

Australian Capital Territory

Nature Conservation (Brown Treecreeper) Conservation Advice 2024

Notifiable instrument NI2024-250

made under the

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

1 Name of instrument

This instrument is the *Nature Conservation (Brown Treecreeper) Conservation Advice 2024*.

2 Commencement

This instrument commences on the day after its notification day.

3 Conservation advice for Brown Treecreeper

Schedule 1 sets out the conservation advice for Brown Treecreeper (*Climacteris picumnus victoriae*).

4 Revocation

The *Nature Conservation (Brown Treecreeper) Conservation Advice 2019* (NI2019-247) is revoked.

Arthur Georges
Chair, Scientific Committee
21 May 2024

Schedule 1

(see s 3)



ACT
Government

Environment, Planning and
Sustainable Development



CONSERVATION ADVICE

BROWN TREECREEPER (SOUTH-EASTERN)

Climacteris picumnus victoriae

CONSERVATION STATUS

The Brown Treecreeper *Climacteris picumnus victoriae* Matthews, 1912 is recognised as threatened in the following jurisdictions:

| | |
|----------|--|
| 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> |

ELIGIBILITY

The Brown Treecreeper (South-eastern) 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 three generations (15 years) (Ford et al. 2021 and Attachment A - DCCEEW 2023). The factors contributing to this decline include ongoing threats such as: habitat loss and fragmentation caused by land clearing, habitat degradation caused by domestic livestock grazing and territorial competition by the Noisy Miner (*Manorina melanocephala*) (Willson and Bignall 2009). Altered fire regimes, increased likelihood of extreme events (i.e., wildfire, heatwave, and drought) and conventional grazing practices also negatively affect the subspecies by preventing regeneration of native woodland habitat (Ford et al. 2021). Most of these threats are greater at habitat edges and so are exacerbated by habitat fragmentation. The effect of these threats, combined with residential and commercial development, and inappropriate firewood collection and tidying of farmland have not ceased and may not be reversible (Ford et al. 2021).

DESCRIPTION AND ECOLOGY

The Brown Treecreeper is the largest species of Australia's treecreepers, measuring about 16–18 cm and weighing (on average) 31.5 g. It is mostly pale brown in plumage. The head, throat and upper breast are pale greyish-brown, while the lower breast and belly are strongly streaked with black and buff. In flight, a buff stripe can be seen in the wing.

The sexes are similar, except females have rufous edges to the feathers of the upper breast, while in the male these edges are black. Juveniles resemble the adults, but are duller, have less obvious stripes



Adult Brown Treecreeper (Tobias Hayashi – Canberra Birds)

on the underparts and the lower belly is a pale rufous colour (Birdlife Australia 2018).

The *Climacteris picumnus victoriae* is the sub-species of the Brown Treecreeper resident in the ACT and is distinguished from *C. p. picumnus* by colour differences on the face, body and tail markings. The two sub-species grade into each other through central NSW. Individuals are active, noisy and conspicuous, and give a loud 'pink' call. This call is often repeated in contact, and sometimes given in a series of five to ten descending notes.

Breeding occurs from July to February across its range (OEH 2017). The nest is a collection of grasses, feathers and other soft material, placed in a suitable tree hollow or similar site. Both sexes build the nest but the female alone incubates the eggs. Pairs often have two broods during each breeding season. Occasionally, other individuals assist the breeding pair with building the nest and feeding young (Birdlife Australia 2018).

The Brown Treecreeper climbs up the trunks and branches of trees in search of food, usually in pairs or small groups. It probes into cavities and under loose bark with its long downward curving bill. In this way it searches for insects and their larvae with the most favoured insects being ants. Feeding can also take place on the ground on fallen logs or by diving on ground-dwelling prey from a perch (Birdlife Australia 2018).

