

Approved Conservation Advice
(s266B of the *Environment Protection and Biodiversity Conservation Act 1999*)

Approved Conservation Advice for
***Cryptostylis hunteriana* (Leafless Tongue-orchid)**

This Conservation Advice has been developed based on the best available information at the time this conservation advice was approved.

Description

Cryptostylis hunteriana, Family Orchidaceae, also known as Leafless Tongue-orchid, is an upright perennial leafless terrestrial herb to 75 cm tall. It produces an upright flower-stem, bearing five to ten flowers between November and February. It has small narrow green sepals and petals to 22 mm long, but is dominated by an erect narrow very hairy 'tongue' (the labellum), which is up to 33 mm long, maroon along the margins and at the widened tip, and with a black central band (DECC, 2005a).

Conservation Status

Leafless Tongue-orchid is listed as **vulnerable**. This species is eligible for listing as vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act), prior to the commencement of the EPBC Act, it was listed as vulnerable under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth). It is also listed as vulnerable under Schedule 2 of the *Threatened Species Conservation Act 1995* (NSW) and as threatened under the *Flora and Fauna Guarantee Act 1988, Threatened List* (Victoria).

Distribution and Habitat

Leafless Tongue-orchid occurs in Victoria, NSW, and Queensland. In Victoria, the species is found in east Gippsland, between Orbost and Mallacoota. In NSW, it is recorded mainly on coastal and near coastal ranges north to near Forster, with two isolated occurrences inland north-west of Grafton. In Queensland, the species is found from the Tin Can Bay area and along the coast to the Glasshouse Mountains (Logan, 1998; Riley & Banks, 2002). Leafless Tongue-orchid occurs singly or more often in highly localised loose colonies and inhabits a range of habitats. This species occurs within the East Gippsland (Victoria), Southern Rivers, Hawkesbury–Nepean, Hunter–Central Rivers and Northern Rivers (NSW), South East Queensland, and Burnett Mary (Queensland) Natural Resource Management Regions.

In Victoria, Leafless Tongue-orchid is known from about 30 records over a 113 km range, with the total population in the state considered to consist of several hundred plants. It is present in Croajingalong National Park (NP), William Hunter Flora Reserve, and one state forest estate (Backhouse & Jeanes 1995; Jeanes & Backhouse, 1995; Briggs & Leigh 1996; DAFF, 2002). The species occurs on *Xanthorrhoea resinosa* plains and adjacent heathlands and heathy woodlands, on moist, sometimes peaty, sandy soils (Backhouse & Jeanes, 1995).

In NSW, it is known from 39 sites, the largest at Bulahdelah, which consists of two populations with 104 and 359 plants. It appears to be most common in the Shoalhaven area with 25 populations generally with less than 30 individuals (Clark et al., 2004). It is predicted to occur in Ben Boyd NP and Bellbird Creek Nature Reserve (NSW NPWS, 2004). In northern NSW, along with several coastal populations of up to 50 plants, Leafless Tongue-orchid also occurs at two isolated inland sites—Gibraltar Range NP and Washpool NP (Parsons Brinckerhoff, 2006). The total NSW population size is estimated to be 1300 to 1500 plants (M. Clements, 2008, pers. comm.). The species occurs mostly in coastal heathlands, margins of coastal swamps and sedgeland, coastal forest, dry woodland, and lowland forest (DAFF, 2002; Jones et al., 2006; Jones, 2006). It prefers open areas in the understorey of

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forested communities (DECC, 2005a). The soils include moist sands, moist to dry clay loam and occasionally in accumulated eucalypt leaves (Jones et al., 2006; Jones, 2006).

In Queensland, Leafless Tongue-orchid is known from a single plant near the village of Tinnanbar and four additional coastal populations north of the Glasshouse Mountains to Tin Can Bay (Logan, 1998). The Queensland populations have been recorded from sandy heathland (Logan, 1998).

The distribution of this species is not known to overlap with any EPBC Act-listed threatened ecological communities.

Threats

The main identified threats to Leafless Tongue-orchid are disruption or loss of natural habitat through development pressures in many coastal regions (DECC, 2005a), such as earthwork, housing development, and road construction at the duplication of the Pacific Highway at the Bulahdelah bypass site (Parsons Brinckerhoff, 2004). Site fragmentation may result in disruption to pollination and seed dispersal for this species, by creating barriers between populations (M. Clements, 2008, pers. comm.).

