

# THE BOTANY OF THE STONY HEAD TRAINING AREA: NEW RECORDS FROM A BIODIVERSE REMNANT IN NORTHERN TASMANIA, AUSTRALIA

MIGUEL F. DE SALAS<sup>1</sup>, MATTHEW L. BAKER<sup>1</sup>, LYNETTE CAVE<sup>1</sup> AND GINTARAS KANTVILAS<sup>1</sup>

<sup>1</sup>Tasmanian Herbarium, Tasmanian Museum and Art Gallery, PO Box 5058, University of Tasmania, Sandy Bay, Tasmania 7005 Australia

Correspondence: Miguel de Salas, Miguel.deSalas@tmag.tas.gov.au

**ABSTRACT:** A flora survey of the Stony Head Training Area, northern Tasmania, was conducted in 2020–2021 as a collaboration between the Tasmanian Museum and Art Gallery’s Expeditions of Discovery and the Australian Biological Resources Study Bush Blitz programs. With a long historical use as an artillery range, the 5000-ha area contains a range of geologies, has a low profile with average elevations under 100 m asl, and its vegetation consists largely of heathy woodlands and coastal heathlands. It contains a range of relatively undisturbed, high-quality native habitats and populations of several threatened species. The survey targeted vascular plants, bryophytes and lichens, and recorded a total of 575 taxa. Nine lichens are new records for Tasmania — *Buellia hypostictella*, *Caloplaca gillfillaniorum*, *Cladonia subradiata*, *Graphis geraensis*, *Lecanora intumescent*s and *Opegrapha diaphoriza* — all previously also known from mainland Australia, and *Micarea rhabdogena*, *M. xanthonica* and *Pseudothelomma ocellatum*, which represent first records for the Southern Hemisphere. Biogeographical and ecological patterns in the flora, the contribution of vegetation remnants to flora conservation, and the ongoing importance of surveys and alpha-taxonomy for documenting biodiversity are discussed. Our findings are consistent with a body of research showing a trend of healthy populations of threatened taxa within military training areas.

**Keywords:** Tasmania, biodiversity, lichens, species discovery, threatened species, vegetation remnants, fire, habitat loss, conservation

## INTRODUCTION

A joint Tasmanian Museum and Art Gallery (TMAG) — Australian Biological Resources Study Bush Blitz survey of the Stony Head Training Area (SHTA) was undertaken in 2020–2021. This was the fourth in a series of multidisciplinary biological investigations conducted under the banner of ‘TMAG Expeditions of Discovery’, directed towards the building of TMAG’s collections of flora and fauna from poorly sampled areas of Tasmania, documenting the species of plants and animals present, discovering new or hitherto overlooked species, and highlighting the role that baseline species-discovery research plays in understanding and managing Tasmania’s biota (Baker et al. 2019). Preliminary biodiversity data from the survey has been published, together with lists of threatened taxa, exotic taxa and putative new discoveries (Baker et al. 2022; Bush Blitz 2022). However, a hallmark of this type of work is the ongoing research that is undertaken on the specimens collected. For example, in the years following previous expeditions (Baker et al. 2019, 2021a,b; Kraft & Baker 2022), attention has focused on the non-vascular plant groups, in particular the marine algae (Kraft & Baker 2022) and the lichens, with as many as seven species new to science described directly from the collections made (Elix et al. 2019; Elix & Kantvilas 2020; Kantvilas 2020;

Kantvilas et al. 2021; McCarthy & Kantvilas 2018, 2022). The Stony Head expedition is no exception, and continued research, aimed specifically at the flora, has confirmed several new records for Tasmania, several species new to science, and other remarkable discoveries. These new findings are reported here, together with a discussion of other noteworthy botanical characteristics of the site.

## MATERIALS AND METHODS

### *The study area*

The SHTA (Figure 1) is an approximately 5000-ha property, owned and managed by the Australian Government Department of Defence, and situated in central northern Tasmania, approximately 20 km east of the Tamar River estuary. It is bordered by Bass Strait to the west and north, the Lefroy Regional Reserve to the southeast and south, and the Five Mile Bluff Conservation Area to the west; the remaining boundaries consist mostly of private freehold tenure. Adjoining the Lefroy Regional Reserve is an informal reserve of approximately 2878 ha which is part of the SHTA. The climate at Stony Head corresponds to Köppen classification of *Cfb* [temperate, warm summer, without dry season (Peel et al. 2007)]. The nearest weather station is at Low Head, approximately 20 km to the west. At

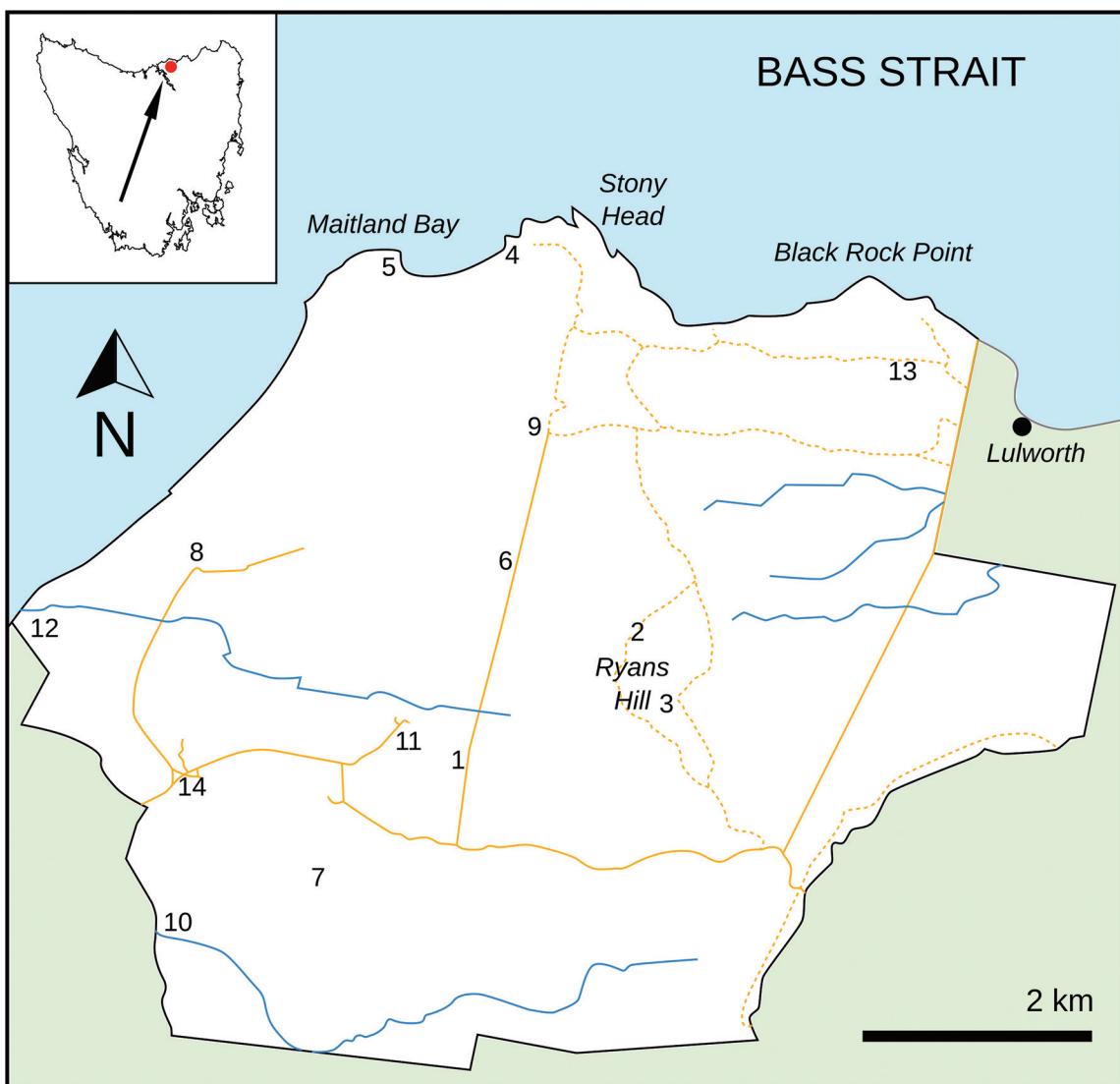


Figure 1: Sampling locations. See Table 1 for location-specific information.

this location, average temperatures range from 7.0–12.8°C in winter (July) to 14.6–21.1°C in the warmest summer month (February). Mean monthly rainfall ranges from 29 mm in February to 77 mm in August, with a mean annual total of 679 mm (BOM 2022).

Pleistocene and Holocene coastal sand, mud and gravel deposits, mostly of aeolian origin, underlie most of the property. These relatively recent surface sediments overlie Ordovician to Devonian sandstone and minor slate, with scattered Tertiary basalt flows and outcrops, including a volcanic plug. Minor deposits of Tertiary sand and gravel also occur in the southeastern quarter of the property (GST 2002). Most of the property has an elevation under 100 m, with the main prominence being Ryans Hill, approximately 220 m a.s.l. (GST 2002). The SHTA is predominantly used as a military training area, and has seen extensive historical use as an artillery range. Sections of the property are used for cattle grazing and, in the past, basalt quarrying was carried out in one section. A significant proportion of

the property is managed for conservation as an informal reserve. Large tracts of uncleared native vegetation remain on the property, representing a range of habitats, particularly heathland, forest and woodland (Kitchener & Harris 2013) over sandy soils. The property has a history of planned fuel-reduction burns and wildfires, with large areas burnt in 2012–2013 and 2019–2020 (LISTmap 2022). Previous botanical investigations of the site were undertaken by the environmental consultants North-Barker Ecosystem Services in 2001, 2014 and 2016 (unpublished).

#### *Collection and identification*

Surveys were conducted during two visits. A reconnaissance trip on 2–5 November 2020 was used to collect spring-flowering seasonal taxa that might be absent during the autumn main survey, and to choose survey locations for the main survey on 15–24 March 2021.

Sampling methods are described in detail in previous accounts of TMAG expeditions (Baker et al. 2019,

Table 1: Main collection localities within Stony Head Training Area

Location	Fig. 1 Reference	Vegetation
Prime Meadow	1	Open grassland with patches of <i>Allocasuarina</i> forest on sandy soil.
Ryans Hill (summit)	2	<i>Eucalyptus obliqua</i> open forest with dense, short shrubby understorey, on slate and sandstone.
Gully SE of Ryans Hill	3	<i>Eucalyptus obliqua</i> wet forest with abundant <i>Pomaderris apetala</i> , on slate and sandstone.
Eastern side of Maitland Bay	4	Coastal bluffs on sandstone.
Western side of Maitland Bay	5	Coastal bluffs on basalt.
Strait Road	6	Heathland and heathy woodland on sandy soil.
Quarry Road	7	Dense <i>Melaleuca ericifolia</i> scrub with emerging eucalypts. Surrounded by former pasture. Sandy soil.
North end of Seaview Road	8	Wetlands.
Intersection of Strait and Majuba Roads	9	Heathy woodland on sandstone.
Western Fire Trail	10	Damp gully in eucalypt forest, on sandstone.
Class Range Butts	11	Former pasture with <i>Melaleuca ericifolia</i> remnants on sand. Actively mowed.
Seaview Lagoon area	12	Coastal dunes and lagoons on sand.
Lagoon near Fother's Hill	13	Wetlands on sandy soil.
Main settlement (Scale A Camp)	14	Mosaic of mowed pasture and heathy eucalypt woodland on sand.

