scattered on rocks, especially near the coast. This is the most common of the green *Xanthoparmelia* species found on the island. It forms extensive, loosely attached, ± pure mats of broad, isidiate lobes with a black underside, and contains usnic and salazinic acids.

Fig. 87.

E of Penneshaw, 35°43’S 137°57’E, 1971, G. Jackson 816 (AD); same locality, 1997, R.J. Bates 48353B & W. Bates (AD); between Cape Hart and Cape Willoughby, 35°53’S 138°05’E, 1982, K. Stove 1434 (AD); Stokes Bay, 35°37’S 137°12’E, 2 m alt., 1985, J.A. Elix 19656 & L.H. Elix (CANB); Hog Bay, Peneshaw, 35°43’S 137°57’E, 2 m alt., 1985, J.A. Elix 19673, 19676, 19685 & L.H. Elix (CANB); same locality, 15 m alt., 1994, H. Streimann 54864 (CANB); W end of Antechamber Bay, 35°48’S 138°05’E, 2 m alt., 1985, J.A. Elix 19687, 19688 & L.H. Elix (CANB); Harveys Return, 35°45’S 136°38’E, 2 m alt., 1985, J.A. Elix 19743 & L.H. Elix (CANB); same locality, 2010, G. Kantvilas 182/10 (AD, HO); King George Beach, 35°40’S 137°04’E, 2 m alt., 1985, J.A. Elix 19755 & L.H. Elix (CANB); Rocky River, 24 km SSE of Cape Borda, 35°58’S 136°39’E, 40 m alt., 1994, H. Streimann 55042, 55032 (AD, CANB); mouth of De Mole River, 35°43’S 136°46’E, 20 m alt., 1994, H. Streimann 55106, 55102 (CANB); American River, 35°46’S 137°47’E, 2007, R.W. Rogers 11519 (BRI); near Frenchmans Rock, 35°43’S 137°57’E, sea-level, 2007, R.W. Rogers 11522 (BRI); Windmill Bay, 35°51’S 138°07’E, 10 m alt., 2011, G. Kantvilas 409/11 (AD, HO); Western River Cove, E of beach, 35°41’S 136°58’E, 5 m alt., 2015, G. Kantvilas 409/15 (AD, HO).

**Xanthoparmelia bratti** (Essl.) O.Blanco et al.
On foreshore rocks; uncommon. This olive-brown, non-isidiate species with a black underside is a member of the *X. pulla* (Ach.) O. Blanco et al. group, closely

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Fig. 87. *Xanthoparmelia australasica*, one of the most common and conspicuous, mat-forming species, especially on coastal rocks. Scale = 10 mm.
related to the common and widespread \textit{X. subprolixa} (see below). It is distinguished by its chemical composition of 4-O-methylolivetoric acid (medulla KC+ pink, C–).


\textbf{Xanthoparmelia cafferensis} (Essl.) O.Blanco \textit{et al.}

On exposed rocks; uncommon. This is another olive-brown species and a close relative of \textit{X. subprolixa} (see below), distinguished by its chemical composition of olivetoric acid (medulla KC–, C± yellow).


\textbf{Xanthoparmelia congensis} (J.Steiner) Hale

On exposed rocks. This subcustrose, isidiate species with a black underside is chemically identical to the very common \textit{X. mouguitina} (see below: stictic acid, medulla K+ yellow). It is distinguished by having sparse, inflated to subglobose isidia that become erumpent at the tips, giving the thallus a pustulate appearance.


\textbf{Xanthoparmelia conranensis} (J.A. Elix & L.H. Elix) Elix

A very common and widespread foliose lichen on coastal rocks. This species can be very variable in thallus colour, ranging from pale grey to pale beige-brown to brown; its chemistry (atranorin and 4-O-methylolivetoric acid: medulla KC+ pink) is diagnostic.


\textbf{Xanthoparmelia delsei} (Duby) O.Blanco \textit{et al.}

On rocks. This species is a further member of the \textit{X. pulla} group and is closely related to the common and widespread \textit{X. subprolixa}, and likewise has an olive-brown thallus with a black underside and lacks isidia and soreidia. It is characterised by its chemical composition which includes glomelliferic, glomelic and perlatolic acids (medulla K–, C± yellowish or pink, KC+ dull orange, P–, UV–).

Cape St Albans, 35°48’S 138°07’E, 20 m alt., 2010, \textit{G. Kantvilas} 174/10 (AD, HO).

\textbf{Xanthoparmelia digitiformis} (Elix & P.M.Armstr.) Filson

On exposed rocks. Characterised by the non-isidiate lobes with a pale brown underside, and by the presence of salazinic acid as the dominant medullary compound; see Kantvilas \textit{et al.} (2002) for a discussion of this and several other superficially similar species.


\textbf{Xanthoparmelia elizii} Filson

On rocks in dry sclerophyll forest. Characterised by the non-isidiate thallus with an ivory or pale brown underside, and by the presence of norstictic acid as the dominant medullary compound.

Point Ellen, 36°00’S 137°10’E, 10 m alt., 2007, \textit{R.W. Rogers} 11482 (BRI); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, \textit{G. Kantvilas} 763/12 & \textit{B. de Villiers} (AD, HO).

\textbf{Xanthoparmelia exillima} (Elix) Elix & \textit{J.Johnst.}

On exposed rocks. This species is superficially rather similar to the common and widespread \textit{X. mouguitina}, in that both have a tightly adnate, isidiate thallus of narrow lobes. It is distinguished by having a pale underside and by containing norlobaridone (medulla KC+ reddish); in contrast, \textit{X. mouguitina} has a black underside and contains stictic acid (medulla K+ yellow).

