

Australian Capital Territory

Nature Conservation (Diamond Firetail) Conservation Advice 2024

Notifiable instrument NI2024-251

made under the

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

1 Name of instrument

This instrument is the *Nature Conservation (Diamond Firetail) Conservation Advice 2024*.

2 Commencement

This instrument commences on the day after its notification day.

3 Conservation advice for Diamond Firetail

Schedule 1 sets out the conservation advice for Diamond Firetail (*Stagonopleura guttata*).

Arthur Georges
Chair, Scientific Committee
21 May 2024

Schedule 1

(see s 3)



ACT
Government

Environment, Planning and
Sustainable Development



CONSERVATION ADVICE

DIAMOND FIRETAIL

Stagonopleura guttata

CONSERVATION STATUS

The Diamond Firetail *Stagonopleura guttata* (Shaw, 1796) is recognised as threatened in the following jurisdictions:

International	Vulnerable , International Union for the Conservation of Nature (IUCN) Red List
National	Vulnerable , <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) Vulnerable , Action Plan for Australian Birds 2020
ACT	Vulnerable , <i>Nature Conservation Act 2014</i>
NSW	Vulnerable , <i>Biodiversity Conservation Act 2016</i>
Victoria	Vulnerable , <i>Flora and Fauna Guarantee Act 1988</i>
Queensland	Vulnerable , <i>Nature Conservation Act 1992</i>
SA	Vulnerable , <i>National Parks and Wildlife Act 1972</i>

ELIGIBILITY

The Diamond Firetail is listed as Vulnerable in the ACT Threatened Native Species List under IUCN Criterion A— A2bce+3ce+4bce due to a significant reduction in the national population size (30–50%) over the last ten years with a high probability of declines continuing (Hodder et al. 2021 and Attachment A - DCCEEW) 2023).

DESCRIPTION AND ECOLOGY

The Diamond Firetail is a finch, measuring about 12 cm and weighing 17 g on average. The top of its body, wings and head are ash brown to grey and the underparts are white with a crimson rump. There is a black band across its neck which continues down the flank with white dots. The bill and eye ring are coral, and the legs and feet are dark grey. The sexes are similar, except females have a slightly paler bill. Juveniles are duller but plumper versions of adults with grey-black bills and have grey replacing black on the underparts (Birdlife Australia 2023).

Breeding occurs usually from August to January (OEH 2021) and 4–5 eggs are laid in bottle-shaped nests (Higgins et al. 2007). Nests are built either in the shrubby understorey, or higher up in trees (OEH



[Diamond Firetail \(Trevor Rix – Canberra Nature Map\)](#)

2021). The Diamond Firetail roosts in dense shrubs or in smaller nests built especially for roosting.

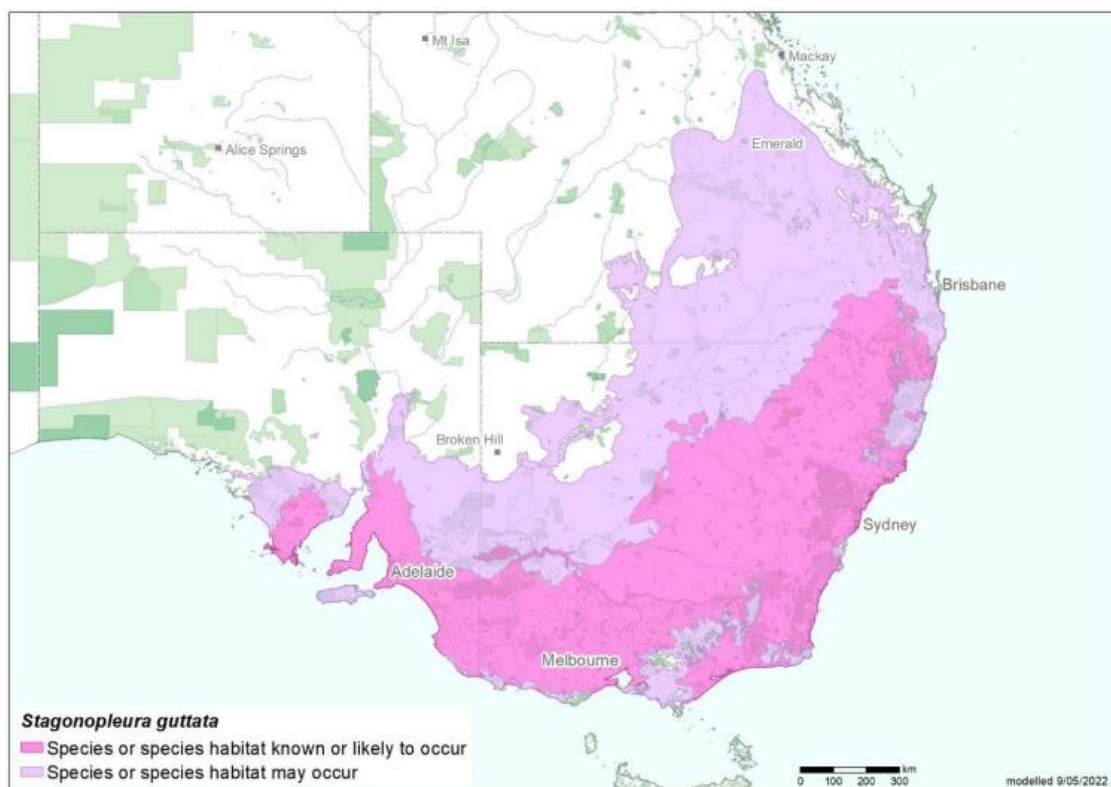
The species feeds exclusively on the ground, mostly on seeds of grasses and herbs, as well as on insects in the breeding season (OEH 2021).