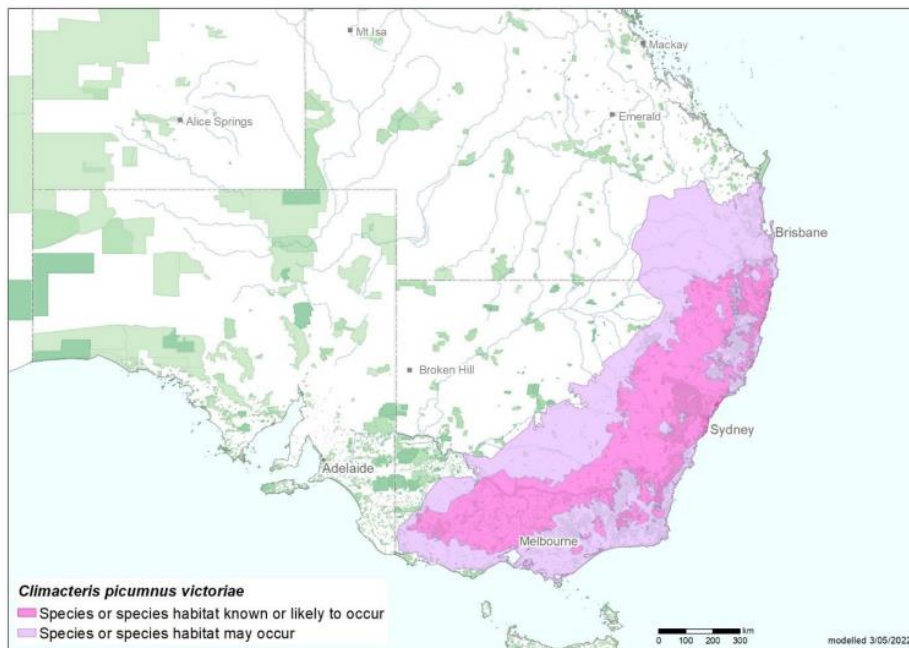
DISTRIBUTION AND HABITAT

Three sub-species of *Climacteris picumnus* are recognised: *C. p. melanotus* (Cape York Peninsula, Queensland), *C. p. picumnus* (inland eastern Australia, eastern Queensland) and *C. p. victoriae* (south-eastern Australia) (Schodde and Mason 1999; Garnett and Crowley 2000).

The south-eastern sub-species *C. p. victoriae* (hereafter Brown Treecreeper) has an estimated national extent of occurrence of 1.1million km² and area of occupancy of 30,000 km² but contracting (Ford et al. 2021). However, a substantial decline in the distribution is likely to be occurring given the loss and fragmentation of habitat (Garnett et al. 2011). The species is found in sub-coastal environments and the inland slopes of the Great Dividing Range from the Grampians in western Victoria, through central New South Wales (Wagga Wagga, Temora, Forbes, Dubbo, and Inverell) to the Queensland border and north to the Bunya Mountains (Schodde and Mason 1999) as shown in Map 1.

Within its range, the species is described as a common resident, provided habitat is suitable. Blakers et al. (1984) recorded densities of 0.04–0.50 birds/ha, however, large reductions in density have been reported over most parts of its range (Walters et al. 1999, Traill and Duncan 2000). The Brown Treecreeper has declined or disappeared from most remaining habitat fragments under 300 ha, at least partly, because females disperse from these areas or die preferentially and are not replaced (Walters et al. 1999). A decline of 70% was recorded in central New South Wales between 1990 and 2000 (Traill and Duncan 2000).

Map1: Modelled distribution of the Brown Treecreeper (South-eastern) (Source: DCCEEW 2023)



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

The Brown Treecreeper is likely to exist in isolated family groups in the ACT region in dry eucalypt woodlands and open forest below 1,000 m. It was once described as ‘fairly common from the lowlands to the alpine woodland’ in the ACT in the early 1950s (Cabby 2000). Taylor and COG (1992) reported it as relatively common in the Clear Range and along the Lower Naas River with other populations occurring at Campbell Park, Burbong, former quarries south of the airport, and Castle Hill, north of Tharwa. Surveys by the NSW NPWS in the late 1990s recorded the species at several remnant woodland and dry forest sites between Boorowa, Gunning and the ACT and at one site between Crookwell, Taralga, Collector and Tarago (ACT Government 1999).

