

This Conservation Advice was approved by the Minister / Delegate of the Minister on:  
1/10/2008

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

**Approved Conservation Advice for**  
***Hakea dohertyi***

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**

*Hakea dohertyi*, Family Proteaceae, also known as Kowmung Hakea, is a slender, erect shrub growing to 4 m tall with cream-white flowers (Barker et al., 1999). Leaves are long, flexible, thread-like, triangular in cross-section, and sharply pointed. Flowers are cream to white and spidery, growing in groups of four to six (Harden, 2002; DECC, 2005). Flowers appear in spring (Harden, 2002). The woody fruit is oval-shaped, almost 3 cm long, and finely warty with a short beak and no horns (Harden, 2002; DECC, 2005).

**Conservation Status**

*Hakea dohertyi* 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 species is also listed as endangered under Schedule 1 of the *Threatened Species Conservation Act 1995* (NSW).

**Distribution and Habitat**

*Hakea dohertyi* occurs in the Burratorang area of NSW. It is restricted to a few ridges, amounting to approximately 18 km<sup>2</sup> in the Kanangra–Boyd National Park in the southern Blue Mountains (Benson & McDougall, 2000; Harden, 2002). The population at Kowmung River contains fewer than 7000 individuals, and the nearby population at Tonalli Cove has fewer than 100 individuals (Offord et al., 2003). This species occurs within the Hawkesbury–Nepean (NSW) Natural Resource Management Region.

*Hakea dohertyi* is found in the Kowmung Wilderness Complex and Burratorang Ironbark Woodland formations (Fisher et al., 1995). It occurs on sandstone outcrops in eucalypt open forest (Barker et al., 1999; Barker et al., 2000; Harden, 2002), often in steep, dry, north-facing slopes and open, rocky ridge tops (Benson & McDougall, 2000).

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

**Threats**

The main identified threats to *H. dohertyi* are high frequency fire; high intensity fire; and grazing by feral goats (*Capra hircus*) (Offord et al., 2003; DECC, 2005). This species is an obligate seeder, with fires killing plants and seeds being released after fire (DECC NSW, 2005). Very hot fires (>300°C), or those lasting for longer than three minutes in the vicinity of seeds, destroy them (Offord et al., 2003).

The main potential threat to *H. dohertyi* is changes to the water level in Warragamba Dam (Offord et al., 2003).

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### **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, fire ecology, ecological requirements, life history, and the relative impacts of threatening processes.
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants.

### **Regional and Local Priority Actions**

The following regional and local priority recovery and threat abatement actions can be done to support the recovery of *H. dohertyi*.

#### **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.
- Manage any changes to hydrology that may result in changes to the water table levels and/or increased run-off.
- Control access routes to suitably constrain public access to known sites on public land.
- Suitably control and manage access on private land.

#### **Trampling, Browsing or Grazing**

- Implement the Threat Abatement Plan for the control and eradication of feral goats.
- Exclude feral goats from known sites to prevent grazing on juvenile plants.

#### **Fire**

- Develop and implement a suitable fire management strategy for *H. dohertyi*. The NSW Rural Fire Service recommends fire frequencies of no more than once every twelve years for this species (NSW RFS, 2004).
- Provide maps of known occurrences 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 *H. dohertyi* within the local community.

#### **Enable Recovery of Additional Sites and/or Populations**

- Undertake appropriate seed collection and storage. Germination and *ex situ* seed storage has been studied for this species and seed viability after storage is high (Offord et al., 2003).
- 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.

This list does not necessarily encompass all actions that may be of benefit to *H. dohertyi*, 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**

- Kanangra–Boyd National Park Plan of Management and Fire Management Strategy (NPWS, 2001; NPWS, 2006),
- Kowmung Hakea–Profile and Priority Actions (DECC, 2005),

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- Threat Abatement Plan for competition and land degradation from feral goats (EA, 1999), and
- Threatened species hazard reduction list (NSW RFS, 2004).

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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Vallee, L, Hogbin, T, Monks, L, Makinson, B, Matthes, M & Rossetto, M 2004, *Guidelines for the Translocation of Threatened Plants in Australia* (2<sup>nd</sup> ed.), Australian Network for Plant Conservation, Canberra.