DISTRIBUTION AND HABITAT

The distribution of the Diamond Firetail is across the south-east mainland of Australia from south-east Queensland to the Eyre Peninsula, South Australia, as shown in Map 1 (Higgins et al. 2006). The national estimated extent of occurrence (EOO) is 1.5million km² and area of occupancy (AOO) is 25,000 km² (Hodder et al. 2021). The species occurs in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum Woodlands, as well as in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities (OEH 2021). It is commonly found in riparian areas along rivers and creeks and at times in lightly wooded farmland (OEH 2021).

The Diamond Firetail has disappeared from many of the more settled parts of New South Wales (NSW), the Australian Capital Territory (ACT) and Victoria, and birds in South Australia appear to have been separated into three isolated subpopulations (Higgins et al. 2007).

Map 1: Modelled distribution of the Diamond Firetail (Source: DCCEEW 2023)



Source: Base map Geoscience Australia; species distribution data [Species of National Environmental Significance](#) database.

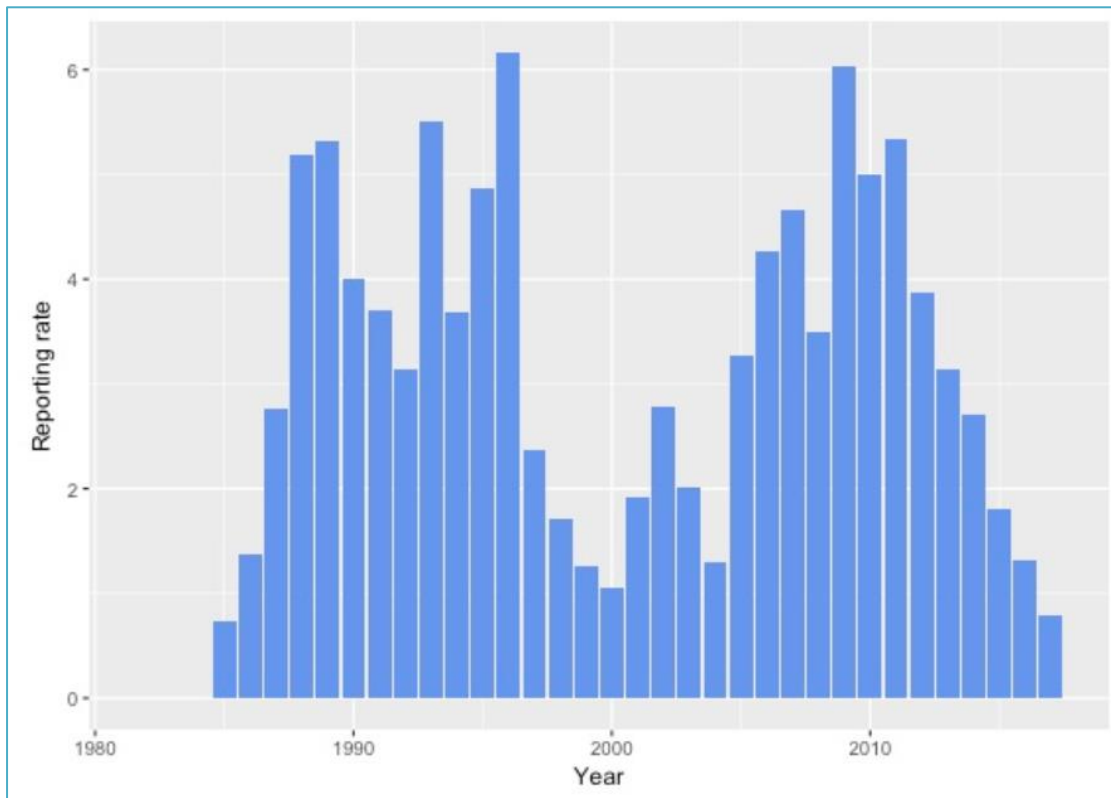
The species is resident in the ACT region (Figure 1 and 2) and is typically recorded in small groups, usually moving around to take advantage of seed sources (Bounds et al. 2021). Taylor and COG (1992) reported it as inhabiting scattered pockets of relatively undisturbed woodland and grassland with patchy shrubs or eucalypt regrowth. The Diamond Firetail can be found in rural/semi-rural areas, on the outer edge of the suburbs and adjoining woodland habitat, avoiding with suburban habitat (Canberra Birds 2023). It was once described as a fairly common breeding species in many localities in the ACT and could usually be found at Naas, along the Murrumbidgee and in other areas in the ACT in the early 1950s (Cabby 2000). It

