

Pteridophytes of North-eastern Tasmania

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Abstract

Seventy-eight species of ferns and fern allies, representing 80% of Tasmania's fern flora, are recorded in a recent survey of ferns in north-eastern Tasmania. None is confined to the region, but 11 are considered to have their Tasmanian distribution centres there. Two Tasmanian endemic species are present. All species recorded from the north-east are listed with short notes on their ecology and abundance.

Introduction

The fern flora of Tasmania, as presently known, consists of 97 species (excluding two Macquarie Island species) within 42 genera. Seventy-nine species belong to the true ferns (Filicopsida) and 18 to the fern allies (Psilopsida and Lycopsida). Only five species are endemic to Tasmania.

While at least some species of ferns and fern allies are present in almost every vegetation type, as a group, they reach their greatest abundance and diversity in wet forest and sheltered gullies. Gully floras usually approximate those of rainforest and wet sclerophyll forest, but in addition, include several water-associated species (particularly *Blechnum*) beside permanent streams. Gullies provide greater habitat changes across a shorter distance (e.g. from damp riparian flats and bank overhangs to higher, drier slopes), increasing the potential for greater species diversity.

Diversity of pteridophytes is greatly diminished with reduction in moisture and shelter. The fern flora of the Midlands is particularly depauperate, except for a few specialised species. Few species occur within open dry

sclerophyll forest except in sheltered gullies and on rocky outcrops which may be comparatively fern-rich.

Specialised species, usually dwarf and compact, occur in exposed highland habitats (mostly above 1000 m in altitude) where desiccation is diminished by lower temperatures and greater precipitation. Badly drained, permanently moist and exposed alpine plateaux, and coastal heathland, provide other distinctive habitats.

The habitats of some species overlap but 59 species of Tasmanian pteridophytes may be classed as terrestrial, 30 epiphytic or lithophytic, and eight aquatic.

Method

Information on the ecology, distribution and frequency of species were gathered while undertaking field work in the preparation of a fern atlas of Tasmania. Most recordings were made in the 18 months to January 1991, though these have been supplemented with information from previous personal field trips. Although herbarium and other records will be incorporated in the completed atlas, only the author's records (unless otherwise stated) are discussed here.

Definition of the north-east as used here is purely in a geographical sense and incorporates a number of the floristic regions used by Orchard (1988). Consequently, the variation in topography and vegetation is greater than in Orchard's floristic regions, and there is a greater potential for species diversity within the pteridophytes.

As defined here, the south-western boundary of the north-east follows the north-eastern