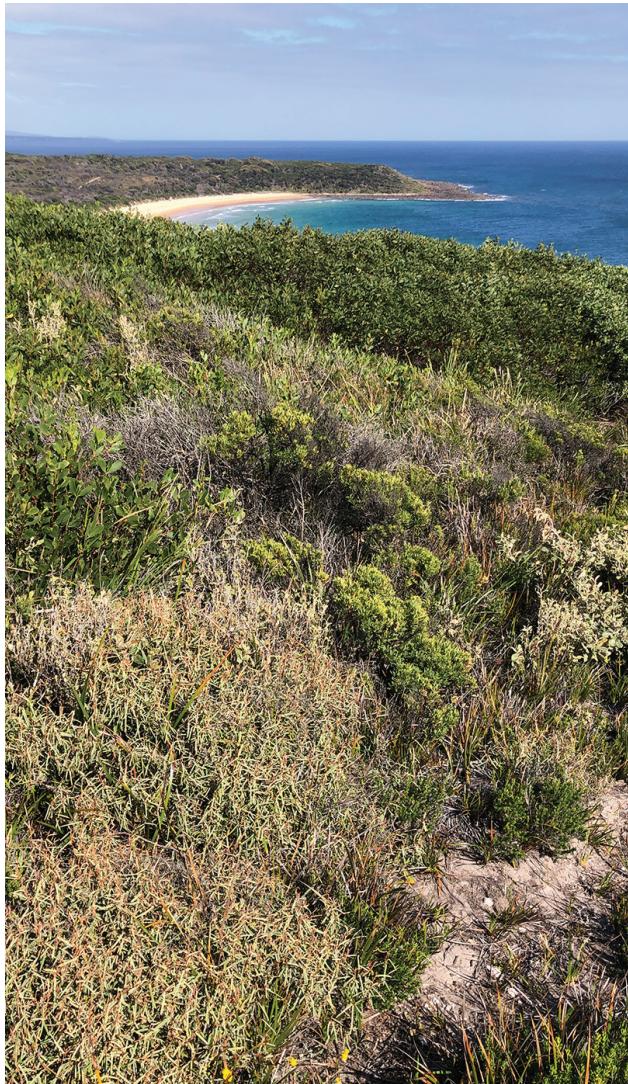
2021a,b) and are not repeated here. Survey sites were selected to represent the major vegetation types mapped for the property in TASVEG 4.0 (DPIPWE 2020), and to target vegetation differences visible on satellite imagery. The main collecting localities are shown in Figure 1 and Table 1. Specimen identification was undertaken using standard equipment and techniques, with comparison to the Tasmanian Herbarium's reference collections as necessary and following the methods outlined in Baker et al. (2019, 2021a,b).

Vascular plant nomenclature follows de Salas and Baker (2021). Nomenclature for mosses and liverworts is in accordance with the Australian Moss Name Index (ABRS 2022), the Checklist of Australian Liverworts and Hornworts (McCarthy 2006) and Tropicos (Tropicos 2022). Lichen nomenclature mainly follows McCarthy (2020). New records cited include a Tasmanian Herbarium registration number (e.g. HO 604173) to allow retrieval of specimen data from the Australasian Virtual Herbarium (CHAH 2022).

## RESULTS

### Overview of the vegetation

Much of the property retains its native vegetation cover, with land-clearing for agricultural use confined to the central western section. Native vegetation types are dominated by heathland and scrub in the northern half of the property, with forest and woodland dominating the southern half. The most common vegetation type is *Eucalyptus amygdalina* Labill. forest and woodland (subtypes DAC, DAD, DAM — DPIPWE 2020), often with an understorey of woody shrubs, species of Restionaceae and *Xanthorrhoea*. This vegetation type is dominant in the southern half of the property and inland in the central north, including the lower slopes of Ryans Hill. Other tree-dominated vegetation types include *Eucalyptus obliqua* L'Hér. dry forest (DOB) and *Eucalyptus obliqua* wet forest (WOU) on the lower and upper slopes of Ryans Hill, respectively. The latter contains damp gullies with stands of *Pomaderris apetala* Labill. subsp. *apetala* and abundant ground ferns. Small, mostly undisturbed patches of *Melaleuca ericifolia* Sm. swamp forest (NME) occur in the western and southwestern



parts of the property. *Eucalyptus ovata* Labill. forest and woodland (DOV), and minor patches of *Allocasuarina*-dominated vegetation (NAL, NAV) occur mostly in the southern half of the property. The most common treeless vegetation types are *Acacia longifolia* (Andrews) Willd. coastal scrub (SAL, Figure 2) on the western coast, dominated by *Acacia longifolia* subsp. *sophorae* (Labill.) Court, and coastal heathland (SCH, Figure 3) and wet heathland (SHW), where the majority of threatened taxa were recorded. The latter two vegetation types contained significant populations of *Xanthorrhoea australis* R.Br., although this taxon was not collected during the survey.

#### *The flora*

A total of 575 taxa were collected from the SHTA during the survey, comprising 294 vascular plants, 75 bryophytes and 206 lichens. Of the 575 taxa collected, 13.44% (77) are naturalised exotic taxa, 1.05% (6) are endemic to Tasmania, and 1.75% (10) are not endemic but, within Australia, are found only in Tasmania. Datasets of collected taxa were published by Bush Blitz at the conclusion of the survey (Baker et al. 2022; Bush Blitz 2022) and are reproduced and updated in Appendix 1, which supersedes any previously published datasets.

Figure 2 (left): Coastal scrub (SAL), containing *Acacia longifolia* subsp. *sophorae*, *Lasiopetalum baueri* and *Pomaderris apetala* subsp. *maritima*.



Figure 3: Recently-burnt coastal heathland with *Xanthorrhoea australis*.

Thirteen vascular plant taxa are listed as rare, vulnerable or endangered under Tasmanian *Threatened Species Protection Act 1995* (TSPA) or Federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) legislation (Baker et al. 2022; Bush Blitz 2022), with the majority occurring in heathlands in the northern part of the property. Several, including *Comesperma defoliatum* F.Muell. and two ephemeral *Stylidium* species, were collected in freshly-burnt heathland between Majuba Road and Stony Head. The distribution of threatened taxa within the property is not homogenous, and displays some obvious hotspots. For example, *Schenkia australis* (R.Br.) G.Mans. (Figure 4A) and *Calocephalus lacteus* Less. (Figure 4B) were recorded on the bluffs to the east and west of Maitland Bay; the heathland immediately to the south of Stony Head, north of Majuba Road (site 9, Figure 1) supports *Comesperma defoliatum*, *Phyllangium divergens* (Hook.f.) Dunlop (Figure 4C), *Stylidium beaugleholei* J.H.Willis and *S. perpusillum* Hook.f.; and coastal bluffs and heathland in the northeasternmost part of the property support *Lasiopetalum baueri* Steetz (Figure 2), *Lepidosperma forsythii* A.A.Ham. and *Stylidium despectum* R.Br. Removal of the shrub layer by recent fire made the seasonal threatened plants that survived the burn

more conspicuous and easier to find. Various wetlands around the property contain significant populations of *Xerochrysum palustre* (Flann) R.J.Bayer.

No formally listed rare and threatened lichens were recorded, although numerous species that are uncommon in Tasmania were. Most noteworthy of these are *Graphis aperiens* Müll.Arg. (previously only one Tasmanian record), and *Bactrospora metabola* (Nyl.) Egea & Torrente, *B. paludicola* Kantvilas, *Coniocarpon cinnabarinum* DC. and *Haematomma sorediatum* R.W.Rogers (all rare in old-growth coastal woodland).

Lichen and bryophyte diversity was highest in wet forest below the summit of Ryans Hill and in patches of *Melaleuca ericifolia* swamp forest (site 3, Figure 1). The diversity of these groups was also high in the vicinity of the main settlement (site 14, Figure 1), but consisted mainly of species tolerant of disturbance, such as the mosses *Brachythecium albicans* (Hedw.) Schimp. (a weedy species of lawns), *Ceratodon purpureus* (Hedw.) Brid. and *Tortula muralis* Hedw. The shaded southern side of the buildings provided shady damp conditions suited to species such as the liverwort *Lunularia cruciata* (L.) Dumort. and *Eurhynchium praelongum* (Hedw.) Bruch & Schimp., a now-widespread moss that is thought to have

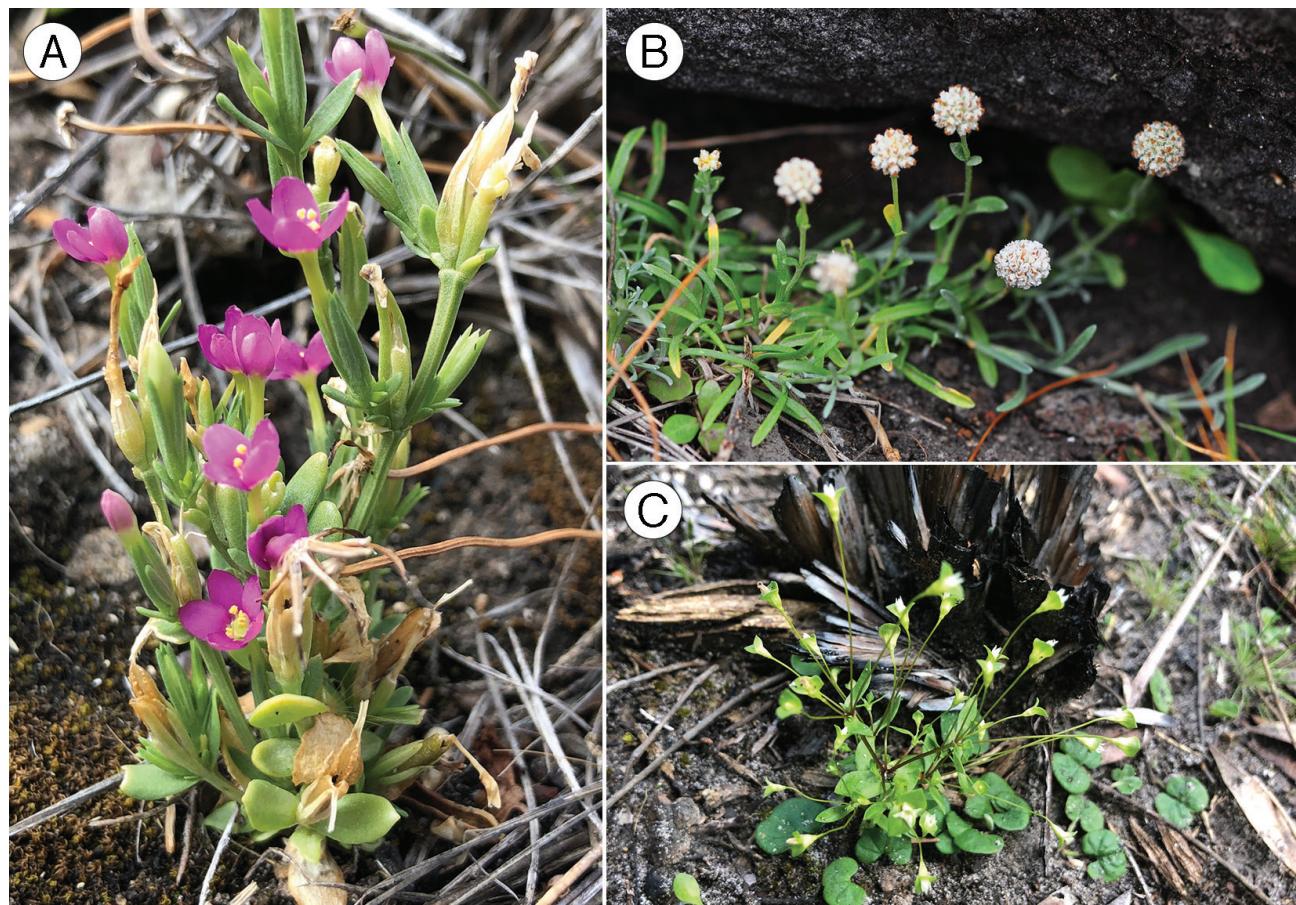


Figure 4: Some threatened taxa collected during the survey: (A) *Schenkia australis*; (B) *Calocephalus lacteus*; (C) *Phyllangium divergens*.



