Australian Capital Territory

Nature Conservation (Pilotbird) Conservation Advice 2023

Notifiable instrument NI2023–225

made under the

Nature Conservation Act 2014, s 90C (Conservation advice)

1 Name of instrument

This instrument is the *Nature Conservation (Pilotbird) Conservation Advice* 2023.

2 Commencement

This instrument commences on the day after its notification day.

3 Conservation advice for Pilotbird

Schedule 1 sets out the conservation advice for Pilotbird (*Pycnoptilus floccosus*).

Arthur Georges Chair, Scientific Committee 14 April 2023 (see s 3)

CONSERVATION ADVICE PILOTBIRD – *Pycnoptilus floccosus*

CONSERVATION STATUS

The Pilotbird – *Pycnoptilus floccosus* Gould, 1851 – is recognised as threatened in the following jurisdictions:

National	Vulnerable, Environment Protection and Biodiversity Conservation Act 1999
ACT	Vulnerable, Nature Conservation Act 2014
NSW	not yet listed, Biodiversity Conservation Act 2016
VIC	not yet listed, Flora and Fauna Guarantee Act 1988

ELIGIBILITY

The Pilotbird is listed as Vulnerable in the ACT Threatened Native Species List under IUCN Criterion A —A2bc due to a major decline in abundance at the national level (Attachment A). The species likely underwent a significant population decline of 30– 50% over the last 11 years (three generations) caused by the widespread 2019–2020 bushfires across south-eastern Australia (Loyn et al. 2021). The cause of the reduction in numbers (and greater than 50 percent decline in habitat) has not ceased because the risk of frequent, large extent, high intensity wildfires are projected to increase (DAWE 2022, Attachment A).

DESCRIPTION AND ECOLOGY

The Pilotbird is about 18 cm in length, with a wingspan of 23cm and weighs an average 27 g. Male and female birds are similar in appearance and are a deep rufous-brown with: a cinnamon forehead; amber eyes; slender pointed bills; long, broad, wedge-tipped tails with rufous tail coverts; and large, strong feet. The throat, breast and underbelly are cinnamon and scalloped brown and their lower underparts are dull white and flanks are brown. Juvenilles resemble adults but have darker foreheads and underparts, and a prominent pale gape (Higgins and Peter 2002).

Two Pilotbird subspecies have been described – the Upland Pilotbird (*Pycnoptilus floccosus floccosus*) and the Lowland Pilotbird (*Pycnoptilus floccosus sandlandi*). The upland subspecies (that occurs in the ACT) is larger and darker than the lowland subspecies (Schoode and Mason 1999).



Pilotbird (Roger Williams - Canberra Nature Map)

Pilotbirds are terrestrial, largely sedentary and are typically seen in wet gullies hopping over the forest floor and foraging on damp ground or scratching among leaf-litter using their feet and bills, often in the wake of Superb Lyrebirds (*Menura novaehollandiae*) (Firth 1984, Higgins and Peter 2002). Pilotbirds forage mostly in pairs for insects, worms and occasionally eat seeds and small berries often in the company of White-browed Scrubwrens (*Sericornis frontalis frontalis*) (Firth 1984, Higgins and Peter 2002). Pilotbirds are secretive and are usually detected by a loud call which is a sparking, vivacious song that carries well through the forest (Firth 1984, Taylor and Day 2006).

Breeding takes places between August and January. Adults build a domed nest on or near the ground in which they usually lay two grey-green to purple-brown eggs (Zwart 1973) that are incubated by the female for 20–22 days. Young are fed insects by both parents and can continue to be fed by their parents for up to two months after fledging (Higgins and Peter 2002). Juveniles forage together in groups with adults until the young males leave to stake their own territories. The generation length is 3.7 years (Bird et al. 2020).

DISTRIBUTION AND HABITAT

The Upland Pilotbird subspecies occurs above 600 m in the Brindabella Ranges in the ACT, through the Snowy Mountains in New South Wales and north-east Victoria. The Lowland Pilotbird sub-species occurs from the Blue Mountains in the north, around the wetter forests of eastern Australia, to the Dandenong Ranges near Melbourne (Higgins and Peter 2002, Loyn et al. 2021).

