

THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

The Minister approved this conservation advice on 27/10/2015 and agreed that this species should retain its current listing status of vulnerable under the EPBC Act

Conservation Advice

Geophaps scripta scripta

squatter pigeon (southern)

Taxonomy

Conventionally accepted as *Geophaps scripta scripta* (Temminck, 1821). The squatter pigeon (southern) is one of two subspecies, the other being *Geophaps scripta peninsulae* (squatter pigeon (northern)).

Summary of assessment

Conservation status

Vulnerable

The squatter pigeon (southern) was transferred from the *Endangered Species Protection Act 1992* (ESP Act) to the Vulnerable list of the *Environmental Protection and Biodiversity Conservation Act* (1999) (EPBC Act) when the latter came into force in July 2000. For a species to be considered as Vulnerable under the ESP Act, the Minister must have been satisfied that the species was likely to become endangered within the next 25 years.

Following a formal review of the listing status of the squatter pigeon (southern), the Threatened Species Scientific Committee (the Committee) has determined that there is no evidence that the species has undergone any demonstrable recovery since being listed; and that there is insufficient evidence to support a change of status under the EPBC Act. Therefore, the Committee concluded that the squatter pigeon (southern) should remain listed as Vulnerable under the EPBC Act.

Species can be listed as threatened under state and territory legislation. For information on the listing status of this species under relevant state or territory legislation, see <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

Reason for conservation assessment by the Threatened Species Scientific Committee

This advice follows assessment of new information provided to the Committee to re-assess the listing status of *Geophaps scripta scripta*, for potential de-listing.

Relevant part of the EPBC Act for amending the list of threatened native species

Section 186 of the EPBC Act states that:

“(2A) The Minister must not delete (whether as a result of a transfer or otherwise) a native species from a particular category unless satisfied that:

- (a) the native species is no longer eligible to be included in that category; or
- (b) the inclusion of the native species in that category is not contributing, or will not contribute, to the survival of the native species.”

Public Consultation

Notice of the proposed amendment and a consultation document was made available for public comment for greater than 30 business days between 17 November 2014 and 9 January 2015.

Any comments received that were relevant to the survival of the species were considered by the Committee as part of the assessment process.

Species/Subspecies Information

Description

The squatter pigeon (southern) is a medium-sized, ground-dwelling bird approximately 30 cm in length and weighing 190–250 g. Adults are predominantly grey-brown, with bold black and white stripes on the face and throat. The upperwings are dark-brown, the upperbreast light grey-brown grading to blue-grey on the lower breast and centre of the belly, and the rest of the belly and flanks are white. The underwings are white with a dark leading edge. It has a black bill and dull-purple legs and feet. The sexes are similar in appearance. Juveniles can be distinguished from adults by their duller colouring and less distinctive black and white facial stripes (Higgins & Davies, 1996).

The southern and northern subspecies of the squatter pigeon appear virtually identical, except that the southern subspecies is slightly larger, and the skin around the eyes is predominantly blue-grey compared to yellowy-orange to orange-red in the northern subspecies (Ford, 1986; Higgins & Davies, 1996).

Distribution

The squatter pigeon (southern) occurs on the inland slopes of the Great Dividing Range. Its current distribution extends from the Burdekin-Lynd Divide in central Queensland, west to Longreach and Charleville, east to the coast between Port Curtis and Proserpine, and south to New South Wales (NSW) north of 29° S (Cooper et al., 2014). There is a broad zone of hybridisation with the northern subspecies along the Burdekin-Lynd Divide (Higgins & Davies, 1996; Garnett & Crowley, 2000).

The subspecies has disappeared from the southern half of its historical range. Formerly widespread and abundant in NSW, occurring south to West Wyalong at 34°S, its range has contracted markedly since the 1870s. There have been few sightings in NSW since 1975, with only three confirmed reports since 2000 (Higgins & Davies, 1996; Garnett & Crowley, 2000; Cooper et al., 2014).

Relevant Biology/Ecology

The squatter pigeon (southern) inhabits the grassy understorey of open eucalypt woodland, and less often savannas. It is nearly always found near permanent water such as rivers, creeks and waterholes. Sandy areas dissected by gravel ridges, which have open and short grass cover allowing easier movement, are preferred. It is less commonly found on heavier soils with dense grass. It often occurs in burnt areas and is sometimes found on tracks and roadsides (Higgins & Davies, 1996; Garnett & Crowley, 2000).

The subspecies nests on the ground, usually laying two eggs among or under vegetation. It forages for seeds among sparse and low grass, in improved pastures, and beside railway lines and with domestic fowl around settlements. It roosts in low trees at night. Its movements are poorly known but it appears to be locally dispersive or resident, with no long-distance seasonal movements recorded (Higgins & Davies, 1996). The generation time is estimated at 5 years (Garnett & Crowley, 2000).

