

A photograph of a flowering branch with small white flowers against a dark background. The flowers are arranged in clusters along the branch. The background is dark and textured, possibly a night sky or a dark wall. The overall image has a grainy, halftone-like appearance.

DICOTYLEDONS

ASTERACEAE***LEAFY GROUNDSEL* *Senecio squarrosus*****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed

Tasmanian *Threatened Species Protection Act 1995*: Rare

Description and distribution:

An annual or short-lived perennial herb with an erect stem 40-80cm high and few yellow flowers. Lower leaves 7-10cm long, sometimes coarsely toothed. The upper surfaces of the leaves are green, with a purplish, hairy webbed lower surface. This species is widespread but localised and only occurs occasionally in Tasmania. Known to occur around the Launceston areas, on Gull Island in the Furneaux Group, around the Hobart area with populations at Cambridge, Kingston and Blackmans Bay and at Dunalley. There are estimated to be 8-9 populations.

There is one record of this species on Partridge Island off Bruny Island (see Map 2). It is also found in Victoria and New South Wales (Curtis 1963).

Key habitat:

In open places, including dry sclerophyll forest (Kirkpatrick 1991).

Key threats to the species:

- Habitat loss through clearing and subdivision.
- Inappropriate fire patterns and intensities.

Management:

- Protect the known site on Partridge Island from inappropriate fire patterns and intensities. This species is unlikely to be adversely affected by fire if frequencies are between 5-15 years. Do not undertake burning without advice from DPIWE or Parks and Wildlife Service.
- Develop effective information and management guidelines for clearing and subdivision.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.



Photo: Tasmanian Herbarium specimen

BRASSICACEAE***SPRINGY PEPPERCRESS* *Lepidium flexicaule*****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
 Tasmanian *Threatened Species Protection Act 1995*: Rare

Description and distribution:

A weak-stemmed perennial herb with small white flowers. Leaves are up to 4cm long. Within Australia this species occurs only in Tasmania, but it also occurs in New Zealand (Bureau of Flora and Fauna). There are two old records of this species on Bruny Island ("Inala" and the Mt Mangana/Waterfall Creek area on south Bruny Island: see Map 2).

Key habitat:

Coastal species well adapted to the coastal strand (Given 1981).

Key threats to the species:

- Clearing of coastal scrub for development.

Management:

- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Develop effective information and management guidelines for clearing and subdivision.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.



Photo: Tasmanian Herbarium specimen

CARYOPHYLLACEAE***RAYLESS STARWORT* *Stellaria multiflora*****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
 Tasmanian *Threatened Species Protection Act 1995*: Rare

Description and distribution:

An erect, annual herb growing to 20cm tall with narrow leaves in opposite pairs and green flowers. Flowering time is from August to January (Viridans Biological Databases Aust. 1996). This species occurs in localised patches throughout Tasmania and from Western Australia to New South Wales (Curtis & Morris 1975). It has been recorded at Simpsons Bay on Bruny Island by Rodway in 1910 (see Map 2). This area was re-visited while preparing this document but this small and inconspicuous species could not be verified because of a large inaccuracy in the grid reference. The area still consists of vegetated *Eucalyptus viminalis* open forest with a grassy understorey, and it is likely that the species still persists at this location.

Key habitat:

Dry pastures and stony places (Curtis & Morris 1975).

Key threats to the species:

- Clearing of suitable habitat.

Management:

- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Develop effective information and management guidelines for clearing and subdivision.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.



Photo: Tasmanian Herbarium specimen

CASUARINACEAE***DUNCAN'S SHEOAK* *Allocasuarina duncanii*****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
Tasmanian *Threatened Species Protection Act 1995*: Rare

Description and distribution:

A small tree growing to 8m, characterised by a conifer-like shape. This endemic species is restricted to dolerite substrates in south-eastern Tasmania, typically at altitudes of 600-700m. It is reserved in the Snug Tier Nature Reserve and Wellington Park. There are only two records of this species on Bruny Island in the Mt Midway Forest Reserve off Lockleys Road near Adventure Bay, by David Ziegeler in 1995 and 1997 (see Map 2). The more northerly location was confirmed in June 2001 (Schahinger 2002a).

Key habitat:

Dolerite substrates in south-eastern Tasmania, typically at altitudes of 600-700m.

Key threats to the species:

- Destruction of known sites through clearing or over-burning.

Management:

- Protect known sites in the Mt Midway Forest Reserve.
- Develop effective information and management guidelines for clearing and subdivision.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.

