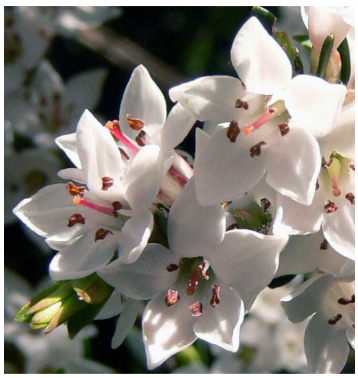

Image by Oberon Carter

Epacris exserta

south esk heath

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Scientific name: ***Epacris exserta*** R. Br., *Prodr.* 551 (1810)

Common name: south esk heath (Wapstra et al. 2005)

Group: vascular plant, dicotyledon, family **Epacridaceae**

Status: *Threatened Species Protection Act 1995*: **endangered**

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

Distribution: Endemic status: **Endemic to Tasmania**

Tasmanian NRM Region: **North**

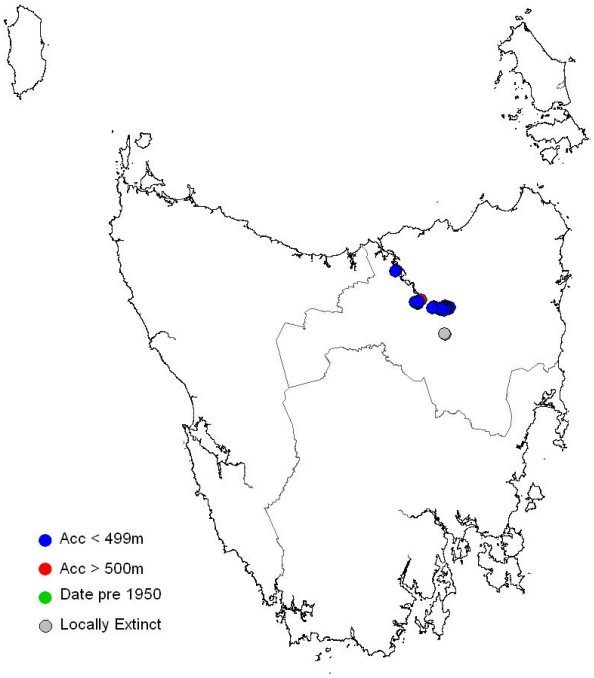

Figure 1. The distribution of *Epacris exserta*

Plate 1. *Epacris exserta*: flower detail (image by Oberon Carter)

IDENTIFICATION AND ECOLOGY

Epacris exserta is a woody shrub in the Epacridaceae family. It is a riparian species up to 1.5 m tall that is restricted to three rivers in Tasmania's north. *Epacris exserta* is best identified during its flowering period, September to late October.

Known pollinators of *Epacris* taxa include a variety of adult carrion flies from the families Tabanidae, Muscidae and Calliphoridae (Keith 1998). There is no data available for the breeding system of *Epacris exserta*. Fruit production for *Epacris* taxa depends on plant size, fire history and shading by the canopies of neighbouring plants, with up to several thousand seeds produced each year (Keith 1998). Fruit production is substantially reduced in shaded plants, with high rates of abortion among developing fruits. Other fruit losses may result from predation, browsing herbivores and mechanical damage.

Seed release is likely to peak in late summer and be completed by early autumn (Keith 1998). The riparian habitat of *Epacris exserta* means that seeds are potentially dispersed several kilometres downstream. The longevity of seeds is unknown, though Keith (1998) indicates that appreciable numbers of seeds survive for two years after release into the seed bank. Seedling recruitment is considered likely to reflect the occurrence of flood events.

Description

Epacris exserta is an erect multi-stemmed woody shrub up to 1.5 m high. The young stems are glabrous or nearly so. Leaves are narrow-lanceolate to elliptical, 7 to 11 mm long and 1.1 to 1.3 mm wide; apex acute, blunt, and with a short often slightly in-turned mucro. Flowers are clustered in the axils of the top few leaves of the new season's branchlets, and are on long, bract-clothed pedicels, which bend and project the flowers out from the leaves. The corolla tube is cylindrical, longer than the calyx and the lobes. The filaments are longer than the anthers, projecting the (exserted) anthers clearly above the plane of the corolla lobes. The style is cylindrical with the stigma at the top of the anthers and usually above them.