is now known, in the ACT, as an ‘uncommon breeding resident’ with 140 records in 2018–19 (152 in 2017–18; 111 in 2016–17; 154 in 2015–16) with abundance down by 72% on the 30-year average (COG 2018, COG 2020).

The habitat critical to the survival of the species is identified in the Commonwealth Conservation Advice (DCCEEW 2023) and corresponds with all known or likely habitat in Map 1 and includes areas of:

- eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats
- low tree density, few large logs, and little litter cover but high grass cover for foraging, roosting and breeding.

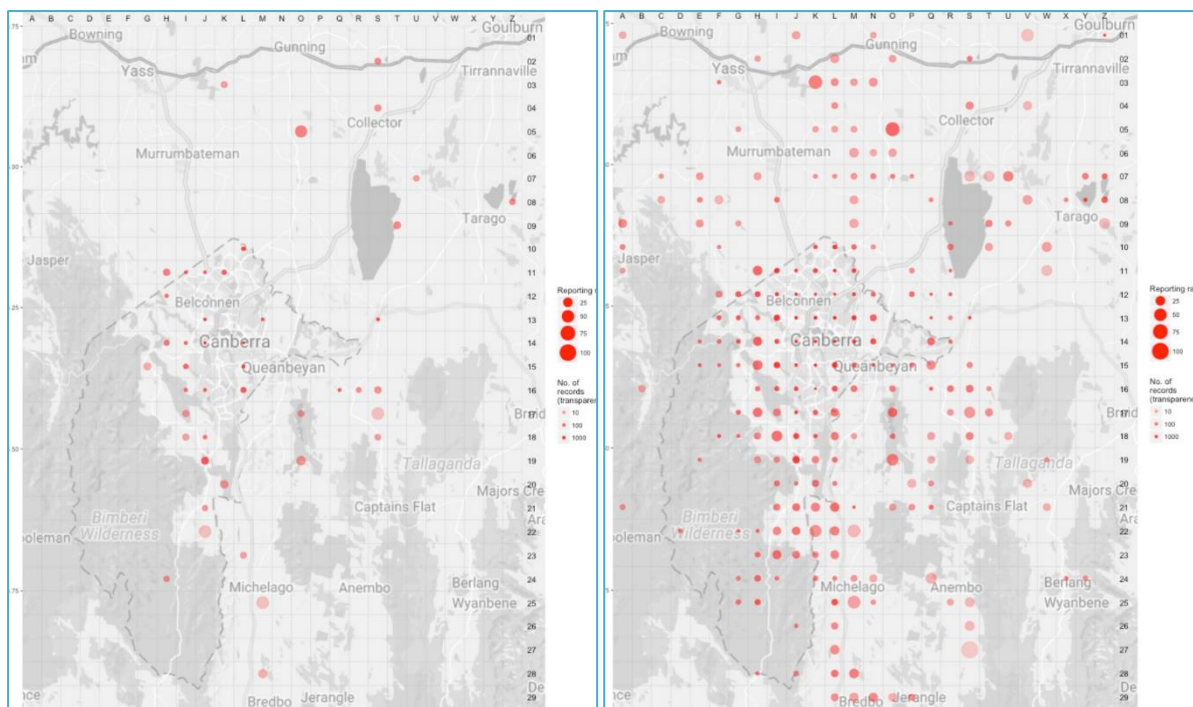
Figure 1: Diamond Firetail records in the ACT region – 1982–2017



Source: Canberra Birds (2018). The reporting rate in 2018-19 (0.9%) is down 30% on 2017–18 and down 65% on the 30-year average to be just above the lowest level of 0.8% (COG 2020).

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.

Figure 2: Diamond Firetail distribution in the ACT region – 2017 and 1982–2017



Source: *Canberrabirds.org.au*. (2018). 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.

