

# THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

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The Minister's delegate approved this conservation advice on 01/10/2015

## Conservation Advice

### *Parantechinus apicalis*

dibbler

#### Conservation Status

*Parantechinus apicalis* (dibbler) is listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). The species is eligible for listing as Endangered 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 remaining eligible for listing in the Endangered category are a very limited area of occupancy, a fragmented distribution, and likely continuing population decline due to habitat loss as a result of inappropriate fire regimes, *Phytophthora* and predation by foxes and feral cats (Woinarski et al., 2014).

#### Description

The dibbler is a small carnivorous marsupial which is brownish-grey above and freckled with white, and greyish-white tinged with yellow below. Dibblers are readily distinguished by white rings around their eyes, a tapering, hairy tail, and the freckled appearance of its fur (Woolley, 2008).

Male dibblers can grow to 14 cm long (head and body) and their tails can grow to 11.5 cm long. Males weigh up to 100 g while the slightly smaller female weighs up to 75 g (Woolley, 2008).

#### Distribution

Dibblers were formerly widely distributed in a broad band along the west and southern coasts of Australia (Woolley, 2008), with subfossil records from Dirk Hartog Island and Zuytdorp Cliffs near Geraldton, south to Yanchep, and from Albany east to the Eyre Peninsula in South Australia. The most inland record (subfossil) is from Peak Charles, about 150 km north of Esperance (Maxwell et al 1996). Historical collections were mainly confined to Western Australia, from the Moore River area north of Perth, King George Sound (Albany) and the Pallinup River (formerly Salt River) east of Albany. Some collections may have also been made from an unknown location in South Australia (Maxwell et al., 1996).

Following European settlement, the distribution of dibblers declined. By the late 19th century the species was considered rare. A specimen was collected from the Kojonup area in 1904 (Friend, 2004), but the next record of this species occurred over 6 decades later, in 1967, when they were 're-discovered' in a survey at Cheyne Beach, Western Australia (Morcombe, 1967). In 1985, dibblers were found in Fitzgerald River National Park and two further populations were found on Boullanger and Whitlock Islands off the Western Australian coast (Dickman, 1986; Fuller & Burbidge, 1987). Boullanger and Whitlock Islands are separated by about 300 m of shallow water and are periodically linked by a sandbar. Genetic differentiation between these two island populations indicates that there is little interchange between them (Mills et al., 2004). Dibblers are currently restricted to three small offshore islands (Boullanger, Whitlock and Escape Islands (reintroduced to the latter in 1998-2000; Moro 2003)), to Fitzgerald NP (Muir, 1985), and at three more reintroduction sites (Peniup Nature Reserve (2001); Stirling Range

National Park (2004) (Friend 2008a); and 3 releases into a 380 ha fox and cat-free enclosure in Waychinicup National Park (J. Friend *pers. comm.*).

Given the record of disappearances and rediscoveries, dibblers may be present in other Western Australian locations. Additional locations could include western coastal areas between Lancelin and Dongara and, more likely, the south coast between Denmark and Israelite Bay (Friend, 2004). Its current known distribution represents a decline of around 90% of its former range (Moro, 2003).

A captive breeding program was initiated at Perth Zoo from four pairs of wild dibblers captured from Boullanger and Whitlock Islands. Captive-bred individuals were released onto nearby Escape Island between 1998 and 2000 (Moro, 1999, 2003). The first mainland translocation of dibblers occurred in 2001 at Peniup, with individuals captive-bred from mainland stock (Friend, 2004).

### Threats

There are a number of threatening processes operating in the range of dibblers, many of which are likely to affect its survival. These include predation by foxes and feral cats, changed fire regimes, habitat degradation and destruction, diseases affecting food plants, competition with introduced mice and activities that cause seabirds to abandon islands, as nutrient input from seabirds is linked to post-mating survival (Friend, 2004; Wolfe et al., 2004).