[description from Crowden 2003]

Taxonomic issues

The taxon referred to as *Epacris exserta* in the *Recovery Plan – Tasmanian Forest Epacrids 1999–2004* (Keith 1998) consisted of ten subpopulations in the north of the State. *Epacris exserta* as understood here (*sensu* Crowden 2003), includes only three of those subpopulations, the remainder being attributable to the recently described *Epacris moscaliana* (Crowden 2007).

Confusing species

Epacris exserta possesses anthers and stigmas that are exserted above the plane of the corolla lobes (Plate 1), whereas the riparian species *Epacris mucronulata* and *Epacris franklinii* have anthers and stigmas that are enclosed within the corolla tube. The floral characters of *Epacris moscaliana* are similar to those of *Epacris exserta*, but the latter has a slightly longer corolla tube and longer thinner leaves (Plate 2).

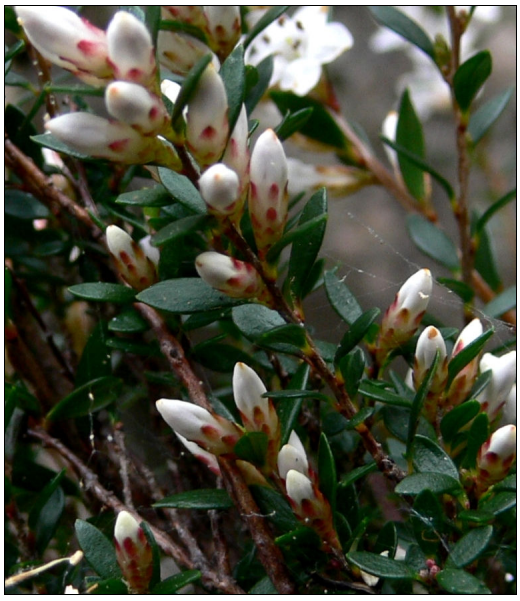

Plate 2. *Epacris exserta* leaf detail (image by Oberon Carter)

Table 1. Population summary for *Epacris exserta*

	Subpopulation	Tenure	NRM region	1:25 000 mapsheet	Year last (first) seen	Area of occupancy (ha)	Number of mature plants
1	Supply River	Crown Land *	North	Beaconsfield	2007 (2005)	0.1	30–50 (over a 1 km stretch of river)
2	South Esk River (First Basin to Trevallyn Dam)	Trevallyn Nature Recreation Area & Launceston Council	North	Launceston & Prospect	2005 (1836)	<1	55–60 (over a 5.6 km stretch of river)
3	North Esk River (Corra Linn to St Patricks River)	Private land & Crown Land #	North	Prospect & Blessington	2002 1988)	5–10	c. 1000 (over a 20 km stretch of river)
4	Nile River	Private land	North	Nile	1957 (1957)	Presumed extinct	

* = Recommended to become a Public Reserve under the Tasmanian *Crown Lands Act 1976* (CLAC Project Team 2006a); # = Part recommended to become a Public Reserve under the Tasmanian *Crown Lands Act 1976* and part recommended to become a Conservation Area under the Tasmanian *Nature Conservation Act 2002* (CLAC Project Team 2006b)

The Tasmanian Herbarium also holds an 1804 Robert Brown collection from 'Port Dalrymple', which may have been collected from either the South Esk or Supply Rivers.

DISTRIBUTION AND HABITAT

Epacris exserta is endemic to northern Tasmania where it occurs along the lower reaches of three rivers: the South Esk, North Esk and Supply Rivers. There are also historic records from the Nile River (Crowden 2003; Figure 1).

Epacris exserta is a strictly riparian species that occurs in areas subject to periodic inundation. It grows on alluvium amongst Jurassic dolerite boulders within dense riparian scrub, or occasionally in open rocky sites. Co-occurring tall shrub/small tree species include *Acacia melanoxylon* (blackwood), *Pomaderris apetala* (common dogwood) and *Micrantheum hexandrum* (river tridentbush). The elevation range is 10 to 310 m above sea level.

The linear range of the extant subpopulations is 44 km, extent of occurrence 260 km^2; and area of occupancy between 5 and 10 ha (Table 1).

POPULATION ESTIMATE

Epacris exserta is known from three extant subpopulations. The total population size is estimated to be at least 1100 mature individuals, with about 90% of these along the North Esk River (Table 1).