THREATS

In common with many other threatened bird species, a principal threat to the Diamond Firetail is a severe decline in the quality and quantity of its native woodland and grassland habitat. In the ACT, weed cover, especially in high rainfall periods, loss of favoured native grasses, or overgrazing by native herbivores may be the influencing factors in the species decline (Bounds et al. 2021).

Threats to the Diamond Firetail (DCCEEW 2023) include:

- over-clearing of native vegetation and subsequent fragmentation and degradation of remnant habitat patches
- overgrazing by stock and rabbits and overabundant kangaroos over-browsing the shrub layer
- invasive weeds, especially exotic annual grasses that replace native perennial grasses
- predation by feral and/or uncontrolled domestic animals (foxes, dogs and cats)
- unknown effects of severe weather events, including heatwaves
- unknown fire regimes
- increased competition with Noisy Miners and predation by Pied Currawongs as fragmented remnants are degraded.

MAJOR CONSERVATION OBJECTIVES

The primary objective in the ACT is to protect Diamond Firetail habitat through limiting clearance of suitable woodland habitat and prioritising conservation management to woodland patches, particularly those that are large or have complex habitat structure.

CONSERVATION PRIORITIES

Conservation priorities are detailed in the Commonwealth Conservation Advice (DCCEEW 2023) for the species and rely on engaging with other jurisdictions to support regional and national recovery of the species. Priorities for the Diamond Firetail in the ACT should be to:

- identify and protect woodland and grassland habitat, particularly areas of 200 ha or greater within woody vegetation and maintain areas with a diverse ground layer dominated by a mixture of native perennial grass species that seed at different times of year to provide a year-round food supply and provide scattered shrubs for shelter, as well as areas with access to water, especially riparian areas
- maintain and enhance connectivity through regeneration and revegetation
- target control of invasive weeds that compromise habitat values
- reduce intensive grazing
- monitor long-term trends and the effectiveness of management actions
- investigate the potential impact of climate change on the species and its habitat
- identify fire regimes suitable to habitat requirements and highlight the ecological needs of the species in fire management guidelines
- determine the impacts of Noisy Miners and Pied Currawongs and manage as required
- actively seek opportunities to involve members of local indigenous communities in on ground activities
- encourage responsible pet ownership
- encourage and support the continuation and further development of community-based conservation activities.

CONSERVATION ISSUES

It is recommended that quantitative targets and resourcing requirements are clearly identified in any Action Plan or other related projects/programs relevant to this species. Broader conservation issues for this and other declining woodland birds need to be considered in developing and implementing actions arising from this advice and the species listing assessment (DCCEEW 2023).

Critical Habitat

The temperate woodlands of the northern ACT and the bordering NSW region have been extensively disturbed by agriculture and urbanization and small patches of woodland are now embedded in a pastoral or suburban matrix. Consequently, birds are threatened by a reduction in habitat area, increased isolation, and declining habitat condition emphasising the importance and need of large, structurally complex, connected, high quality woodland patches to accommodate existing woodland birds (Watson et al. 2002, Watson et al. 2008). Watson et al. (2002) predicted that the decline of woodland bird species will continue unless appropriate habitat conservation strategies are applied as suggested (Watson et al. 2008).

The Commonwealth Conservation Advice (DCCEEW 2023) identifies ‘habitat critical to the survival’ or important habitats of a species refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species (including the maintenance of species essential to the survival of the species, such as pollinators)
- to maintain genetic diversity and long-term evolutionary development
- for the reintroduction of populations or recovery of the species.

Habitat critical to the survival should not be cleared, fragmented or degraded. Any known or likely habitat (Map 1) should be considered as habitat critical to the survival of the species. Additionally, areas that are not currently occupied by the species due to recent disturbance (e.g fire, grazing or human activity), but should become suitable again in the future, should also be considered habitat critical to the survival of the species. It is essential that the highest level of protection is provided to these areas, across all tenures, and that enhancement and protection measures target these productive sites. No Critical Habitat as defined under section 207A of the EPBC Act has been identified or included in the Register of Critical Habitat under the EPBC Act.

