Hypolepis distans

scrambling groundfern

TASMANIAN THREATENED FLORA LISTING STATEMENT

Image by Richard Schahinger

Scientific name: ***Hypolepis distans*** Hook., *Sp. Fil.* 2: 70, t.95c (1852)
Common name: scrambling groundfern (Wapstra et al. 2005)
Group: vascular plant, pteridophyte, family **Dennstaedtiaceae**

Status: *Threatened Species Protection Act 1995*: **endangered**
Environment Protection and Biodiversity Conservation Act 1999: **Endangered**

Distribution: Endemic: **Not endemic to Tasmania**
Tasmanian NRM Region: **Cradle Coast**

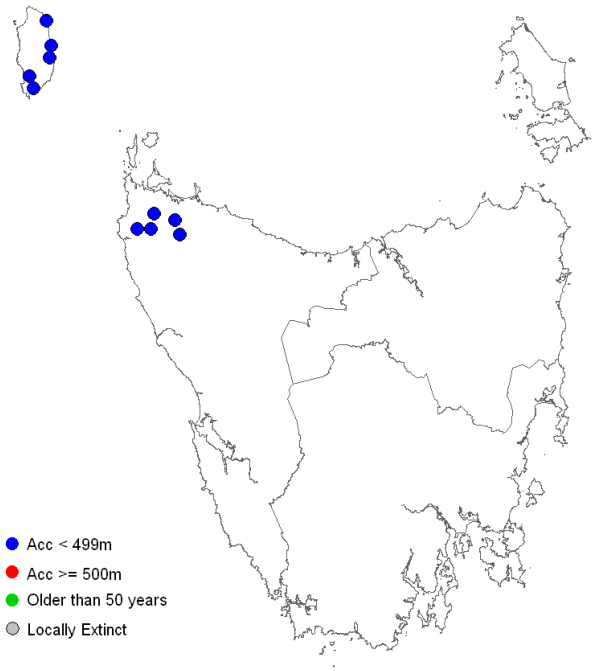

Figure 1. Distribution of *Hypolepis distans* in Tasmania

Plate 1. *Hypolepis distans*: scrambling habit (image by Richard Schahinger)

IDENTIFICATION & ECOLOGY

Hypolepis distans is a terrestrial fern in the Dennstaedtiaceae family, known from poorly-drained areas at the scrubby margins of swamp forests in Tasmania's northwest and King Island.

The common name of scrambling groundfern refers to the species' habit of scrambling up through surrounding vegetation (to a height of 2 or 3 m) or forming tangled mounds as a consequence of its rather weak stipes (Plate 1). Recruitment appears to be primarily from rhizome.

Survey techniques

The species' distinctive habit and leaf venation allows it to be identified at any time of year.

Description

Hypolepis distans has a creeping, slender rhizome that is covered in dark, red-brown hairs. Fronds are distributed along the rhizome, erect, herbaceous, 30–60 cm long; stipe fine and rough, red-brown, glossy, with sparse hairs. Lamina mid-green, oblong-lanceolate, bipinnate (to tripinnate) with pinnae distant, opposite (or nearly so) and almost perpendicular to the axis; lowermost pinnae frequently dead before those near the tip have matured; rachis red-brown, grooved, sparsely hairy. Pinnae rather distant, subopposite; pinnules oblong with margins lobed, veins ending in slight indentations. Sori conspicuous, in two rows on larger pinnules, spherical, each partly protected by membranous, reflexed, irregular margin of a lobe (Duncan & Isaac 1986).

Confusing Species

Hypolepis distans can be distinguished from the other species of *Hypolepis* in Tasmania by the following features: pinnae that are well separated and almost perpendicular to axis (Plate 1), pinnule veins ending in slight indentations, and sorus partially covered by the curled pinnule margin (Duncan & Isaac 1986).

DISTRIBUTION AND HABITAT

Hypolepis distans occurs in Tasmania and New Zealand (Duncan & Isaac 1986, Brownsey & Smith-Dodsworth 1989).

Hypolepis distans was considered to be endemic to New Zealand until its discovery in 1973 at the margins of Nook Swamps in the far northeastern corner of King Island (Chinnock 1976), with additional sites located in Tasmania's northwest in the late 1980s and early 1990s (Neyland 1988 & 1989, Garrett 1997). Another site was found on King Island in the early 2000s (Schahinger 2005). Two further sites were uncovered on mainland Tasmania in 2008 during pre-logging surveys by Forestry Tasmania, and two more sites on King Island in 2011–2012.