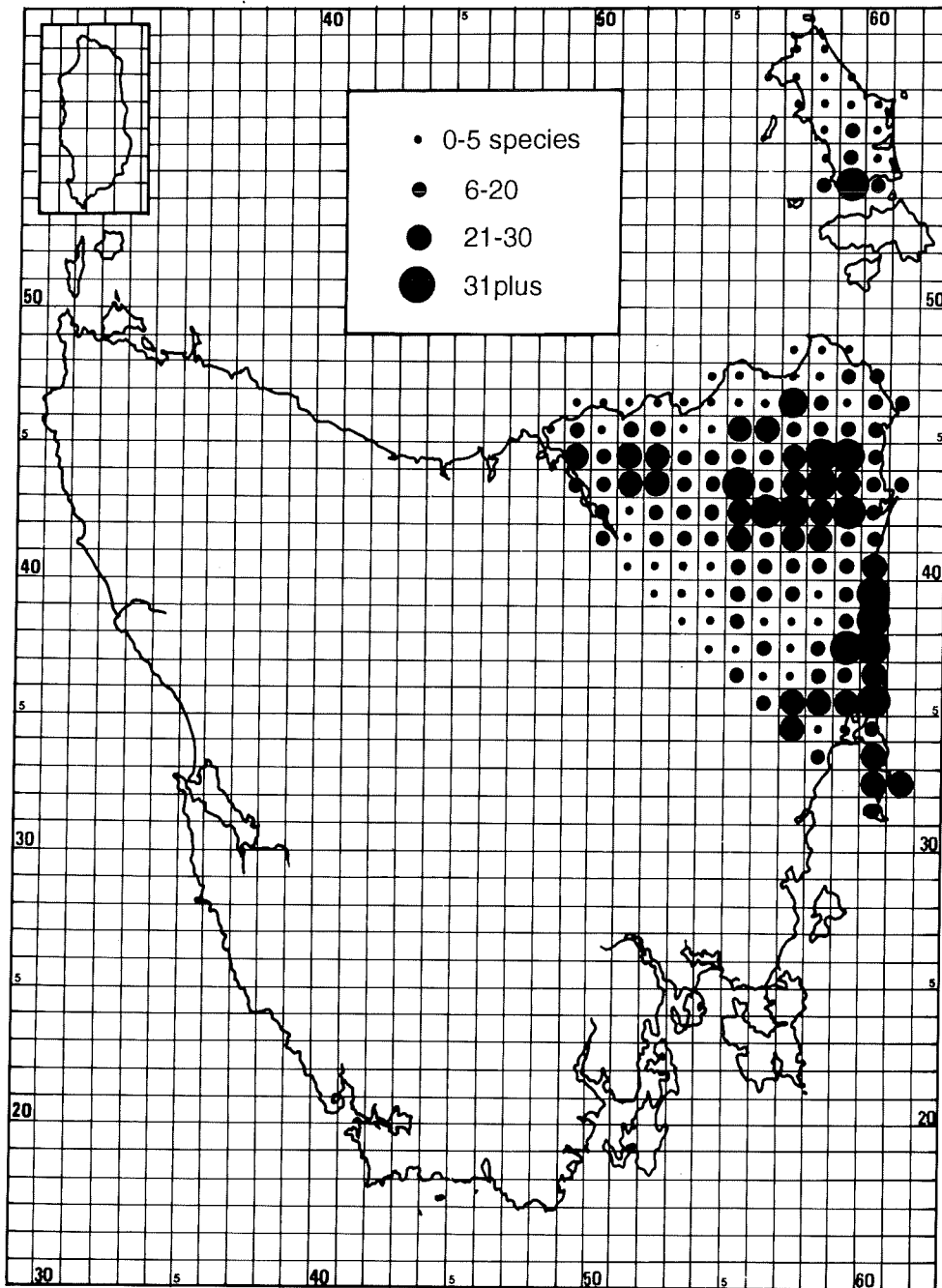


Figure 1. Distribution of pteridophytes in north-eastern Tasmania.

boundary of Orchard's Midlands region from the Tamar estuary to the junction of that region with his Ben Lomond and East Coast regions. From this point, a purely arbitrary straight line is drawn through Lake Leake to Schouten Island (see Fig. 1). The north-east also includes islands of the Furneaux Group,

though to date only Flinders Island has been surveyed by the author.

Most field work was undertaken in forested and mountainous districts, at the expense of coastal heathland and some dry sclerophyll forest. Consequently, results are

incomplete for species from some genera such as *Schizaea*.

Nomenclature

Nomenclature follows that of Buchanan *et al.* (1989) except for *Cystopteris* which follows Brownsey and Smith-Dodsworth (1989). *Pellaea calidirupium*, recently described from New Zealand (Brownsey and Lovis 1990), is presumed synonymous with Tasmanian populations (P.J. Brownsey pers. comm.).

Notes on the species

Adiantum aethiopicum

Common and widespread in dry, grassy or rocky places, mostly in dry sclerophyll forest. Frequently occurs in similar condition to that of *Cheilanthes*. Its top growth is often desiccated during summer.

Allantodia australis

A large tufted terrestrial fern, favouring permanently moist, sometimes boggy, fertile soils. This fern is uncommon and restricted to wet and sheltered fern gullies, including Cuckoo Falls, St Columba Falls and creeks of Elephants Pass.

Anogramma leptophylla

A small, rarely sighted annual fern that occurs in rocky, dry inland areas. This species occurs on the southern limit of the north-east, at Staircase Gorge on the Elizabeth River, where it co-occurs with liverworts and grasses in shallow soil on sandstone ledges.

Asplenium bulbiferum

Common and widespread as a lithophyte or epiphyte (on trees and *Dicksonia*) in wet forest, but more so in fern gullies than rainforest. All Tasmanian populations are attributable to ssp. *gracillimum*. (Subspecies *bulbiferum* is common in cultivation, but of New Zealand origin.) *A. bulbiferum* x *obtusatum* occurs in Bob Smiths Gully, Flinders Island, and *A. bulbiferum* x *terrestre* at Barrow Falls.

Asplenium flabellifolium

Abundant in dry rocky places and occasionally in fern gullies. A large, robust, bipinnatifid form occurs on the northern slopes of Mount Victoria.

