

# NSW SCIENTIFIC COMMITTEE

## Final Determination

The Scientific Committee, established by the *Threatened Species Conservation Act 1995* (the Act), has made a Final Determination to list the Squatter Pigeon (southern subspecies) *Geophaps scripta scripta* (Temminck, 1821) as a CRITICALLY ENDANGERED SPECIES in Part 1 of Schedule 1A of the Act and, as a consequence, to omit Squatter Pigeon *Geophaps scripta* (Temminck, 1821) from Part 1 of Schedule 1 (Endangered species). Listing of Critically Endangered species is provided for by Part 2 of the Act.

The Scientific Committee has found that:

1. The Squatter Pigeon *Geophaps scripta* (Temminck, 1821) (family Columbidae) is a medium-sized (200–225 g), heavily-built pigeon, with short tail, long legs and conspicuous facial markings (Higgins and Davies 1996). Length 26–32 cm; wingspan ~45 cm. Grey-brown, with feathers on head, neck and upper body having pale fringes. Face and throat boldly striped black and white, skin around eye coloured either blue-grey or orange-red. Underparts and upper breast light grey-brown, grading to bluish grey on lower breast and centre of belly, forming dark triangle, sides of belly and flanks are white. Tail and upper wings dark brown with dull iridescent green or violet on secondary wing coverts. Underwing white with dark trailing edge. Bill black and legs dull-purple (Higgins and Davies 1996). The southern subspecies *G. s. scripta*, hereafter Squatter Pigeon (southern), is distinguished from the northern subspecies *G. s. peninsulae* by its slightly larger size and by having blue-grey compared to orange-red skin around the eyes (Higgins and Davies 1996).
2. The Squatter Pigeon is endemic to north-eastern and central-eastern Australia. Historically it was distributed from around the Lachlan River, central-western New South Wales (NSW), north through southern and central Queensland to far north-eastern Queensland including Cape York Peninsula and west to Winton and the Gulf of Carpentaria (Frith 1982; Higgins and Davies 1996; Cooper *et al.* 2015; Forshaw and Cooper 2015). The northern subspecies is confined to Cape York Peninsula. The two subspecies appear to interbreed and intergrade in north-eastern Queensland along the Burdekin-Lynd Rivers divide and Einasleigh Uplands (Ford 1986; Higgins and Davies 1996; Forshaw and Cooper 2015).
3. The Squatter Pigeon is ground-dwelling and inhabits the grassy understorey of open, dry sclerophyll woodland and sometimes savannas, mostly west of the Great Dividing Range. It occurs near water (within 3 km) and appears to favour areas with an open (<33% groundcover), patchy grass understorey on well-drained sandy or gravelly soils. It is less common on heavier soils with dense grass cover (Frith 1982; Higgins and Davies 1996; Garnett and Crowley 2000; DOE 2015). In NSW, the Squatter Pigeon is thought to occur in woodlands with an overstorey of *Eucalyptus* species, interspersed with patches of *Acacia* and *Callitris*, and a ground cover of grasses and forbs (Frith 1982).
4. The Squatter Pigeon feeds on the seeds of a wide range of grasses, legumes, forbs, trees and shrubs and forages on the ground amongst sparse, low grasses (Crome 1976; Higgins and Davies 1996). They are usually seen in pairs or small flocks (<10) but aggregations of over 30 have been reported. Squatter Pigeons are reluctant fliers and usually run away, with many sudden changes of direction, when disturbed (Frith 1982; Higgins and Davies 1996). They roost in low trees at night (Frith 1982). They may be sedentary or locally nomadic and there is no evidence of long distance seasonal movements (Frith 1982; Higgins and Davies 1996; DOE 2015).
5. Breeding in the Squatter Pigeon is poorly documented but appears able to occur throughout the year and is likely to be influenced by local conditions (Higgins *et al.* 2006). The Squatter Pigeon breeds as solitary pairs and may produce two broods in a season (DOE 2015). Nests are placed on the ground in the shelter of grass, shrubs or fallen timber and consist of a shallow depression (~2.5 cm deep) sometimes lined with grass or leaves. Two eggs are laid and these hatch after ~16 days incubation. Young remain in the nest for 2–3 weeks and are then dependent on their parents for another four weeks. Young are able to fly from ~24 days (Frith 1982; Higgins and Davies 1996; DOE 2015). Sexual maturity is from 12 months and the generation time is estimated to be five years (Garnett and Crowley 2000; DOE 2015).

