

# NSW SCIENTIFIC COMMITTEE

## **Black-breasted Button-quail *Turnix melanogaster***

Review of Current Information in NSW

May 2008

### **Current status:**

The Black-breasted Button-quail *Turnix melanogaster* is currently listed as Vulnerable in Queensland under the *Nature Conservation Act 1992* (NC Act), and as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The NSW Scientific Committee recently determined that the Black-breasted Button-quail meets criteria for listing as Critically 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 Black-breasted Button-quail is a small (19 cm in length) quail-like bird, though among the largest of the Australian quail and button-quail. It is dumpy, almost tail-less, mottled and streaked in black, brown, grey and white, with short wings, short yellow legs, and distinctive white eyes. The female is black on the head and spangled black and white on the foreparts, but the male is mottled grey on these parts. The similar Painted Button-quail *Turnix varia* has red eyes and is more reddish brown dorsally, particularly on the neck, which is rusty. Other button-quail in NSW are much smaller and redder. True quail are more streaked, and are either richer brown with red eyes (e.g. Brown Quail *Coturnix ypsilophora*), or have a rusty throat above the black-streaked breast, and red eyes (e.g. male Stubble Quail *Coturnix pectoralis*). True quail have a small hind-toe, lacking in button-quail which have only three, forward-pointing toes.

### **Taxonomy:**

*Turnix melanogaster* (Gould 1837) (Turnicidae) is a monotypic (*i.e.* no subspecies), endemic Australian species.

### **Distribution and number of populations:**

The Black-breasted Button-quail is restricted to coastal south-east Queensland (north to Fraser Island), and the Border Ranges and Big Scrub areas of extreme north-east NSW. Recent claims of records farther south (Smyth & Young 1996), near Dorrigo and in the Macleay River catchment are unconfirmed. There are believed to be 25 subpopulations of the Button-quail in Australia (Garnett & Crowley 2000), of which only two occur in NSW. These are found in the western Border Ranges area and in the Tweed Range/Mt Warning/Nightcap Range area. There have been only 10 records of the Black-breasted

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Button-quail, from six localities, in NSW in the two decades leading up to 2000 (Garnett & Crowley 2000). There were no records of the species in the first national bird atlas (Blakers *et al.* 1984), and only one incidental record in the second national bird atlas (Barrett *et al.* 2003). Records since 1990 have been reported in the NSW Field Ornithologists Club annual bird reports and rare bird reports published in *Australian Birds* (tabulated below), and all concern only one of the two subpopulations. Expert ornithological surveys in the Richmond Valley (Gosper 1986; 1992; Gosper & Holmes 2002) obtained no recent records of the species, and there have been no published sightings in NSW since 2000.

Number of birds	Location	Date
1	Mebbin SF	July 1995
group	Mt Nardi (Nightcap Ra)	June 1999
1+	Big Scrub FR	June 1999
2	Minyon Falls, Whian Whian SF	Sept 2000

## **Ecology:**

The ecology of the Black-breasted Button-quail is generally well understood following recent studies (McConnell & Hobson 1995; Hamley *et al.* 1997; Smith *et al.* 1998; Lees & Smith 1999; Smyth & Pavey 2001; Smyth *et al.* 2001).

## Key habitat requirements

The species is ground-dwelling, inhabiting subtropical rainforest, other moist forest, dry rainforest (vine thicket) and grassy edges, with a closed canopy and deep litter layer. Such forests have been extensively cleared, logged and fragmented in NSW. The Black-breasted Button-quail uses mature (though not young) *Araucaria cunninghamii* (Hoop Pine) plantations with a *Lantana camara* (Lantana) understorey as a supplementary habitat, but is adversely affected when pines are harvested.

## Breeding biology

The Black-breasted Button-quail's nest is a scrape in the ground, under a low bush or coarse tussock or between buttress roots in rainforest, lined and sometimes hooded or domed with grass and leaves. Clutches of three or four eggs are laid from spring to autumn. The incubation period is 16 days. Downy chicks are precocial, can run soon after hatching, and feed themselves by two weeks. Chicks of the similar Painted Button-quail can flutter at 10 days, are fully feathered at 16 days, and are adult-sized at three weeks (Marchant & Higgins 1993). The Black-breasted Button-quail occurs solitarily, in pairs, or in family groups of a male (or sometimes both parents) and chicks. The female mates sequentially with several

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males, who then care for the eggs and chicks. The generation length of the species is estimated as three years (Garnett & Crowley 2000).

## Diet

The Black-breasted Button-quail feeds on terrestrial invertebrates (mostly insects) and some seeds, gleaned by scraping the leaf litter. Its food supply and foraging habitat are adversely affected by factors that disturb and dry out or remove the litter, such as livestock movements, foraging by feral pigs and fire.

## Territoriality/home range

Female Black-breasted Button-quail are territorial, defending exclusive territories of about 1.5 ha against other females (Marchant & Higgins 1993). The home range is 2.2-6.1 ha in remnant vine scrub, overlapping within and between the sexes (Smith *et al.* 1998). The home range for females has been reported as 3-4.4 ha, that of a breeding male as 1.9 ha, and that of a non-breeding male as 6.2 ha in a Hoop Pine plantation prior to harvesting (Lees & Smith 1999). Home range was 5.2-17.9 ha after harvesting, with probable turnover of individuals after clear felling (Lees & Smith 1999).

