# Threatened Species Assessment

## *Synoicus chinensis victoriae*
## King Quail

### Taxonomy

*Synoicus chinensis* Linnaeus, 1766

The taxon native to Australia is ssp. *victoriae.* It was previously known as *Coturnix chinensis victoriae* (Matthews 1912).

### Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* as *Coturnix chinensis* (SAC 1994).

Categorised as Endangered in the 2013 Advisory list of threatened vertebrate fauna in Victoria (DSE 2013).

### Proposed conservation status

Endangered in Victoria

Criterion D

### Species Information

#### Description and Life History

King Quail are small, ground-dwelling birds about 14 cm in length. Males are mainly brown above with black markings; the wings are brown; there is a buff streak in centre of forehead; sides of head, chest and sides of body are slate-blue; the throat is black; cheeks and a crescentic band on foreneck are white; the abdomen is chestnut; the bill is black; legs and feet are yellow; the iris is brown. The female is mainly dark brown above, streaked with white; the underparts are barred with black; the throat is white; the iris is brown (Frith 1969).

King Quail are thought to breed in all suitable habitats. Young become independent at 4 weeks and are mature by 8 weeks (Marchant and Higgins 1993). Age at first breeding is within 2 months of fledging. They are mainly terrestrial, foraging, nesting and roosting on the ground. When disturbed King Quail usually squat; they fly reluctantly, rarely high or far and are very difficult to flush twice. The species is omnivorous, feeding mainly on grass seeds and green blades, with some adult and larval insects.

#### Generation Length

The generation length of King Quail is estimated to be 2 to 3 years. This based on the maturity date post fledging, and the figure (2.8 years) provided in BirdLife International (2016).

#### Distribution

Since 1970 the King Quail has been recorded in Victoria at French Island, Sandpatch Point (East Gippsland), the Glenelg River area (Kentbruck Heath), Lake Bellfield (Grampians) and Boola Boola State Forest (Marchant and Higgins 1993, O'Brien 2006), with few Victorian occurrences outside of French Island. Infrequent records from East Gippsland suggest it is an irregular visitor or at best a vagrant. There have also been some past sightings from coastal heaths where they might still occur (e.g. Mallacoota, Wilsons Promontory and near Portland) (Emison et al. 1987) and in the Wannon River heath flats (Grampians) (O'Brien 2006).

### Habitat

The known habitat for King Quail includes (Marchant and Higgins 1993) very dense vegetation of grass, shrubs, ferns or herbs, in damp or swampy sites; heath of greater than 80% foliage cover; thickets in low woodlands; and dense aquatic vegetation around freshwater swamps and over floodplains. Density of vegetation is apparently critical.

In the preferred habitat trees may or may not be present but the canopy must be open enough to allow development of dense undergrowth (O'Brien 2006).

On French Island the main habitats occupied by King Quail are dense but short heathland (especially wet heathland) and sedge beds around swamps (Quinn and Lacey 1999; O'Brien 2006). From sightings of the species on French Island, suitable habitat can be described as Ecological Vegetation Class (EVC) 8, Wet Heathland (Oates and Taranto 2001). EVC 8 is a low, generally treeless heathland sometimes with emergent eucalypts and dominated by a range of sedges, grasses and shrubs. The dominant flora at a recently burnt King Quail site on French Island was Zigzag Bog-sedge *Schoenus brevifolius* (O'Brien 2006.) and medium shrubs of Scented Paperbark *Melaleuca squarrosa* and Prickly Teatree *Leptospermum continentale.* Lacey (pers. comm. 2006) also noted that King Quail habitat includes sedge beds on swamp margins, but does not seem to include the drier Sand Heathland (EVC 6).

### Threats

King Quail are at high risk of predation, especially from feral Cats. Fires at intervals of less than three years are detrimental, although the birds are quick to use recently burnt heath where plumage provides perfect camouflage. Populations are small, and in some areas may be too small to be viable. Habitat quality within the known range has declined in the past 10 years.

## IUCN Criteria

**Criterion A. Population size reduction.**
Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4

| | Critically Endangered | Endangered | Vulnerable |
|---|---|---|---|
| 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.

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.

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*]

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.

*based on any of the following:*

(a) direct observation [*except A3*]

(b) an index of abundance appropriate to the taxon

(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat

(d) actual or potential levels of exploitation

(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites

## Evidence:

**Ineligible under Criterion A**

The past population reduction does not meet the threshold for eligibility under criterion A2.

Past decline is not known with any precision, however recent population estimates are likely to be less than historic (pre-European) population size, mainly due to habitat decline, feral cat predation (on French Island) and Red Fox plus cat predation elsewhere in Victoria. Evidence of historic decline is supported by some reports e.g. Dandenong Region CFL (1986) which makes this comment in regards to the King Quail: 'A cause for concern is the decline of this species through loss of habitat. Changes to natural land systems since European settlement have been dramatic. The West Gippsland wetlands have been drained and seventy percent of the land area of the Westernport Catchment has been cleared for agriculture. Urban expansion and recreational demands also threaten the 10% of suitable land which remains in its original state.'