Figure 5: Infestation of *Euphorbia paralias* (sea spurge) along the westernmost coast of the property (site 12, Figure 1).

been introduced. Fence posts and stockyard rails supported lichens considered to be tolerant of eutrophicated conditions; for example, *Caloplaca holocarpa* (Hoffm.) A.E.Wade and *Lecanora dispersa* (Pers.) Sommerf. A relatively high number of exotic vascular taxa around habitation sites also made this area relatively biodiverse for vascular plants.

Extensive swards of bryophytes were seen covering the soil of recently burnt ground in the northeast corner of the property during the November 2020 reconnaissance, extending across to the lagoon near Fother's Hill (site 13, Figure 1). These were dominated by post-fire colonisers such as the thallose liverwort *Marchantia berteroana* Lehm. & Lindenb. and the moss *Funaria hygrometrica* Hedw. By the time of the main survey in March 2021, these populations had begun to decline as vascular species established and began to spread.

A large proportion of the property consisted of pasture and contained 68 species of naturalised herbs and grasses that are common agricultural weeds in Tasmania (Bush Blitz 2022). Two of these species were the declared weeds *Carduus tenuiflorus* Curtis and *Senecio jacobaea* L. Environmental weeds were mostly confined to coastal, beach-growing species and included *Euphorbia paralias* L. (Figure 5), *Ammophila arenaria* (L.) Link subsp. *arenaria*, *Thinopyrum junceiforme* (Å.Löve & D.Löve) Å.Löve and *Cakile maritima* Scop. subsp. *maritima*.

#### New records and species

Lichen collections from Stony Head included nine new records for Tasmania. Six of these species were previously known from the Australian mainland, and three are previously unrecorded for the Southern Hemisphere (Table 2). Two further species, *Angiactis banksiae* (Müll.Arg.) Kantvilas & Stajsic and *Phaeographis lindigiana* Müll. Arg., were previously known from mainland Australia and Flinders Island, and are here recorded for the Tasmanian mainland for the first time. As is customary for any Tasmanian lichen and bryophyte survey, a significant number of specimens could not be identified beyond generic rank, or could only be placed tentatively into a genus. Among the lichens, it is highly likely that most represent species new to science or new records for Tasmania. Sufficient studies have now been undertaken to confirm that new species were discovered in the following lichen genera: *Bacidia*, *Coenogonium*, *Megaloblastenia*, *Phlyctis* and *Reichlingia* (Figure 6). Taxonomic investigations for their formal description are underway and will be reported elsewhere.

The rarely encountered coastal moss *Zygodon minutus* Müll.Hal. & Hampe, was collected from bark in a *Melaleuca* swamp, and was also found growing luxuriantly on a shaded concrete tank at the main settlement. The only other Tasmanian records of this species in the Tasmanian Herbarium are from coastal scrub at Musselroe Bay, approximately 95 km east of Stony Head.

Table 2: New lichen records for Tasmania

TAXON	NOTES
<i>Buellia hypostictella</i>	On coastal rocks. First described from New Zealand and also known from the Australian mainland and Kangaroo Island. HO 604173.
<i>Caloplaca gilfillaniorum</i>	On dead wood of <i>Myoporum insulare</i> R.Br. in coastal scrub. Previously known only from Kangaroo Island. HO 603329, HO 601776.
<i>Cladonia subradiata</i>	On soil in dry sclerophyll forest. Widely distributed globally in tropical and temperate latitudes, including on the Australian mainland. HO 604230.
<i>Graphis geraensis</i>	On <i>Pomaderris apetala</i> subsp. <i>apetala</i> in wet sclerophyll forest. Widespread on the eastern Australian mainland and in the Neotropics. HO 601558.
<i>Lecanora austrointumescens</i>	On <i>Pomaderris apetala</i> subsp. <i>apetala</i> in wet sclerophyll forest. Previously known only from Western Australia. HO 601573.
<i>Micarea rhabdogena</i>	On dead wood in dry sclerophyll forest. Widespread in the cool temperate Northern Hemisphere. First record for the Southern Hemisphere. HO 604218.
<i>Micarea xanthonica</i>	On rotting wood in wet sclerophyll forest. Known from oceanic habitats in the temperate Northern Hemisphere. A new record for the Southern Hemisphere. HO 604359.
<i>Opegrapha diaphoriza</i>	On coastal rocks. Also known from New Zealand and the southeastern Australian mainland. HO 602675, HO 601724.
<i>Pseudothelomma ocellatum</i>	On timber stockyard rails. A very widespread, opportunistic/weedy species. First record for Australia. HO 602578.

## DISCUSSION

### The significance of military training areas for conservation

The number of threatened plant taxa collected at SHTA is greater than in any previous Expedition of Discovery (Baker et al. 2019, 2021a,b), and may be the result of reduced disturbance, such as from exclusion of the general public from most of its area, or from minimal land-clearing and consequent preservation of a significant proportion of its original vegetation cover. Impact from military training use has been largely confined to the vicinity of roads, tracks and target sites, all of which are highly localised, and do not generally impact the vegetation as a whole. In addition to the protection of the original vegetation from agricultural clearing, the area has had a complex fire history, which is likely to have played a role in shaping the mosaic of vegetation types in evidence today. Coastal heathlands and wetlands, which are common habitats in the property, are among the most biodiverse ecosystems in Tasmania, containing 60% of the state's vascular plant species despite occupying only 2% of the land surface (Kirkpatrick & Harris 1999), so the high plant and lichen biodiversity recorded is not unexpected. Extensive areas of heathland formerly covered much of the northeast of Tasmania (Kirkpatrick & Harris 1999), and much of this original vegetation has been removed to make way for agriculture. Military training areas, which are estimated to cover 5–6% of the world's land surface [and, in Australia, over 15 million hectares (Zentelis & Lindenmayer 2015)],

have been shown to host disproportionately large numbers of threatened and endangered species (Himelbrant et al. 2018; Warren et al. 2007), and various hypotheses have been proposed to explain this bias (Warren et al. 2007). Our observations are generally consistent with this trend.

Included among the threatened taxa at Stony Head is *Bossiaea heterophylla* Vent., widespread in eastern Australia (AVH 2022), but known in Tasmania only from a small population consisting of a few hundred individuals located entirely inside the property. This taxon is listed as 'endangered' under the TSPA, and is generally considered native to Tasmania (de Salas & Baker 2021). However, its population is tiny, highly localised and in close proximity to vehicular tracks, so the possibility of a human-mediated introduction from mainland Australia cannot be disregarded.

### The importance of vegetation remnants

In addition to threatened plant hotspots, the SHTA also supports small remnant pockets of vegetation communities of high conservation significance. Two particularly significant examples are the patches of *Melaleuca ericifolia*-dominated woodland (where the *Melaleuca* is mature and robust) and the stand of *Pomaderris apetala* woodland at Ryans Hill. Neither vegetation type appears to be regarded as being of particular conservation significance, yet both frequently support extensive suites of lichens and bryophytes with highly restricted distributions, which as a consequence are not captured in the reserve system.

The examples at Stony Head are no exception, with these vegetation patches hosting the highest biodiversity of both lichens and bryophytes. Much of the lowland, swampy areas of northern Tasmania probably supported these communities in the past, but they have now been extensively cleared (or disturbed by grazing and other practices) to the extent of being severely degraded. At Stony Head, some of the stands were remarkable in the epiphytic lichen floras they supported, with some of the most noteworthy records including *Bactrospora metabola*, *Coniocarpon cinnabarinum*, *Haematomma sorediatum* and the Tasmanian endemics *Bactrospora paludicola* and *Porina meridionalis*, all restricted to old-growth coastal woodlands and considered rare in Tasmania. Likewise, all the putative new species were recorded from these woodlands and, whereas some are also known from other sites in Tasmania, nowhere are they common.

#### Biogeographical patterns

Tasmania's vegetation is frequently discussed in the context of the island being a part of Gondwana, emphasising the affinities and shared taxa with other parts of the former supercontinent, notably New Zealand and southern South America. At the same time, Tasmania also represents the southernmost extremity of a more-or-less continuous (in geological time) strip of forest that extends northwards along the eastern Australian seaboard to the tropics and Malesia (Hill et al. 1999). For many chiefly tropical or subtropical taxa, Tasmania is at the fringe of their distribution. Some of the remnant stands of moist woodland at Stony Head support taxa of this type. For example, Graphidaceae, a family of tropical, crustose lichens (Archer 2009), is unusually well represented at the site with three genera (*Graphis*, *Halegrapha* and *Phaeographis*) and six species. Several of the new records (Table 2) are species that are widespread on the Australian mainland and are now known from the southern side of Bass Strait. The chiefly tropical *Bactrospora metabola* is also well represented.