There have been few sightings at Mulligans Flat Nature Reserve since 1999, where it was once common. Local extinction (Caswell Drive area on the western slopes of Black Mountain) (Marchant 1973) and decline in the Murrumbidgee River Corridor (Taylor 1987) have been documented. In 2003, the species was found in small numbers at Gooroo, Majura Field Firing Range and Newline quarry woodland (Cunningham 2003).

Brown Treecreepers were recorded nine times in the 2008 Bird Blitz (Allan 2009) but no records were made in the 2018 Bird Blitz (Allan 2019). Sightings were of single birds or groups of up to four birds, comprised two breeding records and were from Namadgi National Park, Castle Hill, Tharwa, Newline and Kama. Sightings of Brown Treecreepers then appeared to stabilise in the ACT region until 2008–2009, after which there was a steady and steep decline. An attempt was made to introduce 43 birds into woodlands inhabited formerly by the Brown Treecreeper. While the attempt appeared to have failed it contributed to the scanty knowledge of reintroduction biology (Bennett et al. 2012,2013). The apparent losses may have been attributable to longer-term effects of translocation stress, lack of familiarity with habitat or insufficient effectiveness of restoration treatments (Bennet et al. 2012). Further results revealed that reintroduced individuals may be more vulnerable due to an increased flight time to reach a refuge area as a result of a significantly lower number of refuge areas in logs and trees and a higher number of shrubs (which may obstruct escape paths and hinder detection of predators) in the reintroduction reserves compared with the source sites (Bennett et al. 2013). This study emphasizes the

inherent complexities of species reintroductions and ecosystem restoration, and that further habitat restoration is required within these reserves to achieve more complete restoration (Bennett et al. 2013).

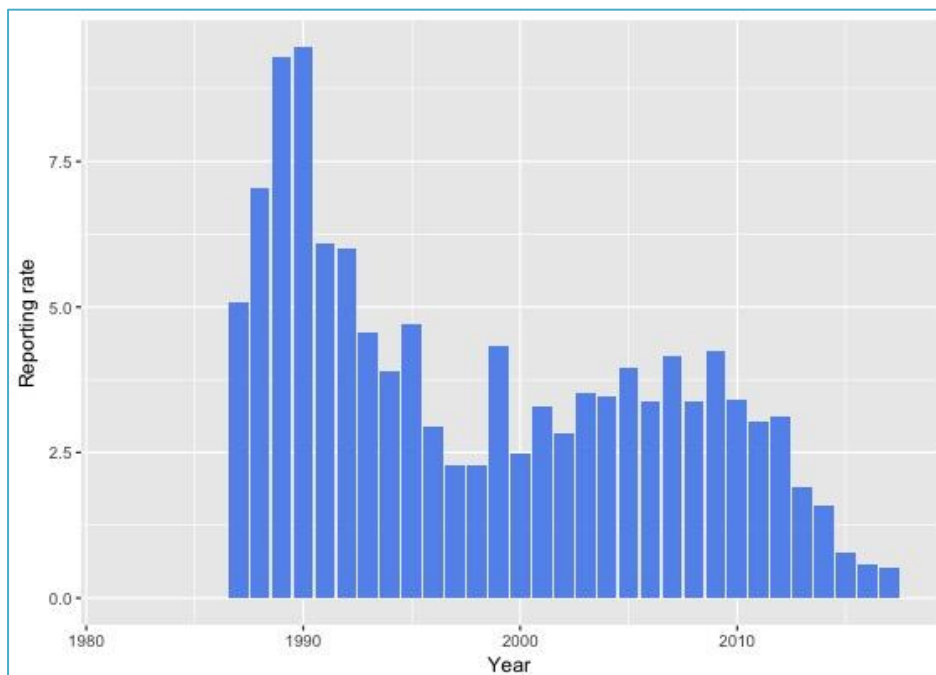
Between 2015 and 2017, the reporting rate levelled off, not far above zero percent (COG 2018) (Figure 1). Most records of sightings in the ACT region (259 total birds (207 in 2015–2016)) were outside the ACT in 2016–2017 (COG 2018) (Figure 2). The decline continued through to 2018–19 (192 total birds (219 in 2017–18) and was reported from only 4.6% of grid cells compared to the 30-year-average of 10.6% of grid cells (COG 2020).