Woinarski et al. (2014) identifies current and potential threats to the species as follows:

| Threat factor  | Consequence rating           | extent over which threat may operate  | evidence base  |
|--|------------------------------|---|--|
| Predation by feral cats                              | Severe                       | Large (whole of mainland range); could rapidly become entire range if introduced to islands | Cats prey on dibblers; dabbler abundance on cat-free islands is much higher than on the mainland; cats are likely to be a greater threat in recently burnt, open vegetation (Friend, 2004); local extinction of medium-sized mammals on islands is correlated with feral cat predation (Burbidge and Manly, 2002). |
| Predation by red foxes                               | Severe                       | Large (whole of mainland range); could rapidly become entire range if introduced to islands | Foxes prey on dibblers; serious decline coincided with the arrival of foxes in south west Australia (Friend, 2004).  |
| Habitat degradation by <i>Phytophthora cinnamomi</i> | Severe                       | Large (mainland range)  | <i>Phytophthora</i> degrades dabbler habitat; dominant plants in their habitat are highly susceptible to <i>Phytophthora</i> (Friend, 2004).   |
| Inappropriate fire regimes                           | Severe                       | Large (mainland range)  | Dibblers require relatively long unburnt vegetation with dense undergrowth (Friend, 2004).   |
| Competition from house mice on islands               | Moderate, potentially severe | Localised (Boullanger and Whitlock Islands)   | House mice could compete with dibblers for food (Stewart, 2001; Friend, 2004); this will intensify with warmer winters (Stewart, 2006).  |

## Conservation Actions

The conservation actions below are based on information provided in Friend (2004) and Woinarski et al. (2014).

### Conservation and Management Actions

| Theme                             | Specific actions   | Priority |
|-----------------------------------|--|----------|
| Active mitigation of threats      | Implement cost-effective control measures for feral cats that minimise impacts of predation  | High     |
|                                   | Implement fire management to increase the extent and improve the dispersion of, long-unburnt vegetation in conservation lands with dibblers  | High     |
|                                   | Maintain high level of <i>Phytophthora</i> hygiene to prevent its introduction to areas where it is currently absent; control or eradicate <i>Phytophthora</i> within Fitzgerald River National Park | High     |
|                                   | Eradicate house mice from Boullanger and Whitlock Islands  | Medium   |
| Captive breeding                  | Use captive breeding where high numbers of dibblers are needed for translocation. Ensure maintenance of, and consider potential for increasing, genetic diversity.                                   | Medium   |
| Quarantining isolated populations | Prepare and implement biosecurity plans for Jurien Islands   | Medium   |
| Translocation                     | Translocate to additional mainland locations where appropriate fire management and predator control is in place. Ensure maintenance of, and consider potential for increasing, genetic diversity.    | High     |
| Community engagement              | Maintain involvement of volunteers in dabbler translocations and monitoring  | Medium   |

### Survey and Monitoring priorities

| Theme                                | Specific actions  | Priority |
|--------------------------------------|---|----------|
| Monitoring                           | Maintain monitoring of natural and translocated populations   | High     |
|                                      | Develop less labour-intensive monitoring methods (e.g. using cameras, hair traps or eDNA)   | High     |
| Survey to better define distribution | Conduct additional surveys in locations where dibblers have been recorded in the past and where sites with suitable habitat exist | High     |

### Information and research priorities

| Theme   | Specific actions  | Priority |
|---|---|----------|
| Assess relative impacts of threats  | Assess the impact of feral cats and foxes?  | High     |
|   | Determine the response of the species to a range of fire regimes.   | Low      |
|   | Conduct further genetic studies to assess genetic diversity in the remnant, re-introduced and captive populations to inform genetic management. | Low      |
| Assess relative effectiveness of threat mitigation options                  | Assess the effectiveness of fox control   | Medium   |
|   | Assess the effectiveness of feral cat control   | High     |
| Resolve taxonomic uncertainties   | n/a   |          |
| Assess habitat requirements   | n/a   |          |
| Assess diet, life history   | n/a   |          |
| Undertake research to develop new or enhance existing management mechanisms | Develop methods of broad-scale, targeted feral cat control that can be integrated with broad-scale fox control                                  | High     |

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