Hypolepis distans has been recorded in Tasmania from *Melaleuca squarrosa–Leptospermum scoparium–Acacia melanoxylon* scrubland bordering *Melaleuca ericifolia* swamp forest, disturbance-induced *Baloskion tetraphyllum* sedgeland, as well as from disturbed areas in wet eucalypt or mixed forest co-dominated by *Eucalyptus brookeriana* and *Acacia melanoxylon*. Associated ferns include *Histiopteris incisa, Pteridium esculentum, Hypolepis rugosula, Hypolepis glandulifera, Blechnum wattsii, Blechnum nudum, Gleichenia microphylla, Todea barbara, Dicksonia antarctica* and *Rumohra adiantiformis* (Schahinger 2005). Soils tend to be high in organic matter with moderate to poor drainage, while all sites are in areas of moderate rainfall below 40 m above sea level.

The linear range of the known extant sites in Tasmania is 175 km, the extent of occurrence 4,480 km^2 (about two-thirds of which is sea) and the area of occupancy c. 2.5–3 ha.

POPULATION ESTIMATE

There are nine confirmed (and one suspected) *Hypolepis distans* subpopulations in Tasmania, with the total number of mature individuals estimated to be in the order of 500–1,000 (Table 1).

Table 1. Population summary for *Hypolepis distans* in Tasmania

	Subpopulation	Tenure	NRM region	1:25 000 mapsheet	Year last (first) seen	Area occupied (ha)	Number of mature plants #
1	Nook Swamps (King Island)	Lavinia State Reserve	Cradle Coast	Egg Lagoon	2011 * (1973)	0.4	c. 200
2	Deep Lagoons (King Island)	Private land	Cradle Coast	Pearshape	2011 * (2001)	1.0	40–50
3	Blowhole Creek (King Island)	Sea Elephant Conservation Area?	Cradle Coast	Sea Elephant	1997 (1997)	'Very rare': ID to be confirmed	
4	Fraser River (King Island)	Crown land	Cradle Coast	Naracoopa	2011 (2011)	0.0001 (in 0.4 ha)	10
5	Colliers Swamp (King Island)	Colliers Swamp Conservation Area	Cradle Coast	Stokes	2012 * (2012)	unknown	unknown
6	Redpa	State Forest	Cradle Coast	Marrawah	2009 * (2008)	< 0.2	100
7	Barcoo Road	State Forest ^	Cradle Coast	Mella	2011 * (1987)	0.4	c. 50
8	Salmon River Road	State Forest ^ & Private land	Cradle Coast	Roger	2011 * (1994)	< 0.2	c. 100
9	Edith Creek	Private land	Cradle Coast	Togari	2009 * (1990)	0.4	c. 300
10	Trowutta	State Forest	Cradle Coast	Tayateah	2009 * (2008)	< 0.2	c. 100

^ = within flora SMZ; * = TSS surveys, 2005–2012; # = numbers approximate due to species' rhizomatous nature.

The discovery of four new subpopulations since 2008 indicates that there is a reasonable likelihood of additional subpopulations being uncovered in the State's northwest, with an unconfirmed sighting of the species near Blowhole Creek on King Island in 1997 (G. Carr 2009, pers. comm.). However, the species' collection history suggests that such discoveries will be the result of opportunistic rather than targeted surveys.

RESERVATION STATUS

Hypolepis distans is reserved in Colliers Swamp Conservation Area, Lavinia State Reserve and possibly Sea Elephant Conservation Area.

CONSERVATION ASSESSMENT

Hypolepis distans was listed as vulnerable on the original schedules of the Tasmanian *Threatened Species protection Act 1995*. It was up-listed to endangered in early 2008 as part of the Act's 5-year review, qualifying under criterion B:

Area of occupancy estimated to be less than 0.1 km^2 (10 ha) and:

- severely fragmented or known to exist at no more than five locations;
- continuing decline projected in the quality of habitat.

THREATS, LIMITING FACTORS & MANAGEMENT ISSUES

Threats to *Hypolepis distans* in Tasmania include land clearance and inappropriate forestry activities, drainage of habitat, stock damage, weed invasion, peat fires and mining.