The Brown Treecreeper, along with other woodland species, continues to decline in the ACT despite the creation of reserves and improvements in woodland management (Davey 2019). Analysis of survey data (1998–2019) collected from 142 woodland sites across the ACT (Bounds et al. 2021) confirmed the Brown Treecreeper has disappeared from peri-urban woodland sites and there are no longer resident breeding groups in these ACT woodland sites, it is also rare and uncommon in rural areas.

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

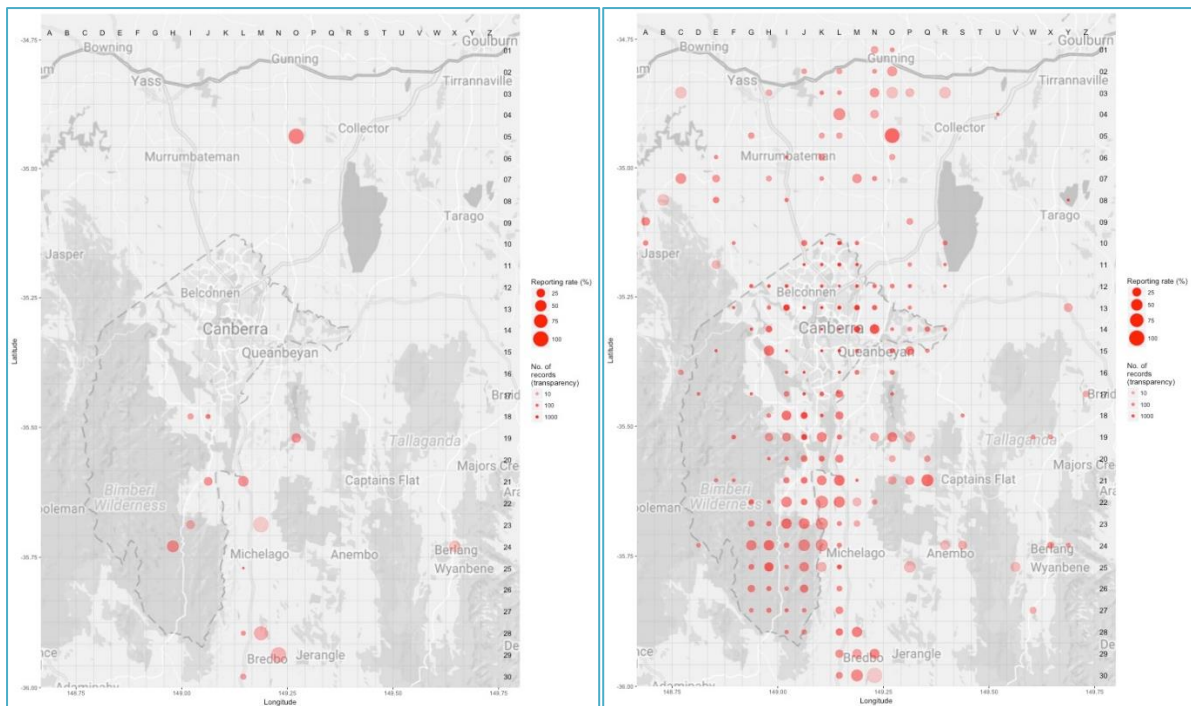
- relatively undisturbed grassy woodland with native understorey with:
 - habitat structure that should be quite open at ground level so that birds are able to feed on or near the ground and maintain vigilance against predators
 - the required degree of openness that is mostly likely to be created by moderate levels of disturbance by fire and/or grazing
- large living and dead trees which are essential for roosting and nesting sites and for foraging
- fallen timber which provides essential foraging habitat and
- hollows in standing dead or live trees and tree stumps are also essential for nesting.