Scotts Cove Lookout, 3 km E of Cape Borda, 35°46’S 136°37’E, 120 m alt., 1985, \textit{J.A. Elix} 19718 & \textit{L.H. Elix} (CANB); Hog Bay, 3 km E of Penneshaw, 35°43’S 137°57’E, 15 m alt., 1994, \textit{H. Streimann} 54870 (CANB).

\textbf{Xanthoparmelia filarszkyana} (Gyeln.) Hale

Occasional on exposed rocks. With its tightly adnate thallus of broadly rounded, non-isidiate lobes with a pale underside, this species is morphologically similar to the widespread and common \textit{X. metaclystoides}, from which it differs by containing norlobaridone and loxodin (medulla K–, KC+ red).

Middle River, 35°44’S 137°04’E, 1989, \textit{D.N. Kraehenbuehl} 5162 (AD); King George Beach, 35°40’S 137°04’E, 2 m alt., 1985, \textit{J.A. Elix} 19749 & \textit{L.H. Elix} (AD, CANB); Windmill Bay, 35°51’S 138°07’E, 10 m alt., 2011, \textit{G. Kantvilas} 408/11 (AD, HO); Rocky River, 35°57’S 136°40’E, 35 m alt., 2015, \textit{G. Kantvilas} 529/15 (HO).

\textbf{Xanthoparmelia flavescenceireagens} (Gyeln.) DJ.Galloway

On exposed rocks. This is a widespread, common and highly variable species, especially in dry sclerophyll forest. It is characterised by a relatively loosely adnate thallus that lacks isidia, has a pale brown underside and contains norlobaridone (medulla KC+ red). \textbf{Fig. 88.}

Eastern side of Smiths Bay, 35°50’S 137°15’E, 1973, \textit{G. Jackson} s.n. (AD); Strepera Falls, 35°42’S, 137°06’E, 1982, \textit{E.N.S. Jackson} 4510 (AD); same locality, 1982, \textit{K. Stove} 1766 (AD); 3 km E of Seal Bay, 36°00’S 137°21’E, 30 m alt., 1985, \textit{J.A. Elix} 19591 & \textit{L.H. Elix} (CANB); Murray Lagoon,
23 km SE of Parndana, 35°55'S 137°25'E, 20 m alt., 1985, J.A. Elix 19600 & L.H. Elix (CANB); Billygoat Falls, 35°42'S 136°55'E, 200 m alt., 2012, G. Kantvilas 764/12 & B. de Villiers (AD, HO); northern end of Antechamber Bay, 35°47'S 138°04'E, 5 m alt., 2015, G. Kantvilas 474/15 (HO); Rocky River, 35°57'S 136°40'E, 35 m alt., 2015, G. Kantvilas 526/15 (AD, HO).

**Xanthoparmelia furcata** (Müll.Arg.) Hale

On sandstone in dry sclerophyll forest. This is one of several species that has a loosely adnate thallus of dichotomously branched lobes with ± ascending apices. It is characterised by having a pale brown underside (sometimes blackened at the apices) and by containing norlobaridone (medulla KC+ red). Also present on the island is the superficially similar *X. rubrireagens* (see below).

**Fig. 88.** Current delimitation of the genus *Xanthoparmelia* includes yellow-green species, the traditional concept of the genus, as well as grey ones, previously classified in *Paraparmelia*, and brown ones, previously placed in *Neofuscelia*. Here the green *Xanthoparmelia flavescenireagens* grows together with the grey *X. lithophiloides* and the olive-brown *X. subprolixa*. Scale = 10 mm. Photo: J. Jarman.

**Xanthoparmelia hybridiza** Elix & J.Johnst.

Locally very abundant on seashore cobbles and boulders. Morphologically similar to *X. metaclystoides* and *X. filarszkyana*, this species is characterised chemically by containing medullary barbatic, 4-O-demethylbarbatic, norstictic (±), salazinic and consalazinic acids.

**Fig. 89.** *Xanthoparmelia leuco­phaea*, a grey species formerly classified in the genus *Paraparmelia*. Scale = 10 mm. Photo: J. Jarman.
King George Beach, 35°40’S 137°04’E, 2 m alt., 1985, J.A. Elix 19748 & L.H. Elix (AD, CANB); same locality, 1985, J.A. Elix 19750 & L.H. Elix (MEL); Cape St Albans, 35°48’S 138°07’E, 1 m alt., 2011, G. Kantvilas 367/11 (AD, HO).

**Xanthoparmelia leucophaea** (Elix & J. Johnst.) Elix

On rocks in dry sclerophyll forest. This is a grey species, previously included in the genus *Paraparmelia*, characterised by a non-isidiate, loosely attached thallus with a pale to dark brown underside, containing atranorin together with norstictic and salazinic acids. Fig. 89.

Ironstone Hills, 35°44’S 137°57’E, 70 m alt., 2015, G. Kantvilas 372/15 (HO).

**Xanthoparmelia lithophiloides** (Kurok.) Elix

Locally common on rocks in dry sclerophyll forest, sometimes forming extensive mats. This grey species is chemically identical to the preceding one but differs chiefly by having a black underside. Fig. 88.

Waterfall Creek, 35°42’S 136°54’E, 140 m alt., 1994, H. Streimann 54941 (CANB); Billygoat Falls, 35°42’S 136°55’E, 200 m alt., 2012, G. Kantvilas 547/12 & B. de Villiers (AD, HO); Latham Conservation Park, 35°38’S 137°14’E, 160 m alt., 2015, G. Kantvilas 293/15 & B. de Villiers (HO); Ironstone Hills, 35°44’S 137°57’E, 70 m alt., 2015, G. Kantvilas 372/15 (HO).

**Xanthoparmelia metaclystoides** (Kurok. & Filson) Elix & J. Johnst.

On exposed rocks in woodland and rough pasture. Like *X. hybridiza*, *X. filarszkyana*, *X. rimalis* and *X. ustulata*, this species has a tightly adnate, non-isidiate thallus of broad, compact lobes with rounded apices, transverse cracks and a pale brown underside. It is distinguished from these species by containing norstictic acid as the main medullary compound (K+ yellow → red). Fig. 90.