Climate Change

Climate change impacts are inevitable and will affect the likelihood of persistence, within the ACT, of many species. Indeed, recent work demonstrates the negative effects of heatwaves and consequences for population persistence in bird communities of semi-arid woodlands (Gardner et al. 2022). The ACT is expected to face similar climate conditions in coming decades. Amongst the most vulnerable in this regard are those species that occupy highly fragmented habitat with highly restricted distributions. Capacity must be developed to model the impact on this species and its habitat under likely climate change scenarios if we are to anticipate and manage the impacts of climate change. This will require a combination of research and the development of in-house capacity for the collection of relevant data and its application in climate change modelling. New developments in biophysical models can provide a predictive understanding of the habitats required for persistence in the face of climate change and other stressors (see review by Briscoe et al. 2023). Such models integrate physical data on climate and terrain with measures of morphology, behaviour, physiology and life history of the species in question. Ensuring collection of relevant data to provide the necessary information to parameterize models that can explore population persistence and species distributions is critical. Given increases in the frequency and intensity of extreme heat events are widely predicted it will be important to characterise the nature and use of thermal refuges used by birds under such conditions to quantify the importance of refuges for survival, and to preserve/regenerate such habitat.

Population Viability

An understanding of demographic rates, dispersal and behaviour is necessary for assessing responses to environmental changes and to inform population modelling (e.g., PVA, Biophysical Models), which can predict likelihoods of viability over the longer term. This will inform management options which may include assessment of genetic diversity and the possibility of genetic rescue. It is possible for the viability of species/population to be compromised such that they are unable to rebound if conditions improve and/or respond to suitable management. For example, loss of genetic diversity and associated genetic problems, such as inbreeding depression, in small populations can reduce survival and reproductive rates such that the population cannot respond to improved conditions.

Jurisdictional Collaboration

Many woodland birds have large distributions and while the ACT makes up a small component, in terms of area, it can play an important role in informing conservation due to its location, local expertise and community interest. Developing policies and recovery plans across several jurisdictions with many stakeholders requires ongoing discussion/negotiations across many stakeholders and jurisdictional entities.

Ngunnawal Community Engagement

The ACT Government should actively facilitate, the inclusion of the Ngunnawal people in the conservation of this species and its habitat as part of Ngunnawal Country. Reference to the draft Cultural Resource Management Plan (ACT Government in prep.) would be useful to inform culturally appropriate resource management including of native species that aligns with achieving conservation outcomes for the species.

OTHER RELEVANT ADVICE, PLANS OR PRESCRIPTIONS

- Commonwealth Conservation Advice – Diamond Firetail (DCCEEW 2023)
- ACT Woodland Conservation Strategy (ACT Government 2004)
- ACT Woodland Conservation Strategy (ACT Government 2019)
- ACT Conservation Advice — Loss of Mature Trees (Scientific Committee 2018)

LISTING BACKGROUND

The Diamond Firetail is listed as a Vulnerable species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), effective 31 March 2023. It is eligible to be listed as Vulnerable under Criterion 1 (A2bce+3ce+4bce) of the EPBC Act. In 2023, under the *Nature Conservation Act 2014*, the ACT Scientific Committee recommended the Diamond Firetail 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 individual action plan for the species in the ACT under the *Nature Conservation Act 2014* at this time but proposes that an Action Plan for (threatened) Woodland Birds (including specific requirements for the Diamond Firetail) should be developed and implemented by the Conservator. There are several woodland birds, including the Diamond Firetail, for which there are actions that are designed to provide for the conservation and management of the habitat of these birds collectively in the Woodland Strategy (ACT Government 2019), however a targeted Action Plan for (threatened) Woodland Birds and their habitat in the ACT is necessary to identify, understand and help address the declines and support recovery.

A National Recovery Plan is required to be prepared for the species (DCCEEW 2023) but there are likely to be ACT specific questions that need to be answered that a National Recovery Plan may not address. For example, as the decline in the ACT is not fully understood and is likely fully attributed to urbanisation we could reduce further losses through better urban planning.

REFERENCES

ACT Government 2004. *Woodlands for Wildlife: ACT Lowland Woodland Conservation Strategy. Action Plan No. 27*. Environment ACT, Canberra.

ACT Government 2019. *ACT Woodland Conservation Strategy and Action Plans*. Environment Planning and Sustainable Development Directorate, Canberra.

ACT Government in prep. *Draft Cultural Resource Management Plan*. Environment Planning and Sustainable Development, ACT Government, Canberra.

BirdLife Australia 2023. Diamond Firetail *Stagonopleura guttata* Profile. Accessed 10 May 2023 from: <https://birdlife.org.au/bird-profiles/diamond-firetail/>