Figure 1: Brown Treecreeper records in the ACT region – 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.

Figure 2: Brown Treecreeper 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, the principal threat to the Brown Treecreeper is a severe decline in the quality and quantity of its woodland habitat. In particular, the removal of timber for firewood is likely to result in local reduction of Brown Treecreeper numbers (ACT Government 2004) as hollows in trees or fallen logs are critical refuges in response to predation threats as well as for nesting (Bounds 2019). The fragmented nature of woodlands may present barriers to movement and recolonisation unless measures are taken to connect areas of viable habitat with existing populations (Doerr et al. 2011). The Brown Treecreeper displayed reduced dispersal as a response to fragmentation and the genetic impacts of fragmentation are already apparent with the more mobile females being more strongly affected by fragmentation, emphasising the importance of accounting for sex-based responses in conservation planning (Amos et al. 2014). Key features of urban expansion in the ACT (i.e. fragmentation, degradation, change in predatory bird abundance) may have driven declines and today the small pockets of surviving birds are not resilient enough to overcome stochastic events that are hard or impossible to manage (Davey 2019). Bounds et al. (2021) noted the long-term decline of the species was not interrupted by the breaking of the (millennium) drought when it might have been expected to take advantage of and recover with what would typically be considered favourable weather conditions.

Threats to the Brown Treecreeper (ACT Government 2004) include:

- removal of fallen timber and litter and inappropriate fire regimes
- predation by feral and/or uncontrolled domestic animals (foxes, dogs and cats)
- invasion of key habitats by introduced pasture and weeds
- uncontrolled grazing by livestock
- clearing of both living and dead trees
- rural tree dieback.

MAJOR CONSERVATION OBJECTIVES

The primary objective in the ACT is to protect Brown Treecreeper 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). The conservation actions relevant to the Brown Treecreeper in the *ACT Lowland Woodland Conservation Strategy* (ACT Government 2004) remain relevant including to:

- protect habitat
- maintain and enhance connectivity
- limit removal of live and dead timber
- reduce intensive grazing
- maintain patches of shrubs or eucalypt regrowth
- regenerate habitat
- minimise adverse effects of fire
- minimise nest hollow competition.

Other priorities for the Brown Treecreeper in the ACT should be to:

- monitor long-term trends and the effectiveness of management actions
- identify fire regimes suitable to habitat requirements and highlight the ecological needs of the species in fire management guidelines
- investigate the potential impact of climate change on the subspecies and its habitat
- determine where hollows are limiting and develop strategies to increase hollow availability
- determine the impacts of Noisy Miners and munge as required through re-establishing a structurally complex understory
- 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. Amongst the most vulnerable in this regard are those species that occupy highly fragmented habitat with highly restricted distributions, such as the Brown Treecreeper. 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 – Hooded Robin (South-eastern) (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 Brown Treecreeper was initially listed in the ACT as *Climacteris picumnus* as a Vulnerable species on 30 May 1997 in accordance with section 38 of the *Nature Conservation Act 1980*.

The Flora and Fauna Committee (now Scientific Committee) concluded that at that time the assessment satisfied the criteria:

- 2.2 The species is observed, estimated, inferred or suspected to be at risk of premature extinction in the ACT region in the medium-term future, as demonstrated by:
 - 2.2.1 Current serious decline in population or distribution from evidence based on:
 - 2.2.1.1 Direct observation, including comparison of historical and current records; and
 - 2.2.1.3 Serious decline in quality or quantity of habitat.

The Brown Treecreeper (South-eastern) is listed as a Vulnerable sub-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.

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 sub-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 Brown Treecreeper) should be developed and implemented by the Conservator. Previous action plans have not addressed key threats or implemented appropriate on-ground actions for the Brown Treecreeper and the last action plan requirement for the sub-species ended in 2019. There are several woodland birds, including the Brown Treecreeper, 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 sub-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.

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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: NATIONAL LISTING ASSESSMENT ([DCCEEW 2023](#))

The Threatened Species Scientific Committee finalised this assessment on 2 June 2022.