Asplenium flaccidum

Occurs sporadically in the north-east as isolated specimens only, in places such as Lilydale Falls, Weld Hill and Douglas River. *A. flaccidum* is strictly epiphytic, usually high on the trunk and branches of *Nothofagus cunninghamii* and *Atherosperma moschatum* in callidendrous rainforest. It has a very small root system which is remarkably resistant to drying out.

Asplenium obtusatum

Common on granite and other stable rock around the coastline, it rarely extends inland beyond the influence of salty spray. Exceptions include cliff-faces at 700 m on Strzelecki Peaks, and Bob Smiths Gully, both on Flinders Island.

Asplenium terrestre

Common and widespread, and similar in appearance and habitat to *A. bulbiferum*, but capable of withstanding more exposure and much drier conditions (e.g. higher up trees, at forest margins, and often amongst rock formations on low mountain summits). *A. terrestre* is distinguished from *A. bulbiferum* by its tougher, darker green and narrower fronds, thinner segments and complete absence of bulbils.

Asplenium trichomanes

Rare in the north-east, with a remnant population surviving on a limestone outcrop on land cleared to pasture at Fergusons Creek, Flinders Island. Other small populations occur in non-calcareous rock at Mount Durham, a small tributary of the West Swan River, and Staircase Gorge. The colony on Mount Durham numbers 10 to 12 plants only, and these are growing with *Cheilanthes austrotenuifolia* on a north-east facing dolerite rock platform (soil substrate pH 6.5-7). The Flinders Island

population is undoubtedly *ssp. quadrivalens*, the usual Tasmanian subspecies, while plants on non-calcareous rock types have yet to be confirmed as *ssp. trichomanes*.

Blechnum cartilagineum

This is one of Tasmania's rarest ferns, with only two extant populations known. One was only discovered as recently as 1990 (near Penguin, and outside the area of discussion in this paper), while the largest population was discovered a few years earlier at Little Beach Creek near Elephants Pass. This is a large and healthy colony growing with *Culcita dubia* below a light eucalypt cover on a creek flat which is prone to flooding.

B. cartilagineum is distinguished from all other species of the genus in Tasmania by its non-dimorphic fronds, and was originally recorded from Georges Bay but the populations there appear to have been lost to agriculture or housing. The survival of a third population at Tin Hut Creek, Fraser Road, is in serious doubt following logging operations.

Blechnum chambersii

Common and widespread as a creekside plant in soil and on wet rock formations of very sheltered fern gullies.

Blechnum fluviatile

Often grows in association with *B. chambersii* but more terrestrial than that fern, and less colonising. This species extends to higher altitudes than *B. chambersii* and is absent from mild coastal areas.

Blechnum minus

Common and widespread in often exposed and boggy conditions, on waterfalls, creeks and rivers, and is a frequent coloniser of roadside drainage lines.

Blechnum nudum

Widespread and abundant from sea level to subalpine areas, and is an extremely successful coloniser of roadside clearings and logged sites.

Blechnum patersonii

Uncommon in Tasmania, with its concentration in the north-east, and restricted to coastal and near-coastal creeks (below 380 m) within sheltered fern gullies where it occurs close to water amongst rock, or on soil slopes.

Blechnum penna-marina

Common in highland areas (generally above 600 m) such as Mount Victoria, Mount Maurice, Ben Lomond and Blue Tier, and infrequent at lower altitudes (e.g. Distillery Creek, 200 m; Staircase Gorge, 360 m) in moist, usually grassy areas beside watercourses often originating from such highland areas.

Blechnum vulcanicum

Although common in western Tasmania, this fern is rare in the north-east. It occurs on wet rock-faces near the summit of Mount Barrow, and is common on the sandstone ledge at Mount Victoria.

Blechnum watsii

An abundant ground fern occurring in a variety of habitats, from soaks at sea level to subalpine rock outcrops. In between, it can be the dominant groundcover in fern gullies and wet forest.

Blechnum sp. (King Island)

Occasional in the north-east, being found in habitats identical to those of *B. minus*, and with both *B. minus* and *B. watsii* always present. It is similar in form to the latter species, but fronds are often irregularly variegated with fragmented margins, and sporangia lack spores. In the author's opinion, it is not a separate species but has been referred to as such in recent literature (Jones and Clemesha 1976; Duncan and Isaac 1986).

Cheilanthes austrotenuifolia

Common in the north-east, especially coastal areas, but extending to lowland inland sites such as Fingal and Avoca. This species is restricted to well-drained rocky soils, or mossy soil layers over rock

platforms in dry sclerophyll forest. In all but sheltered sites, top growth is desiccated during summer.