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6. The Squatter Pigeon (southern) has declined significantly over the last 150 years, especially in the southern half of its range (*i.e.* throughout NSW and southern Queensland) (Garnett and Crowley 2000; DOE 2015; Forshaw and Cooper 2015). In NSW, the Squatter Pigeon (southern) was widespread and abundant on the western slopes and plains until at least the 1870s but started to decline rapidly in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries (Gould 1865; Bennett 1891; North 1901–1914; Frith 1982; Cooper *et al.* 2015; DOE 2015). This decline has continued with marked reductions in abundance and distribution across NSW and southern Queensland (Blakers *et al.* 1984; Barrett *et al.*, 2003; Cooper *et al.* 2015). Between 1975 and 1989 there were only seven confirmed (West Wyalong 1975, Bonshaw 1976, Bingara 1977, Narran Lake 1977, Gilgai 1978, Bonshaw 1978, Warialda 1978–1979) and three unconfirmed (Booroondarra 1975, west of Cobar 1976, Hillston 1989) records of the Squatter Pigeon (southern) in NSW, mostly from the northwestern slopes (Higgins and Davies 1996; NPWS 1999). There were no confirmed records between 1980 and 1989 and only three confirmed records in NSW since 1989 (Ashford 1999; Yetman 2001, 2002 in Cooper *et al.* 2015; DOE 2015), all very close to the NSW/Queensland border. Apart from recent sightings (2001 and a probable sighting in 2006) in Bebo State Forest (now Dthinna Dthinnawan National Park and Nature Reserve) near Yetman, the Squatter Pigeon has not been recorded from any conservation reserves in NSW (NPWS 1999; Cooper *et al.* 2015; DOE 2015; OEH 2016). In south-eastern Queensland there have only been two records of Squatter Pigeon (southern) in the last few years (TSSC 2015).
7. In NSW the Squatter Pigeon (southern) has experienced a very large reduction in population size and distribution and is now very highly restricted. The pre-1990 extent of occurrence (EOO) was 95,850 km<sup>2</sup> based on a minimum convex polygon enclosing all mapped occurrences of the species in NSW (OEH 2016). This is likely to be an under-estimate of the original distribution due to the paucity of historical records. For the post-1990 period the EOO had declined to 56,000 km<sup>2</sup> and then to 7,600 km<sup>2</sup> for 2001–2006 (OEH 2016). However, in the last 10 years there have been no confirmed records of the species in NSW so the current EOO is inferred to be less than 100 km<sup>2</sup> and may be 0 km<sup>2</sup>. The pre-1990 area of occupancy (AOO) is estimated to be 32 km<sup>2</sup> based on 2 × 2 km grid cells, the scale recommended for assessing AOO by IUCN (2014) but this is also likely to be an underestimate. For the post-1990 period the AOO had declined to 20 km<sup>2</sup> and then to 12 km<sup>2</sup> for 2001–2006 (OEH 2016). However, in the last 10 years there have been no confirmed records of the species in NSW so the current AOO is inferred to be less than 10 km<sup>2</sup> and may be 0 km<sup>2</sup>.
8. The current size of the NSW population of the Squatter Pigeon (southern) is uncertain and the species may no longer be resident in the state. The few reports in the last 50 years of 1–2 individuals are from widely scattered localities but mostly near the Queensland border potentially representing occasional individuals dispersing from Queensland populations (Longmore 1976; Cooper *et al.* 2015; Forshaw and Cooper 2015). There have been no breeding records of the Squatter Pigeon (southern) in NSW for over 50 years (Cooper *et al.* 2015; TSSC 2015). If the Squatter Pigeon (southern) survives in NSW, the population size is inferred to be very low or extremely low.
9. Habitat loss and degradation, as well as predation, appear to be the major threats adversely affecting the Squatter Pigeon (southern) (DOE 2015). The initial decline of the Squatter Pigeon (southern) in NSW and southern Queensland coincided with the introduction of livestock (primarily sheep) grazing (Franklin 1999; Garnett and Crowley 2000; TSSC 2015; DOE 2015; Forshaw and Cooper 2015). Overgrazing of the understorey by sheep and subsequently the introduced European Rabbit (*Oryctolagus cuniculus*) significantly degraded the woodland habitat of the Squatter Pigeon (southern) especially during drought (North 1901–1914; Garnett and Crowley 2000; TSSC 2015; DOE 2015; Forshaw and Cooper 2015). The widespread clearing and fragmentation of woodland for agriculture, especially cropping, have also adversely affected the subspecies (Garnett and Crowley 2000; DOE 2015; TSSC 2015; Forshaw and Cooper 2015). Most of the original range of the Squatter Pigeon (southern) in NSW is now grazed by sheep or under cultivation (Higgins and Davies 1996; TSSC 2015). Historically, Squatter Pigeons were a popular game bird and were regularly shot in large numbers for sport and human consumption (Higgins and Davies 1996; DOE 2015; Forshaw and Cooper 2015). The terrestrial habits (*e.g.* feeding, nesting, resting) of the Squatter Pigeon are likely to have made them particularly vulnerable to introduced predators, especially the European Red Fox (*Vulpes vulpes*) and feral cat (*Felis catus*) (DOE 2015). The decline in the Squatter Pigeon (southern) has been most severe where its range overlaps that of the Red Fox (Garnett and Crowley 2000; DOE 2015), which occurs throughout NSW. Current threats to the Squatter