E of Wisanger Park Homestead, 35°37’S 137°28’E, 80 m alt., 1985, J.A. Elix 19625, 19626 & L.H. Elix (CANB); S of Wisanger Park Homestead, 7 km WSW of Emu Bay, 35°37’S 137°27’E, 80 m alt., 1985, J.A. Elix 19640, 19643, 19646 & L.H. Elix (CANB); c. 2 km SW of Cape St Albans, 35°49’S 138°07’E, 60 m alt., 2011, G. Kantvilas 350/11 (HO); c. 3.5 km NE of Stokes Bay, 35°37’S 137°13’E, 50 m alt., 2012, G. Kantvilas 534/12 & B. de Villiers (AD, HO).

**Xanthoparmelia microcephala** Elix & Kantvilas

Although usually found on exposed rocks, the single specimen from Kangaroo Island is from a charred eucalypt log in dry sclerophyll woodland. This species is recognised by the elongate, adnate lobes with abundant, cylindrical, branching isidia, the pale brown underside and the presence of salazinic acid as the major medullary compound.

Near Bark Hut Road, 33 km WSW of Kingscote, 35°43’S 137°16’E, 160 m alt., 1994, H. Streimann 54875 (CANB).

**Xanthoparmelia mougeotina** (Nyl.) D.J. Galloway

Common and widespread on exposed rocks in woodland, pasture and near the coast. This species has a small foliose to subcrustose thallus, narrow (<1 mm wide), adnate lobes with a black underside, usually densely crowded, cylindrical isidia, and contains medullary stictic acid (K+ yellow). Fig. 91.

Murray Lagoon, 23 km SE of Parndana, 35°55’S 137°25’E, 20 m alt., 1985, J.A. Elix 19604 & L.H. Elix (CANB); S of Wisanger Park Homestead, 7 km WSW of Emu Bay, 35°37’S 137°27’E, 80 m alt., 1985, J.A. Elix 19636, 19641 & L.H. Elix (CANB); Ravine des Casoars, 35°48’S 136°37’E, 70 m alt., 1994, H. Streimann 54962 (CANB); c. 2 km SW of Cape St Albans, 35°49’S 138°07’E, 60 m alt., 2011, G. Kantvilas 351/11 (AD, HO); Windmill Bay, 35°51’S 138°07’E, 10 m alt., 2011, G. Kantvilas 410/11 (HO).
Xanthoparmelia murina (Kurok.) Elix
On boulders in coastal pasture. This is one of the grey taxa previously included in the genus Paraparmelia, characterised by having a black underside and isidia, and by containing salazinic acid as the major medullary constituent.

Cape St Albans, 35°48'S 138°07'E, 20 m alt., 2010, G. Kantvilas 175/10 (AD, HO).

Xanthoparmelia neodelisei (Elix) O.Blanco et al.
On sandstone boulders in coastal heathland. This is a brown species, superficially similar to members of the X. subprolixa group (see below) but distinguished by the pale underside, the pruinose lobe apices and the KC+ fleetingly pink-purple medulla.

Approx. 3.5 km NE of Stokes Bay, 35°37'S 137°13'E, 50 m alt., G. Kantvilas 538/12 & B. de Villiers (AD, HO).

Xanthoparmelia neorimalis (Elix & P.M.Armstr.) Elix & T.H.Nash
Uncommon, on exposed rocks. Characterised by very tightly adnate, narrow (mostly <0.6 mm), non-isidiate lobes that are imbricate, sometimes subcrustose and transversely cracked in the centre of the thallus but rather separate and linear-elongate at the periphery, the pale brown underside, and the presence of salazininc acid as the main medullary compound.

S of Wisanger Park Homestead, 7 km WSW of Emu Bay, 35°37'S 137°27'E, 80 m alt., 1985, J.A. Elix 19645 & L.H. Elix (CANB).

Xanthoparmelia neotinctina (Elix) Elix & J.Johnst.
Occasional on exposed rocks, especially in rough pasture. This is a highly variable species, characterised by tightly adnate, broad (>1 mm) lobes with dense, coralloid-cylindrical isidia, a black underside, and containing norstictic acid, often together with salazinic acid (medulla K+ yellow→red). Fig. 92.

Rocky River, 24 km SSE of Cape Borda, 35°58'S 136°39'E, 40 m alt., 1994, H. Streimann 55031 (CANB); c. 2 km SW of Cape St Albans, 35°49'S 138°07'E, 60 m alt., 2011, G. Kantvilas 349/11 (AD, HO); northern end of Antechamber Bay, 35°47'S 138°04'E, 5 m alt., 2011, G. Kantvilas 402/11 (AD, HO); Rocky River, 35°57'S 136°40'E, 35 m alt., 2015, G. Kantvilas 532/15 (AD, HO).

Xanthoparmelia nigraoleosa Elix & J.Johnst.
Uncommon on rocks in pasture, growing together with X. metaclystoides. This is a tiny, ± subcrustose, non-isidiate species with a black underside, containing fatty acids in the medulla (all spot tests negative).

E of Wisanger Park Homestead, 35°37'S 137°28'E, 80 m alt., 1985, J.A. Elix 19628 & L.H. Elix (CANB).

Xanthoparmelia parvoclystoides Elix & J.Johnst.
On coastal granite; uncommon. Characterised by the tightly adnate, foliose to subcrustose thallus, lack of isidia, pale brown underside and the presence of norstictic acid as the major medullary compound (K+ yellow→red).
Kirkpatrick Point, N of Remarkable Rocks, 36°03’S 136°45’E, 40 m alt., 1985, J.A. Elix 19608 & L.H. Elix (CANB).