Attachment A: Listing Assessment for *Climacteris picumnus victoriae*

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 | 68,000 | 36,000 | 113,000 | <p>The population estimate of brown treecreepers (south-eastern) is the product of the three measures of AOO and the density recorded in 2 ha 20 min surveys (2.34/2 ha ± SD 1.93; BirdLife Australia cited in Ford et al. 2021).</p> <p>Studies by Ford and others have shown that brown treecreepers (south-eastern) tend to persist only in substantial areas of remnant habitat, so it is assumed that, if they are present at all, there must have been at least 20 ha of suitable habitat within the patch where they were observed (S Garnett pers. comm. 9 Nov 2021). Therefore, each 2x2 km square contributing to the AOO is assumed to indicate 20 ha of suitable habitat (S Garnett pers. comm. 9 Nov 2021).</p> <p>The reliability of this population estimate is low (S Garnett pers. comm. 9 Nov 2021).</p> |
| Trend | Declining | | | There is evidence of sustained population declines (Ford et al. 2021). The reliability of this estimate is medium (Ford et al. 2021). |
| Generation time (years) | 4.9 | 4.7 | 5.1 | Bird et al. (2020). The reliability of this estimate is high. |

Threatened Species Scientific Committee

| Metric | Estimate used in the assessment | Minimum plausible value | Maximum plausible value | Justification |
|--|--|--------------------------------|--------------------------------|--|
| Extent of occurrence | 1,100,000 km ² | 1,000,000 km ² | 1,200,000 km ² | Ford et al. (2021). The reliability of this estimate is high (Ford et al. 2021). |
| Trend | Stable | | | Ford et al. (2021). The reliability of this estimate is medium (Ford et al. 2021). |
| Area of Occupancy | 30,000 km ² | 24,000 km ² | 50,000 km ² | The minimum AOO is the number of 2x2 km squares that includes all records, but it is assumed to be at least 20% higher than the calculated amount and possibly twice that (Ford et al. 2021; S Garnett pers. comm. 9 Nov 2021). The reliability of this estimate is low (Hodder et al. 2021; S Garnett pers. comm. 9 Nov 2021). |
| Trend | Contracting | | | Ford et al. (2021). The reliability of this estimate is medium (Ford et al. 2021). |
| Number of subpopulations | 100 | | | Due to fragmentation of woodland habitat and low dispersal distances there are likely to be many subpopulations of brown treecreeper (south-eastern). For the purpose of this assessment there are estimated to be 100 subpopulations. However, the reliability of this estimate is low (Ford et al. 2021). |
| Trend | Declining | | | Ford et al. (2021). The reliability of this estimate is high (Ford et al. 2021). |
| Basis of assessment of subpopulation number | Fragmented populations appear to be genetically isolated because birds fail to disperse across vegetation gaps, and there are many fragments (Ford et al. 2021). | | | |
| No. locations | >10 | | | Ford et al. (2021). |
| Trend | Not calculated | | | Ford et al. (2021). |
| Basis of assessment of location number | The spatial nature of the threats is such that there are >10 geographically or ecologically distinct areas where a single threatening event could affect all individuals of the subspecies present within a period of one generation (Ford et al. 2021). | | | |
| Fragmentation | Fragmented but many large subpopulations (Ford et al. 2021). | | | |
| Fluctuations | 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 2019/20 fire (Ford 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

Brown treecreepers (south-eastern) occur in south-eastern Australia from the Grampians in western Victoria, through central New South Wales to the Bunya Mountains in Queensland (Schodde & Mason 1999), from the coast to the inland slopes of Great Dividing Range (Ford et al. 2021). The subspecies has long been recognised as a declining member of the woodland avifauna (Ford et al. 2021).