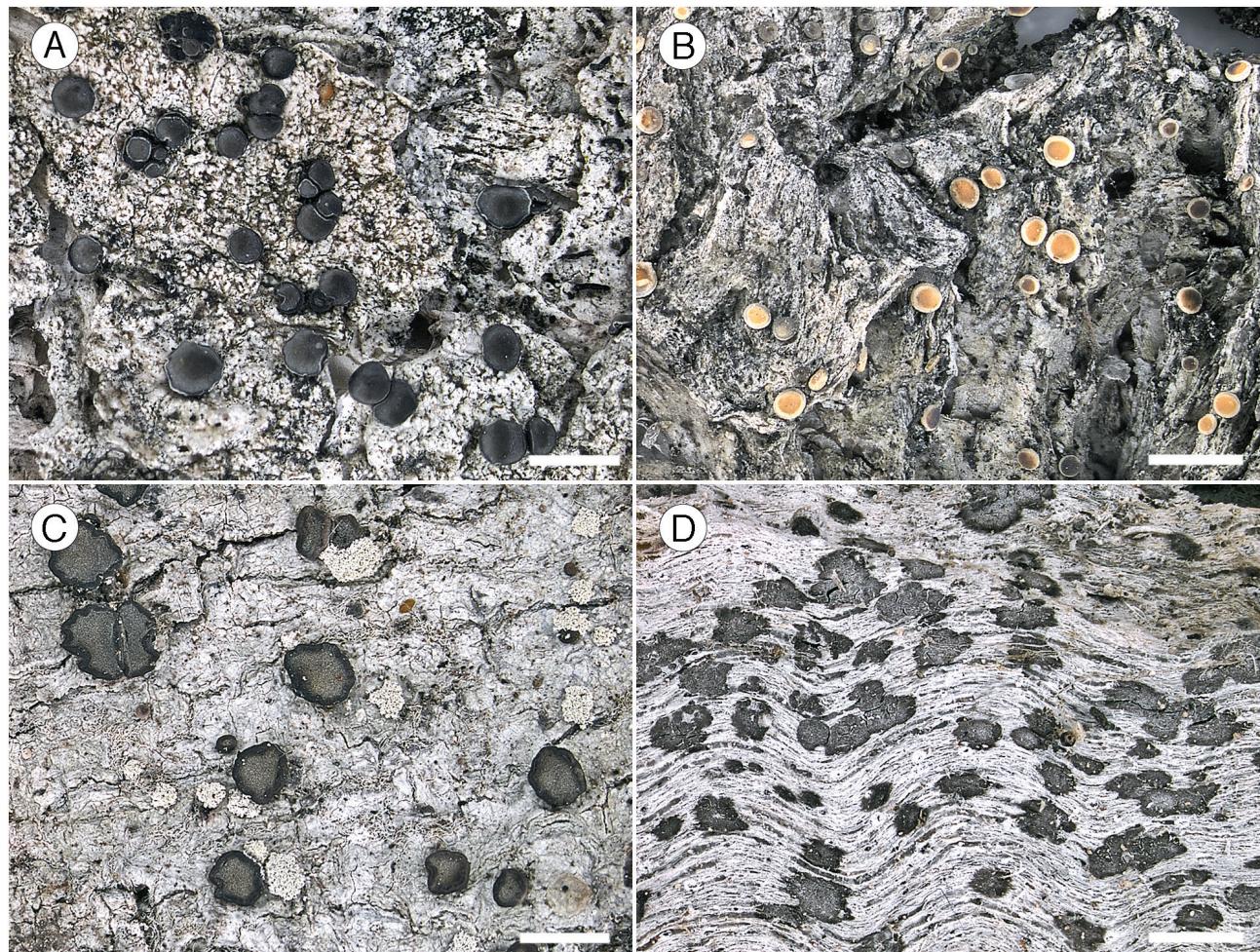


Figure 6: New species of lichens from Stony Head. (A) *Bacidia* sp., characterised by a thallus containing the stictic acid chemosyndrome and apothecia with a thin, pale proper exciple. (B) *Coenogonium* sp., related to *C. australiense* Kantvilas & Lücking, but with the hymenium and hypothecium densely inspersed with yellow oil droplets. (C) *Megaloblastenia* sp., characterised by having discrete, whitish soralia. (D) *Reichlingia* sp., a segregate of the genus *Arthonia*, with pruinose ascomata and a thallus containing 2'-*O*-methylperlatolic acid. Scale = 2 mm.

### *Fire effect on vascular plant and lichen communities*

In Tasmania, fire plays a critical role in the species composition of plant and lichen communities. Frequently burnt habitats such as heathlands (Jackson & Brown 1999) support populations of herbaceous plants that require periodic removal of the shrub layer in order to persist, as exemplified by the healthy populations of *Stylium* species, *Phyllangium divergens* and *Comesperma defoliatum* in the northern area of the property (Figure 3). In contrast, cryptogam communities experience dramatic loss of biodiversity following fire (Brown et al. 1994), and are often richest in areas which have not experienced fires in the recent past. Apart from its direct impact, fire tends to cause a loss of older, more robust individuals of trees and shrubs that provide habitats for epiphytes, as well as consuming woody debris, another rich cryptogam habitat. The damp gully southeast of Ryans Hill (site 3, Figure 1), and the old-growth *Melaleuca ericifolia* stands at Quarry Road (site 7, Figure 1) are good examples of sites that are highly diverse in lichens and bryophytes, yet poor in vascular plant taxa. The latter location is likely to be the type locality for two lichen taxa that were collected during the survey and are soon to be described as new to science. Tragically, this site is reported as having been burnt in 2021 (LISTmap 2022, 'Fire History' data layer)

### *The significance of survey and alpha-taxonomy*

Whereas the study of Tasmania's vascular flora has been ongoing for more than two centuries, essentially beginning with the pivotal accounts of Labillardière (1800a,b, 1804–1806), the 'lower plants' have been relatively neglected. The documentation of Tasmania's lichens in particular has only been undertaken in depth for the last 40–50 years or so. These recent advances are reflected through the various Tasmanian checklists, which list 421 taxa (Wetmore 1963), 633 (Kantvilas 1989), 762 (Kantvilas 1994) and 1309 (McCarthy 2020) respectively. The TMAG Expeditions of Discovery (and Bush Blitz expeditions before them) have been critical for discovering and adding to Tasmania's inventory of lichens, and it is noteworthy that significant numbers of new discoveries continue to be made. One may well expect these to be found in some remote, difficult-to-access corner of Tasmania. However, to add at least eight new records and five new species for Tasmania from an area like the SHTA, given its long history of disturbance and modification, is truly remarkable. It serves as a firm reminder that primary survey work, collection of good quality herbarium specimens and their taxonomic study will remain a fruitful, and indeed essential endeavour for many years to come if Tasmania's biodiversity is to be properly documented.

### **Acknowledgements**

For their companionship in the field, we thank our colleagues from the Tasmanian Museum and Art Gallery, Cathy Byrne, Simon Grove, David Hocking, Kirrily Moore, Judy Clarke, Lynne Forster and Kevin Bonham, as well as our colleagues from the Queen Victoria Museum and Art Gallery, Simon Fearn, Judy Rainbird, John Douglas and David Maynard. We thank Jean Jarman for the preparation of Figure 6. The Australian Biological Resources Study and Bush Blitz organised the timing, transport and logistics, and we particularly thank Kate Gillespie and Helen Cross for their work on the ground during the survey. We would also like to thank the Department of Defence, and especially Dr Kate Hibbert and other Defence personnel, for their help and support, and helping us select locations and guiding us in the field. The Save the Tasmanian Devil Program kindly shared their work with us while on site. GK thanks Jack Elix and Pat McCarthy for their assistance with selected lichen identifications.

Specimens were collected under permit TFL20163 (Department of Primary Industries, Parks, Water and Environment, Tasmania).

Taxonomic work on new lichen taxa is supported by an ABRS Bush Blitz Applied Taxonomy Contract DNP-BCK-2122-021.

**Conflict of interest:** The authors declare no conflict of interest.

**APPENDIX 1.1: VASCULAR PLANT TAXA**

- e Tasmanian endemic
- i naturalised
- t in Australia, known only from Tasmania
- \* not collected during this survey, but prior collections exist

**MAGNOLIIDS**

## LAURACEAE

- Cassytha glabella* f. *dispar* (Schltdl.) J.Z. Weber
- Cassytha glabella* R.Br. f. *glabella*
- Cassytha melantha* R.Br.
- e\* *Cassytha pedicellosa* J.Z. Weber
- Cassytha pubescens* R.Br.

**EUDICOTS**

## AIZOACEAE

- Carpobrotus rossii* (Haw.) Schwantes
- Disphyma crassifolium* subsp. *clavellatum* (Haw.) Chinnock
- Tetragonia implexicoma* (Miq.) Hook.f.

## AMARANTHACEAE

- t *Atriplex billardierei* (Moq.) Hook.f.
- Atriplex cinerea* Poir.
- i *Atriplex prostrata* Boucher ex DC.
- ?i *Chenopodium glaucum* L.
- i *Dysphania pumilio* (R.Br.) Mosyakin & Clemans
- Rhagodia candolleana* Moq. subsp. *candolleana*
- i *Suaeda australis* (R.Br.) Moq.

## APIACEAE

- Apium prostratum* var. *filiforme* (A.Rich.) Kirk
- Apium prostratum* Labill. ex Vent. var. *prostratum*
- Eryngium vesiculosum* Labill.
- \* *Lilaeopsis*

## APOCYNACEAE

- Alyxia buxifolia* R.Br.

## ARALIACEAE

- \* *Hydrocotyle callicarpa* Bunge
- Hydrocotyle foveolata* H.Eichler
- Hydrocotyle hirta* R.Br. ex A.Rich.
- Hydrocotyle muscosa* R.Br. ex A.Rich.

## ASTERACEAE

- Actites megalocarpus* (Hook.f.) Lander
- \* *Angianthus preissianus* (Steetz) Benth.
- Argentipallium dealbatum* (Labill.) Paul G.Wilson
- Brachyscome spathulata* Gaudich.
- Calocephalus lacteus* Less.
- i *Carduus tenuiflorus* Curtis
- Cassinia aculeata* (Labill.) R.Br. subsp. *aculeata*
- Centipeda elatinoides* (Less.) Benth. & Hook.f. ex O.Hoffm.
- Chrysoccephalum apiculatum* (Labill.) Steetz subsp. *apiculatum*
- i *Cirsium vulgare* (Savi) Ten.
- i *Conyzia sumatrensis* (Retz.) E.Walker
- \* *Coronidium scorpioides* (Labill.) Paul G.Wilson
- Cotula australis* (Sieber ex Spreng.) Hook.f.
- i *Cotula coronopifolia* L.
- Euchiton involucratus* (G.Forst.) Holub
- Euchiton japonicus* (Thunb.) Holub
- Euchiton sphaericus* (Willd.) Holub
- i *Gamochaeta calviceps* (Fernald) Cabrera
- Helichrysum luteoalbum* (L.) Rchb.
- i *Hypochaeris radicata* L.
- Lagenophora gunniana* Steetz
- Lagenophora sublyrata* (Cass.) A.R.Bean & Jian Wang ter
- i *Leontodon saxatilis* Lam.
- Leucophyta brownii* Cass.
- Olearia axillaris* (DC.) F.Muell. ex Benth.
- \* *Olearia stellulata* (Labill.) DC.
- Ozothamnus turbinatus* DC.
- Senecio biserratus* Belcher
- i *Senecio jacobaea* L.
- Senecio minimus* Poir.
- Senecio prenanthoides* A.Rich.
- i *Senecio vulgaris* L.
- Solenogyne dominii* L.G.Adams
- i *Sonchus asper* (L.) Hill

- i *Sonchus oleraceus* L.
- i *Vellereophyton dealbatum* (Thunb.) Hilliard & B.L.Burtt
- Xerochrysum palustre* (Flann) R.J.Bayer
- BORAGINACEAE
- i *Myosotis discolor* Pers.
- BRASSICACEAE
- i *Cakile maritima* Scop. subsp. *maritima*
- CAMPANULACEAE
- \* *Isotoma fluviatilis* subsp. *australis* McComb  
*Lobelia anceps* L.f.  
*Lobelia pedunculata* R.Br.
- \* *Wahlenbergia gracilenta* Lothian
- CARYOPHYLLACEAE
- i *Cerastium glomeratum* Thuill.
- i *Moenchia erecta* (L.) G.Gaertn, B.Mey. & Scherb.
- i *Polycarpon tetraphyllum* (L.) L.  
*Spergularia tasmanica* L.G.Adams  
*Stellaria pungens* Brongn.
- CASUARINACEAE
- Allocasuarina littoralis* (Salisb.) L.A.S.Johnson
- e *Allocasuarina monilifera* (L.A.S.Johnson)  
L.A.S.Johnson
- CONVOLVULACEAE
- Dichondra repens* J.R.Forst. & G.Forst.
- CRASSULACEAE
- Crassula decumbens* Thunb. var. *decumbens*
- i *Crassula natans* var. *minus* (Eckl. & Zeyh.)  
G.D.Rowley
- DILLENIACEAE
- Hibbertia acicularis* (Labill.) F.Muell.
- \* *Hibbertia hirticalyx* Toelken  
*Hibbertia procumbens* (Labill.) DC.  
*Hibbertia sericea* (R.Br. ex DC.) Benth. var. *sericea*  
*Hibbertia virgata* DC.
- DROSERACEAE
- Drosera auriculata* Backh. ex Planch.  
*Drosera hookeri* R.P.Gibson, B.J.Conn & Conran  
*Drosera peltata* Thunb.  
*Drosera pygmaea* DC.
- ELAEOCARPACEAE
- Tetratheca labillardierei* Joy Thomps.
- ELATINACEAE
- \* *Elatine gratioloides* A.Cunn.
- ERICACEAE
- \* *Brachyloma ciliatum* (R.Br.) Benth.  
*Epacris impressa* Labill.  
*Epacris lanuginosa* Labill.
- \* *Epacris obtusifolia* Sm.  
*Leucopogon australis* R.Br.  
*Leucopogon parviflorus* (Andrews) Lindl.  
*Leucopogon virgatus* (Labill.) R.Br. var. *virgatus*  
*Monotoca elliptica* (Sm.) R.Br.  
*Monotoca glauca* (Labill.) Druce  
*Sprengelia incarnata* Sm.
- EUPHORBIACEAE
- Amperea xiphoclada* (Sieber ex Spreng.) Druce var. *xiphoclada*
- i *Euphorbia lathyris* L.
- i *Euphorbia paralias* L.
- i *Euphorbia peplus* L.
- ERICACEAE
- \* *Styphelia adscendens* R.Br.
- FABACEAE
- Acacia dealbata* Link subsp. *dealbata*
- i \* *Acacia floribunda* (Vent.) Willd.  
*Acacia longifolia* subsp. *sophorae* (Labill.) Court  
*Acacia melanoxylon* R.Br.  
*Acacia mucronata* subsp. *longifolia* (Benth.) Court  
*Acacia myrtifolia* (Sm.) Willd.  
*Acacia stricta* (Andrews) Willd.  
*Acacia suaveolens* (Sm.) Willd.  
*Acacia terminalis* (Salisb.) J.F.Macbr.  
*Acacia verticillata* (L'Hér.) Willd. subsp. *verticillata*  
*Aotus ericoides* (Vent.) G.Don  
*Bossiaea cinerea* R.Br.
- \* *Bossiaea heterophylla* Vent.  
*Daviesia ulicifolia* Andrews subsp. *ulicifolia*