**Xanthoparmelia pustuliza** (Elix) Elix & J.Johnst.
On exposed rocks in dry sclerophyll woodland, often forming extensive colonies. This very distinctive species is characterised by tightly adnate lobes with a black underside, coarse, globular isidia that become erumpent and form granular, soredia-like masses, and by the presence of norstictic acid as the major medullary compound.

Rocky River, 35°57’S 136°40’E, 35 m alt., 2015, G. Kantvilas 528/15, 530/15 (HO).

**Xanthoparmelia rimalis** (Kurok.) Elix, A.Thell & Søchting
This species is another member of the **X. metaclystoides** group, which on Kangaroo Island also includes **X. hybridiza**, **X. filarszkyana** and **X. ustulata**. It is distinguished from these chemically, by containing salazinic acid as the major medullary compound. It is noteworthy that just like **X. hybridiza**, this species has been recorded on the island exclusively on beach cobbles. In earlier accounts (e.g. Elix 1994), it was referred to under the name **X. lineola** (E.C.Berry) Hale.

Rocky River, 35°57’S 136°40’E, 35 m alt., 2015, G. Kantvilas 524/15 (HO).

**Xanthoparmelia rubrireagens** (Gyeln.) Hale
On exposed rocks in dry sclerophyll woodland. Characterised by the linear-elongate, ± dichotomously branched lobes with ascending apices, and distinguished from **X. furcata** by the presence of salazinic acid as the major medullary compound (K+ yellow → red).

Rocky River, 35°57’S 136°40’E, 35 m alt., 2015, G. Kantvilas 525/15, 530/15 (AD, HO).

**Xanthoparmelia scabrosa** (Taylor) Hale
On exposed rocks in dry sclerophyll woodland. This highly variable species is recognised by its loosely attached lobes with globular or wart-like isidia that become pustular with age, the pale brown underside, and the presence of norlobaridone (medulla KC+ red).

Rocky River, 35°57’S 136°40’E, 35 m alt., 2015, G. Kantvilas 524/15 (HO).

**Xanthoparmelia subloxodella** (Elix & Kantvilas) O.Blanco et al.
On limestone boulders in coastal sheep pasture. This very distinctive brown species has a pale underside and inflated, eventually erumpent isidia.

North Cape area, 3 km N of Cape Rouge, 35°35’S 137°38’E, 10 m alt., 2013, G. Kantvilas 252/13 (AD, HO).

**Xanthoparmelia subprolixa** (Nyl. ex Kremp.) O.Blanco et al.
Widespread and common on rocks in coastal as well as more inland areas; more rarely also on consolidated soil. This is the most common of the olive-brown parmelioid species, formerly included in the genus **Neofuscelia**, characterised by loosely to moderately adnate lobes, a black undersurface, the absence of isidia and soredia, and presence of divaricatic acid as the major medullary compound (medulla K–, KC–, C–, P–, UV–). Several additional, less common species (**X. brattii**, **X. caffarensis** and **X. delisei**) present on the island are morphologically identical but differ by their medullary chemistry. **Figs 88, 93A.**

Kingscote, 1972, collector unknown (MEL); Murray Lagoon, 23 km SE of Parndana, 35°55’S 137°25’E, 20 m alt., 1985, J.A. Elix 19601 & L.H. Elix (CANB); Kirkpatrick Point, N of Remarkable Rocks, 36°03’S 136°45’E, 40 m alt., 1985, J.A. Elix 19607 & L.H. Elix (CANB); E of Wisanger Park Homestead, 35°37’S 137°28’E, 80 m alt., 1985, J.A. Elix 19627 & L.H. Elix (CANB); S of Wisanger Park Homestead, 7 km WSW of Emu Bay, 35°37’S 137°27’E, 80 m alt., 1985, J.A. Elix 19637 & L.H. Elix (CANB); Scotts Cove Lookout, 3 km E of Cape Borda, 35°46’S 136°37’E, 120 m alt., 1985, J.A. Elix 19717, 19722, 19723 & L.H. Elix (CANB); King George Beach, 35°40’S 137°04’E, 2 m alt., 1985, J.A. Elix 19756 & L.H. Elix (CANB); Ballast Head, American River, 35°45’S 137°48’E, 1986, D.N. Kraehenbuehl s.n. (MEL); Hog Bay, 3 km E of Penneshaw, 35°43’S 137°56’E, 15 m alt., 1994, H. Streimann 54866 (CANB); Ravine des...
On rocks in rough pasture. Recognised by the foliose, olive-brown thallus containing divaricatic acid, the pale underside and abundant isidia.

Creek Bay Farm at The Kona, 35°49'S 138°05'E, 40 m alt., 2012, G. Kantvilas 402/12 (AD, HO).

**Xanthoparmelia subverrucula (Essl.) O.Blanco et al.**

On rocks. This olive-brown foliose lichen was previously included in the genus *Neofuscella*. It is characterised by the mostly loosely adnate, olive brown to black-brown lobes containing divaricatic acid (medulla K–, KC–, C–, P–, UV–), with a black underside and cylindrical isidia.

Near Bark Hut Road, 35°43'3 S 137°16'E, 160 m alt., 1994, H. Streimann 54881 (AD, CANB); northern end of Antechamber Bay, 35°47'S 138°04'E, 5 m alt., 2011, G. Kantvilas 398/11 (AD, HO).

**Xanthoparmelia tasmanica (Hook.f. & Taylor) Hale**

Common and widespread on exposed rocks. Together with *X. australasica*, this is the most common of the large, foliose, mat-forming, green *Xanthoparmelia* species present on the island. These two taxa are chemically identical and contain salazinic acid, but *X. tasmanica* lacks isidia. Separation of these species may be tricky as sometimes the isidia on *X. australasica* segregate of *X. tasmanica* can be very sparse.