Cheilanthes sieberi

Occurs in a similar range and habitat to *C. austrotenuifolia* but is not as common. The two species can occur together, but *C. sieberi* is distinguished by its stiffer and narrower fronds with markedly reflexed pinnae, and its preference for drier sites — commonly very shallow soils over rock. Consequently, fronds of this species are desiccated earlier than those of *C. austrotenuifolia*.

Ctenopteris heterophylla

Common on the margins of fern gullies and wet forest, and especially abundant in near-coastal sites. This species is lithophytic, or epiphytic on live trees, and immature, unbranched fronds have a striking resemblance to *Grammitis magellanica* ssp. *nothofageti*.

Culcita dubia

Common in the north-east, ranging no further south than Bicheno, and more-or-less hugging the northern coastline as far west as Circular Head. *C. dubia* is a vigorous, spreading, terrestrial fern of well-drained soils, in dry sclerophyll forest and margins of wet sclerophyll forest.

Cyathea australis

Common in sheltered gullies and soaks within dry sclerophyll forest, in wet sclerophyll forest, and margins of callidendrous rainforest. *C. australis* is not as abundant as *Dicksonia*, and prefers drier sites with greater exposure to light. It successfully re-establishes in roadside drains and other moist, disturbed sites.

Cyathea cunninghamii

Rare in Tasmania, with only four regenerating populations known. The strongest of these (both in adult and juvenile numbers) is in the north-east at Lower Marsh Creek. One plant grew

nearby at Little Beach Creek but was destroyed by floods in 1988.

Cyathea marcescens

Only recently recorded for Tasmania, this giant tree-fern is infertile, and almost certainly a hybrid between *C. australis* and *C. cunninghamii*. A small population is known on King Island, but on the Tasmanian mainland, it is only known from Lower Marsh Creek where there are approximately 20 mature specimens (immature plants can be difficult to distinguish from *C. australis*) (M. Garrett, unpublished data). *C. marcescens* occurs in more sheltered sections of the creek, on creekside slopes between *C. cunninghamii* at or near water level and *C. australis* higher up the slopes. Multi-headed crowns are occasionally encountered in this species, and one specimen, along with about 10 plants of *C. cunninghamii*, were destroyed during floods of 1988.

Cystopteris tasmanica

Extremely rare in the north-east, more common in cool, high altitude areas of central, southern and western Tasmania, particularly on calcareous rock. It occurs on the southern slopes of Ben Lomond below Sphinx Bluff, where it grows on and amongst dolerite boulders with permanent water seepage.

Dicksonia antarctica

Widespread and abundant in sheltered gullies within dry sclerophyll forest, wet sclerophyll forest and callidendrous rainforest, ranging from sea level to subalpine forest.

Doodia media

Uncommon in Tasmania, with its stronghold on the east coast. It is a small terrestrial fern, often growing from thin soil layers over rock, characteristically on the margins of small ephemeral creeks. This species is intolerant of deep shade, and occurs in coastal gullies (below 260 m) in dry sclerophyll forest, for example at Elephants Pass, Bicheno and East Tamar.

D. caudata was collected from Georges Bay last century but has not been recorded from the north-east since.

Gleichenia alpina

A fern of subalpine or alpine poorly drained soils, this species is uncommon in the north-east and restricted to a few of the higher plateaux such as Mount Maurice and Ben Lomond.

Gleichenia dicarpa

Common and widespread in bright, permanently wet or badly drained sites, from sea level to subalpine soaks.

Gleichenia microphylla

Common and widespread in habitats identical to those of *G. dicarpa* but attaining larger dimensions and more abundant near the coast.

Grammitis billardieri

Very common and widespread, occurring on rock, *Dicksonia*, logs, and lower parts of live trees. This species is the most abundant of the genus in the north-east, and occurs in fern gullies, wet sclerophyll forest, callidendrous rainforest and on high altitude rock outcrops. It successfully recolonises regenerating logged wet forest.

Grammitis magellanica ssp. *nothofageti*

Common in the north-east, particularly on *Nothofagus cunninghamii* in high altitude callidendrous rainforest, but also occurring on granite boulders near sea level (e.g. Freycinet Peninsula). *G. magellanica* often occurs with *G. billardieri* but is lithophytic, or epiphytic on live trees only, and grows in drier and more exposed positions than those of the latter (e.g. higher up a shared host, or on the margins of fern gullies or wet sclerophyll forest).

