

# NSW SCIENTIFIC COMMITTEE

## *Pomaderris reperta* N.G. Walsh & F. Coates (Rhamnaceae)

Review of Current Information in NSW

June 2009

### **Current status:**

*Pomaderris reperta* (Denman Pomaderris) is currently listed as Critically Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act). The NSW Scientific Committee recently determined that *Pomaderris reperta* meets criteria for listing as Critically Endangered in NSW under the *Threatened Species Conservation Act* 1995 (TSC Act), based on information contained in this report and other information available for the species.

### **Species description:**

*Pomaderris reperta* is described by Harden (2000) as follows: "Shrub 1-3 m high, young stems densely villous with rusty simple and stellate hairs simple. Leaves ovate to broad-ovate, elliptic to broad-elliptic or obovate to broad-obovate, 1-3.5 cm long, 8-20 mm wide, apex usually rounded to emarginate; upper surface green, velvety with short simple hairs; lower surface pubescent with loosely appressed or spreading pale and rusty simple hairs over dense white or greyish stellate hairs; secondary and tertiary veins raised and prominent on the lower surface; stipules 3-5 mm long, shed early. Flowers creamish, in short dense panicles. Sepals not persistent in fruit. Petals usually absent (rarely 1-3 per flower). Capsule not seen; hypanthium and ovary with simple hairs, sepals with short stellate hairs. Grows in dry sclerophyll woodland."

### **Taxonomy:**

The species is conventionally accepted as *Pomaderris reperta* and was described as a new species in Walsh & Coates (1997). These authors indicate that this species is most closely related to *P. cocoparrana* but the adaxial indumentum of the leaves is sparser and coarser and the flowers are larger (sepals 2.0-2.2 mm long in *P. cocoparrana*, compared to 2.3-2.8 mm in *P. reperta*).

Synonyms: *Pomaderris* sp. D (Harden 1990).

### **Distribution and number of populations:**

*Pomaderris reperta* is currently known from two ridgelines in the Denman area in the upper Hunter Valley, New South Wales. These ridgelines are within an area of the Wybong Uplands, estimated at about 2 000 ha in area, that is one of the largest remaining tracts of native vegetation in the upper Hunter Valley region.

The limiting factor for the distribution of *Pomaderris reperta* would appear to be the presence of preferred habitat, *Eucalyptus crebra*-*E. blakelyi* woodland, associated with sandy loam soil on sandstone or conglomerate (NSW Scientific Committee 2002).

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Three subpopulations of the species have been identified within a 4 km radius along these two ridgelines.

The known populations of *P. reperta* occur on private property, Crown land or Commonwealth land. This species is not known to occur in any conservation reserves.

One population is located on land owned by a mining company. A mine proposal on the land has been approved, but is yet to commence work (expert advice June 2009). The subpopulation occurs on land that has been identified as the 'biodiversity offset area', and so it has been proposed that it will be offered some form of protection (expert advice), but at this point, no formal conservation agreement has been made (expert advice June 2009).

## Surveys conducted:

*Pomaderris reperta* was previously known only from the type locality, west of Denman, where shrubs are scattered over an area of approximately 1 ha (Walsh & Coates 1997; Harden 2000). However, an intensive survey conducted by Bell (2001) west of Denman, uncovered another population along the ridge, approximately 4 km north of the type locality.

Extensive vegetation surveys undertaken in the nearby Goulburn River National Park and Munghorn Gap Nature Reserve (Hill 1999); Manobalai Nature Reserve and Crown land (Bell 1997; Peake 1999); Wollemi National Park (Bell 1998) and Towarri National Park and Wingen Maid Nature Reserve (Hill *et al.* 2001) did not record the species.

The largest population of this species was discovered in 2003 (DECC Atlas of NSW Wildlife).

Surveys conducted within suitable habitat in the surrounding area of the three sites have not located any additional subpopulations (expert advice, 2009).

This species is conspicuous within its preferred habitat, and thus readily detected if present and all advice suggests that surveys for the species have been adequate (Threatened Species Scientific Committee 2008).

## Ecology:

### Key habitat requirements

*Pomaderris reperta* occupies woodland in association with *Eucalyptus crebra*, *E. blakelyi*, *Notelaea microcarpa*, and *Allocasuarina littoralis*. It is associated with sandy loam soils on sandstone or conglomerate or colluvial soils on similar substrate (NSW Scientific Committee 2002).

### Life history

*Pomaderris reperta* is likely to regenerate primarily from seed (Threatened Species Scientific Committee 2008). Like other members of the *Pomaderris* genus, this species flowers in the spring, around October–November. Large quantities of seeds are usually produced and dropped close to the parent plant, with the seed capsules opening in early summer (Threatened Species Scientific Committee 2008). Seeds are 1–2 mm long and hard-coated.

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*Pomaderris* seeds require heat to germinate and thus high rates of germination are expected to occur after wild fires.

Seed loss is thought to occur generally through insect predation on the ground, rather than while the seed is retained within the capsules (Threatened Species Scientific Committee 2008).

