

NSW Threatened Species Scientific Committee

Notice of Preliminary Determination

The NSW Threatened Species Scientific Committee (NSW TSSC), established under the *Biodiversity Conservation Act 2016* (the Act), has made a Preliminary Determination to support a proposal to remove the Lord Howe silvereve *Zosterops lateralis tephroleurus* Gould, 1855 from the Schedules of the Act by omitting reference to this species from Part 3 of Schedule 1 (Vulnerable species).

How to make a submission

The NSW TSSC welcomes public involvement in the assessment process and places preliminary determinations on public exhibition on the NSW TSSC pages on the NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW) website. This public exhibition provides an opportunity for the public to comment on this preliminary determination as well as provide any additional information that is relevant to the assessment.

Postal submissions regarding this Preliminary Determination may be sent to:

Secretariat
NSW Threatened Species Scientific
Committee Locked Bag 5022
Parramatta NSW 2124.

Email submissions in Microsoft Word or PDF formats to:

scientific.committee@environment.nsw.gov.au

Submissions close 28/09/2024

What happens next?

After considering any submissions received during the public exhibition period the NSW TSSC will make a Final Determination and a notice will be placed on the NSW DCCEEW website to announce the outcome of the assessment. If the Final Determination is to support a listing, then it will be added to the Schedules of the Act when the Final Determination is published on the legislation website. www.legislation.nsw.gov.au.

Privacy information

The information you provide in your submission may be used by the NSW TSSC in the assessment to determine the conservation status and listing or delisting of threatened or extinct species, threatened populations and threatened or collapsed ecological communities or to assess key threatening processes.

The NSW TSSC may be asked to share information on assessments with NSW Government agencies, the Commonwealth Government and other State and Territory governments to collaborate on national threatened species assessments using a common assessment method and to assist in the management of species and ecological communities.

NSW Threatened Species Scientific Committee

If your submission contains information relevant to the assessment it may be provided to state and territory government agencies and scientific committees as part of this collaboration.

If you wish your identity and personal information in your submission to be treated as confidential you must:

- *request your name be treated as confidential, and*
- *not include any of your personal information in the main text of the submission or attachments so that it can be easily removed.*

Senior Professor Kristine French
Chairperson
NSW Threatened Species Scientific Committee

NSW Threatened Species Scientific Committee

Public Exhibition period: 28/06/2024 - 28/09/2024

Preliminary Determination

The NSW Threatened Species Scientific Committee, established under the *Biodiversity Conservation Act 2016* (the Act), has made a Preliminary Determination to support a proposal to remove the Lord Howe silvereye *Zosterops lateralis tephropleurus* Gould, 1855 from the Schedules of the Act by omitting reference to this species from Part 3 of Schedule 1 (Vulnerable species). The omission of species from the Schedules is provided for by Part 4 of the Act.

Summary of Conservation Assessment

The NSW Threatened Species Scientific Committee has found that:

1. The Lord Howe silvereye *Zosterops lateralis tephropleurus* (Zosteropidae) was originally described as a full species by Gould (1855), characterised by: “head and upper surface bright olive-green, with a wash of grey across the shoulders; wings and tail slaty brown, margined with olive-green; throat dull yellow; around the eyes a circle of white feathers, below which is a mark of black; under surface pale vinaceous brown, becoming gradually paler on the lower part of the abdomen, and passing into the pale yellow of the under tail-coverts.” Later studies have recognised that Gould's species is one island form of a species complex, and it is currently regarded as a subspecies of the widespread *Zosterops lateralis* (Latham, 1801) (Schodde and Mason 1999). Common names for *Z. l. tephropleurus* include the Lord Howe silvereye, Lord Howe white-eye, and little grinnell.
2. The Lord Howe silvereye is endemic to Lord Howe Island. Lord Howe Island is located 760 km northeast of Sydney in the Tasman Sea. The main island is approximately 11 km long, and only 2.8 km at the widest point, with a total land size of 14.55 km² and a maximum elevation of 875 m on its highest peak, Mt. Gower (DECC 2007; Hutton *et al.* 2007). While there is a small town on the main island, development and tourism are strictly controlled; 75% of the main island, and all other islands in the Lord Howe Island Group, are conservation protected, and the island group is UNESCO world heritage listed (DECC 2007).
3. There has been minimal reporting or monitoring of the abundance of the Lord Howe silvereye, making population estimates uncertain. Higgins *et al.* (2006) roughly estimated a total population of 30,000 individuals on the island. In preparation for the Rodent Education Program (REP) on Lord Howe Island in 2017, the Department of Planning and Environment (DPE) and Canberra Ornithological Group (COG) developed a formula for crudely approximating the population of the Lord Howe silvereye (N. Carlile pers. comm. March 2023; COG and LHIB 2018). The recorded occurrence frequency, defined as the number of plots on which a particular species was recorded divided by the total number of plots, was measured across Lord Howe Island in 96 survey plots with a 50 m radius, monitored for ten-minute periods, which was repeated four times (N. Carlile pers. comm. March 2023; COG and LHIB 2018). In 2017 survey results gave an occurrence frequency

NSW Threatened Species Scientific Committee

for the Lord Howe silvereye of 1.97. For planning purposes (rather than ecological certainty) they estimated a total of 15,917 individuals at that time (N. Carlile pers. comm. March 2023; COG and LHIB 2018). The plausible range based on these counts is 14,973–16,860 (N. Carlile *in litt.* November 2023). In 2019, the Lord Howe Island Rodent Eradication Program (REP) was implemented. Using the same methods as the 2017 surveys, the estimated occurrence frequency of the Lord Howe silvereye was recorded in 2021 (post-REP) and produced an occurrence frequency of 4.0 (O'Dwyer *et al.* 2023). This does not necessarily equate to a doubling of the population due to low confidence from the method; however, the figures indicate that the population has increased (N. Carlile pers. comm. March 2023).