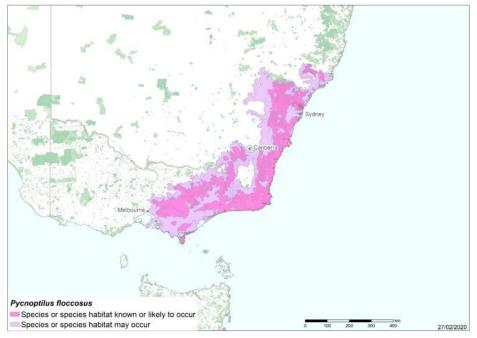


Figure 1: Modelled Distribution of Pilotbird (Source: DAWE 2022)

Source: Base map Geoscience Australia; species distribution data Species of National Environmental Significance database.

In the ACT, the Pilotbird is generally found in the Cotter Valley in the Brindabella Ranges with records mainly from Blundells Creek, Bendora Road, Warks Road and Tidbinbilla. Pilotbird reporting rates remained steady at a low level in 2018–19 with 38 birds recorded in the ACT and reporting rates and abundance declining from both the 10-year and 30-year averages (COG

2020). Figure 2 shows the distribution in the ACT region of records from 1982 to 2017 (Canberrabirds.org.au 2022).

Pilotbirds live on the ground occupying small territories in dense forests with heavy undergrowth only sometimes ascending into shrubs but no more than 1–2 m from the ground (Firth 1984, Higgins and Peter 2002).

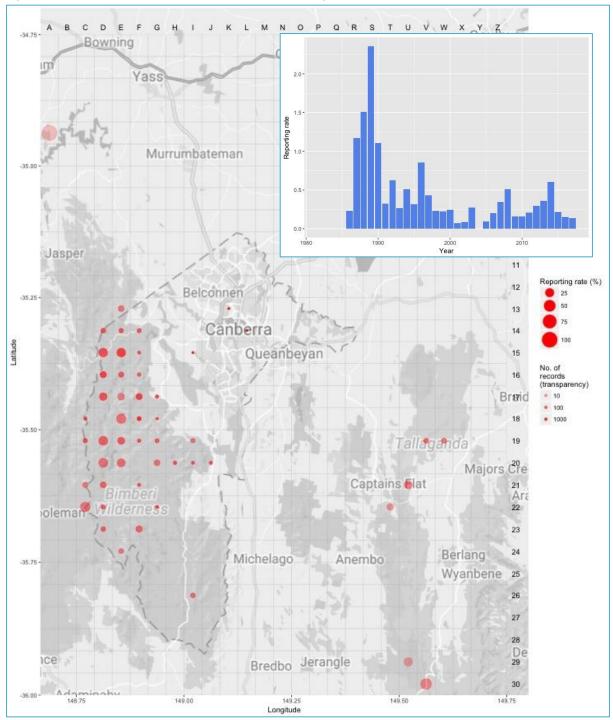


Figure 2: Distribution of Pilotbird records in the ACT region - 1982-2017

Source: Canberrabirds.org.au. (2022). Note: Reporting rate (%) is the proportion of all surveys in which the species was present. These data were collected by volunteer birdwatchers using various survey methods and, on some occasions, more than one person may have recorded bird sightings on the same day, which may skew the data.

Habitat critical to the survival of the Pilotbird includes wet sclerophyll forests in temperate zones in moist gullies with dense undergrowth, and dry sclerophyll forests and woodlands occupying dry slopes and ridges (Higgins and Peter 2002). Any breeding or foraging habitat should be considered habitat critical to the survival of the species (DAWE 2022). Areas that are not currently occupied by the species because they have been burnt (either during the 2019–2020, or in future fires), but which should become suitable again in the future, should also be considered habitat critical to survival (DAWE 2022).

THREATS

There were no known substantive threats to the Pilotbird until a combination of extended drought and

exceptional heat provided the conditions for widespread, high intensity bushfires that burnt large parts of the species' habitat in January 2020 (Loyn et al. 2021). Predation by feral Cats and Foxes is also a potential threat to the species, especially following fire (DAWE 2022) as cats take advantage of recently burnt areas (McGregor et al. 2016), to hunt in open habitats, which they prefer (McGregor et al. 2015).