## Generation length

Based on other similar *Pomaderris* species, it is estimated that *P. reperta* reaches reproductive maturity at around one to two years and longevity is estimated to be 10-30 years (expert advice). The generation length (IUCN 2008) is therefore estimated to be five to 16 years.

## **Number of mature individuals:**

The total population size for the *P. reperta* was originally estimated to be 300–400 individuals. A recent revision, however, based on the additional survey work conducted in 2006 at the largest site, increased the total population estimate to 300–2 000 individuals (expert advice 2009; Threatened Species Scientific Committee 2008). It has been advised that the number of individuals is likely to be at the high end of this range, but the surveys at the largest site have not been supported by published data. In addition, Threatened Species Scientific Committee (2008) reports that the population estimates at the largest site make no reference to the numbers of mature or juvenile individuals. However from discussions with an expert, it seems most plants at this site are 3-4 m and are larger than the plants occurring in the other two subpopulations, probably indicating that most plants in the largest subpopulation are adults.

However, at this point no data is available to determine the number of mature individuals in the population.

## **Threats:**

The main threats to the species are low population numbers and restricted distribution, both of which make the species susceptible to demographic and environmental stochasticity (NSW Scientific Committee 2002).

The potential threats to the species include vegetation clearance and physical damage to plants associated with vehicular traffic and public access. Prolonged drought has also been cited as a threat to this species, based on observations made in relation to small populations of a related species, *P. delicata* (Threatened Species Scientific Committee 2008).

The largest subpopulation is threatened by the impacts associated by open cut coal mining. In the absence of any conservation agreement with the mine developer as yet, it is possible that mining activities may result in adverse impacts on the species through clearance of native vegetation, pollution, changes in hydrology or road maintenance and widening.

## **Extreme fluctuations:**

There is no information/evidence of this species experiencing extreme fluctuations.

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## **Population reduction and continuing declines:**

This species is only known from an area of the Wybong Uplands, estimated at about 2 000 ha in area, that is one of the largest remaining tracts of native vegetation in the upper Hunter Valley region. However, the extent of the decline of native vegetation in the region has not been quantified. In particular, an estimate of decline in the preferred habitat of *P. reperta*, namely *Eucalyptus crebra*–*E. blakelyi* woodland on sandy loam or colluvial soils, is not available.

A continuing decline may be inferred from the ongoing threats including stochastic events due to small population size, vegetation clearance and physical damage to plants associated with vehicular traffic, stock access, and open cut mining. Currently no agreed conservation measures exist for the subpopulation within the mine site.

## **Extent of Occurrence (EOO) & Area of Occupancy (AOO):**

The AOO and EOO of *P. reperta* are estimated to be less than 12 km<sup>2</sup> (based on three 2 x 2 km grid cells, the scale recommended for assessing area of occupancy by IUCN 2008).

## **Severe fragmentation:**

As a result of land management practises such as grazing, it is likely that contiguous areas of the preferred woodland habitat have been removed, creating barriers to the dispersal of this species. As seed is dispersed from capsules on the parent plant and falls in the area surrounding the parent plant, it is likely that the ability of this species to colonise new areas or recolonise previous habitat is restricted (Threatened Species Scientific Committee 2008). Hence the habitat of *P. reperta* would be considered 'severely fragmented' (IUCN 2008).

## **References:**

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- Harden GJ (2000) *Pomaderris*. In 'Supplement to Flora of New South Wales'. (Eds GJ Harden and LJ Murray) pp. 40-54. (New South Wales University Press: Kensington)
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(<http://intranet.iucn.org/webfiles/doc/SSC/RedList/RedListGuidelines.pdf>).

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Peake T (1999) 'The Vegetation of Manobalai Nature Reserve.' Prepared for NSW National Parks and Wildlife Service, Upper Hunter District, Muswellbrook.

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Walsh NG, Coates F (1997) New taxa, new combinations and an infrageneric classification in *Pomaderris* Rhamnaceae. *Muelleria*. **10**, 27-56.

## Explanatory note

Between 2007 and 2009 the NSW Scientific Committee undertook a systematic review of the conservation status of a selection of plant and animal species listed under the Threatened Species Conservation Act. This species summary report provides a review of the information gathered on this species at the time the Review was undertaken.

The Scientific Committee's report on the Review of Schedules project and final determinations relating to species that were either delisted or had a change in conservation status can be found on the following website: [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au) .

The Committee gratefully acknowledges the past and present Committee members and project officers who ably assisted the Committee in undertaking the Review of Schedules Project. Information on the people involved in the project can be found in the Acknowledgement section of the project report entitled "Review of the Schedules of the Threatened Species Conservation Act 1995. A summary report on the review of selected species" which is available on the abovementioned website.

This species summary report may be cited as:

NSW Scientific Committee (2009) *Pomaderris reperta* Review of current information in NSW. June 2009. Unpublished report arising from the Review of the Schedules of the Threatened Species Conservation Act 1995. NSW Scientific Committee, Hurstville.