

# 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

### *Eidothea hardeniana*

Nightcap oak

#### Conservation Status

*Eidothea hardeniana* (nightcap oak) is listed as Critically Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). The species is eligible for listing as Critically Endangered as it has a very restricted geographic distribution with the extent of occurrence and area of occupancy being less than 10 km<sup>2</sup>, the threat of a decline in the area, extent and quality of the species' habitat, in combination with all known specimens existing in a single location, indicate that the geographic distribution is precarious for the survival of the species.

#### Description

The nightcap oak is a newly discovered rainforest tree which grows to 40 m high, with creamy white flowers and round dull golden-yellow fruits to 4 cm in diameter (Weston and Kooyman 2002a, 2002b). The bark is grey and slightly flaky, with fine horizontal crinkling (OEH, 2014). The tough leaves are paler on the underside. Adult leaves are dark green, smooth along the edges, and have distinctive pale veins. Leaves on juvenile plants are orange to red and strongly toothed with red veins and stalks. The creamy flowers are in compact heads (NSW DEC, 2004).

#### Distribution

The nightcap oak is known from a single population on the southern side of the Nightcap Range on the upper north coast of NSW, north east of Lismore. The trees are scattered across a few hectares within Nightcap National Park.

#### Threats

##### Known threats:

- Modification and fragmentation of habitat, including through timber harvesting activities (NSW DEC, 2004).

##### Potential threats:

- Trampling, habitat modification, introduction of pathogens and weeds from tourism and site visitation,
- inappropriate fire regime (NSW DEC, 2004).

#### Conservation Actions

#### Conservation and Management Actions

##### Habitat loss disturbance and modifications

- Reduce disturbance to the habitat around known populations (excluding necessary actions to manage the conservation of the species),
- exclude tourism from nightcap oak habitat, outside existing roads or tracks to reduce impact of physical damage or introduction of disease, pests or weeds to habitat or individual plants, keep precise locations of nightcap oak habitat confidential
- limit access to sites to essential research and management purposes (NSW DEC, 2004).

##### Invasive species

- Ensure the nightcap oak habitat remains free of weeds that may adversely impact upon the viability of the species.

## Fire

Fire is not likely to be necessary to promote regeneration of the nightcap oak and may have adverse impacts on the species as it occurs in rainforest habitat (NSW DEC, 2004).

- Exclude fire from nightcap oak habitat,
- implement a fire management plan to protect the nightcap oak in wildfire event,
- implement appropriate fire management regime for neighbouring vegetation communities to manage risk,
- provide maps of known occurrences to local and state Rural Fire Services and District Bush Fire Management Committees and seek inclusion of mitigation measures in bush fire risk management plan/s, risk register and/or operation maps,
- ensure that no new fire trails are constructed, or closed fire trails reopened, in the nightcap oak habitat (NSW DEC, 2004).

## Stakeholder Management

- Engage with land managers responsible for sites on which populations occur and encourage key stakeholders to contribute to the implementation of conservation management actions (NSW DEC, 2004).

## Other management and recovery actions

- Establish an ex situ population in an appropriate location e.g. Botanic Gardens (NSW DEC, 2004). Seeds and cuttings of the nightcap oak have been propagated at the Royal Botanic Gardens - Mt Annan and seed has been propagated at the North Coast Regional Botanic Gardens at Coffs Harbour (NSW DEC, 2004). NSW DEC (2004) notes that it is unlikely that establishment of a seed bank is appropriate given the probable short-viability of the seed, which is typical of large-fruit Proteaceae (NSW DEC, 2004).

## **Survey, Monitoring, Information and Research priorities**

- Undertake survey work in suitable habitat and potential habitat to locate any additional new populations,
- assess population size, trend, distribution, ecological requirements and the relative impacts of threatening processes through demographic monitoring,
- undertake further reinvestigation into the species' biology to increase understanding of its requirements, including generation length conditions associated with seedling recruitment, and genetic variation within the population,
- design and implement a monitoring program to assess future changes in populations, including the effectiveness of management actions and the need to adapt them if necessary,

## **References cited in the advice**

NSW DEC (NSW Department of Environment and Conservation) (2004). A Recovery Plan for the Nightcap Oak (*Eidothea hardeniana*) NSW Department of Environment and Conservation. Hurstville.

OEH (Office of Environment and Heritage) (2014). Nighcap oak - profile. Available on the Internet at:

<http://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10260>

Threatened Species Scientific Committee (TSSC), (2002). Commonwealth Listing Advice on *Eidothea* sp. Nightcap Range (P.H.Weston 2469) (Nightcap Oak).

Weston PH and Kooyman RM (2002). Systematics of *Eidothea* (Proteaceae), with the description of a new species, *E. hardeniana*, from the Nightcap Range, north-eastern NSW. *Telopea* 9: 821–832.