Threats

The population declined rapidly during the late 19th and early 20th centuries, and continued to decline in NSW and southern Queensland where it is now very rare (Cooper et al., 2014). In NSW, the disappearance of the subspecies has been attributed to overgrazing at times of drought, followed by clearing of vegetation. Its original habitat in NSW is nearly all now grazed by sheep or is under cultivation. In Queensland, much of its original habitat has been replaced

with improved pasture for cattle-grazing which, while decreasing the abundance of natural food plants, is not as destructive as grazing by sheep and may provide an important source of food (Higgins & Davies, 1996; Garnett & Crowley, 2000).

Current threats include ongoing vegetation clearance and fragmentation, overgrazing of habitat by livestock and feral herbivores such as rabbits (*Oryctolagus cuniculus*), introduction of weeds, inappropriate fire regimes, thickening of understorey vegetation, predation by feral cats (*Felis catus*) and foxes (*Vulpes vulpes*), trampling of nests by domestic stock and illegal shooting (Garnett & Crowley, 2000; Stewart, pers. comm. 2015).

How judged by the Committee in relation to the EPBC Act Criteria and Regulations

| Criterion 1. Population size reduction (reduction in total numbers) | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------|
| Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4 | | | |
| | Critically Endangered Very severe reduction | Endangered Severe reduction | Vulnerable Substantial reduction |
| A1 | ≥ 90% | ≥ 70% | ≥ 50% |
| A2, A3, A4 | ≥ 80% | ≥ 50% | ≥ 30% |
| A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased. | | | (a) direct observation [except A3] |
| A2 Population reduction observed, estimated, inferred or suspected in the past where the causes of the reduction may not have ceased OR may not be understood OR may not be reversible. | | | (b) an index of abundance appropriate to the taxon |
| A3 Population reduction, projected or suspected to be met in the future (up to a maximum of 100 years) [(a) cannot be used for A3] | | | (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat |
| A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible. | | | (d) actual or potential levels of exploitation |
| | | | (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites |

based on any of the following:

Evidence:

Insufficient data to determine eligibility

The available information suggests that the squatter pigeon (southern) has continued to decline in southern Queensland and northern NSW. However, it is unclear how much of this decline occurred over the past three generations (15 years), as sub-populations in these regions are very low and there are insufficient data to determine trends. In Queensland, small colonies that once persisted in the south-eastern region are no longer found, with only one record in the Toowomba-Lockyer area and one record near Sundown National Park in the past few years (Stewart, pers. comm. 2015).

In NSW there were no confirmed reports between 1980 and 2000, and only three confirmed reports since 2000 (Cooper et al., 2014; Cooper, pers. comm. 2015). Breeding has not been recorded in NSW at any time during the past 50 years, suggesting that there is little or no remaining suitable breeding habitat (Cooper et al., 2014; Cooper, pers. comm. 2015). The NSW population is estimated to be extremely low at <100 individuals with an extent of occurrence estimated at <1000 km² (Cooper et al., 2014; Cooper, pers. comm. 2015).

The subspecies remains common north of the Carnarvon Ranges in central Queensland, where it is likely distributed as a single, continuous (i.e. inter-breeding) sub-population (Squatter

Pigeon Workshop, 2011). Numerous, recent records of the subspecies in the region between Injune and the Carnarvon Ranges (QLD DEHP, 2012) suggest that squatter pigeons (southern) found in this region are also part of the northern, continuous sub-population. However, no surveys have been undertaken in central Queensland to determine its status, and threatening processes such as fire, vegetation thickening, and coal and gas mining are likely to be affecting its habitat (Stewart, pers. comm. 2015).

Following assessment of the available information the Committee has determined that while there is evidence of ongoing population declines, the available evidence is insufficient to determine whether the rate of decline has changed during recent decades. Therefore, the Committee has determined there is insufficient data to judge whether the status of the squatter pigeon (southern) against this criterion should be changed from its current Vulnerable listing.

| Criterion 2. Geographic distribution as indicators for either extent of occurrence AND/OR area of occupancy | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------|-------------------------------|
| | Critically Endangered Very restricted | Endangered Restricted | Vulnerable Limited |
| B1. Extent of occurrence (EOO) | < 100 km ² | < 5,000 km ² | < 20,000 km ² |
| B2. Area of occupancy (AOO) | < 10 km ² | < 500 km ² | < 2,000 km ² |
| AND at least 2 of the following 3 conditions: | | | |
| (a) Severely fragmented OR Number of locations | = 1 | ≤ 5 | ≤ 10 |
| (b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals | | | |
| (c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals | | | |

Evidence:

Not eligible

Garnett & Crowley (2000) estimated the extent of occurrence to be 440 000 km² and the area of occupancy to be 10 000 km². These estimates were considered to be of medium and low reliability respectively. There are no other estimates available describing the species extent or area of occupancy.

The Queensland Resources Council (2015), which used GIS data (based on a 2 x 2 km grid) to examine the extent of squatter pigeon (southern) habitat overlapping resource industry sites, calculated the extent of occurrence to be 1 684 230 km² and the area of occupancy to be 2 888 km². Although it is unclear whether this entire habitat area is presently occupied, these data only covered a proportion of the subspecies' potential habitat, and support the conclusion that it does not meet the thresholds under Criterion B1 and B2.