On coastal rocks. This species is a relatively recent introduction to Kangaroo Island. It contains the fatty acids, constipatic and protoconstipatic acids (medulla K–, KC–, P–).

This Kangaroo Island endemic species is known only from the type collection, from dry, exposed rocks. It resembles the common *X. metaclystoides* in that it has a yellow-green foliose thallus of tightly adnate, flat lobes to 3 mm wide, a pale undersurface, lacks isidia and contains norstictic and salazinic acids (medulla K+, yellow-red, KC–, C–, P+ yellow); it is distinguished by having subterete laciniae, 0.2–0.5 mm wide, scattered in the centre of the thallus. Attempts to find this species again were unsuccessful as the type locality, on private land in one of the more fertile parts of the island, appears to have been converted to improved pasture.

S of Wisanger Hills Homestead, 7 km WSW of Emu Bay, 35°37'S 137°27'E, 80 m alt., 1985, J.A. Elix 19664 & L.H. Elix (CANB, MEL) [type].

**Xanthoparmelia xanthomelaena (Müll.Arg.) Hale**

On exposed rocks. This is a very tightly adnate to subcrustose species, characterised by lacking isidia, having a black underside and containing stictic acid (medulla K+ yellow).

E of Wisanger Park Homestead, 35°37'S 137°28'E, 80 m alt., 1985, J.A. Elix 19629 & L.H. Elix (CANB); Scotts Cove Lookout, 35°46'S 136°37'E, 120 m alt., 1985, J.A. Elix 19719 & L.H. Elix (CANB); Creek Bay Farm, 35°50'S 138°06'E, 85 m alt., 2013, G. Kantvilas 366/13 (HO).

**Xanthoparmelia wisangerensis Elix & J.Johnst.**

On exposed rocks. This species is a very tightly adnate to subcrustose species, characterised by lacking isidia, having a black underside and containing stictic acid (medulla K+ yellow).

E of Wisanger Park Homestead, 35°37'S 137°28'E, 80 m alt., 1985, J.A. Elix 19629 & L.H. Elix (CANB); Scotts Cove Lookout, 35°46'S 136°37'E, 120 m alt., 1985, J.A. Elix 19719 & L.H. Elix (CANB); Creek Bay Farm, 35°50'S 138°06'E, 85 m alt., 2013, G. Kantvilas 366/13 (HO).

**Xanthoria angustata**

This species is a relatively recent introduction to Kangaroo Island. It contains the fatty acids, constipatic and protoconstipatic acids (medulla K–, KC–, P–).

On coastal rocks. This species is a very tightly adnate to subcrustose species, characterised by lacking isidia, having a black underside and containing stictic acid (medulla K+ yellow).

E of Wisanger Park Homestead, 35°37'S 137°28'E, 80 m alt., 1985, J.A. Elix 19629 & L.H. Elix (CANB); Scotts Cove Lookout, 35°46'S 136°37'E, 120 m alt., 1985, J.A. Elix 19719 & L.H. Elix (CANB); Creek Bay Farm, 35°50'S 138°06'E, 85 m alt., 2013, G. Kantvilas 366/13 (HO).

**Xanthoria xanthomelaena (Müll.Arg.) Hale**

On exposed rocks. This is a very tightly adnate to subcrustose species, characterised by lacking isidia, having a black underside and containing stictic acid (medulla K+ yellow).

E of Wisanger Park Homestead, 35°37'S 137°28'E, 80 m alt., 1985, J.A. Elix 19629 & L.H. Elix (CANB); Scotts Cove Lookout, 35°46'S 136°37'E, 120 m alt., 1985, J.A. Elix 19719 & L.H. Elix (CANB); Creek Bay Farm, 35°50'S 138°06'E, 85 m alt., 2013, G. Kantvilas 366/13 (HO).

**Xanthoria angustata**

This species is a relatively recent introduction to Kangaroo Island. It contains the fatty acids, constipatic and protoconstipatic acids (medulla K–, KC–, P–).

On coastal rocks. This species is a very tightly adnate to subcrustose species, characterised by lacking isidia, having a black underside and containing stictic acid (medulla K+ yellow).

E of Wisanger Park Homestead, 35°37'S 137°28'E, 80 m alt., 1985, J.A. Elix 19629 & L.H. Elix (CANB); Scotts Cove Lookout, 35°46'S 136°37'E, 120 m alt., 1985, J.A. Elix 19719 & L.H. Elix (CANB); Creek Bay Farm, 35°50'S 138°06'E, 85 m alt., 2013, G. Kantvilas 366/13 (HO).
al. (2013). For discussion of its generic placement, see under X. ligulata (below). Illustration: Kondratyuk et al. (2009: Fig. 31).

Middle River, 35°42'S 137°06'E, S.J. Edmonds s.n. (MEL); Stokes Bay, 35°37'S 137°12'E, 2 m alt., 1985, J.A. Elix 19654 & L.H. Elix (CANB); Point Ellen, 36°00’S 137°10’E, 10 m alt., 2007, R.W. Rogers 11484 (BRI, HO); Cape St Albans, 35°48’S 138°08’E, 40 m alt., 2011, G. Kantvilas 361/11 (AD, HO, KW); Ravine des Casoars, 35°48’S 136°35’E, 2 m alt., 2012, G. Kantvilas 449/12 (AD, HO, KW).

**Xanthoria coomae** S.Y. Kondr. & Kärnefelt

Widespread and common on wood and bark, especially in areas subject to nutrient enrichment, such as around farms, along roadsides and in gardens. This species is recognised by the typically bright orange-yellow, foliose thallus, with highly congested, plane to concave lobes to 2 mm wide or more, with mostly upturned margins and a pitted and faveolate upper surface. Fig. 94.