- BirdLife International 2022. *Stagonopleura guttata*. The IUCN Red List of Threatened Species 2022: e.T22719660A211542365. <https://www.iucnredlist.org/species/22719660/211542365> Accessed on 10 May 2023.
- Bounds J, Davey C, Taws N, Evans MJ, Rayner L 2021. *Long-term trends in ACT woodland birds 1998–2019*. Canberra Ornithologists Group, Canberra.
- Briscoe NJ, Morris SD, Mathewson PD, Buckley LB, Jusup M, Levy O, Maclean IMD, Pincebourde S, Riddell EA, Roberts JA, Schouten R, Sears MW, Kearney MR 2023. Mechanistic forecasts of species responses to climate change: The promise of biophysical ecology. *Global Change Biology* 29(6): 1451–1470.
- Cabby J 2000. List of Birds of the ACT – early 1950s, *Canberra Bird Notes* 25(1): 1–22. <http://canberrabirds.org.au/wp-content/canberra-bird-notes/cbnvol25no1.pdf>
- Canberra Birds 2018. Diamond Firetail *Stagonopleura guttata* data sheet. Canberra Ornithologists Group, Canberra. <http://canberrabirds.org.au/birds/diamond-firetail/>
- Canberra Birds 2023. Canberra Garden Birds – Diamond Firetail *Stagonopleura guttata* Profile. Canberra Ornithologists Group, Canberra. <https://canberrabirds.org.au/our-birds/canberra-garden-birds/finches/diamond-firetail/>
- COG 2018. Annual Bird Report: 1 July 2016 to 30 June 2017. *Canberra Bird Notes* 43(1): 1–110.
- COG 2020. Annual Bird Report: 1 July 2018 to 30 June 2019. *Canberra Bird Notes* 45(1): 1–108
- Bounds J, Davey C, Taws N, Evans MJ, Rayner L 2021. Long-term Trends in ACT Woodland Birds 1998–2019. Canberra Ornithologists Group, Canberra.
- Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2023. *Conservation Advice Stagonopleura guttata (diamond firetail)*. Department of Climate Change, Energy, the Environment and Water (Commonwealth), Canberra.
- Gardner JL, Clayton M, Allen R, Stein J, Bonnet T. 2022. The effects of temperature extremes on survival in two semi-arid Australian bird communities over three decades, with projections to 2104. *Global Ecology & Biogeography* 31(12): 2498–2509.
- Garnett ST and Baker GB 2021. *The Action Plan for Australian Birds*, CSIRO Publishing, Collingwood.
- Higgins PJ, Peter JM, Cowling SJ (Eds) 2007. *Handbook of Australian, New Zealand and Antarctic Birds. Volume 7: Boatbill to Starlings*. Oxford University Press, Melbourne.
- Hodder GV, Ford HA, Ehmke G, D Oliver, Tulloch AIT, Barnes MD & Garnett ST 2021. Diamond Firetail *Stagonopleura guttata*. In *The Action Plan for Australian Birds 2020*. (Eds ST Garnett and GB Baker). CSIRO Publishing, Melbourne.
- Office of Environment and Heritage (OEH) 2021. Diamond Firetail Profile. <https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10768>
- Scientific Committee 2018. Conservation Advice – Loss of Mature Trees (including Hollow-bearing Trees) and Lack of Recruitment. ACT Government, Canberra.
- Taylor M and Canberra Ornithologists Group (COG) 1992. *Birds of the Australian Capital Territory – An Atlas*. Canberra Ornithologist Group and National Capital Planning Authority, Canberra.

FURTHER INFORMATION

Further information can be obtained from the Environment, Planning and Sustainable Development Directorate (EPSDD). EPSDD Website: <https://www.environment.act.gov.au/nature-conservation>

Attachment A: Listing Assessment for *Stagonopleura guttata*

Reason for assessment

Prioritisation of a nomination from the TSSC.

Assessment of eligibility for listing

This assessment uses the criteria set out in the [EPBC Regulations](#). The thresholds used correspond with those in the [IUCN Red List criteria](#) except where noted in criterion 4, sub-criterion 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.

Table 4 Key assessment parameters

Metric	Estimate used in the assessment	Minimum plausible value	Maximum plausible value	Justification
Number of mature individuals	136,000	68,000	272,000	<p>The population estimate of diamond firetail is the product of the three measures of AOO and the density recorded in 2 ha 20 min surveys (2.72±SD 2.99; BirdLife Australia 2020 cited in Hodder et al. 2021). Each 2x2 km square contributing to the AOO is assumed to indicate 16 ha of suitable habitat (S Garnett pers. comm. 9 Nov 2021).</p> <p>The following assumptions were made in the estimates of the population size:</p> <ul style="list-style-type: none"> • The AOO, which attributes 2x2 km of habitat to any point at which the species is recorded, is based only on sightings of birds that have been entered into the BirdLife Australia database (S Garnett pers. comm. 9 Nov 2021). Many areas occupied by the species are likely to be unrecorded. From some, however, the birds may have disappeared since the record was made. For this reason, the AOO has wide error margins (S Garnett pers. comm. 9 Nov 2021). • The area surveyed within any part of the AOO is likely to be small relative to the total 2x2 km assumed to be occupied (S Garnett pers. comm. 9 Nov 2021). In some 2x2 km AOO squares, the entire area will be suitable habitat and occupied. In others, only a fragment of occupied habitat may remain. For there to be a