Following assessment of the information the Committee has determined that the geographic distribution is not limited. Therefore, the subspecies has not been demonstrated to have met this required element of this criterion.

| Criterion 3. Population size and decline | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| | Critically Endangered Very low | Endangered Low | Vulnerable Limited |
| Estimated number of mature individuals | < 250 | < 2,500 | < 10,000 |
| AND either (C1) or (C2) is true | | | |
| C1 An observed, estimated or projected continuing decline of at least (up to a max. Of 100 years in future) | Very high rate 25% in 3 years or 1 generation (whichever is longer) | High rate 20% in 5 years or 2 generations (whichever is longer) | Substantial rate 10% in 10 years or 3 generations (whichever is longer) |
| C2 An observed, estimated, projected or inferred continuing decline AND its geographic distribution is precarious for its survival based on at least 1 of the following 3 conditions: | | | |
| (a) (i) Number of mature individuals in each subpopulation | ≤ 50 | ≤ 250 | ≤ 1,000 |
| (a) (ii) % of mature individuals in one subpopulation = | 90 – 100% | 95 – 100% | 100% |
| (b) Extreme fluctuations in the number of mature individuals | | | |

Evidence:

Not eligible

Garnett & Crowley (2000) estimated the number of mature individuals to be approximately 40 000, although this was considered to be of low reliability. Limited surveys have been undertaken and there are no reliable estimates of current population size or trends (Stewart, pers. comm. 2015); however, given the previous population estimate it is unlikely that the species meets the threshold for listing under this criterion.

The Committee considers that the subspecies is ineligible for listing under any category in this criterion as it is thought there are likely to be more than 10,000 mature individuals in the population.

| Criterion 4. Number of mature individuals | | | |
|--------------------------------------------------|------------------------------------------------|--------------------------------|---------------------------|
| | Critically Endangered Extremely low | Endangered Very Low | Vulnerable Low |
| Number of mature individuals | < 50 | < 250 | < 1,000 |

Evidence:

Not eligible

Garnett & Crowley (2000) estimated the number of mature individuals to be approximately 40 000. Although this estimate was considered to be of low reliability and is out of date, it is highly unlikely that the current population is <1000 mature individuals.

The estimated number of mature individuals is approximately 40 000 which is not considered extremely low, very low or low. Therefore, the species has not been demonstrated to have met this required element of this criterion.

| Criterion 5. Quantitative Analysis | | | |
|-------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------|
| | Critically Endangered Immediate future | Endangered Near future | Vulnerable Medium-term future |
| Indicating the probability of extinction in the wild to be: | ≥ 50% in 10 years or 3 generations, whichever is longer (100 years max.) | ≥ 20% in 20 years or 5 generations, whichever is longer (100 years max.) | ≥ 10% in 100 years |

Evidence:

Insufficient data to determine eligibility

Population viability analysis has not been undertaken.

Consideration for delisting

The assessment indicates that there is insufficient evidence to judge whether the squatter pigeon (southern) is no longer eligible to be listed as Vulnerable under the EPBC Act. There is evidence that declines are continuing in the southern part of its range, and considerable uncertainty regarding population trends across its total range due to insufficient survey effort. It cannot be clearly demonstrated that the subspecies is ineligible for listing under Criterion 1.

The inclusion of the squatter pigeon (southern) in the Vulnerable category is contributing to the survival of the subspecies, as the EPBC Act requires project proponents to refer a proposal for assessment if it may have a significant impact on a threatened species. Where appropriate, the department has issued conditions requiring proponents to avoid, minimise or mitigate impacts on the subspecies.

Conservation Actions

Recovery Plan

The Committee recommends that there should not be a recovery plan for *Geophaps scripta scripta* (squatter pigeon (southern)) as the approved conservation advice for the subspecies provides sufficient direction to implement priority actions and mitigate against key threats.

Primary Conservation Action

Conservation and Management Actions

- Identify sub-populations of high conservation priority, especially in the southern part of the squatter pigeon’s (southern) range.
- Protect and rehabilitate areas of vegetation that support important sub-populations.
- Protect sub-populations of the listed subspecies through the development of covenants, conservation agreements or inclusion in reserve tenure.
- Develop and implement a stock management plan for key sites.
- Develop and implement a management plan, or nominate an existing plan to be implemented, for the control and eradication of feral herbivores in areas inhabited by the squatter pigeon (southern).
- Raise awareness of the squatter pigeon (southern) within the local community, particularly among land managers.

Survey and Monitoring priorities

- Monitor selected sub-populations throughout the distribution of the subspecies to identify rates of population change.

Information and Research priorities

- Identify preferred food plants, and the responses of these to fire and grazing regimes.
- Determine patterns of dispersal or residency, and the factors that may determine these.
- Assess reproductive success, and the factors that affect this.
- Assess the species' status, and the impacts of mining, in central Queensland.

Recommendations

- (i) The Committee recommends that *Geophaps scripta scripta* should retain its current listing status of Vulnerable under the EPBC Act as there is insufficient evidence to support transferring it to a different category.
- (ii) The Committee recommends that there should not be a recovery plan for this subspecies.

Threatened Species Scientific Committee

02/09/2015

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