Surveys along the North Esk River in 2007 (ECOtas 2007) suggest that there is a reasonable likelihood of additional plants being discovered along unsurveyed stretches of the North Esk, as well as its major tributaries, including St Patricks River and Weavers Creek. However, given the sparse nature of known stands it is unlikely that total plant numbers would vary by an order of magnitude.

RESERVATION STATUS

Epacris exserta is reserved within Trevallyn Nature Recreation Area.

CONSERVATION ASSESSMENT

Epacris exserta (*sensu* Keith 1998) was listed as vulnerable on the original schedules of the Tasmanian *Threatened Species Protection Act 1995*. Recognising the recent circumscription (*sensu* Crowden 2003), it was uplisted to endangered in early 2009, qualifying under criterion B:

- extent of occurrence estimated to be less than 500 km^2 or area of occupancy estimated to be less than 0.1 km^2; and estimates indicating the following:
- severely fragmented or known to exist at no more than 5 locations; and a

- continuing decline inferred, observed or projected in the quality of habitat.

Epacris moscaliana, the other component of *Epacris exserta* (*sensu* Keith 1998), was listed as rare on the Tasmanian *Threatened Species Protection Act 1995* in early 2009.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Land clearance: Land clearance and associated activities since European settlement in the early 1800s is likely to have lead to local extinctions along the lower reaches of the South Esk River (Crowden 2003).

Future broadscale clearance of riparian scrub is considered unlikely, as this vegetation community is now listed as a threatened native vegetation community under the Tasmanian *Nature Conservation Act 2002*

Inundation and regulated flow regimes: The South Esk River subpopulation occurs downstream of Trevallyn Dam. The dam was constructed in the 1950s and plants are likely to have been destroyed outright through inundation or through subsequent changes to the river's natural flow regimes. A future decline in plant numbers along the lower South Esk is considered inevitable due to the disruption in natural recolonisation opportunities (North Barker & Associates 2001).

Major dam construction and regulated flow regimes are potential threats to the North Esk River subpopulation if not appropriately mitigated.

Weed invasion: the species' riparian habitat along the lower South Esk and North Esk Rivers has been subject to invasion by numerous exotic plant species, a consequence of the close proximity to urban and agricultural environments. The most conspicuous weeds are willow and gorse (North Barker & Associates 2001, ECOtas 2007). The net result has been twofold: (1) direct competition, and (2) a decline in recolonisation opportunities for native riparian species such as *Epacris exserta*.

Fire: *Epacris exserta* is considered to be fire-sensitive, surviving in fire-protected niches within its riparian habitat. North Barker & Associates (2001) note that frequent low intensity burns of adjoining areas along the South Esk River throughout much of the 20th century have led to the disappearance of a number of wet gully and riparian species, and suggested that the long-term viability of the species' riparian vegetation depends on the continued exclusion of fire. The threat of fire may be greater in the future due to increasingly dry conditions associated with climate change.

Stochastic risks: Two of the three known subpopulations support fewer than 100 mature plants (Table 1), with no signs of recent recruitment at the South Esk River site (North Barker & Associates 2001). The species is in consequence considered to be at risk from local extinctions due to unforeseen human activities or stochastic events.

MANAGEMENT STRATEGY

What has been done?

Extension surveys: Surveys of the species' riparian habitat along the lower South Esk River between Trevallyn Dam and the First Basin were undertaken in 2000 (North Barker & Associates 2001), and targeted surveys were undertaken along the North Esk River system in 2007 (ECOtas 2007).

Weed works: Limited weed works have been undertaken along the lower reaches of the South Esk River, with willow being targeted in the area between Duck Reach and Second Basin (North Barker & Associates 2001; Parks & Wildlife Service 2008), and Launceston City Council have been active in the Cataract Gorge Reserve).

Reservation: Areas along the Supply and North Esk Rivers that support *Epacris exserta* have been recommended to become formal reserves (CLAC Project Team 2006a and b).

Seed collection: Seed has been collected from the North Esk subpopulation for long-term storage as part of the Millennium Seedbank (SeedSafe) Conservation Project, a joint project between Kew Gardens, the Royal Tasmanian Botanical Gardens, the Tasmanian Herbarium and the Primary Industries, Parks, Water and Environment.