It appears likely that the brown treecreeper (south-eastern) population has undergone a significant reduction in size (30–50%) in the last three generations (15 years) based on reporting rate data (Ford et al. 2021). Reporting rate data can be used to determine bird species abundance. Data used in trend analyses are from standardised bird surveys drawn from discrete (spatially separated) sites which have multiple repeat observations over time. Trends between the 1977–1981 and 1998–2002 BirdLife Australia Atlases were variable among regions (Barrett et al. 2002), and there were a variety of trends reported up until 2010 but most of them negative (Ford et al. 2009; Garnett et al. 2011; Szabo et al. 2011; Saunders 2018). At a local level, the reporting rate in the Australian Capital Territory declined by 83% from 1987–2017 with a 70% decline in the final 15 years (Canberra Ornithologists Group 2020). Additionally, trend analysis over the 21-year period 1998–2019 showed a statistically significant decline in the Australian Capital Territory from 2011 onwards (Bounds et al. 2021). The reporting rate has declined from low to very low.

The species has disappeared over time from peri-urban sites, and occurs only in small, fragmented sub-populations in some rural locations (Bounds 2019). In southern New South Wales, the subspecies declined by 42% from 2002–2015 (Lindenmayer et al. 2018) and in north-east New South Wales reporting rates at 41 sites were 70% in 1977–1980 and 83% in 2004–2006 (Gosper & Gosper 2016) but only 24% in 2020 (DG and CR Gosper pers. comm. cited in Ford et al. 2021). Across the range from 2003–2018, reporting rates from 2 ha 20 min counts and 500 m area searches declined by 36% and 29% respectively (Birddata cited in Ford et al. 2021).

Decline of Brown Treecreepers (south-eastern) is partially attributed to such ongoing threats as: habitat loss and fragmentation caused by land clearing, habitat degradation caused by domestic livestock grazing and territorial competition by noisy miners (*Manorina melanocephala*) (Willson & Bignall 2009). Altered fire regimes, increased likelihood of extreme events (i.e., wildfire, heatwave, and drought) and conventional grazing practices also negatively affect the subspecies by preventing regeneration of native woodland habitat (Ford et al. 2021). Most of these threats are greater at habitat edges and so are exacerbated by habitat fragmentation. The effect of these threats, combined with residential and commercial development, and inappropriate firewood collection and tidying of farmland have not ceased and may not be reversible (Ford et al. 2021).

The Committee considers that the species has undergone a substantial reduction in numbers over three generations (15 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

Brown treecreepers (south-eastern) EOO is estimated to be 1,100,000 km² (range 1,000,00–1,200,000 km²) and AOO is estimated to be 30,000 km² (range 24,000–50,000 km²) (Ford et al. 2021). The population is fragmented but there are many large subpopulations spread across more than 10 geographically or ecologically distinct areas. The EOO for the subspecies is stable though the AOO has a contracting trend (Ford et al. 2021). There are estimated to be 68,000 (range 36,000–113,000) mature individuals in the wild (S Garnett pers. comm. 9 Nov 2021) and 100 subpopulations (Ford et al. 2021), both of these estimates have declining trends (Ford et al. 2021). The subspecies occurs at over 10 locations, is not severely fragmented, and is not subject to extreme fluctuations in EOO, AOO, number of subpopulations, locations or mature individuals (Ford et al. 2021).

Following assessment of the data the Committee has determined that the subspecies' geographic distribution is not precarious for its survival. Therefore, the subspecies 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 68,000 (range 36,000–113,000) (S Garnett pers. comm. 9 Nov 2021). There are estimated to be 100 subpopulations with a declining trend (Ford et al. 2021). The subspecies' distribution is not precarious for its survival. The subspecies is not subject to extreme fluctuations in the number of mature individuals (Ford et al. 2021).

The total number of mature individuals is not considered low. Therefore, the subspecies 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 68,000 (range 36,000–113,000) (S Garnett pers. comm. 9 Nov 2021) with a declining trend (medium reliability) (Ford et al. 2021). The AOO is estimated to be 30,000 km² (range 24,000–50,000 km²; low reliability) with a contracting trend (medium reliability), and is not considered to be small or restricted (Ford et al. 2021).

The total number of mature individuals is not considered low. Therefore, the subspecies 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 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 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** *Climacteris picumnus victoriae* in the list in the Vulnerable category.
- (ii) that there should be a recovery plan for this species.