Metric	Estimate used in the assessment	Minimum plausible value	Maximum plausible value	Justification
				<p>record at all must mean there is 2 ha of habitat in which the species was present in at least part at the time of the survey (S Garnett pers. comm. 9 Nov 2021). The population estimates assume that double that area is available within every 2x2 km, which is deliberately highly conservative (S Garnett pers. comm. 9 Nov 2021).</p> <ul style="list-style-type: none"> The density of 1.36 birds/ha (2.72 in each 2 ha plot surveyed) is based on surveys in which observers have noted the number of individuals they have seen during a survey. The number of individuals recorded during surveys is highly variable (\pmSD 2.99) (S Garnett pers. comm. 9 Nov 2021). <p>The reliability of this population estimate is very low (S Garnett pers. comm. 9 Nov 2021).</p>
Trend	Declining			<p>Local experience of declines, particularly in the south and east and now evident in reporting rate trends (Hodder et al. 2021).</p> <p>The reliability of this estimate is high as there is a high probability of declines continuing (Hodder et al. 2021).</p>
Generation time (years)	2.2	1.7	2.8	Bird et al. (2020). The reliability of this estimate is low.
Extent of occurrence	1,500,000 km ²	1,400,000 km ²	1,600,000 km ²	Hodder et al. (2021). The reliability of this estimate is high.
Trend	Contracting			Hodder et al. (2021). The reliability of this estimate is high.
Area of Occupancy	25,000 km ²	12,500 km ²	50,000 km ²	The minimum AOO is the number of 2x2 km squares within they have been recorded since 1990, although they may have been extirpated from some areas (Hodder et al. 2021). The reliability of this estimate is low (Hodder et al. 2021).
Trend	Contracting			Hodder et al. (2021). The reliability of this estimate is high.
Number of subpopulations	3	2	100	The species appears to have been separated into three isolated subpopulations (Eyre Peninsula, Mt Lofty to Southern Flinders Ranges, and the south-east) (Higgins et al. 2007) with few records from a fourth (Yorke Peninsula) in the last decade (Hodder et al. 2021). The reliability of this estimate is low.
Trend	Declining			Hodder et al. (2021). The reliability of this estimate is high.

Metric	Estimate used in the assessment	Minimum plausible value	Maximum plausible value	Justification
Basis of assessment of subpopulation number	At least two isolated subpopulations in South Australia, however due to the fragmentation of woodland habitat and low dispersal distances there are there may be many other subpopulations of diamond firetail (Hodder et al. 2021).			
No. locations	>10			Hodder et al. (2021)
Trend	Not calculated			Hodder et al. (2021)
Basis of assessment of location number	Not calculated: the spatial nature of the threats, even though stochastic in space and time, is such that there are >10 geographically or ecologically distinct areas were a single threatening event could affect all individuals of the taxon present within a period of three years (Hodder et al. 2021).			
Fragmentation	Not severely fragmented (Hodder et al. 2021).			
Fluctuations	Not subject to extreme fluctuations in EOO, AOO, number of subpopulations, locations or mature individuals (Hodder et al. 2021).			

Criterion 1 Population size reduction

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	Endangered Severe reduction	Vulnerable Substantial reduction
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%
<p>A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.</p> <p>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.</p> <p>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]</p> <p>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.</p>	Based on any of the following		<p>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p>

Criterion 1 evidence

Eligible under Criterion 1 A2bce+3ce+4bce for listing as Vulnerable

Diamond firetails occur on the south-east mainland of Australia from south-east Queensland to Eyre Peninsula, South Australia and about 300 km inland from the sea (Higgins et al. 2007). Reporting rate data can be used to determine bird species abundance. Data used in trend analyses are limited to standardised bird surveys drawn from discrete (spatially separated) sites which have multiple repeat observations over time. Although reporting rates were stable

between BirdLife Australia Atlases (give years of reporting) (Barrett et al. 2002), diamond firetails are one of a suite of taxa considered to be declining in south-eastern Australia (Hodder et al. 2021). Local experience of declines, particularly in the south and east, are especially evident (Hodder et al. 2021). Recent trends in reporting rates across the range of the species are consistent with this: from 2000–2019, reporting rates from 2 ha 20 min counts and 500 m area searches declined by 58% and 46%, respectively (2000–2009: 40% and 41%; 2010–2019: 35% and 7%) (Hodder et al. 2021).

