

NSW SCIENTIFIC COMMITTEE

Plains-wanderer *Pedionomus torquatus*

Review of Current Information in NSW

June 2009

Current status:

The Plains-wanderer *Pedionomus torquatus* is currently listed as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act), Threatened in Victoria under the *Flora & Fauna Guarantee Act* 1988 (FFG Act; Critically Endangered on Advisory List), Endangered in South Australia under the *National Parks and Wildlife Act* 1972 (NPW Act), and Vulnerable in Queensland under the *Nature Conservation Act* 1992 (NC Act). The NSW Scientific Committee recently determined that the Plains-wanderer 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:

The Plains-wanderer is a small (15-19 cm in length), terrestrial, almost tail-less quail-like bird, though lankier and longer-legged than quails and button-quails, and having some shorebird-like mannerisms such as head-bobbing. The male is mottled, streaked and scalloped in shades of brown, and the larger female is similar but with a distinctive chequered black-and-white collar bordered on its lower edge by a rufous band. The feet are yellow, with a small hind toe (visible at close range). In flight, the wings have a prominent pale bar and hind edge, the feet extend beyond the tail, and flight is weaker and more fluttering than that of quail or button-quail. The male is very similar to male Red-chested Button-quail *Turnix pyrrhothorax* and Little Button-quail *T. velox*, but has a slender yellow bill, longer yellow legs and a hind-toe (lacking in button-quail). The male Plains-wanderer is also similar to the female Stubble Quail *Coturnix pectoralis*, but has a yellow bill, pale eyes and longer yellow legs.

Taxonomy:

Pedionomus torquatus Gould 1840 (Pedionomidae) is monotypic (*i.e.* no subspecies) and an endemic species in an endemic Australasian genus and family.

Distribution and number of populations:

The Plains-wanderer is restricted to inland south-eastern Australia. In NSW, the species occurs on the flat grassy plains of the semi-arid and arid zones, mainly now in the Riverina, as a single population (Garnett & Crowley 2000).

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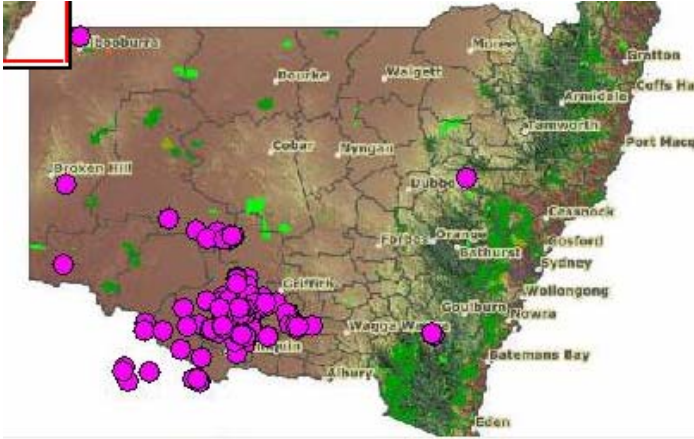


Figure 1: All records of the Plains-wanderer (NSW Wildlife Atlas).

Ecology:

Knowledge on the general biology and ecology of this species is considered good (Marchant & Higgins 1993; Baker-Gabb 1998; NSW NPWS 2002; Story *et al.* 2007).

Key habitat requirements

The Plains-wanderer inhabits dry, sparse native grassland and herbs (40% cover) on hard red-brown earths, with *c.* 50% bare ground and 10% litter. Most vegetation is less than 5 cm tall, with grass tufts up to 30 cm tall spaced 10-20 cm apart. Its habitat is subject to fire, overgrazing and cultivation.

Breeding biology

The Plains-wanderer's nest is a shallow grass-lined scrape on the ground under a grass tuft. A clutch of usually four eggs is laid in spring, with a second clutch laid in summer or autumn if summer rains fall. The incubation period is 23 days. Downy chicks are precocial and can run soon after hatching, they are feathering at three weeks, and are fully feathered and independent at two months old. Nests are vulnerable to predation by cats and foxes, and to disturbance by livestock.

Diet

The Plains-wanderer feeds on seeds (especially of grasses and saltbush) and arthropods (mainly insects, *e.g.* beetles, ants, bugs and caterpillars) all year round. Insects become a more important part of the diet during spring.

Social biology

The Plains-wanderer usually occurs solitarily or in family groups of parent(s) with a brood of dependent chicks. Females are serially polyandrous, with male parental care.

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Territoriality/home range

Individual Plains-wanderers occupy home ranges averaging 12 ha; those of males and females overlap by 50% to give 18 ha per pair, but those of the same sex do not overlap, implying intrasexual territoriality.

Generation length

The generation length of the Plains-wanderer is estimated as three years (Garnett & Crowley 2000).

Ability to disperse/susceptibility to population fragmentation

Plains-wanderers are normally sedentary during favourable conditions. They disperse if forced to move by habitat loss, fire, drought or overgrazing, but individuals do not return. Favourable habitat occurs as scattered islands of 50-600 ha amid denser habitat and forms about 5% (rarely more than 15%) of grazing properties in the Riverina occupied by Plains-wanderers. Plains-wanderers are susceptible to their habitat islands being reduced and fragmented by cultivation (Baker-Gabb 1998; Garnett & Crowley 2000).