Baker et al. (1997), studied the long-term effects of high intensity wildfire on 20 passerine species in wet sclerophyll forest in the Brindabella Ranges and found that most of the species studied returned to pre-fire numbers within three years however Pilotbird numbers were still impacted up to at least six years later.

While the 2020 bushfire impacted a significant area of the entire distribution of the species including the southern forests in Namadgi National Park, there was a significant portion of the species habitat in the ACT that was not impacted by these fires, including the northern Namadgi forests in the Lower Cotter Catchment and Tidbinbilla Nature Reserve.

MAJOR CONSERVATION OBJECTIVE

The primary objective in the ACT is to maintain a viable, wild population of Pilotbirds by protecting habitat through a fire and forest management regime that reduces the risk of extensive, intense fires and allows full population recovery and recolonisation of burnt areas between fires.

CONSERVATION PRIORITIES

Conservation and management priorities in the ACT should be to:

- ensure habitat is protected from disturbance and fragmentation
- identify and map likely core habitat areas to assist in operational planning
- ensure fire management (fire risk reduction, fire suppression and post-fire management activities) considers impacts on key breeding locations, foraging, roosting and nesting habitat
- protect nearby unburnt habitat areas after fires to provide ongoing refuge from cats and foxes for known populations
- promote and support the inclusion of this species in bird community surveys, monitoring and research in the ACT
- increase community awareness and encourage community and indigenous-based conservation action
- explore the implications of climate change for population persistence and conduct climate sensitive management actions where feasible. Systematic monitoring and

collection of population data, including reproduction and survival data when available, should be used to assess population viability and species distribution. For species whose physiological limits are known, biophysical models can provide a predictive understanding of the habitats required for persistence in the face of climate change through an integration of data on climate and other environmental variables with measures of morphology, behaviour, physiology and life history of the species. Opportunities to address knowledge gaps for this species to establish climate change ready management actions may include university and interjurisdictional research collaborations.

OTHER RELEVANT ADVICE, PLANS OR PRESCRIPTIONS

- Commonwealth Conservation Advice Pilotbird (DAWE 2022)
- Namadgi National Park Plan of Management (ACT Government 2010)
- Tidbinbilla Plan of Management (ACT Government 2012)

LISTING BACKGROUND

The Pilotbird is listed as a Vulnerable species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), effective 2 March 2022. It is assessed as Vulnerable under Criterion 1 (A2bc) of the EPBC Act. In 2022, under the *Nature Conservation Act 2014*, the ACT Scientific Committee recommended the Pilotbird be listed in the Vulnerable category in the ACT Threatened Native Species List to align with the EPBC Act listing.

ACTION PLAN DECISION

The ACT Scientific Committee does not recommend that the Minister for the Environment should make the decision to have an action plan for the species in the ACT under the *Nature Conservation Act 2014* at this time. The key habitat areas of wet dense forest gullies preferred by the species are specifically identified in fire management planning (ACT Government 2019) to be protected from the impact of fire by every practical measure. The species occurs within Namadgi National Park and Tidbinbilla Nature Reserve and its habitat is protected in these areas.

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FURTHER INFORMATION

Further information on other threatened species and ecological communities can be obtained from the Environment, Planning and Sustainable Development Directorate (EPSDD): Phone: (02) 132281, EPSDD Website: <u>https://www.environment.act.gov.au/</u>

ATTACHMENT A: LISTING ASSESSMENT (DAWE 2022) THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the Environment Protection and Biodiversity Conservation Act 1999

The Threatened Species Scientific Committee finalised this assessment on 12 October 2021.

Attachment A: Listing Assessment for Pycnoptilus floccosus

Reason for assessment

This assessment follows prioritisation of a nomination from the TSSC.

Assessment of eligibility for listing

This assessment uses the criteria set out in the <u>EPBC Regulations</u>. The thresholds used correspond with those in the <u>IUCN Red List criteria</u> except where noted in criterion 4, subcriterion D2. The IUCN criteria are used by Australian jurisdictions to achieve consistent listing assessments through the Common Assessment Method (CAM).

Key assessment parameters

Table 4 includes the key assessment parameters used in the assessment of eligibility for listing against the criteria.