Grammitis poeppigiana

A dwarf, mat-forming, strictly highland species that is uncommon in the north-east, and restricted to rock outcrops on higher peaks such as Ben Lomond.

G. poeppigiana can grow with dwarfed plants of the previous two *Grammitis* species, and can occur at a lower elevation than *G. magellanica* on the same mountain. In the field, *G. poeppigiana* can be difficult to distinguish from dwarfed and matted *G. magellanica*.

Histiopteris incisa

A 'weedy' species, especially abundant in disturbed sites such as road and track margins, and regenerating forests.

Hymenophyllum australe

Common and widespread, especially at lower altitudes, on rock, mossy soil and *Dicksonia* trunks. Restricted to very dark and moist, sheltered sites, usually close to water.

Hymenophyllum cupressiforme

Abundant in a variety of habitats, from callidendrous rainforest and fern gullies to sheltered rock-faces in dry sclerophyll forest, from sea level to subalpine shrubberies, on rocks, logs and trees.

Hymenophyllum flabellatum

Common and widespread in fern gullies and callidendrous rainforest, occurring on rocks, logs and *Dicksonia*.

Hymenophyllum marginatum

Although more often thought of as a rainforest fern of western Tasmania, this species, Australia's smallest fern, occurs sporadically in the north-east. At Strzelecki Peaks, Mount Cameron, Cliff Creek (Douglas River) and Freycinet Peninsula, it grows from high sheltered granite crevices and ledges.

Hymenophyllum peltatum

This species more-or-less replaces *H. cupressiforme* at higher altitudes where it shares the same hosts and is especially abundant in high altitude callidendrous rainforest. Not strictly confined to the highlands, *H. peltatum* has been recorded as low as 260 m (Murderers Hill, Cygnet River) in the north-east.

Hymenophyllum rarum

Widespread and abundant, and most successful under deeply shaded conditions, as well as occupying semi-exposed situations on forest margins and low mountain peaks. Lithophytic, or epiphytic on logs, trees and *Dicksonia*.

Hypolepis amaurobachis

A rare but commonly mis-identified species in Tasmania, that favours rocky, undisturbed sites, usually beside running water in fern gullies between 250 and 500 m. *H. amaurobachis* occurs as solitary individuals rather than colonies, and in the north-east, has only been recorded from Meetus Falls.

Hypolepis glandulifera

A vigorous spreading terrestrial species, occurring in rich soil on the higher slopes of fern gullies, but more often on streamside flats within wet or dry sclerophyll forest. Fronds may reach 3 m tall, and the species is confined to undisturbed sites in coastal gullies (below 50 m) as at Bluestone Bay, Little Beach Creek, Ansons River and Fergusons Creek (Flinders Island).

Hypolepis muelleri

Uncommon in Tasmania, with its stronghold in the north-east. It is locally abundant below 120 m on the Great Forester River, Tin Hut Creek and Pipers Brook, and is found up to 140 m in Bob Smiths Gully, Flinders Island. This is a vigorous spreading species of undisturbed sites, and occurs in rich, permanently moist soils under a light canopy, frequently on streamside flats.

Hypolepis rugosula

A very common 'weedy' species often associated with another fern, *Histiopteris incisa*. It is by far the most abundant of the Tasmanian species of *Hypolepis*, occurring from sea level to subalpine areas, and the only one to colonise disturbed sites such as road and track margins, and regenerating forest.

Isoetes drummondii

A seldom recorded, semi-aquatic species that is rare in the north-east. Originally collected from George Town by Dr W.M. Curtis, a small population also occurs uncharacteristically in permanent water in the Apsley River at Bicheno. Larger populations more indicative of the usual habitat occur at Ladies Mile Marsh on the Eastern Tiers (Garrett and Kantvilas in press), just outside the study area.

Isoetes elatior

Endemic to Tasmania, and restricted to the southern limits of the north-east. *I. elatior* is a true aquatic, growing fully submerged in slow-moving sections of the South Esk, St Pauls, Break O'Day and lower Apsley Rivers.

Isoetes gunnii

A more familiar species of *Isoetes*, also endemic to Tasmania. It is an aquatic of highland lakes and tarns, and in the north-east, is restricted to Lake Youl and Lake Baker on the Ben Lomond plateau.

Isoetes muelleri

A common aquatic or semi-aquatic species, but in the north-east, remains submerged year-round in the South Esk, St Pauls and Break O'Day Rivers, often growing with *I. elatior*.