	<i>Dillwynia glaberrima</i> Sm.	HYPERICACEAE
	<i>Dillwynia sericea</i> A.Cunn.	<i>Hypericum japonicum</i> Thunb.
	<i>Glycine microphylla</i> (Benth.) Tindale	LENTIBULARIACEAE
	<i>Gompholobium huegelii</i> Benth.	<i>Utricularia lateriflora</i> R.Br.
	<i>Kennedia prostrata</i> R.Br.	LOGANIACEAE
i	<i>Lotus subbiflorus</i> Lag.	
	<i>Platylobium triangulare</i> R.Br.	
	<i>Pultenaea daphnoides</i> J.C.Wendl.	
	<i>Pultenaea dentata</i> Labill.	LYTHRACEAE
	<i>Pultenaea gunnii</i> Benth. subsp. <i>gunnii</i>	<i>Lythrum hyssopifolia</i> L.
*	<i>Pultenaea tenuifolia</i> R.Br. ex Sims	MALVACEAE
		EUPHORBIACEAE
*	<i>Ricinocarpos pinifolius</i> Desf.	
		FABACEAE
i	<i>Trifolium arvense</i> L.	
i	<i>Trifolium cernuum</i> Brot.	
i	<i>Trifolium fragiferum</i> L.	
		GENTIANACEAE
i	<i>Centaurium erythraea</i> Rafn	
i	<i>Centaurium tenuiflorum</i> (Hoffmanns. & Link) Fritsch ex Janch.	
i *	<i>Cicendia filiformis</i> (L.) Delarbre	
	<i>Schenkia australis</i> (R.Br.) G.Mans.	
	<i>Sebaea ovata</i> (Labill.) R.Br.	
		GERANIACEAE
i	<i>Geranium molle</i> L.	
	<i>Pelargonium inodorum</i> Willd.	
		GOODENIACEAE
	<i>Goodenia humilis</i> R.Br.	
	<i>Goodenia lanata</i> R.Br.	
	<i>Goodenia ovata</i> Sm.	
	<i>Selliera radicans</i> Cav.	
		HALORAGACEAE
	<i>Gonocarpus micranthus</i> Thunb. subsp. <i>micranthus</i>	
*	<i>Gonocarpus tetragynus</i> Labill.	
*	<i>Myriophyllum pedunculatum</i> subsp. <i>longibracteolatum</i> (Schindl.) Orchard	
*	<i>Myriophyllum simulans</i> Orchard	
		HYLLANTHACEAE
		<i>Phyllanthus gunnii</i> Hook.f.
		<i>Poranthera microphylla</i> Brongn.
		PITTOSPORACEAE
		<i>Billardiera macrantha</i> Hook.f.

- Billardiera mutabilis* Salisb.
- Bursaria spinosa* Cav. subsp. *spinosa*
- PLANTAGINACEAE
- i *Kickxia elatine* (L.) Dumort. subsp. *elatine*  
*Limosella australis* R.Br.
- i *Plantago coronopus* L. subsp. *coronopus*  
*Plantago varia* R.Br.  
*Veronica gracilis* R.Br.
- POLYGALACEAE
- \* *Comesperma calymega* Labill.  
*Comesperma defoliatum* F.Muell.
- \* *Comesperma ericinum* DC.
- POLYGONACEAE
- i *Acetosella vulgaris* Fourr.  
*Muehlenbeckia adpressa* (Labill.) Meisn.
- ?i *Persicaria prostrata* (R.Br.) Soják
- PORTULACACEAE
- Montia australasica* (Hook.f.) Pax & K.Hoffm.
- PROTEACEAE
- Banksia marginata* Cav.  
*Hakea teretifolia* subsp. *hirsuta* (Endl.) R.M.Barker
- RANUNCULACEAE
- Ranunculus sessiliflorus* R.Br. ex DC. var. *sessiliflorus*
- RESEDACEAE
- i *Reseda luteola* L.
- RHAMNACEAE
- Pomaderris apetala* Labill. subsp. *apetala*  
*Pomaderris apetala* subsp. *maritima* N.G.Walsh & Coates
- \* *Pomaderris elliptica* Labill. var. *elliptica*  
\* *Spyridium parvifolium* (Hook.) F.Muell. var. *parvifolium*
- ROSACEAE
- Acaena echinata* Nees  
*Acaena novae-zelandiae* Kirk
- ?i *Argentina anserina* (L.) Rydb.  
*Rubus parvifolius* L.
- RUBIACEAE
- Asperula minima* Hook.f.
- Galium leiocarpum* I.Thomps.
- Opercularia varia* Hook.f.
- RUTACEAE
- Boronia parviflora* Sm.  
*Correa alba* Andrews var. *alba*
- e \* *Nematolepis squamea* (Labill.) Paul G.Wilson subsp. *retusa* (Hook.) Paul G.Wilson  
*Zieria arborescens* Sims subsp. *arborescens*
- SANTALACEAE
- Exocarpos strictus* R.Br.  
*Leptomeria drupacea* (Labill.) Druce
- SCROPHULARIACEAE
- Myoporum insulare* R.Br.
- i *Verbascum thapsus* L.
- SOLANACEAE
- i *Lycium ferocissimum* Miers  
i *Solanum nigrum* L.  
*Solanum vescum* F.Muell.
- STYLEDIACEAE
- Stylium beagleholei* J.H.Willis  
*Stylium despectum* R.Br.  
*Stylium perpusillum* Hook.f.
- THYMELAEACEAE
- \* *Pimelea pauciflora* R.Br.
- VIOLACEAE
- Viola hederacea* Labill. subsp. *hederacea*
- MONOCOTS
- ASPARAGACEAE
- Lomandra longifolia* Labill.
- CENTROLEPIDACEAE
- \* *Aphelia gracilis* Sond.  
\* *Centrolepis aristata* (R.Br.) Roem. & Schult.  
*Centrolepis strigosa* (R.Br.) Roem. & Schult. subsp. *strigosa*
- COLCHICACEAE
- Burchardia umbellata* R.Br.
- CYPERACEAE
- Baumea acuta* (Labill.) Palla  
*Baumea juncea* (R.Br.) Palla

- Carex appressa* R.Br.  
*Carex inversa* R.Br.  
*Cyperus gunnii* Hook.f.  
*Eleocharis acuta* R.Br.  
*Ficinia nodosa* (Rottb.) Goetgh., Muasya & D.A.Simpson  
\* *Isolepis fluitans* (L.) R.Br.  
*Isolepis inundata* R.Br.  
?i *Isolepis levynsiana* Muasya & D.A.Simpson  
*Isolepis marginata* (Thunb.) A.Dietr.  
\* *Isolepis platycarpa* (S.T.Blake) Soják  
*Lepidosperma concavum* R.Br.  
*Lepidosperma ensiforme* (Rodway) D.I.Morris  
*Lepidosperma forsythii* A.A.Ham.  
*Lepidosperma gladiatum* Labill.  
*Lepidosperma longitudinale* Labill.  
*Schoenoplectus pungens* (M.Vahl) Palla  
*Schoenus apogon* Roem. & Schult.  
\* *Schoenus fluitans* Hook.f.  
*Schoenus turbinatus* (R.Br.) Poir. ex Roem. & Schult.
- HEMEROCALLIDACEAE  
\* *Caesia parviflora* var. *minor* R.J.F.Hend.  
*Caesia parviflora* R.Br. var. *parviflora*  
*Dianella revoluta* R.Br. var. *revoluta*
- HYPOXIDACEAE  
*Hypoxis hygrometrica* Labill. var. *hygrometrica*
- IRIDACEAE  
*Patersonia fragilis* (Labill.) Asch. & Graebn.  
*Patersonia occidentalis* R.Br. var. *occidentalis*  
i *Romulea rosea* var. *australis* (Ewart) M.P.de Vos
- JUNCACEAE  
i *Juncus acutiflorus* Ehrh. ex Hoffm.  
i *Juncus articulatus* L.  
*Juncus bufonius* L.  
i *Juncus bulbosus* L.  
i *Juncus capitatus* Weigel  
*Juncus pallidus* R.Br.
- JUNCACEAE  
*Juncus pauciflorus* R.Br.  
*Juncus planifolius* R.Br.  
*Juncus subsecundus* N.A.Wakef.
- LUZURIAGACEAE  
*Drymophila cyanocarpa* R.Br.
- ORCHIDACEAE  
\* *Caladenia carneae* R.Br.  
\* *Caladenia patersonii* R.Br.  
*Dipodium roseum* D.L.Jones & M.A.Clem.  
*Diuris sulphurea* R.Br.  
*Eriochilus cucullatus* (Labill.) Rchb.f.  
\* *Hydrorhachis orbicularis* (R.S.Rogers) D.L.Jones & M.A.Clem.  
*Microtis arenaria* Lindl.  
\* *Microtis parviflora* R.Br.  
\* *Microtis unifolia* (G.Forst.) Rchb.f.  
e \* *Prasophyllum apoxychilum* D.L.Jones  
\* *Prasophyllum brevilabre* (Lindl.) Hook.f.  
\* *Prasophyllum elatum* R.Br.  
\* *Thelymitra holmesii* Nicholls  
\* *Thelymitra juncifolia* Lindl.
- POACEAE  
i *Agrostis capillaris* L.  
i *Agrostis stolonifera* L.  
i *Aira caryophyllea* L. subsp. *caryophyllea*  
i *Aira elegantissima* Schur  
i *Aira praecox* L.  
i *Ammophila arenaria* (L.) Link subsp. *arenaria*  
i *Anthoxanthum odoratum* L.  
*Austrostipa flavescens* (Labill.) S.W.L.Jacobs & J.Everett  
*Austrostipa mollis* (R.Br.) S.W.L.Jacobs & J.Everett  
*Austrostipa pubinodis* (Trin. & Rupr.) S.W.L.Jacobs & J.Everett  
*Austrostipa stipoides* (Hook.f.) S.W.L.Jacobs & J.Everett  
i *Briza minor* L.  
i *Bromus diandrus* Roth  
i *Bromus hordeaceus* L.