Number of mature individuals:

The global population of the Plains-wanderer has been estimated as ranging from 2 500 birds in very wet or dry years to 8 000 birds after several good seasons (Baker-Gabb 1998), however, these figures have more recently been revised down to 5 500 birds after several good seasons to less than 2 000 in years of widespread drought (NSW NPWS 2002). The core population in the NSW Riverina, where highest densities occur, has been estimated as 1 000 birds in poor years to 5 500 after good years (Baker-Gabb 1998; Garnett & Crowley 2000), although this estimate has also recently been revised down to 3 100 birds in NSW, with possibly less than 1 000 mature individuals in very dry years. Given the recent population reduction of 75% since 2001 (see below), the current population may be fewer than 800 birds in good seasons and about 250 birds in poor years.

Threats:

The main threat to the Plains-wanderer is conversion of its habitat to cultivation or sown exotic pasture. Cultivated native grassland, even if left to recover, remains unsuitable habitat for the Plains-wanderer for decades. Other threats to the species' remaining habitat include fire, overgrazing by livestock, and synthetic locust sprays such as organophosphates. The Plains-wanderer's core NSW range, in the Riverina bioregion, is 40% cleared (including non-woody native vegetation) and 88% grazed, and has a landscape stress rating of 2 (moderately low) out of 6 (Barrett *et al.* 2007). Predation by cats and foxes is also a threat to the species. 'Clearing of native vegetation', 'Predation by the Feral Cat *Felis catus*', 'Predation by the European Red Fox *Vulpes vulpes*' and 'High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition' are identified as Key Threatening Processes in NSW under the TSC Act.

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Extreme fluctuations:

The number of Plains-wanderers fluctuates greatly according to seasonal conditions, stocking rates, and time of year, by up to tenfold in the Riverina (Baker-Gabb 1998). This, in turn, results in variation in the species' Area of Occupancy (AAO) by factors of 2 to 5 (see below).

Population reduction and continuing declines:

The species was reported in three one-degree grids in NSW during the first national bird atlas in 1997-1981 (two at high reporting rate, *i.e.* more than 40% of surveys per grid, and one at low reporting rate, *i.e.* less than 11% of surveys: Blakers *et al.* 1984), and in three one-degree grids in the second national bird atlas in 1998-2002, at low reporting rates (less than 10% of surveys per grid), with incidental records in five other grids (Barrett *et al.* 2003). These results suggest a low detection rate during Atlas 2, despite increased survey effort and targeted searches. An eco-correlated and habitat indicator species, the Banded Lapwing (*Vanellus tricolour*), declined significantly in reporting rate in NSW by 50% between Atlas 1 and Atlas 2 over four generations (Barrett *et al.* 2007), which is inferred to mean a 41% decline in three generations. Since 2000, fewer than 10 Plains-wanderers, sometimes breeding, have been reported annually by birdwatchers in sample areas of the species' known NSW range, such as Oolambeyan National Park and several grazing properties in the Denilquin-Hay area (NSW Field Ornithologists Club data). Monitoring on the NSW DECC survey grid in the Riverina has shown an average but non-significant decline of 75% in Plains-wanderer numbers over the five years 2002-2007, with a short-term increase of 200% in 2003-2004 followed by another decline (Birds Australia 2008). The overall population trend for the species over three generations (nine years) cannot be elucidated at this stage, because it can recover rapidly after drought (Baker-Gabb 1998).

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

The Plains-wanderer's global EOO has been estimated as 35 000 km², with medium reliability and its global AOO as 1 000 km², with low reliability (Garnett & Crowley 2000). EOO in NSW was estimated as 13 000 km², with only 5% of a sample area of 5 000 km² being suitable habitat (NSW NPWS 2002), so AOO in NSW may be 650 km². During very wet or dry years, the proportion of suitable habitat drops to 1-2% (NSW NPWS 2002) and AOO may therefore vary accordingly (*i.e.* down to 130-260 km²).

Severe fragmentation:

The Plains-wanderer's habitat in NSW is severely fragmented by cultivation, and its usually sedentary population is inferred to be correspondingly fragmented. Its remaining habitat islands are too few and dispersed to act as effective drought refuges, and cultivation of most of the matrix (about 85% of the private land on which the species occurs) leaves its prime habitat areas isolated and exposed to weed invasion, salinity, and increased fox populations sustained by abundant House Mice (*Mus domesticus*) that feed on grain (Baker-Gabb 1998).

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- NSW NPWS (2002) 'Plains-wanderer (*Pedionomus torquatus*) draft recovery plan.' NSW NPWS, Hurstville.
- Story P, Oliver D, Deveson T, McCulloch L, Hamilton G, Baker-Gabb D (2007) Estimating and reducing the amount of Plains-wanderer (*Pedionomus torquatus* Gould) habitat sprayed with pesticides for locust control in the New South Wales Riverina. *Emu* **107**, 308-314.

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.

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) Plains-wanderer *Pedionomus torquatus*. 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.