Lastreopsis acuminata

Restricted to lowland fern gullies (below 350 m) beside running water, growing from soil or rock under deep shade. *L. acuminata* is not widespread but is often locally abundant.

Lindsaea linearis

A small ground-hugging terrestrial fern, abundant in badly drained soils of lowland heath, and on their margins with tea-tree scrub and dry sclerophyll forest.

Lycopodium australianum

An uncommon alpine species, occurring on a thin, mossy soil layer or amongst grasses on rock at 1500 m on Ben Lomond.

Lycopodium deuterodensum

A widespread and distinctive terrestrial clubmoss of lowland heath and dry sclerophyll forest.

Lycopodium fastigiatum

A common terrestrial subalpine and alpine species, growing either fully exposed, beneath small shrubs or as etiolated plants on the margins of high altitude callidendrous rainforest. *L. fastigiatum* occurs at Mount Michael, Mount Maurice, Mount Victoria and Ben Lomond.

Lycopodium laterale

Variable in form, *L. laterale* occurs in heathland from sea level to subalpine areas of Tasmania, but in the north-east, has been collected by the author no higher than 400 m (Mount Cameron). It has a scattered distribution on permanently wet coastal heathland (e.g. Freycinet Peninsula), where its weak upright stems are supported by, and hidden beneath, low shrubs. Exposed plants are compact, discoloured and ground-hugging, and occasionally mis-identified for the rare *L. serpentinum*.

Lycopodium scariosum

A distinctive, prostrate alpine species of exposed or semi-exposed sites. It occurs above 1000 m on Mount Victoria, Mount Maurice and Ben Lomond, and as low as 700 m on Blue Tier.

Lycopodium varium

A polymorphic clubmoss, lithophytic, as well as epiphytic on *Dicksonia* and a wide range of tree species. It is widespread but rarely locally common. Stunted, upright and sun-bleached plants occur on exposed rock at high altitudes and at sea level. In between, this species also occurs as much larger, pendulous plants, in dark sheltered situations within callidendrous rainforest and wet sclerophyll forest.

Microsorium diversifolium

Widespread and abundant in rainforest, wet sclerophyll forest, and sheltered

boulders and cliff-faces within dry sclerophyll forest; on *Dicksonia*, rocks, trees and logs, from sea level to subalpine areas.

Ophioglossum lusitanicum ssp. *coriaceum*

Rarely sighted by the author in the north-east but recorded by Mary Cameron (pers. comm.) from scattered localities, including Bridport, Cape Portland and Croppies Point. It occurs in soil amongst rock, often in sites exposed to strong wind and salt spray, or on the grassy verges of seasonal freshwater lagoons. It also occurs at Pioneer on mossy rock platforms (C.H. Taylor pers. comm.).

Pellaea calidirupium

A recently described species (Brownsey and Lovis 1990) similar to *P. falcata* but restricted to dry inland rocky habitats. Most collections have been made from south-eastern Tasmania but it also occurs on the southern boundary of the north-east at Staircase Gorge, where it grows with *Anogramma leptophylla* and *Cheilanthes sieberi*.

Pellaea falcata

Widespread and locally common in mild, near-coastal areas, where extensive colonies can occur on deep well-drained soils, and on mossy rock. *P. falcata* is absent from rainforest, occasional in wet sclerophyll forest, and most common in sheltered gullies within dry sclerophyll forest.

Phylloglossum drummondii

A diminutive species that appears to be rare in Tasmania, but perhaps commonly overlooked. It occurs in permanently wet soil at Mount William where it has some shelter from small shrubs and little competition from other herbaceous plants.

Pleurosorus rutifolius

A rare fern of dry rocky habitats, and Tasmanian populations are centred around the south-east. Within the north-east, it is rare, occurring at Staircase Gorge, while a larger colony exists above Lohreys Creek at St Marys Pass. Both

populations are on sunny and exposed sandstone outcrops within dry sclerophyll forest, their top growth being desiccated during the late spring and summer.

Polyphlebium venosum

Common and widespread, and almost exclusively epiphytic on the trunks of *Dicksonia* but occasionally on rock; in fern gullies, wet sclerophyll forest and rainforest.

Polystichum proliferum

Widespread and abundant, from sea level to alpine areas, and in a wide range of habitats. Along with *Blechnum nudum*, it is possibly second only to bracken as the most successful native pteridophyte.

Pteridium esculentum

Widespread and abundant, absent only from higher altitudes and wet shaded forest.