Metric	Estimate used in the assessment	Minimum plausible value	Maximum plausible value	Justification
Number of mature individuals	88,000	10,000	143,000	There are estimated to be 11,000 (range 1,000–18,000) Upland Pilotbirds (<i>P. f. floccosus</i>) and 77,000 (range 9,000–125,000) Lowland Pilotbirds (<i>P. f. sandlandi</i>) in the wild.
				The population estimates of the two Pilotbird subspecies are based on average densities recorded in 2 ha 20 min counts (<i>P. f. floccosus</i> 1.5±0.6 birds/ha, <i>P. f. sandlandi</i> 1.3±0.6 birds/ha; BirdLife Australia 2020); the areas likely to have been occupied from 1990–2019 based on Birdata (BirdLife Australia 2020) and eBird (Cornell Lab 2020); a habitat occupancy of 5–10%; maps of fire severity in 2019/2020 within the pre-fire range; and, initial assumptions about mortality at different severity classes (severity low: 20%; medium: 50%; high: 80%; very high: 100%).
Trend	Declined			The population of Upland Pilotbirds is thought to have declined by 30% (15-45%; 80% confidence bounds) one year after fire (Legge et al. 2021); or 33% as a result of the fires with estimates ranging from 19- 37% depending on the fire-related mortality assumed under different scenarios (ST Garnett and G Ehmke unpublished data cited in Loyn et al. 2021). The population of Lowland Pilotbirds is thought to have

Table 4 Key assessment parameters

Metric	Estimate used	Minimum	Maximum	Justification
	in the	plausible plausible		,
	assessment	value	value	
				declined by 26% (12–42%; 80% confidence bounds) one year after fire (Legge et al. 2021); or 30% as a result of the fires with estimates ranging from 17–34% depending on the fire-related mortality assumed under different scenarios (ST Garnett and G Ehmke unpublished data cited in Loyn et al. 2021). Both estimates in Loyn et al. (2021) conservatively assume a relatively high level of mortality; the true mortality may be lower. Baker et al. (1997) estimated that 10% of
0 11 11				individuals survived a fierce fire in the Brindabellas (Loyn et al. 2021).
Generation time (years)	3.7	2.8	4.6	Bird et al. (2020)
Extent of occurrence	212,200 km ²	205,000 km ²	217,000 km ²	The EOO is based on all records since 1990 (Loyn et al. 2021)
Trend	Stable			Loyn et al. (2021)
Area of Occupancy	26,600 km ²	3,700 km ²	34,500 km ²	Loyn et al. (2021)
Trend	Contracted			Fires in 2019/2020 burnt 46–53 % of the range of Upland and Lowland Pilotbirds respectively (Legge et al. 2021); or 52.5 % and 50.9 % of all 1x1 km squares from which Upland and Lowland Pilotbirds have been recorded, respectively, since 1990 (G Ehmke unpublished data cited in Loyn et al. 2021).
Number of subpopulations	2	2	2	One subpopulation for each subspecies (Loyn et al. 2021).
Trend	Stable		•	Loyn et al. (2021)
Basis of assessment of subpopulation number	ment of 2021) pulation			
No. locations	>10			Loyn et al. (2021)
Trend	Not calculated			Loyn et al. (2021)
Basis of assessment of location number	 Pilotbirds are estimated to occur >10 locations (Loyn et al. 2021), based on the most plausible serious threat – fire. The number of locations was determined using the 2019/2020 fire extent (IUCN 2019; Loyn et al. 2021). The 2019/2020 bushfire heavily impacted south eastern Australia, though unburnt habitat fragments remain within the fire-affected area. Birds are highly mobile and are able move away from fire and persist in habitat refuge sites, recolonising burnt areas once they become suitable again. The geographic position of unburnt locations will vary between fires, but there are always likely to be >10 locations (Loyn et al. 2021) occurring at least within known sites in areas above 600 m asl in the Brindabella Ranges in the Australian Capital Territory, and in the Snowy Mountains in New South Wales and north-east Victoria; and in forests from the Blue Mountains west of Newcastle around the wetter forests of eastern Australia to the Dandenong's near Melbourne (Higgins and Peter 2002). 			
Fragmentation	Not severely fragmented (Loyn et al. 2021).			