This species was previously included within the cosmopolitan and highly variable species Xanthoria parietina (L.) Beltr. In recent years, this taxon has received considerable attention from taxonomists and, in the Australian region, most collections under this name have been ascribed to newly-described segregate species (Kondratyuk et al. 2006, 2007). The name X. coomae has since been generally applied to most Australian collections of ‘typical’ X. parietina. However, the relationship between these two taxa remains unclear (Arup et al. 2013).

Near Lockwood Corner, Kingscote, 35°39’S 137°38’E, 1967, G. Jackson 525 p.p. (AD); Playford Hwy, 1 km W of Kingscote Airport, 35°43’S 137°31’E, 15 m alt., 1972, R.D. Seppelt 2105 (MEL); same locality, 1985, J.A. Elix 19573 & L.H. Elix (CANB); c. 4 km W of Rocky River Homestead, 35°57’S 136°42’E, 1982, K. Stove 1634 (AD); Creek Bay Farm, headwaters of Lubra Creek, 35°49’S 138°06’E, 40 m alt., 2011, G. Kantvilas 387/11 (AD, HO, KW); Hog Bay Road, 35°46’S 137°37’E, 20 m alt., 2013, G. Kantvilas 205/13 (AD, HO).

**Xanthoria elixii** S.Y. Kondr. & Kärnefelt

On bark and wood of coastal trees and shrubs. Like X. angustata, this taxon is a segregate of the widespread and variable Xanthoria ligulata (Kondratyuk et al. 2006), with alternative generic placements in Jackelixia (Fedorenko et al. 2009) or Dufourea (Arup et al. 2013). In my opinion, the differences between the two species are poorly explained (see Kondratyuk et al. 2006), but my interpretation of X. elixii is that it is a predominantly corticolous species that differs from X. ligulata by having somewhat wider marginal lobes (>1 mm) with slightly upturned margins.

[Rocky River area], 1940, J.B. Cleland s.n. (AD); near Lockwood Corner, Kingscote, 35°39’S 137°38’E, 1967, G. Jackson 525 p.p. (AD); Emu Bay, 1971, G. Jackson 821 (AD); Kingscote, old quarry, 35°39’S 137°38’E, 1972, R.D. Seppelt 661 (AD); Pelican Lagoon, 35°49’S 137°48’E, 10 m alt., 2011, G. Kantvilas 281/11 (AD, HO, KW); Cape St Albans, 35°48’S 138°07’E, 90 m alt., 2011, G. Kantvilas 358/11 (HO, KW); Strawbridge Point, 35°47’S 137°47’E, 5 m alt., 2012, G. Kantvilas 544/12 & B. de Villiers (AD, HO, KW); Point Ellen, 36°00’S 137°11’E, 5 m alt., 2013, G. Kantvilas 218/13 (HO); North Cape Road, 35°36’S 137°35’E, 5 m alt., 2013, G. Kantvilas 262/13 & B. de Villiers (AD, HO).

**Xanthoria ligulata** (Körb.) P. James

Very common and widespread, mostly on coastal rocks but also on dead wood in coastal situations. Recognised by the typically bright orange-yellow, foliose thallus, with highly congested and imbricate, plane to convex lobes to c. 1 mm wide, downturned and somewhat thickened margins and apices, and a smooth to a little scabrid (but not pitted or faveloate) upper surface. Together with the crustose genus Caloplaca, it
contributes to the characteristic orange colour of rocky sea-shores. **Fig. 95.**

This is a highly variable species. Depending on the degree of exposure of the habitat, thallus colour ranges from orange-red to yellow-orange, to various shades of greenish or greyish yellow when in deep shade. Lobe width and degree of crowding likewise varies greatly, depending on the habitat. The variability is clearly influenced by the highly dynamic and complex environment in which this species grows, affected by sea spray, fresh-water seepage, nutrification from birds, and exposure to wind, sun and abrasion. In recent years, *X. ligulata* has been segregated into several taxa (Kondratyuk *et al.* 2006, 2007, 2009), of which at least two, *X. angustata* and *X. elixii* (see above), are recorded for the island; a third, undescribed taxon (see below) is also present. Subsequently, *X. ligulata* and its allies have been placed in a separate genus, *Jackelixia*, by Fedorenko *et al.* (2009) and in *Dufourea* by Arup *et al.* (2013), with the former classification being applied in the Australian checklist of McCarthy (2018). However, in my view, until this controversy is resolved and the distinction between the many segregate species is clarified, I prefer to retain a more conservative nomenclature.

American River, 35°47’S 137°26’E, 1966, M. Fagg 182 (AD); W face of Mt Stockdale, 35°57’S, 137°04’E, 1971, G. Jackson

**Fig. 95.** *Xanthoria ligulata*. Scale = 10 mm.

**Fig. 96.** *Xanthoria* sp., related to the common and widespread *X. ligulata* but distinguished by the broader lobes and somewhat more yellowish hue. These features are best observed when the two species grow together. Scale = 10 mm.
808 (AD); Point Ellen, 36°00'S 137°11'E, 4 m alt., 1985, J.A. Elix 19592 & L.H. Elix (CANB); Hog Bay, Penneshaw, 35°43'S 137°57'E, 2 m alt., 1985, J.A. Elix 19671 & L.H. Elix (CANB); Rocky River, 24 km SSE of Cape Borda, 35°57’S 136°39’E, 40 m alt., 1994, H. Streimann 55503 (CANB); Hog Bay, 3 km E of Penneshaw, 35°43’S 137°56’E, 15 m alt., 1994, H. Streimann 55594 (CANB); E of Penneshaw, 35°43’S 137°57’E, 1997, R.W. Rogers 48353A & W. Bates (AD); Point Ellen, 36°00’S 137°10’E, 2007, R.W. Rogers 11481 (BRI); near Frenchmans Rock, Penneshaw, 35°43’S 137°57’E, 2007, R.W. Rogers 11485 (BRI); American River, 35°46’S 137°47’E, 2007, R.W. Rogers 11487 (BRI); northern end of Antechamber Bay, 35°47’S 138°04’E, 5 m alt., 2011, G. Kantvilas 400/11 (AD, HO, KW); Windmill Bay, 35°51’S 138°07’E, 20 m alt., 2012, G. Kantvilas 467/12 (HO, KW); Stokes Bay, 35°37’S 137°13’E, 1 m alt., 2012, G. Kantvilas 513/12 & B. de Villiers (AD, HO, KW).