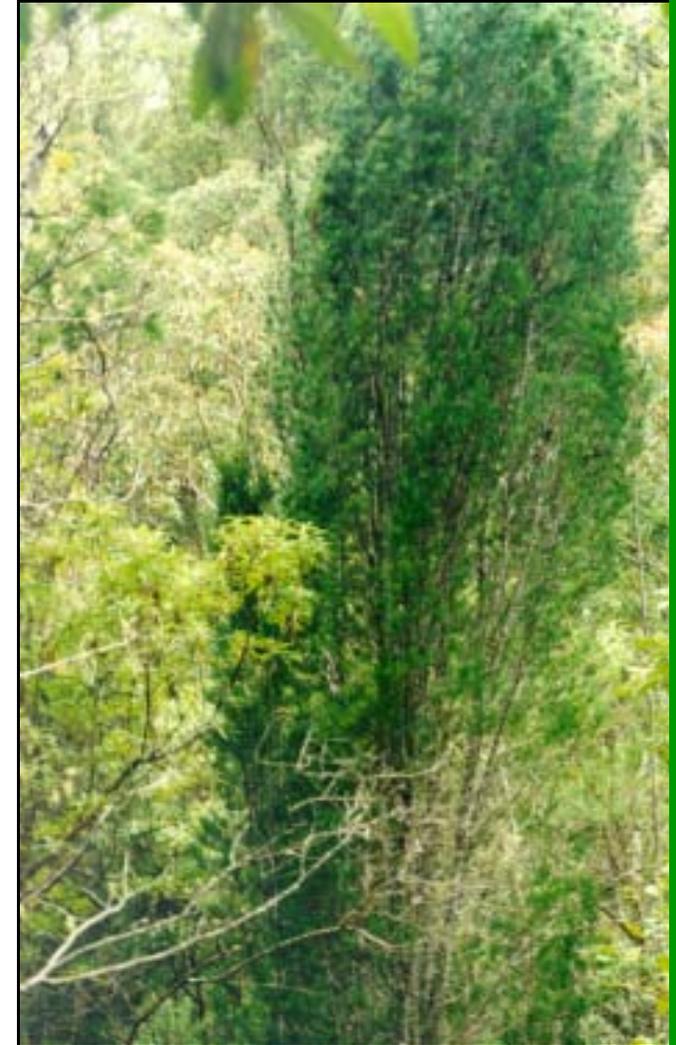


Photo: Richard Schahinger

CRASSULACEAE***MUSKY CRASSULA* *Crassula moschata*****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
 Tasmanian *Threatened Species Protection Act 1995*: Rare

Description and distribution:

A mat-forming, hairless succulent herb with very small white flowers, flowering from January to March, with fruits from April onwards. It is predominantly a subantarctic species and has been recorded from islands such as Macquarie, Falkland, Marion, Prince Edward, Crozet, Kerguelen, Snares, Campbell, Auckland and Antipodes, as well as Southern Chile, New Zealand (north and south Chatham and Stewart islands), and in southern Tasmania. On Macquarie Island, it is a widespread but rare species that occurs most frequently on the west coast.

On Bruny Island the species was recorded in two locations near the Cloudy Bay car park in 1992 by Dennis Morris (see Map 2). The area was revisited in November 2000 but no specimens were found. This species tends to establish and disappear from sites, and may have been washed away from these areas, as there was evidence of very high tides and sand washed away.

Key habitat:

In Tasmania *C. moschata* normally occurs near fresh water run-off and pools in coastal areas (Alex Buchanan, personal communication).

Key threats to the species:

- Degradation of coastal habitat through clearing, erosion and weed invasion.

Management:

- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.



Photo: Threatened Species Unit

EPACRIDACEAE**PRETTY HEATH *Epacris virgata* “Kettering”****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: Endangered

Tasmanian *Threatened Species Protection Act 1995*: Vulnerable

Recovery Plan: Keith (1998)

Description and distribution:

A woody shrub to 2m in height with solitary, white, tube-shaped flowers 3mm long. Flowering occurs in spring. It can be distinguished from other species of *Epacris* by the elongated, straight and slender branches, blunt leaves and prominently protruding floral parts (Keith 1998).

Epacris virgata is endemic to Tasmania (Curtis 1963). Twenty-two populations of this variant have been recorded (DPIWE, 2001). This species is included in the Tasmanian Forest Epacrids Recovery Plan (Keith 1998) which is currently being implemented. *Epacris virgata* “Kettering” extends along the foothills around the D’Entrecasteaux Channel, Mount Wellington, Copping and Murchison through to the Tasman Peninsula. There is one record of this species on Bruny Island, represented by one plant from the roadside on Lighthouse Road near Mickeys Bay (see Map 2).

Key habitat:

Damp areas in dry sclerophyll forest (Kirkpatrick & Gilfedder 1999), on hilly terrain at 10-300m elevation mainly on Jurassic dolerite. This species is generally found in heathy forest but is occasionally found in grassy (*Themeda*), White peppermint (*Eucalyptus pulchella*) forest or woodland (DPIWE, 2001).

Key threats to the species:

- The root rot pathogen *Phytophthora cinnamomi*.
- Grazing by stock.
- Soil disturbance that promotes weed invasion.
- Increased weed abundance (especially Spanish heath *Erica lusitanica*).
- Inappropriate fire patterns and intensities. Too frequent burning would not allow plants to reach reproductive maturity.
- Inappropriate roadside maintenance and roadside disturbance.