- |    |   |   |   |   |
|----|---|---|---|---|
| i  | <i>Cynosurus echinatus</i> L.   | i | <i>Vulpia bromoides</i> (L.) Gray   |   |
| i  | <i>Dactylis glomerata</i> L.  | i | <i>Vulpia myuros</i> f. <i>megalura</i> (Nutt.) Stace & R.Cotton            |   |
|    | <i>Deyeuxia quadriseta</i> (Labill.) Benth.                                   |   | POTAMOGETONACEAE  |   |
|    | <i>Dichelachne crinita</i> (L.f.) Hook.f.                                     |   | <i>Potamogeton cheesemanii</i> A.Benn.                                      |   |
|    | <i>Distichlis distichophylla</i> (Labill.) Fassett                            |   | RESTIONACEAE  |   |
|    | <i>Echinopogon ovatus</i> (G.Forst.) P.Beauv.                                 |   | <i>Empodium minus</i> (Hook.f.) L.A.S.Johnson &<br>D.F.Cutler               |   |
| ?i | <i>Eragrostis brownii</i> (Kunth) Nees  |   | <i>Eurychorda complanata</i> (R.Br.) B.G.Briggs &<br>L.A.S.Johnson          |   |
| i  | <i>Festuca arundinacea</i> Schreb.  |   | <i>Hypolaena fastigiata</i> R.Br.   |   |
| i  | <i>Festuca rubra</i> L.   |   | <i>Leptocarpus tenax</i> (Labill.) R.Br.                                    |   |
|    | <i>Hemarthria uncinata</i> R.Br. var. <i>uncinata</i>                         |   | XYRIDACEAE  |   |
| i  | <i>Holcus lanatus</i> L.  |   | * <i>Xyris operculata</i> Labill.   |   |
| i  | <i>Hordeum hystrix</i> Roth   |   | <b>PTERIDOPHYTES</b>  |   |
|    | <i>Imperata cylindrica</i> var. <i>major</i> (Nees) C.E.Hubb.                 |   | ADIANTACEAE   |   |
|    | <i>Lachnagrostis aemula</i> (R.Br.) Trin.                                     |   | <i>Adiantum aethiopicum</i> L.  |   |
|    | <i>Lachnagrostis filiformis</i> (G.Forst.) Trin.                              |   | ASPLENIACEAE  |   |
| i  | <i>Lagurus ovatus</i> L.  |   | <i>Asplenium flabellifolium</i> Cav.  |   |
| i  | <i>Lolium perenne</i> L.  |   | *   | <i>Pleurozorus rutifolius</i> (R.Br.) Fée |
|    | <i>Microlaena stipoides</i> (Labill.) R.Br. var. <i>stipoides</i>             |   | BLECHNACEAE   |   |
| i  | <i>Paspalum dilatatum</i> Poir.   |   | <i>Blechnum nudum</i> (Labill.) Mett. ex Luerss.                            |   |
|    | <i>Pentapogon quadrifidus</i> (Labill.) Baill. var.<br><i>quadrifidus</i>     |   | DENNSTAEDTIACEAE  |   |
| i  | <i>Phalaris aquatica</i> L.   |   | <i>Pteridium esculentum</i> (G.Forst.) Cockayne subsp.<br><i>esculentum</i> |   |
|    | <i>Phragmites australis</i> (Cav.) Trin. ex Steud.                            |   | DICKSONIACEAE   |   |
|    | <i>Poa labillardierei</i> Steud. var. <i>labillardierei</i>                   |   | <i>Dicksonia antarctica</i> Labill.   |   |
| i  | <i>Polypogon maritimus</i> var. <i>subspatheaceus</i> (Req.)<br>Parl.         |   | DRYOPTERIDACEAE   |   |
|    | <i>Rytidosperma geniculatum</i> (J.M.Black) Connor &<br>Edgar                 |   | <i>Polystichum proliferum</i> (R.Br.) C.Presl                               |   |
|    | <i>Rytidosperma pilosum</i> (R.Br.) Connor & Edgar                            |   | GLEICHENIACEAE  |   |
|    | <i>Rytidosperma racemosum</i> (R.Br.) Connor & Edgar<br>var. <i>racemosum</i> |   | <i>Gleichenia dicarpa</i> R.Br.   |   |
| *  | <i>Rytidosperma setaceum</i> (R.Br.) Connor & Edgar                           |   | <i>Gleichenia microphylla</i> R.Br.   |   |
|    | <i>Spinifex sericeus</i> R.Br.  |   | PTERIDACEAE   |   |
| i  | <i>Sporobolus africanus</i> (Poir.) Robyns & Tournay                          |   | <i>Pteris epaleata</i> D.J.Ohlsen   |   |
| i  | <i>Stenotaphrum secundatum</i> (Walter) Kuntze                                |   | SELAGINELLACEAE   |   |
|    | <i>Themeda triandra</i> Forssk.   |   | <i>Selaginella gracillima</i> (Kunze) Spring ex Salomon                     |   |
| i  | <i>Thinopyrum junceiforme</i> (Å.Löve & D.Löve)<br>Å.Löve                     |   | <i>Selaginella uliginosa</i> (Labill.) Spring                               |   |

**APPENDIX 1.2: BRYOPHYTE TAXA**

i naturalised

**LIVERWORTS**

## ANEURACEAE

*Riccardia* sp.

## AYTONIACEAE

*Asterella drummondii* (Hook.f. & Taylor)  
R.M.Schust. ex D.G.Long

## CEPHALOZIELLACEAE

*Cephaloziella exiliflora* (Taylor) Douin

## FOSSOMBRONIACEAE

*Fossombronia* sp.

## FRULLANIACEAE

*Frullania clavata* (Hook.f. & Taylor) Taylor ex  
Gottscche, Lindenb. & Nees*Frullania deplanata* Mitt.*Frullania probosciphora* Taylor*Frullania rostrata* (Hook.f. & Taylor) Hook.f. &  
Taylor ex Gottscche, Lindenb. & Nees

## GEOCALYCACEAE

*Chiloscyphus* sp.*Chiloscyphus* aff. *semiteres* (Lehm.) Lehm. &  
Lindenb.*Chiloscyphus semiteres* (Lehm.) Lehm. & Lindenb.*Heteroscyphus* sp.

## LEJEUNEACEAE

*Lejeunea* sp.

## LEPIDOZIACEAE

*Bazzania adnexa* (Lehm. & Lindenb.) Trevis. var.  
*adnexa**Kurzia hippuroides* (Hook.f. & Taylor) Grolle*Lepidozia* sp.

## MARCHANTIACEAE

*Lunularia cruciata* (L.) Dumort.*Marchantia berteroana* Lehm. & Lindenb.

## METZGERIACEAE

*Metzgeria furcata* (L.) Dumort.

## RICCIACEAE

*Riccia* sp.**MOSSES**

## AULACOMNIACEAE

*Leptotheca gaudichaudii* Schwägr. var. *gaudichaudii*

## BARTRAMIACEAE

*Breutelia affinis* (Hook.) Mitt.*Philonotis australiensis* D.G.Griffin & W.R.Buck

## BRACHYTHECIACEAE

*Brachythecium* sp.i *Brachythecium albicans* (Hedw.) Schimp.i *Eurhynchium praelongum* (Hedw.) Bruch &  
Schimp.*Rhynchostegium tenuifolium* (Hedw.) Reichardt

## BRYACEAE

*Gemmabryum* sp.*Orthodontium lineare* Schwägr.*Rosulabryum billardierei* (Schwägr.) J.R.Spence*Rosulabryum subtomentosum* (Hampe) J.R.Spence*Rosulabryum torquescens* (Bruch & Schimp.)  
J.R.Spence

## DICRANACEAE

*Campylopus appressifolius* Mitt.*Campylopus bicolor* (Müll.Hal.) Wilson*Campylopus clavatus* Wilson*Campylopus introflexus* (Hedw.) Brid.*Campylopus pallidus* Hook.f. & Wilson*Dicranoloma billardierei* (Brid.) Paris*Dicranoloma dicarpum* (Nees) Paris*Dicranoloma menziesii* (Taylor) Renaud

## DITRICHACEAE

*Ceratodon purpureus* (Hedw.) Brid.*Ditrichum difficile* (Duby) M.Fleisch.

## FISSIDENTACEAE

*Fissidens asplenoides* Hedw.*Fissidens curvatus* Hornsch. var. *curvatus**Fissidens taylorii* Müll.Hal.*Fissidens tenellus* var. *australiensis* (A.Jaeger)  
Beever & I.G.Stone

## FUNARIACEAE

*Funaria hygrometrica* Hedw.

HOOKERIACEAE

*Calyptrochaeta apiculata* (Hook.f. & Wilson) Vitt

HYPNACEAE

*Hypnum cypresiforme* Hedw.

LEMBOPHYLLACEAE

*Lembophyllum clandestinum* (Hook.f. & Wilson)  
Lindb. ex Paris

ORTHOTRICHACEAE

*Macromitrium archeri* Mitt.

*Zygodon menziesii* (Schwägr.) Arn.

*Zygodon minutus* Müll.Hal. & Hampe

POLYTRICHACEAE

*Polytrichum juniperinum* Hedw.

POTTIACEAE

*Barbula calycina* Schwägr.

*Didymodon torquatus* (Taylor) Catches.

*Hymenostomum sullivanii* Müll.Hal. ex Geh.

*Syntrichia antarctica* (Hampe) R.H.Zander

*Syntrichia papillosa* (Wilson) Jur.

*Tortula muralis* Hedw.

*Triquetrella papillata* (Hook.f. & Wilson) Broth.

*Weissia* sp.

*Weissia controversa* Hedw.

PTYCHOMNIACEAE

*Ptychomnion aciculare* (Brid.) Mitt.

RACOPILACEAE

*Racopilum cuspidigerum* var. *convolutaceum* (Müll.  
Hal.) Zanten & Dijkstra

RHIZOGONIACEAE

*Pyrrhobryum paramattense* (Müll.Hal.) Manuel

SEMATOPHYLLACEAE

*Rhaphidorrhynchium amoenum* (Hedw.) M.Fleisch.

*Rhaphidorrhynchium amoenum* (Hedw.) M.Fleisch.  
var. *amoenum*

*Sematophyllum homomallum* (Hampe) Broth.

*Warburgiella macrospora* (Dixon & Sainsbury)  
B.C.Tan, W.B.Schofield & H.P.Ramsay

*Wijkia extenuata* (Brid.) H.A.Crum

SPHAGNACEAE

*Sphagnum novozelandicum* Mitt.

