

NSW SCIENTIFIC COMMITTEE

Diuris ochroma D.L.Jones (Orchidaceae)

Review of Current Information in NSW

February 2008

Current status:

Diuris ochroma is currently listed as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and as Threatened in Victoria under the *Flora & Fauna Guarantee Act 1988* (FFG Act). The NSW Scientific Committee recently determined that *Diuris ochroma* meets criteria for listing as 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:

Diuris ochroma is described by Jones (2006a, p. 127-128) as follows: "Leaves 3-5, tufted, 50-200 x 3-5 mm, straight. Flower stem 100-300 mm, 1-3-flowered. Flowers semi-erect to semi-nodding, 25-30 mm across, cream to pale yellow with purple striations. Dorsal sepal obliquely erect, 10-13 x 7-9 mm. Lateral sepals obliquely deflexed, 14-19 x 1.5-3.5 mm. Petals incurved, spreading or drooping; stalk 6-8.5 mm long, purple, expanded into the blade; blade 7-9 x 4-5 mm. Labellum 13-16 mm long; side lobes 2.5-3 x 1.5 mm, margins densely papillate; midlobe broadly ovate, 10-13 x 8.5-11 mm, basal margins papillate. Callus ridges 2-4, 7-10 mm long, densely papillate, with fainter radiating ridges".

Taxonomy:

Diuris ochroma was first described from a single population in Victoria by Jones (1994). At the time it was known only from the type locality and no plants had ever been recorded from NSW. Similar plants were noted from the Ebor district of northern NSW by Bishop (1996) who treated them as "*Diuris* sp. aff. *ochroma* (New England)". This taxon has recently been described as a distinct species endemic to northern NSW (i.e. *Diuris eborensis*) by Jones (2006b). Plants recently discovered in the Southern Tablelands of NSW have been determined as typical *D. ochroma* by the species' author (D.L. Jones) and it is this NSW population to which most of this report relates.

Distribution and number of populations:

Diuris ochroma is currently known from a large population in Victoria (Coates *et al.* 2007) and a single population in NSW. This NSW population consists of a number of small colonies scattered over an area of approximately 4 km². Two further populations of *D. ochroma* are also known to have occurred in Kosciuszko National Park (NP) although they have not been observed for over 30 years. These records are considered reliable as they are based on vouchers in the National Parks herbarium in Kosciuszko NP. The specimens have been confirmed as belonging to *D. ochroma* (expert advice). Searches have been

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conducted for *D. ochroma* in both of the vouchered localities since, but failed to relocate the species (expert advice). Given the variable flowering time of the species, however, and the tendency for only some plants to flower each season, it is quite possible that the species still exists at these poorly known localities despite the recent searches (expert advice). Details of all three NSW populations are summarised in the table below. Each is mapped in Figure 1.

There is an erroneous record of *D. ochroma* in the Wildlife Atlas from near Braidwood. These plants have been examined and are now known to represent a distinct new species differing from *D. ochroma* in a number of features (expert advice).

Ecology:

Key habitat requirements

The population in the Southern Tablelands of NSW has been well documented following a targeted survey of the species by Nghenvironmental (2004). The habitat is mostly grassland with a few scattered trees of *Eucalyptus pauciflora* and *E. viminalis*. The dominant grass is *Themeda australis* although exotic species such as *Holcus lanatus* are also becoming common. Nghenvironmental (2004) describe the substrate as a brown loam derived from shale. Altitudes vary from 970 – 1 000 m across the population.

Almost nothing is known about the habitat of the other two populations in Kosciuszko NP other than one of them occurring in “dry grassland” and both of them occurring at an altitude of approximately 1 460 m.

Life history

As is the case with many species of *Diuris*, *D. ochroma* is thought to flower in greater numbers in the season following a summer fire (Nghenvironmental 2004). Nghenvironmental (2004) also suggest that *D. ochroma* probably requires open herbaceous vegetation maintained by regular burning.

Number of mature individuals:

The targeted survey by Nghenvironmental (2004) yielded 68 plants in six discrete colonies over 6 ha. In addition to these plants, another 50 plants were found approximately 1.5 km to the east (expert advice). This locality was searched for by Nghenvironmental during the 2003 survey but no plants were found. At least another 10 plants are known to occur 1.5 km north of the main population (expert advice). A lower bound estimate of the total population is therefore 128 although this figure is likely to be relatively conservative. It is thought that *D. ochroma* is particularly variable in terms of its flowering time and the proportion of the plants that flower in any one season (expert advice). It is likely that additional plants occur in the broader population that were not flowering/recorded during the population census.

No estimates are available for the plants in Kosciuszko NP, nor is there any evidence that these populations are still extant.