Photo: Paul Black

Management: Detailed management guidelines have been outlined for this species (DPIWE, 2001) and are summarised as follows:

- Protect the existing population from disturbance particularly during roadside maintenance operations.
- Protect populations from the introduction of the root-rot pathogen *Phytophthora cinnamomi*.
- Protect populations from disturbance and degradation by weed infestation and stock grazing.
- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.

GOODENIACEAE***SPUR VELLEIA* *Velleia paradoxa*****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed

Tasmanian *Threatened Species Protection Act 1995*: Vulnerable

Description and distribution:

An erect, perennial herb with showy yellow flowers. Curtis (1963) listed this species as widespread and locally frequent throughout temperate Australia. However, overgrazing by stock has drastically decreased the abundance of the species, and it is now restricted to such places as road verges or cemeteries that are inaccessible to stock (Kirkpatrick & Gilfedder 1999). This species is found in the eastern half of Tasmania, in localities such as the Waverley Flora Park, Bellerive, Pontville, Hamilton and Tunbridge in the Midlands (Kirkpatrick & Gilfedder 1999). The author is aware of one record of this species from Fancy Point on Bruny Island from K. Hopkins 1996 (see Map 2). The species will recruit from seed or re-sprout after fire.

Key habitat:

Formerly dry pastures (Curtis 1963) and white gum (*E. viminalis*) or cabbage gum (*E. pauciflora*) woodland (Kirkpatrick & Gilfedder 1999). Now restricted to very dry grassy sites on fertile soils in areas where stock are excluded, such as road verges, railway lines and cemeteries (Kirkpatrick & Gilfedder 1999).

Key threats to the species:

- Grazing by stock.
- Inappropriate fire patterns and intensities.

Management:

- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Protect known populations from stock grazing.
- Maintain habitat for the species through the appropriate and planned use of fire to open up tussock grassland. Do not undertake burning without advice from DPIWE or Parks and Wildlife Service.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.



Photo: Hans & Annie Wapstra

LAMIACEAE (LABIATEAE)**FOREST GERMANDER *Teucrium corymbosum*****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
 Tasmanian Threatened Species Protection Act 1995: Rare

Description and distribution:

An erect, sparsely branched perennial herb 60-100cm tall, with rigid square stems that are densely covered with small hairs so that the surface appears whitish-grey. The 2-4cm long leaves are on short stalks and are egg-shaped to lance-shaped, irregularly lobed or toothed with a hairless upper surface and grey hairy underside. The flowers are white, 8-10mm long and arranged in clusters of 5-7 which are borne on single stalks. Flowering occurs from spring to summer (Cunningham *et al*, 1992).

This species occurs in dry places in the east of the state and throughout temperate Australia (Curtis 1967). It is reserved in Maria Island National Park. It has been recorded from two locations at Variety Bay on Bruny Island by Alex Buchanan in 1986 (see Map 2) and verified at this location (specimen in flower) in November 2000.

Key habitat:

Occurs in dry forests including sheoak (*Allocasuarina verticillata*) coastal woodland and inland woodland, White gum (*Eucalyptus viminalis*) woodland and native grassy habitats.

Key threats to the species:

- Grazing by stock.

Management:

- Protect known sites from disturbance, particularly grazing by stock.
- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.



Photo: Threatened Species Unit

MIMOSACEAE***JUNIPER WATTLE* *Acacia ulicifolia*****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
 Tasmanian *Threatened Species Protection Act 1995*: Rare

Description and distribution:

Juniper wattle is a small, rigid, prickly shrub, occasionally up to 2m in height. The wiry branches are rounded and have thin spines (phyllodes). Flowers are cream or yellow and produced in late winter and early spring on solitary stalks which are 1-2cm long.

This species occurs in the north and east of Tasmania, Victoria, New South Wales and Queensland (Tamre 1992). It is a widespread but uncommon species, which is reserved in Freycinet and Rocky Cape National Parks in Tasmania (Kirkpatrick *et al.* 1991). It was recorded by Peter Brown on Partridge Island in 1985 (see Map 2) and from Chuckle Head Conservation Area in October 2000 (Richard Schahinger, personal communication).

Key habitat:

Sandy coastal heaths (Curtis & Morris 1975) and in open forest and woodland (Tamre 1992).

Key threats to the species:

- Land clearance and over-burning.

Management:

- Protect known sites from clearing and inappropriate fire patterns and intensities. Do not undertake burning without advice from DPIWE or Parks and Wildlife Service.
- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Develop effective information and management guidelines for clearing and subdivision.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.



Photo: Threatened Species Unit

URTICACEAE***SHADE PELLITORY* *Parietaria debilis*****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
Tasmanian *Threatened Species Protection Act 1995*: Rare

Description and distribution:

An erect, delicate annual herb with weak, slender branches 10-30cm long. The thin, sometimes succulent leaves are 1-3cm long on slender stalks up to 3cm long (Curtis 1967). It has small pale green flowers. The species is similar in appearance to stinging nettles (*Urtica*) but without the stinging hairs.