Metric	Estimate used in the assessment	Minimum plausible value	Maximum plausible value	Justification	
Fluctuations	Not subject to extreme fluctuations in EOO, AOO, number of subpopulations, locations or mature individuals (Loyn et al. 2021)				

Criterion 1 Population size reduction

Redu	Reduction in total numbers (measured over the longer of 10 years or 3 generations) based on any of A1 to A4						
		Critically Endangered Very severe reduction	Endange Severe r	ered reduction		Vulnerable Substantial reduction	
A1		≥ 90%	≥ 70%			≥ 50%	
A2, A	3, A4	≥ 80%	≥ 50%			≥ 30%	
A1	Population reduction observed, estimat past and the causes of the reduction are understood AND ceased.		the			direct observation [except A3] an index of abundance appropriate to the taxon	
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.				(c)	a decline in area of occupancy, extent of occurrence and/or quality of habitat	
A3	to a maximum of 100 years) [(a) cannot be used for A3] any of the following			actual or potential levels of exploitation			
A4					(e)	the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites	

Criterion 1 evidence Eligible under Criterion 1 A2bc for listing as Vulnerable

Upland Pilotbirds occur above 600 meters in the Brindabella Ranges in the Australian Capital Territory, and in the Snowy Mountains in New South Wales and north-east Victoria. Lowland Pilotbirds occur in forests from the Blue Mountains west of Newcastle, around the wetter forests of eastern Australia, to Dandenong near Melbourne (Higgins & Peter 2002). Between July 2019 and February 2020, bushfires burned over 104,000 km² across southern and eastern Australia (Legge et al. 2021). It is estimated that 33% (range 19–37%) and 30% (range 17–34%) of Upland and Lowland Pilotbird populations perished in the fires, respectively. These estimates depend on the fire-related mortality assumed under different scenarios (Loyn et al. 2021). There has also been an estimated 52.5% and 50.9% decline in Upland and Lowland Pilotbird habitat respectively due to the fires. This includes important Pilotbird nesting and feeding habitat (Loyn et al. 2021). The extent of occurrence (EOO) for the species is stable (212,200 km²), however, the area of occupancy (AOO) for the species has contracted to 26,600 km² (Loyn et al. 2021).

In a separate analysis based on expert elicitation, populations of the Upland and Lowland Pilotbirds were estimated to decline by 30% and 25% respectively, and possibly by as much as 45% and 42%, respectively (based on the lower 80% confidence bound) (Legge et al. 2021).

The retreat of Pilotbirds up an altitudinal gradient may be an ecological response to the drying effect of drought at lower altitudes (Loyn & Menkhorst 2011). Pilotbirds were quite common and tame in wet forest in the Dandenong Ranges in the 1970s but have declined since and are now rare (E McNabb pers. comm. cited in Loyn & Menkhorst 2011). Similar declines have been observed in Bunyip State Park and near Healesville, though the species remains common in wet forest at higher elevation e.g., near Toolangi.

The Committee considers that the species has undergone a substantial reduction in numbers over three generations (11 years), which is equivalent to at least >30% to 50% and the cause has not ceased. This is because the risk of frequent, large extent, high intensity wildfires are projected to increase. Therefore, the species has met the relevant elements of Criterion 1 to make it eligible for listing as **Vulnerable**.

		_			
		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 conditi	ons:			
(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					

Criterion 2 Geographic distribution as indicators for either extent of occurrence AND/OR area of occupancy

Criterion 2 evidence Not eligible

The extent of occurrence (EOO) for the species is estimated to be 212,200 km² (Upland Pilotbird: 16,200 km² (range 15,000–17,000 km²); Lowland Pilotbird: 196,000 km² (range 190,000–200,000 km²)) (Loyn et al. 2021). The area of occupancy (AOO) is estimated to be 26,600 km² (Upland Pilotbird: 2,800 km² (range 300–3,700 km²); Lowland Pilotbird 23,800 km² (range 3400–30,800 km²)) (Loyn et al. 2021). The EOO is based on all records since 1990. The estimated AOO is the proportion of a tight polygon encompassing all records since 1990 (alpha hull). The minimum is based on the 2x2 km squares encompassing those records. The maximum