Pteris comans

Rare in the north-east, occurring at Elephants Pass on Lower Marsh, Little Beach and Four Mile Creeks. This species is restricted to dark and sheltered locations where it grows in permanently wet, often boggy soil, commonly in association with *Allantodia australis*.

Pteris tremula

A fast-growing and uncommon species restricted to below 300 m, and occurring in dry gullies, beside intermittent creeks, and on the upper slopes of fern gullies.

Rumohra adiantiformis

A widespread and abundant epiphytic and lithophytic species, growing in an identical habitat range to *Microsorium diversifolium*, and often occurring with that species.

Schizaea spp.

Both *S. bifida* and *S. fistulosa* are terrestrial ferns of dry sclerophyll forest and heathland. *S. bifida* occurs at Mount William, Humbug Point and Bicheno,

while *S. fistulosa* occurs at South Mount Cameron (C.H. Taylor pers. comm.) and Fraser Road.

Selaginella uliginosa

Widespread and abundant in seasonally or permanently wet heathland. A much smaller unbranched annual species, *S. gracillima*, is far less common (but easily overlooked) and found in moist heathland, as at Mount William.

Sticherus tener

Widespread and common from sea level to 800 m. This terrestrial species requires permanent water, resents deep shade, and occurs on clay roadside cuttings, stream margins, waterfalls, and at boulder and cliff bases.

Tmesipteris billardieri

Widespread and common from sea level in sheltered gullies within dry sclerophyll forest and wet sclerophyll forest, to high altitude rainforest, and in the north-east, almost exclusively epiphytic on *Dicksonia*.

Tmesipteris elongata

This species is predominantly a species of wet forests of the north-west coast, and only occurs sporadically in the north-east. Small populations, often only single plants, occur at Cuckoo Falls, Weld Hill, Little Beach Creek, Lower Marsh Creek and Lynes Creek (Bicheno), and are all epiphytic on *Dicksonia*.

Tmesipteris parva

Has not been recorded for mainland Tasmania, but is rare on King Island and Flinders Island. In Bob Smiths Gully, below Strzelecki Peaks, it is epiphytic on the trunks of *Dicksonia* and *Cyathea australis*.

Todea barbara

Common in a variety of habitats, below 300 m on stream margins and soaks in dry sclerophyll forest and heathland, and less common to 500 m on wet rock-faces.

Results and discussion

Seventy-eight species of pteridophytes, comprising 62 ferns and 16 fern allies from 36 genera, have been recorded from the north-east (see appendix). This represents 80% of Tasmania's fern flora, contained within approximately 20% of the State's land mass. Only two species, *Isoetes elatior* and *I. gunnii*, are endemic to Tasmania. Forty-eight species (62%) are terrestrial, 26 (33%) epiphytic or lithophytic, and four (5%) aquatic. Centres of pteridophyte distribution within the north-east are shown in Figure 1.

Based on the author's wider knowledge of fern distribution in Tasmania, 48 (62%) of these species are considered to be broadly distributed across lowland Tasmania (within their own habitat regimes). This group includes *Asplenium trichomanes* (even though the subspecies *trichomanes* may well prove to exist in and be confined to the north-east), and the species *Hypolepis amaurorachis*, *Isoetes drummondii* and *Phylloglossum drummondii*, whose ranges of distribution are indeterminate due to a paucity of collections from disjunct locations.

While none is confined to the north-east, 11 species (*Blechnum cartilagineum*, *B. patersonii*, *Cheilanthes austrotenuifolia*, *C. sieberi*, *Culcita dubia*, *Cyathea marcescens*, *Doodia media*, *Hypolepis muelleri*, *Isoetes elatior*, *Pteris tremula* and *Tmesipteris parva*) appear to have their Tasmanian distribution centres within the

region. Another four species (*Cyathea australis*, *Hypolepis glandulifera*, *Lastreopsis acuminata* and *Pellaea falcata*) have their distributions centred along the north and east coasts. Distributions of species from the last two groups (with the exception of *I. elatior*) represent the southern limits of what are essentially mainland eastern Australian species.

Of the remainder, seven species (*Cystopteris tasmanica*, *Gleichenia alpina*, *Grammitis poeppigiana*, *Isoetes gunnii*, *Lycopodium australianum*, *L. fastigiatum* and *L. scariosum*) are ferns of subalpine and alpine Tasmania. Five species (*Asplenium flaccidum*, *Blechnum vulcanicum*, *Hymenophyllum marginatum*, *Pteris comans* and *Tmesipteris elongata*), all rare in the north-east, have their distributions centred in cool wet forests of the north-west and west coasts of Tasmania, and three others (*Anogramma leptophylla*, *Pellaea calidirupium* and *Pleurosorus rutifolius*) are from dry inland Tasmania. The last eight species are not considered indicative of the fern flora of the north-east.