This widespread coastal species is found in all Australian states (particularly temperate Australia), New Zealand, America, Africa and Eurasia (Curtis 1967) In Tasmania it is found predominantly in the north and on the Bass Strait islands (Curtis 1967). It can be a vagrant. Seeds float ashore and can establish and then disappear from sites (Alex Buchanan, personal communication). It is protected in some coastal reserves and island reserves in Bass Strait and Mount William National Park. The absence of rabbits on many of the Bass Strait islands has probably ensured the persistence of this species in those locations (Wood & Lawrence 2000). There are two records from Variety Bay on Bruny Island recorded in 1986 by Alex Buchanan (see Map 2).



Photo: Threatened Species Unit

Key habitat:

Coastal or near-coastal in slightly damp and shady situations under scrub or heath, especially on dunes but can also be found away from the sea under dense shrubs.

Key threats to the species:

- Overgrazing by introduced animals such as rabbits and possibly stock.

Management:

- Protect known populations from grazing and clearing. If rabbit grazing is posing a serious threat to populations contact the Wild Animal Management Office for management advice (contact details can be found in Appendix 1).
- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.

PROTEACEAE***VARIABLE SMOKE BUSH* *Conospermum hookeri*****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
 Tasmanian *Threatened Species Protection Act 1995*: Vulnerable.

Description and distribution:

An upright tall shrub with narrow leaves, 1-3 cm long that curve upwards and are covered in silky hairs. Flowers are white and are in branched groups at the ends of stems. The species is found in eastern Tasmania, New South Wales and Queensland (Curtis 1967). It was recorded at three locations near the isthmus on Bruny Island by H. F. Comber in 1929 (see Map 2). The site was revisited in November 2000 but the species could not be relocated. The area searched had not been burnt in a long time and was reverting to swamp forest (Naomi Lawrence, personal communication). Some of this area has since been burnt (January 2000) and this may promote regeneration of the species in this location.

Key habitat:

Coastal heath and heathy woodland, typically on granite (eg. Freycinet, St Helens, Eddystone Point).

Key threats to the species:

- The root rot pathogen *Phytophthora cinnamomi*.

Management:

- Protect known sites from clearing, over-firing and the root-rot pathogen *Phytophthora cinnamomi*. Do not undertake burning without advice from DPIWE or Parks and Wildlife Service.
- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.



Photo: Paul Black

SCROPHULARIACEAE***SHY EYEBRIGHT Euphrasia fragosa*****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: Critically endangered
 Tasmanian *Threatened Species Protection Act 1995*: Endangered
 Recovery Plan: Potts (2000).

Description and distribution:

This species is a short-lived perennial herb to 25cm high, with up to 10 relatively fragile branches. Like all eyebrights, this species is semi-parasitic, forming attachments to the roots of a wide variety of plants. The small flowers are mauve with purple striations and often have the appearance of not being fully-open. It is largely a self-pollinating species (Potts 2000). *Euphrasia fragosa* was only recently described and was formerly known as *Euphrasia* sp. 'Southport'.

The species is endemic to Tasmania and is only known from three populations. These occur within 11km of each other, and occupy less than 1ha in total. Two populations occur at Southport, and one at Mount Bleak on the Labillardiere Peninsula on Bruny Island (Potts 1997: see Map 2). The Bruny Island specimens are located along disused 4WD or cattle tracks in very open woodland with a heathy understorey. Specimens are now restricted to patches amongst heathy sedge over a 1.25km stretch of the track. This species is likely to be transient in areas without open spaces created by rough grazing, vehicles or fire, as it requires light for germination. Populations recorded from the Cape Bruny area in the early 1990s could not be located in 1995 although they are likely to reappear after fire (Potts 1997). Seedlings require relatively high moisture levels for survival. *Euphrasia fragosa* was included in a Threatened Species Research Plan that has now been implemented, and it is also included in the Recovery Plan for Tasmanian lowland *Euphrasia* species (Potts 1997, 2000). This species is also included in the Management Plan for the South Bruny National Park (Parks & Wildlife Service 2000).



Photo: Wendy Potts

Key habitat:

Semi-parasitic, forming attachments to the roots of a wide variety of plants. Open woodland with a heathy understorey.

Key threats to the species:

- Shading due to growth of surrounding vegetation through lack of disturbance such as fire.

Management:

- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Slash small patches near flowering plants to promote the recruitment of seedlings on Mt Bleak.
- Further investigate the fire ecology of the species including trial management programs at Mt Bleak to extend the range of the population.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.

PLUMBAGINACEAE**SEA LAVENDER *Limonium australe*****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
 Tasmanian *Threatened Species Protection Act 1995*: Rare

Description and distribution:

A hairless perennial herb with ridged or angular flowering stems 20-45cm high. Flowers are 6-8mm long and white to pink (Victorian Flora 1996). This species occurs occasionally in parts of Tasmania, Victoria and Queensland (Curtis 1967). It has been recorded from Lutregala Marsh on Bruny Island by Kirkpatrick (see Map 2) and was verified by the author at this location in November 2000.