## APPENDIX 1.3: LICHEN TAXA

- t in Australia, known only from Tasmania  
e Tasmanian endemic
- Acarospora citrina* (Taylor) Zahlbr. ex Rech.  
*Acarospora fuscata* (Nyl.) Arnold  
*Amandinea decedens* (Nyl.) Blaha & H.Mayrhofer  
*Amandinea neoconglomerata* Elix  
*Amandinea punctata* (Hoffm.) Coppins & Scheid.  
*Angiactis banksiae* (Müll.Arg.) Kantvilas & Stajsic  
*Anisomeridium biforme* (Borrer) R.C.Harris  
e *Anisomeridium disjunctum* P.M.McCarthy & Kantvilas  
*Arthonia* cf. *apteropteridis* Kantvilas & Vezda  
*Arthonia ilicina* Taylor  
*Arthonia* spp. indet.  
*Arthothelium ampliatum* (C.Knight & Mitt.) Müll. Arg.  
t *Arthothelium endoaurantiacum* Makhija & Patw.  
*Arthothelium interveniens* (Nyl.) Zahlbr.  
*Austroparmelina conlabrosa* (Hale) A.Crespo, Divakar & Elix  
*Austroparmelina pseudorelicina* (Jatta) A.Crespo, Divakar & Elix  
*Bacidia laurocerasi* (Delise ex Duby) Zahlbr.  
*Bacidia littoralis* Kantvilas  
*Bacidia septosior* (Nyl.) Zahlbr.  
*Bacidia* sp. A (GK 83/21, 208/20)  
*Bacidia* sp. B (GK 91/21)  
*Bacidia stenospora* C.Knight  
t *Bacidia wellingtonii* (Stirt.) D.J.Galloway  
t *Bactrospora metabola* (Nyl.) Egea & Torrente  
e *Bactrospora paludicola* Kantvilas  
*Bapalmia buchananii* (Stirt.) Kalb & LÝcking  
*Buellia aeruginosa* A.Nordin, Owe-Larsson & Elix  
*Buellia cranwelliae* Zahlbr.  
*Buellia dissia* (Stirt.) Zahlbr.  
*Buellia fertilis* Körber  
*Buellia hypostictella* Elix & H.Mayrhofer

- Buellia schaeereri* De Not.  
*Buellia stellulata* (Taylor) Mudd var. *stellulata*  
*Buellia suttonensis* Elix & A.Knight  
*Calicium glaucellum* Ach.  
*Calicium tricolor* F.Wilson  
*Calicium victorianum* (F.Wilson) Tibell subsp. *victorianum*  
t *Caloplaca bartlettii* S.Y.Kondr. & Kärnefelt  
*Caloplaca cliff wetmorei* S.Y.Kondr. & Kärnefelt  
*Caloplaca cranfieldii* S.Y.Kondr. & Kärnefelt  
*Caloplaca eos* S.Y.Kondr. & Kärnefelt  
*Caloplaca gallowayi* S.Y.Kondr., Kärnefelt & Filson  
*Caloplaca gilfillaniorum* Kantvilas & S.Y.Kondr.  
*Caloplaca holocarpa* (Hoffm.) A.E.Wade  
*Caloplaca kilcundaensis* S.Y.Kondr. & Kärnefelt  
*Caloplaca lateritia* (Taylor) Zahlbr.  
*Caloplaca maccarthyi* S.Y.Kondr., Kärnefelt & Elix  
*Caloplaca sublobulata* (Nyl.) Zahlbr.  
*Caloplaca subluteoalba* S.Y.Kondr. & Kärnefelt  
*Caloplaca* sp. (GK 171/21)  
*Candelariella vitellina* (Hoffm.) Müll.Arg.  
*Candelariella xanthostigmoides* (Müll.Arg.) R.W.Rogers  
*Carbonea latypizodes* (Müll.Arg.) Knoph & Rambold  
*Carbonicola foveata* (Timdal) Bendiksby & Timdal  
*Catillaria austrolittoralis* Kantvilas & van den Boom  
*Catinaria atropurpurea* (Schaer.) Vězda & Poelt  
*Chaenothecopsis ? savonica* (Räsänen) Tibell  
*Chiodecton colensoi* (A.Massal.) Müll.Arg.  
*Chrysotrichia sulphurella* (Räsänen) Kantvilas & Elix  
*Chrysotrichia xanthina* (Vain.) Kalb  
*Cladonia aggregata* (Sw.) Nyl.  
*Cladonia inflata* (F.Wilson) D.J.Galloway  
*Cladonia retipora* (Labill.) Nyl.  
*Cladonia schizophora* (Nyl.) Nyl.  
*Cladonia capitellata* (Hook.f. & Taylor) C.Bab. var. *squamatica* A.W.Archer

- Cladonia confusa* R.Sant.  
*Cladonia humilis* (With.) J.R.Laundon var. *humilis*  
*Cladonia merochlorophaea* Asahina  
*Cladonia paeminoosa* A.W.Archer  
*Cladonia praetermissa* A.W.Archer var. *praetermissa*  
*Cladonia ramulosa* (With.) J.R.Laundon  
*Cladonia rigida* (Hook.f. & Taylor) Hampe var. *rigida*  
*Cladonia subradiata* (Vain.) Sandst.  
*Cladonia verticillata* (Hoffm.) Schaeer.  
*Cliostomum griffithii* (Sm.) Coppins  
*Coenogonium implexum* Nyl.  
*Coenogonium luteum* (Dicks.) Kalb & Lücking  
*Coenogonium* sp. (GK 301/21)  
? *Collema fasciculare* (L.) Wigg. var. *fasciculare*  
*Collema glaucophthalmum* Nyl. var. *glaucophthalmum*  
*Collema glaucophthalmum* Nyl. var. *implicatum* (Nyl.) Degel.  
*Collema subconveniens* Nyl.  
*Coniocarpon cinnabarinum* DC.  
*Diploicia canescens* (Dicks.) A.Massal.  
*Diploschistes eugenaeus* (A.Massal.) J.Steiner  
*Flavoparmelia rutidota* (Hook.f. & Taylor) Hale  
*Flavoparmelia soredians* (Nyl.) Hale  
t *Fuscidea lightfootii* (Sm.) Coppins & P.James  
*Graphis aperiens* Müll.Arg.  
*Graphis desquamescens* (Fée) Zahlbr.  
*Graphis dracaenae* Vain.  
*Graphis geraensis* Redinger  
*Haematomma sorediatum* R.W.Rogers  
*Halecania subsquamosa* (Müll.Arg.) van den Boom & H.Mayrhofer  
*Halegrapha mucronata* (Stirt.) Lücking  
*Heterodermia tremulans* (Müll.Arg.) W.L.Cubl.  
*Hypocenomyce australis* Timdal  
*Hypocenomyce scalaris* (Ach.) M.Choisy  
*Hypogymnia pulverata* (Nyl.) Elix  
*Hypotrachyna revoluta* (Flörke) Hale  
*Lecanora austrointumescens* Lumbsch & Elix  
*Lecanora dispersa* (Pers.) Sommerf.  
*Lecanora flavopallida* Stirt.  
*Lecanora mobergiana* Lumbsch & Elix  
*Lecanora symmicta* (Ach.) Ach.  
*Lecidella flavovirens* Kantvilas & Elix  
*Lecidella granulosula* (Nyl.) Knoph & Leuckert var. *granulosula*  
*Lecidella stigmatica* (Ach.) Hertel & Leuckert  
*Lecidella xylogena* (Müll.Arg.) Kantvilas & Elix  
*Lepra erubescens* (Hook.f. & Taylor) A.W.Archer & Elix  
*Lepraria coriensis* (Hue) Sipman  
*Lepraria finkii* (de Lesd.) R.C.Harris  
*Lepraria toilenae* Kantvilas & Kukwa  
*Leptogium crispatum* Nyl.  
*Lichina intermedia* (C.Bab.) M.Schultz  
*Maronea constans* (Nyl.) Hepp  
*Megalaria grossa* (Pers. ex Nyl.) Hafellner  
*Megalaria melaloma* (C.Knight) Kantvilas  
*Megalaria melanotropa* (Nyl.) D.J.Galloway  
*Megalaria subtasmanica* Kantvilas  
*Megaloblastenia* sp. (GK 212/20)  
*Megalospora pulverata* Kantvilas  
*Menegazzia caesiopruinosa* P.James  
*Menegazzia subpertusa* P.James & D.J.Galloway  
*Micarea byssacea* (Th.Fr.) Czarnota, Guzow-Krzem. & Coppins  
e *Micarea intersociella* (Stirt.) Coppins  
*Micarea mutabilis* Coppins & Kantvilas  
t *Micarea rhabdogena* (Norman) Hedl.  
t *Micarea xanthonica* Coppins & Tønsberg  
*Mycoblastus coniophorus* (Elix & A.W.Archer) Kantvilas & Elix  
*Notoparmelia cunninghamii* (Cromb.) A.Crespo, Ferencova & Divakar  
*Ochrolechia apiculata* Verseghy  
*Ochrolechia blandior* (Nyl.) Darb.

- Ochrolechia gyrophorica* (A.W.Archer) A.W.Archer & Lumbsch
- Opegrapha atra* Pers.
- Opegrapha diaphoriza* Nyl.
- Opegrapha cf. herbarum* Mont.
- Opegrapha spodopolia* Nyl.
- Opegrapha varia* Pers.
- Opegrapha viridis* (Ach.) Nyl.
- Opegrapha* spp. (GK 394/20, 156/21)
- Palicella* sp.
- Pannaria pulverulacea* Elvebak
- Pannoparmelia wilsonii* (Räsänen) D.J.Galloway
- Paraporpidia leptocarpa* (C.Bab. & Mitt.) Rambold & Hertel
- Parmeliella nigrocincta* (Mont.) M.Yll.Arg.
- Parmotrema neopustulatum* Kurok.
- Parmotrema perlatum* (Huds.) M.Choisy
- Parmotrema reticulatum* (Taylor) M.Choisy
- Peltigera dolichorhiza* (Nyl.) Nyl.
- Pertusaria crassilabra* Müll.Arg.
- Pertusaria pertractata* Stirt.
- ? *Pertusaria krogii* A.W.Archer. Elix, Eb.Fisch., Killman & Sérus.
- Phaeographis lindigiana* Müll.Arg.
- Phlyctis* sp.
- Phlyctis subuncinata* Stirt.
- Physcia neonubila* Elix
- Physcia poncinsii* Hue
- Placynthiella icmalea* (Ach.) Coppins & P.James
- Porina leptalea* (Durieu & Mont.) A.L.Sm.
- e *Porina meridionalis* P.M.McCarthy
- Porina raphaeliophora* (Nyl.) Müll.Arg.
- Porina whinrayi* P.M.McCarthy
- Pseudocyphellaria rubella* (Hook.f. & Taylor) D.J.Galloway & P.James
- t *Pseudothelomma ocellatum* (Körb.) M. Prieto & Wedin
- Psoroma asperellum* Nyl.
- Punctelia pseudocoralloidea* (Gyeln.) Elix & Kantvilas
- t *Punctelia transtasmanica* Elix & Kantvilas
- Pyrenula dermatodes* (Borrer) Schaer.
- Ramalina fissa* (Müll.Arg.) Vain.
- Ramalina inflata* (Hook.f. & Taylor) Hook.f. & Taylor
- Ramboldia arandensis* (Elix) Kalb, Lumbsch & Elix
- Ramboldia blastidiata* Kantvilas & Elix
- Ramboldia laeta* (Stirt.) Kalb, Lumbsch & Elix
- Ramboldia sorediata* Kalb
- Ramboldia stuartii* (Hampe) Kantvilas & Elix
- Reichlingia* sp. (GK 315/21)
- Rhizocarpon reductum* Th.Fr.
- Rhizocarpon viridiatrum* (Wulfen) Körb.
- Rinodina australiensis* Müll.Arg
- Rinodina blastidiata* Matzer & H.Mayrhofer
- Rinodina oleae* Bagl.
- Rinodina subcrustacea* (Müll.Arg.) Zahlbr.
- Schismatomma occultum* (C.Knight & Mitt.) Zahlbr.
- Scoliciosporum umbrinum* (Ach.) Arnold
- ? *Strangospora* sp.
- Teloschistes spinosus* (Hook.f. & Taylor) J.S.Murray
- Teloschistes velifer* F.Wilson
- Tephromela alectoronica* Kalb
- Tephromela sorediata* Kalb & Elix
- Thelotrema lepadinum* (Ach.) Ach.
- Thysanothecium scutellatum* (Fr.) D.J.Galloway
- Trapeliopsis flexuosa* (Fr.) Coppins & P.James
- Tylothallia verrucosa* (Müll.Arg.) Kantvilas
- Usnea cornuta* Körb.
- Usnea dasaea* Stirt.
- Usnea inermis* Motyka
- Usnea rubrotincta* Stirt.
- Verrucaria prominula* Nyl.
- Xanthoparmelia australasica* D.J.Galloway
- Xanthoparmelia conranensis* (Elix) Elix