Recovery Plan: *Epacris exserta* is included in the *Recovery Plan – Tasmanian Forest Epacrids 1999–2004* (Keith 1998) and the *Draft Flora Recovery Plan: Threatened Tasmanian Forest Epacrids* (Threatened Species Section 2010).

Management objectives

The main objectives for the recovery of *Epacris exserta* are to prevent the inadvertent destruction of subpopulations, maintain the viability of existing subpopulations, and promote conditions for its successful recruitment.

What is needed?

Recovery actions necessary to decrease the extinction risk to *Epacris exserta* include management strategies aimed at mitigating threatening processes such as vegetation clearance, habitat degradation, weed invasion and adverse fire regimes. Proposed recovery actions include the following:

- provide information and extension support to relevant Natural Resource Management committees, local councils, Government agencies and the local community on the location, significance and management of known subpopulations and areas of potential habitat;
- undertake extension surveys to determine the species' full extent along the North Esk River and its major tributaries, especially St Patricks River, and the identification of management issues;
- pursue increased security and improved management of subpopulations on private land through private land conservation programs;
- prepare and implement a weed management plan for Trevallyn Nature Recreation Area to ensure that the management of weeds along the South Esk River is undertaken in a strategic manner. Targeted weed works are also required along the North Esk River;
- fire management plans for Trevallyn Nature Recreation Area should identify the species' riparian habitat as a fire-exclusion zone;
- formal reservation of areas of Crown land that support parts of the North Esk and Supply River subpopulations;
- collect seed from the Supply River and South Esk River subpopulations for long-term storage as part of the Millennium Seedbank (SeedSafe) Conservation Project;
- examine the species' life history attributes and undertake biennial monitoring of known subpopulations to determine the level of recruitment and/or plant loss and to better inform management prescriptions.

BIBLIOGRAPHY

CLAC Project Team (2006a). *Consultation Report and Recommended Allocations for the Municipality of West Tamar*. Crown Land Assessment and Classification Project, Department of Primary Industries and Water, Hobart.

CLAC Project Team (2006b). *Consultation Report and Recommended Allocations for the Municipality of Launceston*. Crown Land Assessment and Classification Project, Department of Primary Industries and Water, Hobart.

Crowden, R.K. (2003). Reinstatement of *Epacris franklinii* Hook.f. (Epacridaceae). *Muelleria* 18: 67–73.

Crowden, R.K. (2007). Additions to *Epacris* (Epacridoidae, Ericaceae) in Tasmania. *Muelleria* 25: 115–128.

ECOtas (2007). *Extension surveys for Epacris exserta, Barbarea australis, Doodia caudata, Blechnum cartilagineum, Cyathea cunninghamii and Austrocynoglossum latifolium*. A report to the Threatened Species Section (Department of Primary Industries and Water) by Environmental Consulting Options Tasmania (ECOtas).

Keith, D. (1998). *Recovery Plan – Tasmanian Forest Epacrids 1999–2004*. Tasmanian Parks and Wildlife Service, Hobart.

North Barker & Associates (2001). *Trevallyn State Reserve: Vegetation Management Guidelines*. A report for the Parks and Wildlife Service, Department of Primary Industries, Water and Environment, Tasmania.

Parks & Wildlife Service (2008). *Trevallyn Nature Recreation Area Management Plan 2008*. Parks

and Wildlife Service, Department of Environment, Parks, Heritage and the Arts, Hobart.

Threatened Species Section (2010). *Draft Flora Recovery Plan: Threatened Tasmanian Forest Epacrids*. Department of Primary Industries, Parks, Water and Environment, Hobart.

Wapstra, H., Wapstra, A., Wapstra, M., & Gilfedder, L. (2005). *The Little Book of Common Names for Tasmanian Plants*. Department of Primary Industries, Water and Environment, Hobart.

Prepared in 2009 under the provisions of the Tasmanian *Threatened Species Protection Act 1995*. Approved by the Secretary and published in July 2010.

Cite as: Threatened Species Section (2010) *Listing Statement for* Epacris exserta *(south esk heath),* Department of Primary Industries, Parks, Water and Environment, Tasmania.

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

Contact details: Threatened Species Section, Department of Primary Industries, Parks, Water and Environment, GPO Box 44, Hobart, Tasmania, Australia 7001. Ph (03) 6233 6556; fax (03) 6233 3477.

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