There is insufficient evidence to determine whether will be a future reduction in population size (criterion A3).

| Criterion B. Geographic range in the form of either B1 (extent of occurrence) and/or B2 (area of occupancy | | | |
|---|---|---|---|
| | Critically Endangered Very restricted | Endangered Restricted | Vulnerable Limited |
| B1. Extent of occurrence (EOO) | < 100 km² | < 5,000 km² | < 20,000 km² |
| B2. Area of occupancy (AOO) | < 10 km² | < 500 km² | < 2,000 km² |
| 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:

**Eligible under Criterion B2 as Endangered**

The Area of Occupancy (AoO) across the taxon's range is estimated to be 148 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas, but other thresholds under this criterion have not been met.

| Criterion C. Small Population size and decline | | | | |
|---|---|---|---|---|
| | | Critically Endangered | Endangered | Vulnerable |
| Number of mature individuals | | < 250 | < 2,500 | < 10,000 |
| AND at least one of C1 or C2 | | | | |
| C1 | An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future): | 25% in 3 years or 1 generation (whichever is longer) | 20% in 5 years or 2 generations (whichever is longer) | 10% in 10 years or 3 generations (whichever is longer) |
| C2 | An observed, estimated, projected or inferred continuing decline AND least 1 of the following 3 conditions: | | | |
| (a) | (i) Number of mature individuals in each subpopulation | ≤ 50 | ≤ 250 | ≤ 1,000 |
| | (ii) % of mature individuals in one subpopulation = | 90 – 100% | 95 – 100% | 100% |
| (b) Extreme fluctuations in the number of mature individuals | | | | |

## Evidence:

**Eligible under Criterion C2 as Endangered**

It is estimated that there are 90 to 350 mature individuals, but other thresholds under this criterion have not been met. The taxon has survived on French Island with feral cats for 150 years, and is relatively stable.

| Criterion D. Very small or restricted population | | | |
|---|---|---|---|
| | Critically Endangered | Endangered | Vulnerable |
| Number of mature individuals (observed or estimated) | <·50 | <·250 | <·1,000 |
| D2 Only applies to the VU category<br>Restricted area of occupancy or number of locations with a plausible future threat that could drive the species to critically endangered or Extinct in a very short time. | - | - | D2. Typically:<br>AoO <·20 km2 or number of locations ≤·5 |

## Evidence:

**Eligible under Criterion D as Endangered**

It is estimated that there are 90 to 300 (midpoint 200) mature individuals.

The bird is very difficult to observe and hence survey, due to its preference for dense and swampy heathland habitat, and because it seldom flies and is very difficult to flush (Frith 1969). Numbers are not known with any certainty, but there are most likely to be less than several hundred adult pairs. The largest number formally recorded at one site (main Victorian population, French Island, O'Brien 2006) with a targeted survey was 33 (Carter 1989).

The population in SW Victoria near Portland (Kentbruck Heath area) is thought to be still extant, however its size is unknown as no dedicated survey has ever been undertaken for the taxon. Rob Farnes (pers. comm. 27 June 2018) noted that recent large wildfires in this area had probably threatened populations as no recent sightings have been recorded.

King Quail have been recorded in Victoria (since 1970) in only five main areas. It is not certain that it is still present in all of these areas as no targeted surveys have been undertaken on the species. Moreover, it is possible that in some areas the populations may be too small to be viable. The sightings on French Island (O'Brien 2006) far exceed all other Victorian sites combined.

**Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.**

## References

BirdLife International (2016) *Synoicus chinensis*. The IUCN Red List of Threatened Species 2016: e.T22678979A92797212. http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22678979A92797212.en. (Downloaded on 08 November 2018).

Carter, M. (1989) The Kings of French Island. The *Bird Observer* (Sept. 1989), No. 690**:** 95.

CNR (1993) *Threatened Fauna in Victoria 1993.* Department of Conservation and Natural Resources, Melbourne.

CFL (1986) *Report on Broken Hill Proprietary Company Ltd and Hooker- Rex Estates, Subdivision Proposals French Island* (unpublished). Dandenong Region, Department of Conservation, Forests and Lands.

DSE (2013). *Advisory List of Threatened Vertebrate Fauna in Victoria 2013*. Department of Sustainability and Environment, Melbourne

DWR (1997) *Victoria East Gippsland Regional Forest Agreement. Environment and Heritage Report Part 1*. Appendix F: Rare or Threatened Fauna.

Emison W.B., Beardsell C.M., Norman F.I. and Loyn R.H. and Bennett, S. (1987) *Atlas of Victorian Birds*. Department of Conservation Forests and Lands and RAOU, Melbourne.

Frood D. and Calder M. (1987) *Nature Conservation in Victoria: Study Report volume* 1. VNPA, Melbourne.

Marchant S. and Higgins P.J. (1993) *Handbook of Australian, New Zealand and Antarctic Birds. Volume 2,* p. 414. Oxford University Press, Melbourne.

O'Brien, M. (2006). Distribution, habitat and status of the King Quail *Coturnix chinensis victoriae* in Victoria: The importance of French Island, Western Port Bay. *Australian Field Ornithology* 23: 62-76.

SAC (1994) Flora and Fauna Guarantee Scientific Advisory Committee Final Recommendation on a nomination for listing No. 349 *Coturnix chinensis*. Department of Natural Resources and Environment, Melbourne.