Land clearance: Substantial areas of Tasmania's northwest and King Island have been cleared for agricultural purposes and artificially drained since European settlement, primarily for the production of dairy cattle, while substantive areas are also liable to forestry operations (Pannell 1992, Barnes et al. 2002). The result of these processes has been considerable fragmentation of suitable habitat for *Hypolepis distans*. The Barcoo Road and Edith Creek sites are both within 10–20 m of improved and drained pasture, while the hydrology of the Nook Swamps site has been affected to an unknown degree by the drainage

of the Egg Lagoon Swamp to its west in the early part of the 20th century (Jennings 1959), and the Deep Lagoons site by the relatively recent clearance of surrounding native vegetation and construction of drainage channels. The Barcoo Road, Edith Creek and Salmon River Road sites have each been subjected to past logging, and areas immediately around the two sites on State Forest found in 2008 have been logged in the past few years.

Stock & weed invasion: Cattle have been a threat in the past to the species at the Barcoo Road and Deep Lagoons sites, with physical damage to the fern itself and the creation of conditions unsuitable for regeneration, but are no longer considered an issue. The Barcoo Road, Edith Creek and Salmon River Road populations are each threatened to varying degrees by weed invasion, blackberry at the first two, and spanish heath along tracks leading to the third. Blackberry in particular would appear to have the ability to smother *Hypolepis distans* where the two co-occur.

Peat fires: Fire has the potential to impact negatively on *Hypolepis distans*, especially if the underlying peat is destroyed. In such cases all below ground tissues and mycorrhizal symbionts may be killed (Wein 1981), thereby confining sources of regeneration to unburned areas. The site at Nook Swamps is the only one known to have been burnt in recent times, with fires in January 2001 and again in February–March 2007. Neither fire removed the peat layer completely due to the relatively wet conditions and the species is known to have recovered rhizomatously (Schahinger 2005, Resource Management & Conservation Division 2007). The future of *Hypolepis distans* at this site remains speculative: regenerating scrub species will, in the absence of further disturbance, inevitably become dominant, the long-term survival of the species depending upon the longevity of its rhizomes under shaded conditions.

Mining: The Fraser River colony occurs within a mining lease area on Crown land and is at some risk from proposed mining activities. The threat is a potential one only at present (July 2012), as activities are on hold due to the low price of mineral sands.

MANAGEMENT STRATEGY

What has been done?

Fencing: The Deep Lagoons site was fenced in 2009 to exclude cattle as part of a threatened flora recovery project funded by the Cradle Coast Authority (Wapstra et al. 2009).

Surveys: In 2004–2005 surveys of known and suspected sites on King Island and the northwest were undertaken and pertinent management issues identified (Schahinger 2005). Similar surveys were undertaken of 'new' sites in northwestern Tasmania in 2009 (Larcombe & Garrett 2009).

Special Management Zones: The Barcoo Road population is within a Forestry Tasmania Flora Special Management Zone (SMZ). The surrounding area was fenced off in 2005 to prevent stock damage to the species, and a disturbed area within the SMZ is being rehabilitated by Forestry Tasmania to allow opportunities for recolonisation. This has included the control of blackberry and foxglove infestations.

The Salmon River Road subpopulation straddles the boundary between State Forest and private land — that part on State Forest is also within a Forestry Tasmania Flora SMZ, while that part on private land is managed by prescription under a Forest Practices Plan.

Management Objectives

The main objectives for recovery of *Hypolepis distans* are to minimise the probability of extinction of wild populations by ensuring habitat protection, and to secure all key subpopulations under effective management regimes within the next five years. These objectives are consistent with the *Flora Recovery Plan: Threatened Tasmanian Ferns* (Threatened Species Section 2011).

What is needed?

- provide information and extension support to the Cradle Coast Natural Resource Management committee, local councils, government agencies and the local community on the locality, significance and management of known subpopulations and areas of potential habitat;

- monitor known sites every three to five years to determine trends, identify threatening process and implement recovery actions as required;
- ensure that flora Special Management Zones and appropriate management prescriptions are in place for all occurrences on State Forest;
- encourage owners of private land that supports the species to enter into formal land management agreements that incorporate longer-term habitat maintenance objectives and actions as a high priority;
- control weeds at sites where required;
- undertake extension surveys of potential habitat.

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View:
www.dpipwe.tas.gov.au/threatenedspecieslists

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Permit: It is an offence to collect, disturb, damage or destroy this species unless under permit.