Xanthoria sp.

On coastal rocks, especially granite, intermixed with X. ligulata and species of Caloplaca. It differs from the former by having a thallus that is more yellowish and with marginal lobes that are broader (1.5–2 mm), thicker (200–400 µm), crenulate and slightly upturned. The differences between this species and X. ligulata are subtle, but when seen growing side-by-side, they are clearly distinct. In gross morphology, it also bears some similarities to the corticolous X. streimanii S.Y.Kondr. & Kärnefelt. Like X. ligulata, this species belongs to the jackelziatal/Dufourse group. It has also been collected from Western Australia, the Bass Strait Islands and Tasmania. Fig. 96.


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References


An annotated catalogue of the lichens of Kangaroo Island, South Australia


Appendix 1. Lichens of Kangaroo Island

[legend: 1 name based on a type from Kangaroo Island; 2 first record for South Australia; 3 first record for Australia]
Cladonia ferdinandii (Müll.Arg.) Filson
Cladonia schizopora (Nyl.) Nyl.
Cladonia capitellata var. squamatica A.W.Archer
Cladonia enantia Nyl. var. enantia
Cladonia humilis (With.) J.R.Laundon
Cladonia macilenta Hoffm.
Cladonia neozeelandica var. striata (A.W.Archer) Kantvilas
Cladonia neozelandica var. sulcata (A.W.Archer) Kantvilas
Cladonia ochrochla (Nyl.) Hale
Cladonia praeternissa A.W.Archer var. praeternissa
Cladonia rigida var. acuta (Taylor) A.W.Archer
Cladonia subradiata (Vainio) Sanstede
Cladonia verticillata (Hoffm.) Schaer.
*Clauzadea metzleri Clauzade & Cl.Roux ex D.Hawksw.
*Coenogonium australiense Kantvilas & Lücking
Collema coccophorum Tuck.
Collema glaucopehalum Nyl. var. glaucopehalum
Collema glucophthalum var. implicatum (Nyl.) Degel.
Collema subfasciculatum Degel.
Collempodium sp.
*Cyphelium trachylioides (Nyl.) Erichsen ex Keissl.
Diploia canescens (Dick.) A.Massal.
*Diplochistes glyrophorus Lumbsch & Elix
*Diplochistes muscorum (Scop.) R.Sant. subsp. bartletti Lumbsch
Diplochistes thunbergiaus Lumbsch & Vězda
*Diplotomma alboatrum Lumbsch & Vězda
Endocarpon simplicatum (Nyl.) Nyl. var. simplicatum
Endocarpon simplicatum (Nyl.) Nyl. var. gauchothamn
*Enterographa divergens (Müll.Arg.) Redinger
*Ephedra acalata Henssen
Fellhanera sp.
Flavoparmelia hayonii (C.W.Dodge) Hale
Flavoparmelia rutidota (Hook. f. & Taylor) Hale
Flavoparmelia sorediana (Nyl.) Hale
*Flavoparmelia springtonensis (Elix) Hale
Fuscopannaria decipiens (P.M.Jørg. & D.J.Galloway) P.M.Jørg.
*Fuscopannaria minor (Darb.) P.M.Jørg.
Gloniopsis sp.
Gyalolechia cranfieldii (S.Y.Kondr. & Kärnefelt) Sochting, Flörke & Poelt
Halecineia spodoma (Nyl.) M.Mayrhofer
Halecineia subquamosa (Müll.Arg.) van den Boom & H.Mayrhofer
*Hertelidea aspera (Müll.Arg.) Kantvilas & Elix
Hertelidea pseudobryoria R.C.Harris, Ladd & Printzen
Heterodermia hybocarpa Elix
Heterodermia obscura (Nyl.) Trevis.
Heterodermia tremulans (Müll.Arg.) W.L.Culb.
Heteroplacium contumescens (Nyl.) Breuss
*Hymennia lactuca (With.) M.Choisy
Hyperphyscia adglutinata (Flörke) H.Mayrhofer & Poelt
Hypocenomyce australis Timdal
Hypotrachyna revoluta (Flörke) Hale
Japeviella pruinosa (Müll.Arg.) Kantvilas
Lecania cyrtella (Ach.) Th.Fr.
Lecania inundata (Hepp ex Körb.) M.Mayrhofer
Lecania koerberiana Lahm
Lecania maritima Kantvilas & van den Boom
Lecania polycaap (Müll.Arg.) Kantvilas & van den Boom
Lecania turicensis (Hepp) Müll.Arg.
Lecanora andina Räsänen
Lecanora caesiorubella Ach.
Lecanora casuarinophila Lumbsch
Lecanora crenulata (Dick.) Hook.
Lecanora dispersa (Pers.) Sommerf.
Lecanora elaphiea Stizenb.
Lecanora farinacea Fée
Lecanora flavidomarginata B. de Lesd.
Lecanora flavopallida Stirr.
Lecanora galactiniza Nyl.
Lecanora helvus Stizenb.
Lecanora morengiana Lumbsch & Elix
Lecanora pseudistana Nyl.
Lecanora saligia (Schrad.) Zahnbr.
Lecanora sphaeropora Müll.Arg.
Lecanora subsecta (Stirt.) Kantvilas & LaGrec
Lecanora symmicta (Ach.) Ach.
Lecidea capensis Zahnbr.
Lecidea fuscoatra Nyl.
Lecidea ochroleuca Pers.
Lecidea sarcogynoides Körb.
Lecidea terrena Nyl.
Lecidella destituta Kantvilas & Elix
Lecidella enteroleucella (Nyl.) Hertel
Lecidella flavovirens Kantvilas & Elix
Lecidella granulosula (Nyl.) Knoph & Leuckert var. granulosula
Lecidella granulosula var. lecanorina Kantvilas & Elix
Lecidella leucomarginata Kantvilas & Elix
Lecidella sublapicida (C.Knight) Hertel
Lecidella xylodena (Müll.Arg.) Kantvilas & Elix
Lemnora erratica (Körb.) R.C.Harris & Lendemer
Lepra erubescens (Hook. f. & Taylor) A.W.Archer & Elix
Leptogium leucosorodes (Nyl.) I.Schmitt, Hodkinson & Lumbsch
Leptogium subventosa (Malme) I.Schmitt & Lumbsch var. subventosa
Leptogium var. granulosula
Leptogium var. lecanorina Kantvilas & Elix
Lepnaria coriensis (Hue) Sipman
Lepnaria koerberiana (Nyl.) A.W.Archer & Elix
Lepnaria subventosa (Malme) I.Schmitt & Lumbsch var. subventosa
Lepnaria coriensis (Hue) Sipman
Lepnaria finkii (B. de Lesd.) R.C.Harris
Lepnaria pavonina aff. biuratorum (Nyl.) Hafellner
Lepnaria serrata (Bernh.) Nyl.
Lichina intermedia (C.Bab.) M.Schultz
Megalaria flagelliformis (Pers. ex Nyl.) Hafellner
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Thysanothecium scutellatum (Fr.) D.J.Galloway
Thysanothecium sorediatum Elix

