

THREATENED SPECIES SCIENTIFIC COMMITTEE

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

The Minister's delegate approved this conservation advice on 01/10/2015

Conservation Advice

Geophaps smithii smithii

partridge pigeon (eastern)

Conservation Status

Geophaps smithii smithii (partridge pigeon (eastern)) is listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). The species is eligible for listing as Vulnerable as, prior to the commencement of the EPBC Act, it was listed as Vulnerable under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth).

The Action Plan for Australian Birds 2010 (Garnett et al., 2011) lists the partridge pigeon as Endangered. The main factors that the Action Plan for Australian Birds 2010 identifies as causing the subspecies to be eligible for listing in the Vulnerable category are declines in population size and quality of habitat. Past, current and future population declines of 30 to 49%, over periods of 3 generations (17 years), have been estimated from monitoring data and inferred from deteriorating habitat quality (Garnett et al., 2011).

Description

The partridge pigeon is a terrestrial, generally dull-coloured squat medium-small pigeon (Woinarski, 2004). It can attain a length of up to 28 cm and reach weights of up to 250 g (Higgins & Peter, 2002). The most distinctive feature of the subspecies is a patch of bright-red bare skin around the eye, this patch is coloured yellow in the western subspecies (*G. s. blaauwi*) (Woinarski, 2004). Both subspecies also have a prominent white patch on the underwing that is conspicuous when the bird is in flight (Woinarski, 2004).

Distribution

The eastern subspecies of partridge pigeon is now recorded only in sub-coastal Northern Territory, from Yinberrie Hills (about 50 km north of Katherine) in the south and Litchfield National Park in the west to western Arnhem Land in the east, with a separate subpopulation on Melville and Bathurst Islands in the Tiwi Island group (Garnett et al., 2011). Smaller scattered populations that exist elsewhere in the Top End (Woinarski, 2004; Woinarski et al., 2007) could be isolated subpopulations, particularly the one associated with Coburg Peninsula (Garnett et al., 2011). Historically, the subspecies distribution extended from Kununurra, Western Australia, east to McArthur River, Northern Territory. Over time there has been a severe range contraction from the western, eastern and southern parts of the former distribution, with most of the declines occurring early in the 20th century (Higgins & Davies, 1996; Woinarski et al., 2007).

Threats

The primary threat to the eastern subspecies of partridge pigeon is a change in fire regime, resulting in fires that extend over large areas; and the loss of a landscape-scale mosaic of habitat patches with varying fire histories (Fraser, 2001; Fraser et al., 2003; Woinarski et al., 2007). As partridge pigeons construct nests from highly flammable dry grasses, and nest during the dry season when fires are more prevalent, an increase in the extent or frequency of fire is likely to result in increased mortality of eggs and/or young (Woinarski, 2004). However, partridge pigeons are also disadvantaged by an absence of fire. Where unburnt, the very dense tall grass

layer characteristic of open forests in northern Australia makes movement for ground-feeding vertebrates, such as partridge pigeons, difficult and thus reduces accessibility to food resources (Woinarski, 1990). The ideal fire regime for partridge pigeons appears to be one of fine-scale patchiness, where burnt and unburnt areas are juxtaposed at the scale of an individual pigeon's home-range (Fraser, 2000; Fraser et al., 2003).

Two further threats, predation by feral cats (*Felis catus*) and an increase in exotic pasture grasses, are associated with fire (Woinarski, 2004). As partridge pigeons spend almost all of their time on the ground, not only for foraging and nesting but also when roosting at night, they are particularly susceptible to introduced predators (Woinarski, 2004). Large, intense fires can exacerbate this predation risk through a reduction in ground cover and the subsequent loss of refugia (Woinarski, 2004). It is highly likely that partridge pigeon populations have suffered increased predation since the arrival of cats in northern Australia over the last 150 years (Woinarski, 2004).

Increases in exotic grasses, particularly gamba grass (*Andropogon gayanus*) which is invading habitat in and around Litchfield National Park, also pose a threat to the subspecies (Rossiter et al., 2003). This is likely to disadvantage pigeons as the fuel loads of exotic grasses are so large that, when they burn, they change the vegetation structure and affect food resource available for granivores such as the partridge pigeon (Rossiter et al., 2003). Recent studies in the Top End of the Northern Territory have documented the rapid spread of exotic pasture grasses away from their points of introduction into native open forests and woodlands, including conservation reserves (Kean & Price, 2003). These grasses replace native species and greatly increase the fuel load, typically leading to fire intensities an order of magnitude greater than that typical with native grass under-stories (Rossiter et al., 2003).

Other potential threats include the clearing of suitable habitat, particularly on the Tiwi Islands and in the Darwin-Daly area (Woinarski, 2004), and livestock grazing due to its impact upon vegetation and the trampling of nests by stock.

Conservation Actions

Conservation and Management Actions

- Implement an appropriate fire management regime for protecting key habitat, this would include fine-scale patchiness, where burnt and unburnt areas are juxtaposed.
- Implement a feral species control strategy in the subspecies area of occupancy to reduce the impacts of predators, particularly cats.
- Implement a weed management strategy in the subspecies area of occupancy to identify, control and reduce the spread of exotic grasses that change fire regimes, particularly gamba grass.

Survey and Monitoring priorities

- Assess the subspecies' population size and distribution in different parts of its range, and better define the extent of the range contraction.
- Design and implement a monitoring program to assess population trends at key sites.

Information and research priorities

- Assess the relative impacts of grazing, introduced pasture grasses, cat predation and inappropriate fire regimes on the subspecies in different parts of its range.
- Examine impacts of land clearing and use the resulting knowledge to develop guidelines for habitat protection and corridor configuration in landscapes subject to intensive development.

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