The Minister's delegate approved this Conservation Advice on 01/04/2016. Following a taxonomic revision, the name in the EPBC Act list of threatened species was updated to *Corunastylis brachystachya*, effective on: 05/05/2016.

Conservation Advice

Genoplesium brachystachyum

short-spiked midge-orchid

Conservation Status

Genoplesium brachystachyum (short-spiked midge-orchid) is listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). The species is eligible for listing as prior to the commencement of the EPBC Act, it was listed as Endangered under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth).

The main factors that are the cause of the species being eligible for listing in the Endangered category are that:

- its geographical distribution is precarious for its survival due to its restricted area of occupancy,
- the remaining populations are subject to severe fragmentation and
- there is a low number of mature individuals in the population.

Genoplesium brachystachyum (short-spiked midge-orchid) is listed as Endangered under the name of *Corunastylis brachystachya,* under the *Threatened Species Protection Act 1995* (Tasmania).

Description

The short-spiked midge-orchid belongs to a group of orchids commonly known as midge orchids because of their insect-like appearance. Most midge-orchid species are herbaceous perennial terrestrial orchids that sprout annually from a round, fleshy tuber partly enclosed by a persistent fibrous sheath, and a single thin cylindrical leaf. The leaf is solid in the basal part, with a short free apex , and is inseparable from the stalk supporting the inflorescence as they are fused and emerge from the soil together. The upside-down flowers are crowded in a dense terminal spike (TSS 2011).

The short-spiked midge-orchid has a slender green leaf with a reddish base, 8–12 cm long, is closely sheathing and ends well below the flower spike. The free portion is 10–20 mm long. The flower spike is 10–20 mm long, with 1–12 flowers. The semi-nodding flowers are about 5 mm long and 3.5 mm wide, and green to brownish-green with reddish petals and labellum (lower petal). The lateral sepals are 4 mm long and 1.2 mm wide, with a small or undeveloped gland on the tips. The petals are 3 mm long and 1.3 mm wide, with hairless margins and sharply pointed tips. The labellum is stiffly hinged, narrowly elliptical, 2.7 mm long and 1.4 mm wide, has irregular hairless margins and a sharply pointed tip (Jones 1998; Jones et al. 1999; Jones 2006).

The short-spiked midge-orchid is most similar to *Corunastylis tasmanica* but is relatively easy to differentiate based on several characters. The short-spiked midge-orchid has a gently curved labellum with an apex that is not sharply recurved (rather than sharply recurved), lateral sepals lacking apical glands or the glands vestigial (undeveloped rather than prominently globose) and 1–12 flowers (rather than 5–25). The short-spiked midge-orchid may be initially mistaken for *Corunastylis archeri* in the field as both have a very short flower spike. However, *Corunastylis archeri* has ciliate (fringed with long hairs) floral parts so is easily distinguished on closer examination (TSS 2011).

Distribution

The short-spiked midge-orchid is endemic to northern Tasmania, known from Rocky Cape, including Rocky Cape National Park, and near Stanley in the north-west (Jones 1998; Jones et al. 1999). It has a linear distribution of 82 km, an extent of occurrence of approximately 1700 km^2 and area of occupancy of less than 2 km^2 (TSS 2011)

It appears that the short-spiked midge-orchid is highly localised and usually occurs in low numbers of less than 25 individuals (TSS 2011), with the total population likely to be less than 100 individuals (TSS 2011).

There are five confirmed extant populations (TSS 2011): three in the Arthur-Pieman Conservation Area (Populations 1–3); one on the corner of Jocks Road and Bass Highway road verge near Smithton (Population 4) although this population of 10 plants has not been seen since 1997 following roadworks; and one in Rocky Cape National Park (Population 5). Two populations near Stanley and Sisters Beach are unconfirmed, and one population at Rocky Cape shackery is presumed extinct (TSS 2011).

When not flowering, short-spiked midge-orchids are virtually undetectable because their single thin leaf is often hidden amongst grasses and sedges. Even in flower, their short stature and colour makes detection difficult. The short-spiked midge-orchid often occurs in low abundance, making detection a chance event (Jones 2006).

The habitat of the short-spiked midge-orchid is widespread in Tasmania and has been well-surveyed because of its floristic richness, but it is unlikely that further sizeable populations of short-spiked midge-orchid will be discovered and influence its conservation status (TSS 2011).