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Threats:

Nghenvironmental (2004) list a number of ongoing threats to the population in the Southern Tablelands of NSW. All of the 68 plants recorded during the 2003 census were on private property and were subject to light cattle grazing. At least two plants were observed to be heavily browsed by herbivores which were presumed to be cattle. Recent bulldozer tracks were observed to be common in the area and passed by very close to some of the *Diuris* plants. Physical disturbance by vehicles is therefore another ongoing threat. Fire is believed to have been suppressed in the population for some considerable time and the lack of frequent burning may also be a problem. Dense *Eucalyptus* regrowth in the area could possibly pose a threat to *D. ochroma* in the long term as it may reduce the open, herbaceous vegetation apparently required by the species (Nghenvironmental 2004). Another current threat considered serious by Nghenvironmental (2004) is competition from exotic weeds such as *Hypochaeris radicata*, *Trifolium arvense*, *T. dubium* and *Holcus lanatus*. These weeds are all present in abundance in the population of *D. ochroma* and threaten to further degrade its habitat (Nghenvironmental 2004).

The small colony 1.5 km north of the main population described above is threatened by weed invasion and roadworks (expert advice). The plants occur on top of a road cutting which is currently subject to erosion.

Extreme fluctuations:

It is thought that *D. ochroma* is particularly variable in terms of both flowering time and the proportion of plants that flower in any one season (expert advice). Given that *D. ochroma* is a long-lived perennial, it seems likely that the total number of mature individuals is reasonably stable, and there is currently no evidence of extreme fluctuations in the population.

Population reduction and continuing declines:

Nghenvironmental (2004) report that the Southern Tablelands of NSW population occurs in a fragmented landscape that has undergone considerable disturbance and clearing. It is likely that the population of *D. ochroma* has been reduced during the clearing but there are no data to substantiate this. A continuing decline may be inferred based on a number of ongoing threats such as cattle grazing, weed invasion, physical disturbance from vehicles and roadworks, and further degradation of the habitat by exotic weeds.

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

If it is assumed that the plants in the Southern Tablelands of NSW are the only extant population in NSW then the EOO and AOO of *D. ochroma* will both be approximately 4 km². Alternatively, if the two populations in Kosciuszko NP are both considered extant, then the EOO in NSW will be approximately 6 800 km². This was calculated by drawing a triangle connecting three points: the northernmost Kosciuszko NP population, the Southern

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Tablelands of NSW population and the population in the Wonnangatta Valley in Victoria. The area of this triangle was calculated and from this figure the area of land occupied by Victoria in the triangle was subtracted. The AOO for *D. ochroma* in NSW, if one assumes that both Kosciuszko NP populations are still extant, is estimated to be 12 km².

Severe fragmentation:

The population of *D. ochroma* in the Southern Tablelands of NSW appears to have been fragmented as the species now occurs in small colonies that are often separated by cleared areas of mostly unsuitable habitat. All plants occur in a relatively small area, however (around 4 km²), and it is likely that plants from the different colonies are still capable of interbreeding. Although there is evidence of some fragmentation, the degree of isolation between the different colonies is relatively small and the species would therefore not be considered 'severely fragmented' (IUCN 2008). The populations in Kosciuszko NP, if still extant, are also unlikely to be severely fragmented.

References:

Bishop T (1996) 'Field Guide to the Orchids of New South Wales and Victoria.' (University of New South Wales Press: Sydney)

Coates F, Jeanes J, Pritchard A (2007) 'Recovery Plan for Twenty-five Threatened Orchids of Victoria, South Australia and New South Wales 2003 – 2007.' Department of Sustainability and Environment, Melbourne.

IUCN (2008) 'Guidelines for using the IUCN Red List Categories and Criteria. Version 7.0.' (Standards and Petitions Working Group of the IUCN Species Survival Commission Biodiversity Assessments Sub-committee: Switzerland). (<http://intranet.iucn.org/webfiles/doc/SSC/RedList/RedListGuidelines.pdf>).

Jones DL (1994) New species of Orchidaceae from south-eastern Australia. *Muelleria* **8**, 177-192.

Jones DL (2006a) 'A Complete Guide to Native Orchids of Australia including the Island Territories.' (Reed New Holland: Sydney)

Jones DL (2006b) Miscellaneous new species of Australian Orchidaceae. *Australian Orchid Research* **5**, 45-111.

Nghenvironmental (2004) 'Targeted Flora Survey Report: *Diuris ochroma* (Pale Golden Moths)' Unpublished consultancy report prepared by Nghenvironmental

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.

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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 .

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 (2008) *Diuris ochroma*. Review of current information in NSW. February 2008. Unpublished report arising from the Review of the Schedules of the Threatened Species Conservation Act 1995. NSW Scientific Committee, Hurstville.