- Xanthoparmelia flavescentireagens* (Gyeln.)  
D.J.Galloway
- Xanthoparmelia mougeotina* (Nyl.) D.J.Galloway
- Xanthoparmelia streimannii* (Elix & P.Armstr.) Elix  
& J.Johnst.
- Xanthoparmelia subprolixa* (Nyl. ex Kremp.)  
O.Blanco, A.Crespo, Elix, D.Hawksw. &  
Lumbsch
- Xanthoria ligulata* (Kšrb.) P.James

## References

- ABRS (Australian Biological Resources Study), 2022. AusMoss — Australian Moss Name Index. Retrieved from <https://moss.biodiversity.org.au/nsi/services> (January 2022).
- Archer, A.W., 2009. Graphidaceae. *Flora of Australia* 57: 84–194.
- AVH (Australasian Virtual Herbarium), 2022. *The Australasian Virtual Herbarium, Council of Heads of Australasian Herbaria*. Retrieved from <https://avh.chah.org.au/> (August 2022).
- Baker, M., Grove, S., de Salas, M.F., Byrne, C., Cave, L., Bonham, K.J., Moore, K. & Kantvilas, G., 2019. Tasmanian Museum and Art Gallery's Expedition of Discovery I – The flora and fauna of Wind Song, Little Swanport, Tasmania. *Papers and Proceedings of the Royal Society of Tasmania* 153: 5–30.
- Baker, M.L., Grove, S., de Salas, M.F., Byrne, C., Cave, L., Bonham, K.J., Moore, K., Cook, L. & Kantvilas, G., 2021a. Tasmanian Museum and Art Gallery's Expedition of Discovery II – The Flora and Fauna of Musselroe Wind Farm, Cape Portland, Northeast Tasmania. *Papers and Proceedings of the Royal Society of Tasmania* 155: 69–96.
- Baker, M.L., Kantvilas, G., Cave, L. & de Salas, M.F., 2022. Stony Head Bush Blitz—Vascular Plants, Bryophytes and Lichens. ABRS, Canberra. Retrieved from <https://bushblitz.org.au/wp-content/uploads/2022/07/Vascular-plants-bryophytes-and-lichens.pdf> (November 2022).
- Baker, M.L., de Salas, M.F., Grove, S., Cave, L., Moore, K., Byrne, C., Lee, E. & Kantvilas, G., 2021b. Tasmanian Museum and Art Gallery's Expedition of Discovery III – The flora and fauna of the Spring Bay Mill area after a long history of industrial use. *Papers and Proceedings of the Royal Society of Tasmania* 155: 139–162.
- BOM (Bureau of Meteorology), 2022. Climate statistics for Australian locations. Retrieved from [http://www.bom.gov.au/climate/averages/tables/cw\\_091293.shtml](http://www.bom.gov.au/climate/averages/tables/cw_091293.shtml) (January 2022).
- Brown, M.J., Jarman, S.J. & Kantvilas, G., 1994. Conservation and reservation of non-vascular plants in Tasmania, with special reference to lichens. *Biodiversity and Conservation* 3: 263–278.
- Bush Blitz, 2022. *Stony Head, Tasmania 2021: Bush Blitz expedition report*. Retrieved from [https://bushblitz.org.au/wp-content/uploads/2022/07/Stony-Head-Tasmania-2021\\_Bush-Blitz-expedition-report.pdf](https://bushblitz.org.au/wp-content/uploads/2022/07/Stony-Head-Tasmania-2021_Bush-Blitz-expedition-report.pdf) (August 2022).
- CHAH (Council of Heads of Australasian Herbaria), 2022. *The Australasian Virtual Herbarium*. Retrieved from <http://avh.ala.org.au> (October 2022).
- DPIPWE (Department of Primary Industries, Parks, Water and Environment), 2020. *TASVEG 4.0 – The Digital*

- Vegetation Map of Tasmania.* Retrieved from [https://nre.tas.gov.au/conservation/development-planning-conservation-assessment/planning-tools/monitoring-and-mapping-tasmanias-vegetation-\(tasveg\)/tasveg-the-digital-vegetation-map-of-tasmania](https://nre.tas.gov.au/conservation/development-planning-conservation-assessment/planning-tools/monitoring-and-mapping-tasmanias-vegetation-(tasveg)/tasveg-the-digital-vegetation-map-of-tasmania) (August 2022).
- Elix, J.A. & Kantvilas, G., 2020. Three new species and a new record of buellioid lichens (Caliciaceae, Ascomycota) from Tasmania. *Australasian Lichenology* 87: 20–25.
- Elix, J.A., Kantvilas, G. & McCarthy, P.M., 2019. Two new species of *Rinodina* (Physciaceae, Ascomycota) from southern Australia. *Australasian Lichenology* 84: 10–15.
- GST (Geological Survey of Tasmania), 2002. Geology of northeast Tasmania. Geological atlas 1:250,000 digital series [Tasmania] Geological atlas 1:250,000 [Tasmania] Tasmania Development and Resources, Hobart, Tasmania.
- Hill, R.S., McPhail, M.K. & Jordan, G.J., 1999. Tertiary history and origins of the flora and vegetation. In *Vegetation of Tasmania*, J.B. Reid, R.S. Hill, M.J. Brown & M. Hovenden, eds. Flora of Australia Supplementary Series 8. University of Tasmania & Forestry Tasmania, Hobart, Tasmania. pp. 39–63.
- Himelbrant, D.E., Stepanchikova, I.S., Kuznetsova, E.S., Motiejūnaitė, J. & Konoreva, L.A., 2018. Konevets Island (Leningrad Region, Russia) – a historical refuge of lichen diversity in Lake Ladoga. *Folia Cryptogamica Estonica; Tartu* 55: 51.
- Jackson, W.D. & Brown, M.J., 1999. Pattern and process in the vegetation. In *Vegetation of Tasmania*, J.B. Reid, R.S. Hill, M.J. Brown & M. Hovenden, eds. Flora of Australia Supplementary Series 8. University of Tasmania & Forestry Tasmania, Hobart, Tasmania. pp. 357–380.
- Kantvilas, G., 1989. A checklist of Tasmanian lichens. *Papers and Proceedings of the Royal Society of Tasmania* 123: 67–85.
- Kantvilas, G., 1994. A revised checklist of the Tasmanian lichen flora. *Muelleria* 8(2): 155–175.
- Kantvilas, G., 2020. Contributions to the lichen genus *Cresponea* (Roccellaceae). *The Lichenologist* Cambridge University Press 52(4): 279–285.
- Kantvilas, G., Suija, A. & Motiejūnaitė, J., 2021. *Caloplaca tephromelae* (Teloschistaceae), a new lichenicolous species from Tasmania. *The Lichenologist* Cambridge University Press 53(4): 317–325.
- Kirkpatrick, J.B. & Harris, S., 1999. Coastal, heath and wetland vegetation. In *Vegetation of Tasmania*, J.B. Reid, R.S. Hill, M.J. Brown & M. Hovenden, eds. Flora of Australia Supplementary Series 8. University of Tasmania & Forestry Tasmania, Hobart, Tasmania. pp. 304–332.
- Kitchener, A. & Harris, S., 2013. *From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation.* Department of Primary Industries, Parks, Water and Environment, Hobart, Tasmania. 432 pp.
- Kraft, G.T. & Baker, M.L., 2022. Macroalgae of the Spring Bay area, Triabunna, Tasmania. *Papers and Proceedings of the Royal Society of Tasmania* 156: in press.
- Labillardière, J.-J.H. de, 1800a. *Voyage in Search of La Pérouse. Performed by order of the Constituent Assembly during the years 1791, 1792, 1793, and 1794, and drawn up by M. Labillardière, correspondent of the Academy of Sciences at Paris, Member of the Society of Natural History and one of the naturalists attached to the expedition.* Translated from the French. John Stockdale, London. 487 pp.
- Labillardière, J.-J.H. de, 1800b. *Voyage in Search of La Pérouse. Performed by order of the Constituent Assembly during the years 1791, 1792, 1793, and 1794, and drawn up by M. Labillardière, correspondent of the Academy of Sciences at Paris, Member of the Society of Natural History and one of the naturalists attached to the expedition.* Translated from the French. John Stockdale, London. 105 pp.
- Labillardière, J.-J.H. de, 1804–1806. *Nova Hollandiae plantarum specimen.* Typographia Dominæ Huzard, Paris.
- LISTmap, 2022. Land Information System Tasmania. Retrieved from <https://maps.thelist.tas.gov.au/listmap/app/list/map> (August 2022).
- McCarthy, P.M., 2006. *Checklist of Australian Liverworts and Hornworts.* Australian Biological Resources Study.
- McCarthy, P.M., 2020. *Checklist of the Lichens of Australia and its Island Territories.* Retrieved from <https://www.anbg.gov.au/abrs/lichenlist/introduction.html> (January 2022).
- McCarthy, P.M. & Kantvilas, G., 2018. *Anisomeridium disjunctum* (Monoblastiaceae), a new lichen species from Tasmania, with a key to the genus in Australia. *Australasian Lichenology* 83: 54–60.
- McCarthy, P.M. & Kantvilas, G., 2022. A new species of *Dictyomeridium* (lichenized Ascomycota, Trypetheliaceae) from Tasmania. *Australasian Lichenology* 90: 10–13.
- Peel, M.C., Finlayson, B.L. & McMahon, T.A., 2007. Updated world map of the Köppen-Geiger climate classification. *Hydrology and Earth System Sciences* Copernicus GmbH 11(5): 1633–1644.
- de Salas, M.F. & Baker, M.L., 2021. *A Census of the Vascular Plants of Tasmania, Including Macquarie Island.* Tasmanian Herbarium, Tasmanian Museum and Art Gallery. Retrieved from [https://flora.tmag.tas.gov.au/census/2021\\_Census\\_of\\_Tasmanian\\_Vascular\\_Plants.pdf](https://flora.tmag.tas.gov.au/census/2021_Census_of_Tasmanian_Vascular_Plants.pdf) (January 2022).
- Tropicos, 2022. *Tropicos.org. Missouri Botanical Garden.*

- Retrieved from <https://tropicos.org/> (January 2022).
- Warren, S.D., Holbrook, S.W., Dale, D.A., Whelan, N.L., Elyn, M., Grimm, W. & Jentsch, A., 2007. Biodiversity and the Heterogeneous Disturbance Regime on Military Training Lands. *Restoration Ecology* 15(4): 606–612.
- Wetmore, C.M., 1963. Catalogue of the lichens of Tasmania. *Revue bryologique et lichenologique* 32: 223–264.
- Zentelis, R. & Lindenmayer, D., 2015. Bombing for biodiversity: enhancing conservation values of military training areas. *Conservation Letters* 8(4): 299–305.