The main potential threats to Leafless Tongue-orchid include changes in drainage resulting in unsuitable soil micro-climatic conditions, and loss of the associated mycorrhizal fungi upon which this species entirely depends (Rasmussen, 1995). Frequent or inappropriate fire regimes, resulting in significant alteration of the site ecology will also effect populations. It is also potentially at risk from collection and weed invasion, such as Bitou Bush (*Chrysanthemoides monilifera*), in some localised areas close to roads, settlements, and coastal locations (DAFF, 2002; DECC, 2005c).

Research Priorities

Research priorities that would inform future regional and local priority actions include:

- Develop and implement a monitoring program.
- More precisely assess population size, distribution, ecological requirements and the relative impacts of threatening processes.
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations.
- Undertake seed germination and mycorrhizal association trials to determine the requirements for successful establishment of Leafless Tongue-orchid.
- Identify pollinators.

Regional Priority Actions

The following regional priority recovery and threat abatement actions can be done to support the recovery of Leafless Tongue-orchid.

Habitat Loss, Disturbance and Modification

- Monitor known populations to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Identify populations of high conservation priority.
- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on Leafless Tongue-orchid.
- Ensure road widening and maintenance activities and other infrastructure or development activities involving substrate and vegetation disturbance in areas where the species occurs do not adversely impact on known populations.

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- Manage any changes to hydrology that may result in changes to the water table levels, increased run-off, sedimentation or pollution.
- Investigate further formal conservation arrangements such as the use of covenants, conservation agreements or inclusion in reserve tenure.

Invasive Weeds

- Develop and implement a management plan, such as that proposed for the Bulahdelah bypass site (Parsons Brinckerhoff, 2006), for the control of numerous potential weed species in the local regions.

Fire

- Develop and implement a suitable fire management strategy for Leafless Tongue-orchid.
- Identify appropriate intensity and interval of fire to promote flowering, seed germination and vegetation regeneration.
- Provide maps of known occurrences of Leafless Tongue-orchid to local and state Rural Fire Services and seek inclusion of mitigative measures in bush fire risk management plans, risk register and/or operation maps.

Conservation Information

- Raise awareness of Leafless Tongue-orchid within the local community.

Enable Recovery of Additional Sites and/or Populations

- Undertake appropriate seed and mycorrhizal fungi collection and storage.
- Investigate options for linking, enhancing or establishing additional populations.
- Implement national translocation protocols (Vallee et al., 2004) if establishing additional populations is considered necessary and feasible.

Local Priority Actions

The following local priority recovery and threat abatement actions can be done to support the recovery of Leafless Tongue-orchid.

Habitat Loss, Disturbance and Modification

- Control access routes to suitably constrain public access to known sites on public land.
- Suitably control and manage access on private land.
- Minimise adverse impacts from land use at known sites.

Invasive Weeds

- Identify and remove weeds in the local area, which could become a threat to the species, using appropriate methods.
- Manage sites to prevent introduction of invasive weeds, such as Bitou Bush, which could become a threat to the species, using appropriate methods.

Fire

- Implement an appropriate fire management regime for local populations, such as avoiding fire between December and March, when Leafless Tongue-orchid is flowering.

This list does not necessarily encompass all actions that may be of benefit to Leafless Tongue-orchid, but highlights those that are considered to be of highest priority at the time of preparing the conservation advice.

Existing Plans/Management Prescriptions that are Relevant to the Species

- NSW Priority Action Statement for *Cryptostylis hunteriana* (DECC, 2005b),
- NSW Southern Rivers Catchment Management Authority Region, threat abatement strategy (DECC, 2005c),

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- Ben Boyd National Park and Bellbird Creek Nature Reserve Draft Plan of Management (DEC, 2006b) and Fire Management Plan (NSW NPWS, 2004),
- Croajingolong National Park Management Plan (Victoria) (DNREV, 1994),
- Gibraltar Range Group Of Parks (Incorporating Barool, Capoompeta, Gibraltar Range, Nymboida and Washpool National Parks and Nymboida and Washpool State Conservation Areas) Plan of Management (DEC, 2006c), and
- NSW Threat Abatement Plan for Invasion of Native Plant Communities by *Chrysanthemoides monilifera* (Bitou Bush and Boneseed) (DEC, 2006a).

These prescriptions were current at the time of publishing; please refer to the relevant agency's website for any updated versions.

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