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Pigeon (southern) include the ongoing clearing and fragmentation of woodland, overgrazing by sheep, cattle and rabbits, introduced predators, spread of weeds and exotic grasses, inappropriate fire regimes and trampling of nests by livestock (NPWS 1999; TSSC 2015; DOE 2015). 'Clearing of native vegetation', 'Predation by the European Red Fox *Vulpes vulpes* (Linnaeus, 1758)' and 'Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus* (L.)' are listed as Key Threatening Processes under the Act.

10. The Squatter Pigeon (southern) *Geophaps scripta scripta* (Temminck, 1821) is currently listed as a Vulnerable species under the *EPBC Act 1999*.
11. The Squatter Pigeon (southern subspecies) *Geophaps scripta scripta* (Temminck, 1821) is eligible to be listed as a Critically Endangered species as, in the opinion of the Scientific Committee, it is facing an extremely high risk of extinction in New South Wales in the immediate future as determined in accordance with the following criteria as prescribed by the *Threatened Species Conservation Regulation 2010*:

## Clause 6 Reduction in population size of species

The species has undergone, is observed, estimated, inferred or reasonably suspected to have undergone or is likely to undergo within a time frame appropriate to the life cycle and habitat characteristics of the taxon:

- (a) a very large reduction in population size, based on:
- (b) the geographic distribution, habitat quality or diversity, or genetic diversity.

## Clause 7 Restricted geographic distribution and other conditions

The geographic distribution of the species is estimated or inferred to be:

- (a) very highly restricted, and:
- (d) a projected or continuing decline is observed, estimated or inferred in either of the key indicators:
  - (a) an index of abundance appropriate to the taxon, or
  - (b) the geographic distribution, habitat quality or diversity, or genetic diversity.

## Clause 8 Low numbers of mature individuals of species and other conditions

The estimated total number of mature individuals of the species is:

- (a) very low, and:
- (d) a projected or continuing decline is observed, estimated or inferred in either of the key indicators:
  - (a) an index of abundance appropriate to the taxon, or
  - (b) the geographic distribution, habitat quality or diversity, or genetic diversity of this species.

## Clause 9 Low number of mature individuals of species

The total number of mature individuals of the species is observed, estimated or inferred to be:

- (a) extremely low.

Dr Mark Eldridge  
Chairperson  
NSW Scientific Committee

Exhibition period: 16/12/16 – 10/02/17

Proposed Gazettal date: 16/12/16

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<http://www.environment.gov.au/biodiversity/threatened/species/pubs/64440-conservation-advice-31102015.pdf> (accessed November 2015)