is an alpha hull encompassing all records regardless of whether they burnt. Fires in 2019/2020 burnt 52.5 % and 50.9 % of all 1x1 km squares from which Upland and Lowland Pilotbirds have been recorded, respectively, since 1990 (G Ehmke unpublished data cited in Loyn et al. 2021). The EOO for the species is thought to be stable; however, the AOO for the species has contracted (Loyn et al. 2021). Both subspecies of Pilotbird are estimated to occur at more than 10 locations and are not severely fragmented. The species is not subject to extreme fluctuations in EOO, AOO, number of subpopulations, locations or mature individuals. No parameter was changed by an order of magnitude by the 2019/2020 fire.

Following assessment of the data, the Committee has determined that the species' geographic distribution is not precarious for its survival. Therefore, the species has not met this required element of this criterion.

	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 generation (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:			
(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			

Criterion 3 Population size and decline

Criterion 3 evidence Not eligible

The species consists of two populations (Loyn et al. 2021). The total population size is now generally accepted to be 88,000 mature individuals (consisting of 11,000 Upland Pilotbirds (range 1,000–18,000, low reliability), and 77,000 Lowland Pilotbirds (range 9,000–125,000, low reliability) (Loyn et al. 2021). The total population for the Upland and Lowland subspecies has very likely declined due to the 2019/2020 fires, but not enough to reduce the total populations

to less than 10,000. The species is not subject to extreme fluctuations in the number of mature individuals (Loyn et al. 2021).

The number of mature individuals of the species is not considered low, as there is no continuing decline, therefore the species does not meet the required elements to be listed as threatened under this criterion.

	Critically Endangered Extremely low	Endangered Very Low	Vulnerable Low
D. Number of mature individuals	< 50	< 250	< 1,000
D2. ¹ Only applies to the Vulnerable category 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: area of occupancy < 20 km² or number of locations ≤ 5

Criterion 4 Number of mature individuals

¹ The IUCN Red List Criterion D allows for species to be listed as Vulnerable under Criterion D2. The corresponding Criterion 4 in the EPBC Regulations does not currently include the provision for listing a species under D2. As such, a species cannot currently be listed under the EPBC Act under Criterion D2 only. However, assessments may include information relevant to D2. This information will not be considered by the Committee in making its recommendation of the species' eligibility for listing under the EPBC Act, but may assist other jurisdictions to adopt the assessment outcome under the <u>common</u> assessment method.

Criterion 4 evidence Not eligible

The total population size is now generally accepted to be 88,000 mature individuals (consisting of 11,000 Upland Pilotbirds (range 1,000–18,000, low reliability), and 77,000 Lowland Pilotbirds (range 9,000–125,000, low reliability) (Loyn et al. 2021). This estimate is based on average densities recorded in 2 ha 20 min counts (*P. f. floccosus* 1.5±0.6 birds/ha, *P. f. sandlandi* 1.3±0.6 birds/ha; BirdLife Australia 2020); the areas likely to have been occupied from 1990–2019 based on Birdata (BirdLife Australia 2020) and eBird (Cornell Lab 2020); a habitat occupancy of 5–10 %; maps of fire severity in 2019/2020 within the pre-fire range; and, initial assumptions about mortality at different severity classes (severity low: 20 %; medium: 50 %; high: 80 %; very high: 100 %).

The total number of mature individuals is 88,000 which is not considered low. Therefore, the species has not 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

Criterion 5 evidence

Insufficient data to determine eligibility

Population viability analysis has not been undertaken. Therefore, there is insufficient information to determine the eligibility of the subspecies for listing in any category under this criterion.

Adequacy of survey

The survey effort has been considered adequate and there is sufficient scientific evidence to support the assessment.

Public consultation

Notice of the proposed amendment and a consultation document was made available for public comment for 35 business days between 9 July and 27 August 2021.

Listing and Recovery Plan Recommendations

The Threatened Species Scientific Committee recommends:

(i) that the list referred to in section 178 of the EPBC Act be amended by **including** *Pycnoptilus floccosus* in the list in the Vulnerable category.

(ii) that there not be a recovery plan for this species.