However, not all regional results are consistent. In the Mt Lofty Ranges, abundance in 151 2 ha plots monitored annually between 2001 and 2016 declined by about 2% p.a. (TAA Prowse, PJ O'Connor, SJ Collard, KJ Peters, HP Possingham unpublished cited in Hodder et al. 2021). Furthermore, in north-east New South Wales reporting rates at 41 sites declined from 18% in 1977–1980 to 12% in 2004–2006 (Gosper & Gosper 2016) and zero in 2020 (DG Gosper, CR Gosper pers. comm. cited in Hodder et al. 2021). However, there was no significant change in reporting rates from 2 ha 20 min surveys for 1999–2013 for the Brigalow Belt or South-east Mainland regions (BirdLife Australia 2015); there was a strongly significant increase of 10% p.a. in surveys during 2000–2015 at over 165 sites in southern New South Wales (Lindenmayer et al. 2018); and drought had no impact on reporting rates in central New South Wales (Ellis & Taylor 2014). Reporting rates in the Australian Capital Territory show a six-fold fluctuation, with peaks in 1987–1996 and 2006–2011 and a trough in 2000–2006 and a steady decline from 2011–2017 (Canberra Ornithologists Group 2020). There was no overall trend in reporting rate for the species in Australian Capital Territory woodland bird survey data from 1998–2019, although this possibly reflects sparse data (Bounds et al. 2021). Within this period, there was a statistically significant decrease in reporting rate from 2012 to 2017, corresponding with the end of a wetter period and start of a drier period. The species occurs infrequently at a small number of locations in the Australian Capital Territory.

While there is no dedicated range-wide monitoring, the species is still sufficiently common that reporting rate trends are likely to reflect changes in abundance (Hodder et al. 2021). A regional trend data report a variety of estimates, reporting rate trends across the species' range indicate a continuing rapid decline in the population size of >30% over the last ten years (one generation 2.2 years) with high probability of declines continuing (Hodder et al. 2021). This estimate is based on species expert advice using the precautionary approach.

The continued clearance of native vegetation (EES 2019) is the underlying reason for the decline of the species (Hodder et al. 2021). There is also widespread degradation of remaining habitat (Ford 2011), which has led to the replacement of native perennial grasses with exotic annual grasses. This often results in food shortages for firetails during periods when exotic annual grass seed germinates in autumn and winter if there are no alternative seed sources (Higgins et al. 2007; Hodder 2019). Habitat patches are also degraded by grazing stock, rabbits (*Oryctolagus cuniculus*), and kangaroos (*Macropus* spp). that remove the shrub layer (Barrett et al. 2002).

The Committee considers that the species has undergone a substantial reduction in numbers over ten years (one generation 2.2 years), which is equivalent to at least 30–50% and the reduction has not ceased, the cause has not ceased and is not understood. Therefore, the species has met the relevant elements of Criterion 1 to make it eligible for listing as Vulnerable.

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			

Criterion 2 evidence

Not eligible

Diamond firetail EOO and AOO are estimated to be 1,500,000 km² (range 1,400,000–1,600,000 km²) and 25,000 km² (range 12,500–50,000 km²), respectively (Hodder et al. 2021). The species is not considered to be severely fragmented. The number of locations has not been calculated, though the spatial nature of the threats, even though stochastic in space and time, is such that there are >10 geographically or ecologically distinct areas where a single threatening event could affect all individuals of the taxon present within a period of three years (Hodder et al. 2021). An ongoing population decline is projected due to decreases in quantity and quality of habitat. Diamond firetails are not subject to extreme fluctuations in EOO, AOO, number of subpopulations, locations or mature individuals (Hodder et al. 2021).

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.

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 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:			
(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			

Criterion 3 evidence

Not eligible

The total number of mature individuals is estimated to be 136,000 (range 68,000–272,000; low reliability) with a declining trend (Hodder et al. 2021). There are estimated to be three subpopulations with a declining trend. The number of mature individuals in the largest subpopulation is estimated to be 125,000 (range 60,000–260,000) (Hodder et al. 2021). The species is not subject to extreme fluctuations in EOO, AOO, number of subpopulations, locations or mature individuals (Hodder et al. 2021).

The total number of mature individuals is not considered low. Therefore, the species does not meet the required element of this criterion.

Criterion 4 Number of mature individuals

	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 km ² or number of locations ≤ 5

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 [common assessment method](#).

Criterion 4 evidence

Not eligible

The total number of mature individuals is 136,000 (range 68,000–272,000; low reliability) (Hodder et al. 2021).

The total number of mature individuals is not considered low. Therefore, the species does not meet the required elements 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 species 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 49 business days between 28 January 2022 and 18 March 2022.

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** *Stagonopleura guttata* in the list in the Vulnerable category.
- (ii) that there should be a recovery plan for this species.