Toninia aromaticra (Sm.) A.Massal.

Trapelia coarctata (Sm.) M.Choisy

Trapelia crystallifera Kentvilas & Elix

Trapelia glebula (Sm.) J.R.Laundon

Trapelia thieleana Kentvilas, Lumbsch & Elix

Trapelopsis flexuosa (Fr.) Coppins & P.James

Tylosporria verrucosa (Müll.Arg.) Kentvilas

Usnea cornuta Körb.

Usnea dasiaeae Stirt.

Usnea inermis Motyka

Verrucaria alborimosa P.M.McCarthy & Kentvilas

Verrucaria buelliiola P.M.McCarthy

Verrucaria calcicida DC.

Verrucaria compacta (A.Massal.) Jatta

Verrucaria fusconigrescens Nyl.

Verrucaria muralis Ach.

Verrucaria papillosa Ach.

Verrucaria subdiscreta P.M.McCarthy

Verrucaria sp. A

Verrucaria sp. B

Xanthoparmelia amplexula (Stirt.) Elix & J.Johnst.

Xanthoparmelia australisica D.J.Galloway

Xanthoparmelia bratti (Essl.) O.Blanco et al.

Xanthoparmelia cafferensis (Essl.) O.Blanco et al.

Xanthoparmelia congensis (J.Steiner) Hale

Xanthoparmelia conranensis (Elix) Elix

Xanthoparmelia delisei (Duby) O.Blanco et al.

Xanthoparmelia digitiformis (Elix & P.M.Armstr.) Filson

Xanthoparmelia elixii Filson

Xanthoparmelia exillina (Elix) Elix & J.Johnst.

Xanthoparmelia filarizkyana (Gyeln.) Hale

Xanthoparmelia flavescantium (Gyeln.) D.J.Galloway

Xanthoparmelia furcata (Müll.Arg.) Hale

Xanthoparmelia hybridiza Elix & J.Johnst.

Xanthoparmelia leucophora (Elix & J.Johnst.) Elix

Xanthoparmelia lithophiloides (Kurok.) Elix

Xanthoparmelia metaclystoides (Kurok. & Filson) Elix & J.Johnst.

Xanthoparmelia microcephala Elix & Kentvilas

Xanthoparmelia muguetina (Nyl.) D.J.Galloway

Xanthoparmelia murina (Kurok.) Elix

Xanthoparmelia neodelisei (Elix) O.Blanco et al.

Xanthoparmelia neorimalis (Elix & P.M.Armstr.) Elix & T.H.Nash

Xanthoparmelia neotinctina (Elix) Elix & J.Johnst.

Xanthoparmelia nignoleosa Elix & J.Johnst.

Xanthoparmelia parvoclystoides Elix & J.Johnst.

Xanthoparmelia putulosa (Elix) Elix & J.Johnst.

Xanthoparmelia rimalis (Kurok.) Elix, A.Thell & Sochting

Xanthoparmelia rubrireagens (Gyeln.) Hale

Xanthoparmelia scabrosa (Taylor) Hale

Xanthoparmelia subeloxodella (Elix & Kentvilas) O.Blanco et al.

Xanthoparmelia subprolina (Nyl. ex Kremp.) O.Blanco et al.

Xanthoparmelia subverrucella (Essl.) O.Blanco et al.

Xanthoparmelia tasmantica (Hook.f. & Taylor) Hale

Xanthoparmelia tegeta Elix & J.Johnst.

Xanthoparmelia utulata (Kurok. & Filson) Elix & J.Johnst.

Xanthoparmelia verrucella (Essl.) O.Blanco et al.

Xanthoparmelia wIanungerinsii Elix & J.Johnst.

Xanthoparmelia xanthonelaena (Müll.Arg.) Hale

Xanthoria angustata S.Y.Kondr. & Kärnefelt

Xanthoria coomaes S.Y.Kondr. & Kärnefelt

Xanthoria elixii S.Y.Kondr. & Kärnefelt

Xanthoria ligula (Körb.) P.James

Xanthoria sp.

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