

## Approved Conservation Advice for *Phaius australis* (Common Swamp-orchid)

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

This Conservation Advice has been developed based on the best available information at the time this Conservation Advice was approved; this includes existing plans, records or management prescriptions for this species.

### Description

*Phaius australis*, Family Orchidaceae, also known as Common Swamp-orchid, Southern Swamp-orchid, Swamp Lily and Island Swamp-orchid is a terrestrial (ground dwelling) orchid and produces the largest flowers of any Australian orchid (Jones, 2006; QLD EPA and QPWS, 2006). Each plant has 4–8 large, pleated leaves and 1–2 flower stalks. The leaves are long (approx. 70 cm) and relatively narrow (3–10 cm wide) (NH NSW, 2006). The flowers are red-brown with yellow veins inside the flower and grow in spikes on the top of stalks that are 70–110 cm long (NH NSW, 2006).

Preliminary genetic analysis has revealed few genetic differences between species of *Phaius* in Australia, and it is considered that they are all *P. australis*. Further investigation is needed to verify this observation (Harrison et al., 2005).

### Conservation Status

Common Swamp-orchid is listed as **endangered**. This species is eligible for listing as endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) 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 Common Swamp-orchid is also listed as endangered under the *Threatened Species Conservation Act 1995* (New South Wales) and as endangered under the *Nature Conservation Act 1992* (Queensland).

### Distribution and Habitat

Common Swamp-orchid is endemic to Australia and occurs in eastern Queensland and northern New South Wales (Benwell, 1994; Jones pers. comm., 1999). Historical records show this species extending at least as far as Lake Cathie near Port Macquarie (Harden, 1993). Currently, the southernmost confirmed limit is in South West Rocks (Brown, pers. comm., 2010). There is a range disjunction in eastern Queensland from Kirrima to Mackay.

There are 14 known populations (seven in national or conservation parks, one in State Forest, six on private land) of this species, though individual numbers are known for only 50% of these populations. Determining the number of plants in a population is difficult as this species grows in clumps of pseudobulbs and leafy stems, making it difficult to distinguish between individual plants. Approximately half the populations contain few individuals (1–50 plants) (Benwell, 1994) with the largest at South Stradbroke Island (estimated to contain 200–2000 plants) (Searle and Madden, 2006).

This species is associated with coastal wet heath/sedgeland wetlands (Barry, 2005), swampy grassland or swampy forest (NSW DEC, 2005a) and often where Broad-leaved Paperbark (*Melaleuca leucadendra*) or Swamp Mahogany (*Eucalyptus robusta*) are found (NH NSW 2006). Less commonly, the species has been found in drier forest near the coast.

This species occurs within the South Eastern Queensland, NSW North Coast, Brigalow Belt south and Central Mackay coast Bioregions and the Burnett Mary, South East QLD Catchments, Northern Rivers and Fitzroy Natural Resource Management Regions.

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

### **Threats**

The main identified threats to the Common Swamp-orchid are illegal collection for horticulture or cut flowers, and habitat loss, through clearing and fragmentation and drainage for development, agriculture and road works. Invasion by weeds such as Lantana (*Lantana camara*), Umbrella Tree (*Schefflera actinophylla*), Groundsel (*Baccharis halmifolia*) and Brazilian Cherry (*Eugenia uniflora*) is also an identified threat to this species (Benwell, 1994; NSW DEC, 2005b; Searle and Madden, 2006).

The main potential threats to Common Swamp-orchid include timber harvesting, mining, trampling and browsing by feral pigs and domestic livestock and inappropriate fire regimes (NSW DEC, 2005a).

### **Research Priorities**

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

- Design and implement a monitoring program or, if appropriate, support and enhance existing programs.
- More precisely assess population size, distribution, ecological requirements (including in situ germination and establishment) 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/or vegetative propagation trials to determine the requirements for successful establishment, including mycorrhizal association trials.
- Investigate the precise taxonomic relationship between Common Swamp-orchid and other closely related *Phaius* species, using appropriate methodologies including DNA marker analysis.
- Investigate the potential and efficacy of DNA-based or other approaches for the identification of individual plants and/or populations to provide a means for detecting and prosecuting illegal collection from the wild (see for example Palsboll et al., 2006).

### **Regional Priority Actions**

The following regional priority recovery and threat abatement actions can be done to support the recovery of Common Swamp-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 there is no anthropogenic disturbance in areas where Common Swamp-orchid occurs, excluding necessary actions to manage the conservation of the species/ecological community.
- Investigate formal conservation arrangements, management agreements and covenants on private land, and for crown and private land investigate and/or secure inclusion in reserve tenure if possible.

- Identify optimal fire regimes for regeneration (vegetative regrowth and/or seed germination), and response to prevailing fire regimes.
- Manage any other known, potential or emerging threats.

#### Invasive Weeds

- Develop and implement a management plan for the control of Lantana (*Lantana camara*), Umbrella Tree (*Schefflera actinophylla*), Groundsel (*Baccharis halmifolia*) and Brazilian Cherry (*Eugenia uniflora*) in the habitat of Swamp Orchids.
- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on Common Swamp-orchid.

#### Trampling, Browsing or Grazing

- Develop and implement a stock management plan for roadside verges and travelling stock routes associated with the species habitat.
- Develop and implement a management plan for the control of feral pigs in the species' habitat.

#### Fire

- Develop and implement a suitable fire management strategy for the habitat of Common Swamp-orchid.
- Ensure all known occurrences and new records of the species are entered into the NSW Wildlife Atlas to ensure up to date data is available for impact assessment and fire planning

#### Conservation Information

- Engage with private landholders and land managers responsible for the land on which populations occur and encourage these key stakeholders to contribute to the implementation of conservation management actions.

#### 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 Common Swamp-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 and other land tenure.
- Minimise adverse impacts from land use at known sites.
- Protect populations of the listed species through the development of conservation agreements and/or covenants.
- Protect populations from illegal collection by ensuring their locations are kept confidential.

#### Invasive Weeds

- Identify and remove weeds in the local area, which could become a threat to Common Swamp-orchid using appropriate methods.
- Manage sites to prevent introduction of invasive weeds, which could become a threat to Common Swamp-orchid, using appropriate methods.

### Trampling, Browsing or Grazing

- If livestock grazing occurs in the area, ensure land owners/managers use an appropriate management regime and density that does not detrimentally affect this species.
- Where appropriate, manage total grazing pressure at important/significant sites through exclusion fencing or other barriers.

### Fire

- Implement an appropriate fire management regime for local populations.

This list does not necessarily encompass all actions that may be of benefit to Common Swamp-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**

- Swamp Orchids (*Phaius australis* and *P. tankervilleae*) Draft Recovery Plan (NSW NPWS, 1998).
- Invasion, establishment and spread of *Lantana camara* - key threatening process (NSW DEC, 2005b).
- Threat Abatement Plan for Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs (DEWHA, 2005).

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

### **Information Sources:**

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New South Wales National Parks and Wildlife (1998). Swamp Orchids (*Phaius australis* and *P. tankervilleae*) Draft Recovery Plan. NSW National Parks and Wildlife Service, Hurstville, NSW.

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<http://www.epa.qld.gov.au/publications?id=1733>

Searle J and Maden, S (2006). Flora survey report South Stradbroke Island Management Area. Environmental Planning and sustainable development section Gold Coast City Council.

Vallee L, Hogbin T, Monks L, Makinson B, Matthes M and Rossetto M (2004). Guidelines for the Translocation of Threatened Plants in Australia - Second Edition, Australian Network for Plant Conservation, Canberra.