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Appendix

Checklist of pteridophytes recorded from north-eastern Tasmania during the current survey.

ADIANTACEAE

Adiantum aethiopicum L.

ASPIDACEAE

Lastreopsis acuminata (Houlston) Morton

Polystichum proliferum (R. Br.) C. Presl

ASPENIACEAE

Asplenium bulbiferum Forst.f.

ssp. *gracillimum* (Col.) Brownsey

A. flabellifolium Cav.

A. flaccidum Forst.f.

A. obtusatum Forst.f.

A. terrestre Brownsey

A. trichomanes L.

ssp. *quadrialeans* D.E. Meyer emend Lovis

Pleurosorus rutifolius (R. Br.) Fee

ATHYRIACEAE

Allantodia australis R. Br.

Cystopteris tasmanica Hook.

BLECHNACEAE

Blechnum cartilagineum Swartz

B. chambersii Tind.

B. fluviatile (R. Br.) E.J. Lowe ex Salom

B. minus (R. Br.) Ettingsh.

B. nudum (Labill.) Mett. ex Luerss.

B. patersonii (R. Br.) Mett.

B. penna-marina (Poir.) Kuhn

B. vulcanicum (Blume) Kuhn

B. wattsi Tind.

Doodia media R. Br.

CYATHEACEAE

Cyathea australis (R. Br.) Domin

C. cunninghamii Hook.f.

C. marcescens Wakef.

DAVALLIACEAE

Rumohra adiantiformis (Forst.f.) Ching

DENNSTAEDTIACEAE

Histiopteris incisa (Thunb.) J. Smith

Hypolepis amaurorachis (Kunze) Hook.

H. glandulifera Brownsey & Chinnock

H. muelleri Wakef.

H. rugosula (Labill.) J. Smith

Pteridium esculentum (Forst.f.) Cockayne

DICKSONIACEAE

Culcita dubia (R. Br.) Maxon

Dicksonia antarctica Labill.

GLEICHENIACEAE

Gleichenia alpina R. Br.

G. dicarpa R. Br.

G. microphylla R. Br.

Sticherus tener (R. Br.) Ching

GRAMMITIDACEAE

Ctenopteris heterophylla (Labill.) Tind.

Grammitis billardieri Willd.

G. magellanica Desv. ssp. *nothofagei* Parris

G. poeppigiana (Mett.) Pichi-serm.

HEMIONITIDACEAE

Anogramma leptophylla (L.) Link

HYMENOPHYLLACEAE

Hymenophyllum australe Willd.

H. cupressiforme Labill.

H. flabellatum Labill.

H. marginatum Hook.f. and Grev.

H. peltatum (Poir.) Desv.

H. rarum R. Br.

Polyphlebium venosum (R. Br.) Copel.

ISOETACEAE

Isoetes drummondii A. Braun

I. elatior F. Muell.

I. gunnii A. Braun

I. muelleri A. Braun

LINDSAEACEAE

Lindsaea linearis Swartz

LYCOPODIACEAE

Lycopodium australianum Herter

L. deuterodensum Herter

L. fastigiatum R. Br.

L. laterale R. Br.

L. scariosum Forst.f.

L. varium R. Br.

Phylloglossum drummondii Kunze

OPHIOGLOSSACEAE

Ophioglossum lusitanicum L.

ssp. *coriaceum* (Cunn.) Clausen

Appendix (cont'd)

OSMUNDACEAE

Todea barbara (L.) T. Moore

POLYPODIACEAE

Microsorium diversifolium (Willd.) Copel.

PSILOTACEAE

Tmesipteris billardieri Endl.

T. elongata Dangeard

T. parva Wakef.

PTERIDACEAE

Pteris comans Forst.f.

P. tremula R. Br.

SCHIZAEACEAE

Schizaea bifida Willd.

S. fistulosa Labill.

SELAGINELLACEAE

Selaginella gracillima (Kunze) Alston

S. uliginosa (Labill.) Spring

SINOPTERIDACEAE

Cheilanthes austrotenuifolia Quirk & Chambers

C. sieberi Kunze

Pellaea calidirupium Brownsey & Lovis

P. falcata (R. Br.) Fee