Key habitat:

Only occurs in salt marshes usually on low shell and shingle ridges near the seaward margin (Curtis 1967).

Key threats to the species:

- Degradation of salt marsh through clearing and stock grazing/trampling.

Management:

- Protect known sites from stock grazing and trampling.
- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.



Photo: L Hyatt



MONOCOTYLEDONS

Photo: Jeff Jeanes

CYPERACEAE***MOUNTAIN SEDGE* *Carex gunniana*****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
 Tasmanian *Threatened Species Protection Act 1995*: Rare

Description and distribution:

Tufted perennial sedge with thick, felted roots, light green and flat leaf blades, 4-8mm wide with a pair of prominent veins on their upper surface. Leaf sheaths are usually speckled dark purplish-brown.

Carex gunniana is uncommon but widespread in Tasmania. It is also found in South Australia, Victoria and New South Wales (Curtis & Morris 1994). There are five records of this species on Bruny Island from the Cloudy Bay and Lunawanna recorded by Karen Wilson and Alex Buchanan in 1992 (see Map 2). Two sites near the Lunawanna T-junction and a site near the Cloudy Bay car park were revisited during November 2000 but the species could not be relocated. The roadside sites were very disturbed, with heavy blackberry infestation and pasture extending to the edge of the bitumen.

Key habitat:

Wet eucalypt forests and sandy heathlands, riparian zones of streams, littoral sands and shingle with seepage areas (Curtis & Morris 1994).

Key threats to the species:

- Weed infestation and clearing for pasture development.

Management:

- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Protect existing populations from disturbance and degradation by weed infestation and land use changes.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.



Photo: Tasmanian Herbarium specimen

STICKY SWORD-SEDGE* *Lepidosperma viscidum

Current Status:

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
 Tasmanian *Threatened Species Protection Act 1995*: Rare

Description and distribution:

This species is a tufted perennial sedge with sticky leaves up to 60cm long. The flower head is 4-15cm long, subtended by a prominent lower bract of variable length. Flowers are in 4-6mm long spikelets that are densely clustered. Flowering occurs throughout the year (Cunningham *et al.* 1992).

This species is apparently rare in Tasmania, and is known from only a few sites in the midlands and on the east coast (Curtis & Morris 1994). It also occurs on mainland Australia on sandy soils on low mallee hills, from Western Australia to New South Wales. It does not appear to be grazed by stock (Cunningham *et al.* 1992). In 1980 Fred Duncan recorded it from one site near the penguin rookery at the isthmus on Bruny Island (see Map 2). The site was revisited by the author in November 2000 but the species was not found.

Key habitat:

Coastal or near-coastal sites in rather open rocky situations (Curtis & Morris 1994).

Key threats to the species:

- Degradation of coastal habitat through clearing, stock-trampling and frequent burning.

Management:

- Protect known sites from disturbance, such as clearing and stock trampling, and inappropriate fire patterns and intensities. Do not undertake burning without advice from DPIWE or Parks and Wildlife Service.
- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.



Photo: Tasmanian Herbarium specimen

ORCHIDACEAE***YELLOW ONION ORCHID* *Microtis atrata*****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed

Tasmanian *Threatened Species Protection Act 1995*: Rare

Recovery Plan: Orchid Recovery Team

Description and distribution:

This dwarf onion orchid has tiny yellowish crowded flowers. The flowering period is from mid-October to December. It is an uncommon and localised species that occurs in lowland coastal and near-coastal areas almost exclusively in north-eastern Tasmania and on the islands of the Furneaux Group, but also occurs in Victoria, South Australia and Western Australia. It is poorly reserved in Tasmania, but is found in Mount William National Park. It has been recorded along the road verge near the airstrip and at a nearby location on north Bruny Island (see Map 2) but was last seen in the early 1990s (Gerry Reid, personal communication). This species often grows together with *Microtis orbicularis*, which does not occur on Bruny Island.

Key habitat:

Herbfields, sedgeland, grasslands and heathlands on peats and sandy loams, especially in sites subject to periodic inundation such as swamps, depressions and soaks (Jones *et al.* 1999), often growing partly submerged in water (Curtis 1979).

Key threats to the species:

- Drainage of suitable habitat.
- Inappropriate fire patterns and intensities that allow habitats to become too dense.

Management:

- Protect known sites from disturbance, such as drainage alterations and implement appropriate fire patterns and intensities. Do not undertake burning without advice from DPIWE or Parks and Wildlife Service.
- Undertake surveys to assess the current status of the known populations and apply appropriate management techniques. Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.