Relevant Biology/Ecology

The short-spiked midge-orchid grows among low shrubs, boulders and rock plates in heathland and heathy eucalypt woodland, near-coastal rocky areas on well-drained sandy and gravelly loam soils generally below 50 m above sea level (Jones 1998; TSS 2011). One site is on a scrubby cliff side, with the other site on a rocky outcrop in coastal heath (H. Wapstra, pers. comm., 2000).

The short-spiked midge-orchid is pollinated by small vinegar flies (drosophilids), with flowering occurring from February to April (Jones 2006) but most specimens have been collected in March (Wapstra et al. 2008). Reproduction is solely from seed and the species relies on associations with mycorrhizal fungi for germination and growth (TSS 2011).

The short-spiked midge-orchid is most commonly seen in areas that have had recent fire events or that are regularly mown or slashed, such as beside tracks and on road verges. The species is strongly fire-responsive and is most abundant one to three flowering seasons after a fire (TSS 2011).

Threats

Table 1 – Threats

Threat factor	Threat type	Threat status	Evidence base
Habitat loss, disturbance and modifications			
Land clearing	known	current	Significant areas of potential habitat (lowland near-coastal heathland and heathy woodland) have been cleared and may explain the disjunct distribution of the short-spiked midge-orchid. Any clearing of potential habitat may disturb and/or eliminate as yet undetected populations. Expansion and occupation of the Rocky Cape

			shack sites over several decades has probably eliminated some plants from the area (TSS 2011).
Disturbance	known	current	Intensive soil disturbance and persistent removal of fertile plants is likely to have a long-term negative impact on the short-spiked midge-orchid. Roadworks probably eliminated the site east of Smithton (TSS 2011). Periodic disturbance such as slashing, which reduces the intensity of surrounding vegetation and creates areas of bare ground, can benefit the short-spiked midge-orchid, especially if it occurs outside the flowering and seed set period and does not disturb dormant tubers (TSS 2011).
Fire			
Fire frequency	potential	future	Lack of fire for long periods of time is likely to cause potential habitat to become unsuitable for the short-spiked midge-orchid. For safety reasons, fire management at the known sites and in potential habitat for the species is usually to prevent the type of fires considered ideal to stimulate flowering. A more frequent lower intensity fuel reduction fire regime is unlikely to benefit the species and in the long term may reduce habitat quality (TSS 2011).

Conservation Actions

Conservation and Management priorities

Habitat loss disturbance and modifications

- Prevent habitat disturbance. Control access routes by installing barriers to suitably constrain vehicle access to known sites on public land and manage access on private land to prevent accidental damage to flowering and fruiting plants.
- Ensure land managers are aware of the species' occurrence and provide protection measures against key and potential threats.

Fire

- Develop and/or implement an appropriate fire management regime for protecting key habitat that includes buffers to prevent wildfire or managed fire from impacting the habitat, unless prescribed fire is being used following sound scientific evidence.
- Critically, any use of prescribed or experimental fires must be very well justified, and is typically an action of last resort. There must be a carefully planned weed management strategy and demonstrated funding to ensure post-fire monitoring and control actions occur (e.g. weed control based on sound scientific evidence).
- Provide maps of known occurrences to local and state Rural Fire Services and seek inclusion of mitigation measures in bush fire risk management plan/s, risk register and/or operation maps.

Stakeholder Engagement

- Provide information and extension support to relevant Natural Resource Management committees, local councils, Government agencies, development proponents and the local community on the location, significance, and management of known populations and areas of potential habitat.
- Encourage formal land management agreements with private landowners of sites found to support the short-spiked midge-orchid that incorporates longer term habitat protection and maintenance objectives and actions.
- Prepare a management strategy with input from local experts.

Survey and Monitoring priorities

- Continue survey work, during the species' flowering period, in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants. Target recently burnt areas of coastal heathland and heathy woodland, especially in the Rocky Cape – Sisters Hill area and the Arthur–Pieman Conservation Area.
- Determine the precise extent and condition of recorded populations, and develop appropriate management strategies for each site.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.

Information and research priorities

- Collect seed and associated mycorrhizal fungi for long-term storage at the Tasmanian Seed Conservation Centre at the Royal Tasmanian Botanical Gardens..
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment.
- Investigate options for linking, enhancing or establishing additional populations.
- Address the ecological requirements of the short-spiked midge-orchid in any management plans for the Rocky Cape National Park and the Arthur-Pieman Conservation Area, especially with regard to fire management.
- Fire trials should only be undertaken as a last resort when all other means of regeneration of the species has been investigated and, in addition, all weed management and fire impacts including the timing of fire impacts are fully understood.
- Implement an annual census to monitor emergence and resprouting success.

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