## Ability to disperse/susceptibility to population fragmentation

The Black-breasted Button-quail is a reluctant flyer. Adults are apparently sedentary, and the extent of movement between isolated patches of habitat is uncertain. The species' range, habitat and populations are fragmented (Garnett & Crowley 2000). In fragmented rainforest in agricultural land, the Black-breasted Button-quail only occurs in the largest fragments connected to eucalypt forest, and in intact rainforest. Individuals are resident (Smyth & Pavey 2001).

## **Number of mature individuals:**

The global population of the Black-breasted Button-quail is estimated at about 5 000 mature individuals, of which most occur in Queensland. NSW holds a small proportion of the global population, perhaps 5% based on the respective share of geographic range, or about 250 birds. No subpopulation exceeds 2 000 individuals, although these estimates have been assigned a low level of confidence by Garnett & Crowley (2000). Although the Black-breasted Button-quail is secretive and cryptic, the level of confidence in survey results is high because birdwatchers are numerous and very active in the species' NSW range, as in Queensland where birdwatchers regularly report the species in small numbers (Qld Ornithological Society data). The species is likely to be under-recorded in NSW, but the paucity of recent records suggests that the population may nevertheless number fewer than 250 mature individuals.

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## **Threats:**

The main threat to the Black-breasted Button-quail has been clearing of subtropical and dry rainforests for agriculture and more recently for urbanisation, and degradation of rainforests by logging (over 90% of habitat has been cleared, Garnett & Crowley 2000). Other threats include the lack of connectivity caused by the currently highly fragmented nature of remaining habitat, vulnerability to fire during droughts (when leaf litter dries out), grazing and disturbance of habitat by livestock and feral pigs, and predation by foxes, dogs and cats. Many weeds are invading rainforest remnants, and degrading habitat of the Black-breasted Button-quail. Many of these threats (pigs, cats, foxes, weeds, too-frequent fire) are listed in NSW as Key Threatening Processes under the TSC Act. The species is likely to be targeted by egg collectors and aviculturists, but no documented evidence exists of attempted poaching. The species is well established in aviculture and breeds well in captivity.

## **Extreme fluctuations:**

There is no evidence of extreme fluctuations in either the NSW population of the Black-breasted Button-quail or its habitat.

## **Population reduction and continuing declines:**

There is little information on the Black-breasted Button-quail's past abundance, but has always been considered rare in NSW. The estimated Queensland population of less than 5 000 birds is still declining (Garnett & Crowley 2000), and is predicted to decline further in fragmented habitat (Smyth & Pavey 2001). Similar pressures, particularly in relation to Hoop Pine plantation forestry, apply in NSW. There are few NSW records of the Black-breasted Button-quail in recent years (three records in the 1990s, mostly of one or two birds, and one record of two birds in 2000, at four localities: NSW FOC annual bird reports). There is no precedent for suspecting that this cryptic, ground-dwelling rainforest bird, in areas of high human habitation and birdwatching effort, will reappear in any considerable number. Other similarly cryptic birds utilising the same habitat as the Black-breasted Button-quail are threatened (e.g. Fig Parrot *Cyclopsitta diopthalma*, Marbled Frogmouth *Podargus ocellatus*, Rufous Scrub-bird *Atrichornis rufescens*, Eastern Bristlebird, northern subspecies *Dasyornis brachypterus monoides*), and most other Australian button-quail are also threatened or declining (Garnett & Crowley 2000; Barrett *et al.* 2007). By contrast, the Bush-hen *Amaurornis olivaceus* has apparently 'reappeared' in numbers after a lapse in records, but it has adapted to weedy wetland margins in farmland.

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

The Black-breasted Button-quail is estimated to have a global extent of occurrence of 5 200 km<sup>2</sup> (Garnett & Crowley 2000), of which most (at least 95%) now falls in Queensland. Its global estimated area of occupancy is 750 km<sup>2</sup>. As most of this (at least 95%) now falls in

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Queensland, the maximum EOO in NSW is calculated at 260 km<sup>2</sup> and the maximum AOO is 38 km<sup>2</sup>.

## Severe fragmentation:

The Black-breasted Button-quail's population and habitat are severely fragmented (Garnett & Crowley 2000). Small, resident populations in fragments are susceptible to heavy predation, and the species is predicted to decline to extinction in fragmented habitat in the medium term in the absence of conservation measures (Smyth & Pavey 2001). The species' range in NSW is also severely fragmented. For example, the formerly extensive Big Scrub in northern NSW is reduced to small, scattered remnants, and the Tweed, Richmond and upper Clarence Valleys are extensively cleared for agriculture, leaving remaining rainforest reserves and state forests as virtual 'islands'. Habitat remnants in NSW are inferred to be under the same pressures as in Queensland (Smyth & Pavey 2001), from impacts such as fire, drought and other degradation. The Black-breasted Button-quail is also inferred to be subject to predation by introduced carnivores.

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## 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](http://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) Black-breasted Button-quail *Turnix melanogaster*. Review of current information in NSW. May 2008. Unpublished report arising from the Review of the Schedules of the *Threatened Species Conservation Act* 1995. NSW Scientific Committee, Hurstville.