Photo: Phil Collier

CHESTNUT LEEK ORCHID *Prasophyllum castaneum*

Current Status:

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: Critically endangered

Tasmanian *Threatened Species Protection Act 1995*: Endangered

Recovery Plan: Orchid Recovery Team

Listing Statement: Potts and Wapstra (2000a)

Description and distribution:

A very rare endemic leek orchid with dark brown (rarely green) flowers. Flowering period is from late November to January. The Chestnut leek orchid is an endemic species that is currently known only from the Labillardiere Peninsula on Bruny Island (see Map 2) and Mount Brown on the Tasman Peninsula, with both populations occurring in National Parks. Numerous plants have been found growing in the Bruny Island locality in disturbed soil next to a disused vehicle track amongst dense vegetation that had not been burnt for many years. As vehicles no longer use this track, adjacent thick scrubby vegetation may engulf the site unless a suitable fire or slashing regime can be put in place. This species was discovered in 1995 (Potts & Wapstra 2000). Recent searches have failed to locate additional populations in large areas of damp coastal heath in the vicinity of the two locations in which it has been recorded. It is not known whether the current rarity of the species is the result of a past decline (Potts & Wapstra 2000a).

Key habitat:

Damp shrubby and sedgy heath on sandy-loam on Bruny Island; damp skeletal soil under the protection of rocks and tea-tree and banksia scrub dwarfed by continual exposure to strong sea winds on the Tasman Peninsula (Potts & Wapstra 2000a).



Photo: Hans & Annie Wapstra

Key threats to the species:

- Inappropriate fire management. The flowering of many leek orchids is strongly dependent on hot summer fires or other disturbance.
- This species is at risk of accidental loss given that less than 50 plants are known to exist, and these only occur in two small populations.

Management:

- Management plans have been prepared for the Tasman and South Bruny National Parks that contain both populations of this species of orchid.
- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Develop an appropriate burning or slashing regime to maintain an open habitat at the Bruny Island site, taking care to allow plants to seed before taking action.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.

PRETTY LEEK ORCHID* *Prasophyllum pulchellum

Current Status:

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: Critically Endangered
 Tasmanian *Threatened Species Protection Act 1995*: Endangered
 Recovery Plan: Orchid Recovery Team
 Listing Statement: Potts and Wapstra (2000b)

Description and distribution:

This endangered leek orchid has pinkish flowers with a cream to whitish labellum. The flower spike is short with 6 to 12 slightly fragrant flowers. The labellum, often with prominent wavy or frilly margins, produces nectar on which a wide range of insects feed. Some of these, particularly native bees, wasps and beetles, are effective pollinators. The flowering period is late October and November. The Pretty leek orchid is an endemic species that is found in widely scattered coastal localities in the north and south. It occurs in the South Bruny National Park. There are five known populations, which are small and compact in area with the two largest populations having approximately 50 plants each. One of these is located in damp heathland along the Lighthouse Road.

Key habitat:

Dense low sedgy heath with pockets of paperbark or tea-tree on poorly to moderately drained sandy or peaty loam (Jones *et al.* 1999).

Key threats to the species:

- Inappropriate fire patterns and intensities that allow habitats to become too dense.

Management:

- Maintain an appropriate burning regime to allow plants to emerge, flower and disperse seed. Do not undertake burning without advice from DPIWE or Parks and Wildlife Service.
- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.

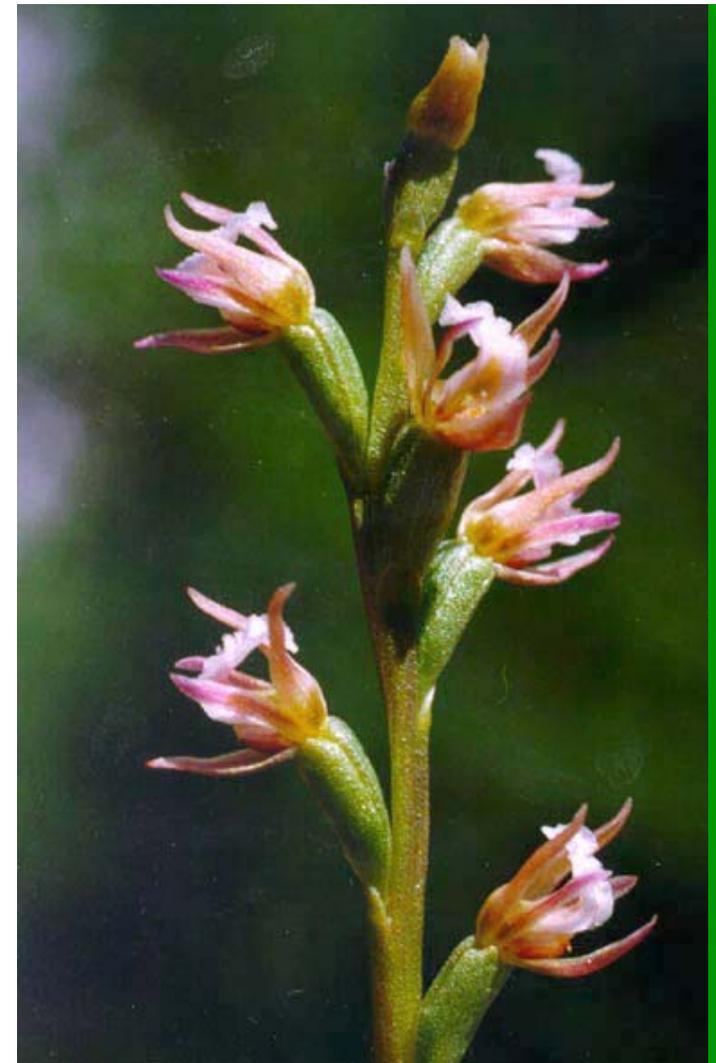


Photo: Hans & Annie Wapstra

PLUM ORCHID *Thelymitra mucida*

Current Status:

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
 Tasmanian *Threatened Species Protection Act 1995*: Rare
 Recovery Plan: Orchid Recovery Team

Description and distribution:

A slender sun orchid with blue flowers, often faintly striped. Flowering occurs between October and November and is often stimulated by summer fires. *Thelymitra mucida* is self-pollinating and will flower while the stem and leaf are partly submerged in water. It occurs in Tasmania, Victoria, South Australia and Western Australia and is not represented in reserves (Jones *et al.* 1999). In Tasmania, it is known only from lowland coastal areas at Low Head, Flinders Island and just north of the isthmus on Bruny Island (see Map 2). The Bruny Island record for this species dates back approximately 30 years and has not been relocated since (Gerry Reid, personal communication). The area in which specimens were found has since regrown into quite a densely vegetated area, and specimens would be unlikely to be relocated even if present (Gerry Reid, personal communication).

Key habitat:

The species grows in heathland and eucalypt woodland on poorly-drained to wet sandy or peaty loams, especially around the margins of swamps (Jones *et al.* 1999).

Key threats to the species:

- Inappropriate fire patterns and intensities that allow habitats to become too dense.

Management:

- Burning of the area in which this species has been recorded to promote regeneration. Do not undertake burning without advice from DPIWE or Parks and Wildlife Service.
- Mowing the area in which this species has been recorded may promote flowering and re-seeding. However, it is important to first consult DPIWE or Parks and Wildlife Service as mowing in heathland may increase the risk of introducing the root-rot pathogen *Phytophthora cinnamomi*.
- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.



Photo: Jeff Jeanes

POACEAE***ROUGH SPEAR-GRASS *Austrostipa scabra******Current status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
 Tasmanian *Threatened Species Protection Act 1995*: Rare

Description and distribution:

This species is a tufted perennial up to 50cm high (Curtis & Morris 1994). The leaves are usually in-rolled and approximately 1mm wide with a broad spreading flowerhead (Cunningham *et al.* 1992). In Tasmania this species occurs around the south and central Midlands with populations occurring at Bridgewater, St Peters Pass, Tunbridge, Ross and has also been recorded from the east coast, and in all other Australian states (Curtis & Morris 1994). One specimen of this species was located during a flora survey of the roadside vegetation along the Bruny Main Road near The Neck (North 2000).

Key habitat:

Dry open habitats (Curtis & Morris 1994).

Key threats to the species:

- The location of this plant is at risk from road works.

Management:

- Survey to determine the extent of the population near The Neck.
- Protect existing populations from disturbance during and following road works.
- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.



Photo: Tasmanian Herbarium specimen

HEATH BENT-GRASS *Deyeuxia densa*

Current Status:

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
 Tasmanian *Threatened Species Protection Act 1995*: Rare

Description and distribution:

This species is a sparsely-tufted, narrow-leaved, annual grass with slender, erect flower stems to 100cm tall. Flowering time is between October and January (Viridans Biological Databases Australia 1996). *Deyeuxia densa* occurs in the Furneaux Group, the east and west coasts, south-west and central highlands from sea level to approximately 750m in Tasmania. It also occurs in South Australia and Victoria (Curtis & Morris 1994). It has been recorded from D'Arcys Lagoon near the isthmus on north Bruny Island (see Map 2). This site was revisited in November 2000 and the species was not relocated. This site is very disturbed, having been burnt on an annual basis for many years. There have also been attempts to plough and sow the lagoon area to improved pasture. There are still small remnants of the original heathy vegetation nearby.

Key habitat:

Open to lightly shaded situations in heaths, sedgeland and on stream banks (Curtis & Morris 1994).

Key threats to the species:

- Frequent burning or burning during the flowering season.
- Clearing for pasture.

Management:

- Undertake surveys to determine whether previous known population is still extant.
- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- If populations are found protect them from over-burning (no more than every 5-10 years) and clearing for agriculture. Do not undertake burning without advice from DPIWE or Parks and Wildlife Service.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.

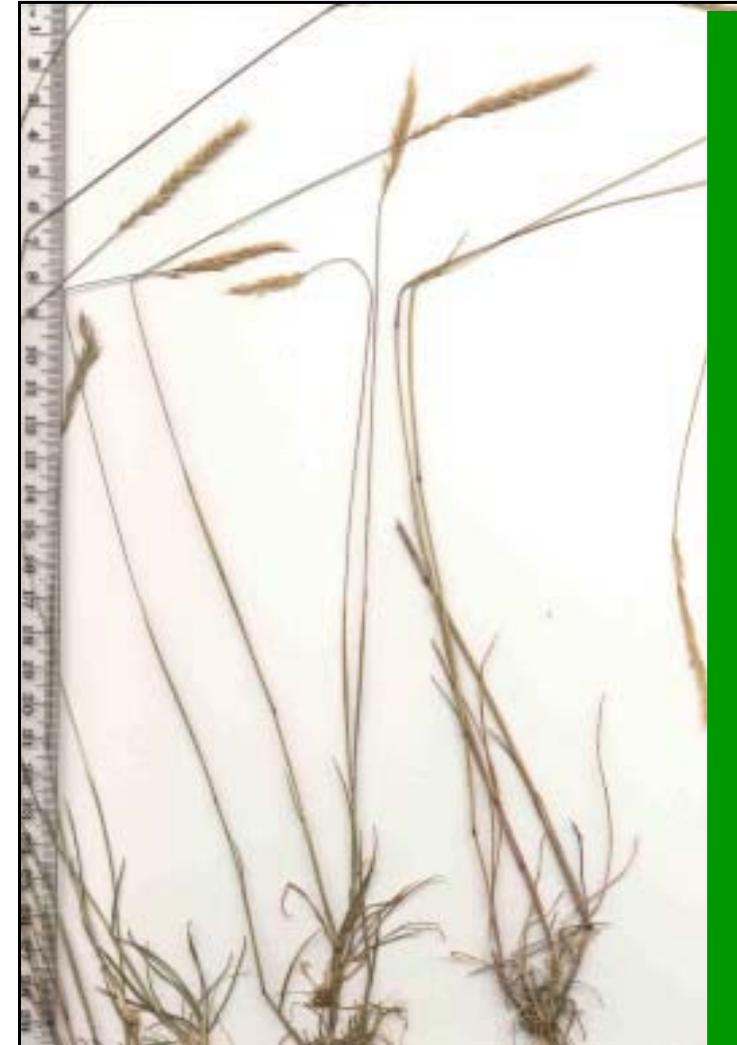


Photo: Tasmanian Herbarium specimen

ISLAND PURPLE GRASS *Poa poiformis* variety *ramifer*

Current Status:

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
 Tasmanian *Threatened Species Protection Act 1995*: Rare

Description and distribution:

This is a perennial grass up to 90cm high. It is a very variable species that differs in size, colour, and hairiness of the spikelets. *Poa poiformis* variety *ramifer* differs from the nominal species, in that it branches from the lower nodes, and the sheaths and internodes are often purple.

The species occurs on the east coast of Tasmania and its offshore islands, including the Furneaux Group, and in Victoria (Curtis & Morris 1994). The author is aware of two records by K. Harris in 1984 from near Kinghorne Point, Apollo Bay and Snake Island on Bruny Island (see Map 2).

Key habitat:

This species inhabits coastal and estuarine situations, including offshore islands (Curtis & Morris 1994).

Key threats to the species:

- Degradation and disturbance of coastal habitat through clearing and stock grazing.

Management:

- Undertake surveys to determine status and extent of the two known populations.
- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Protect existing populations from disturbance, specifically clearing and stock grazing.
- Monitor known populations for threats, declines and results of management actions and develop mechanisms to ensure management changes or intervention if required.



Photo: Tasmanian Herbarium specimen



PTERIDOPHYTES (FERNS)

BLECHNACEAE***GRISTLE FERN* *Blechnum cartilagineum*****Current Status:**

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: not listed
 Tasmanian *Threatened Species Protection Act 1995*: Vulnerable

Description and distribution:

The Gristle fern is an erect perennial fern with mid-green fronds which are narrowly triangular and up to 150cm tall. Although this species usually occurs along stream banks, it can also cope with drier conditions of open gullies and hillsides (Kirkpatrick & Gilfedder 1999). This fern is extremely rare in Tasmania (Garrett 1996) and has probably undergone a decline since European settlement. Two populations were discovered at St. Helens and west of Ansons Bay in the 1980s, but this latter site has since been clearfelled and the present status of both populations is unknown (Garrett 1996). Little Beach Creek is an important location for this species with a large population of approximately 24 000 individuals. Ferndene State Reserve, which contains approximately 180 plants, is listed as being the sole reserve for this species in Tasmania. However, it has also been recorded near the Mavista Nature walk at Adventure Bay (see Map 2) by Jamie Kirkpatrick in 1986. This species is also found in Victoria, New South Wales, Queensland and the Philippines (Jones & Clemesha 1980).

Key habitat:

Sheltered sites of low altitude (below 200m) with moist, well-drained, fertile soils within dry sclerophyll forest or on the margins of wet sclerophyll forest (Garrett 1997).

Key threats to the species:

- Habitat loss and degradation as a result of forestry activities and agricultural clearing.

Management:

- Protect the known site from disturbance.
- Undertake surveys in suitable habitat to determine if there are other populations on Bruny Island. If located ensure appropriate management is put in place.
- Monitor known populations for threats, declines and results of management actions and develop



Photo: Threatened Species Unit