4. The Area of Occupancy (AOO) for the Lord Howe silvereye is 32 km², based on 2 x 2 km grid cells, the scale recommended for assessing AOO by the IUCN (2022). The Extent of Occurrence (EOO) is 17.69 km² and is based on a minimum convex polygon enclosing all mapped occurrences of the species, the method of assessment recommended by the IUCN (2022). In this restricted setting the EOO is constrained by the size of the Island and is less than the estimates of the AOO. Where the EOO is less than or equal to the AOO, the IUCN guidelines recommend EOO estimates be changed to be equal to AOO to ensure consistency with the definition of AOO as an area that fits within EOO (IUCN 2022); as such, the EOO under this scenario is also 32 km². The EOO and AOO were estimated based on records available from Atlas of Living Australia (ALA) and BioNet.
5. The Lord Howe silvereye can reach elevations of 1850 m and occupy most habitats on Lord Howe Island with moderate cover of vegetation, including shrublands, heath woodlands, forests, rainforests, mangroves, and coastal areas (Higgins *et al.* 2006). The Lord Howe silvereye is considered a highly disturbance tolerant species and it is most frequently observed within the settlement area of Lord Howe Island (Blair 1996). However, the major part of its distribution on Lord Howe Island is in areas protected under the *Lord Howe Island Act, 1953* (DECC 2007).
6. The Lord Howe silvereye has an estimated generation length of 4 years. This estimate has been inferred using data from the closely related Heron Island subspecies *Zosterops lateralis chlorocephalus* (Knappe *et al.* 2011) and calculated using IUCN (2022) methods. The Lord Howe silvereye breeds in spring and summer. The full breeding cycle lasts approximately 10 weeks and breeding pairs can raise up to three clutches during a single season (Higgins *et al.* 2006). Clutch sizes are usually between two to four (Higgins *et al.* 2006). Pair bonds are maintained throughout the year and individuals within the pair actively seek contact through allopreening and huddling to strengthen their bond (Higgins 2006).
7. The Lord Howe silvereye is reproductively capable at 9 months of age and juveniles usually pair permanently during their first winter (Catterall *et al.* 2008). Breeding pairs defend large areas in which both feeding and breeding activities occur (Catterall *et al.* 2008). During breeding, adults have been observed feeding

NSW Threatened Species Scientific Committee

on smaller insects while carrying larger arthropods and figs back to feed the nestlings (Catterall *et al.* 2008). The defence of breeding areas is undertaken by both members of the breeding pair, with the most aggressive defence seen at the earlier stages of breeding and incubation. As a result, the exclusion of potential competitors for food provides the territory holding breeding pair with a guaranteed food supply. The provision of consistent food is vital, as the survival of juveniles is strongly associated with good rainfall and food availability (Ford 1989; Catterall *et al.* 2008). Ford (1989) found that the similar subspecies population which occupies Heron Island, *Zosterops lateralis chlorocephalus*, can be highly influenced by changes in weather patterns. Storms and cyclones can impose high mortality and reduce the breeding density, as a result of reduction in food and resource abundance (Ford 1989).

8. The Lord Howe silvereye is an omnivorous, opportunistic species (Rooke 1984), feeding on a wide variety of fruits, insects and other invertebrates, as well as nectar, flowers, seeds and food scraps (Higgins *et al.* 2006). Foraging occurs in small groups from ground up to canopy of trees as well as in air, using a variety of foraging methods, including gleaning of shrubbery and grasses (Higgins *et al.* 2006). It can be inferred from what is known about the general *Zosterops lateralis* species, that the Lord Howe silvereye may travel across the landscape to utilise a variety of food sources (Waite *et al.* 2013).
9. The main threats to the Lord Howe silvereye include clearing of lowland forest areas, invasive plant species, introduction of non-native invertebrates, and competition and predation from other introduced species (OEH 2019). 'Clearing of native vegetation' and 'Predation by the ship rat, *Rattus rattus* on Lord Howe Island' are listed as key threatening processes under the NSW *Biodiversity and Conservation Act 2016*.
10. Continuing decline is not evident in the Lord Howe silvereye despite plausible threats being present. Avian Pox *Avipoxvirus* has been previously reported on Lord Howe Island and is a plausible future threat to the Lord Howe silvereye. However, as a slow spreading disease with low mortality rates, it is unlikely that Avian Pox will pose a significant threat to the established Lord Howe silvereye population. The African big-headed ant (*Pheidole megacephala*) and the ship rat *Rattus rattus* have both had a devastating effect on native fauna on Lord Howe Island (LHIB 2023; O'Dwyer *et al.* 2023). However, successful eradication programs and management plans have been implemented on Lord Howe Island for these introduced species and they are not a significant concern for the Lord Howe silvereye at this time (Harper 2023; Hoffman 2017). The clearing of lowland forest areas is also no longer considered a threat, as under the Lord Howe Island Regional Environmental Plan (PCO 2005), no development can result in any damage or removal of significant vegetation. Invasive plants threaten biodiversity on Lord Howe Island by competing with native vegetation and could potentially have an indirect impact on the Lord Howe silvereye population; however, evidence is lacking that this threat has caused or will cause declines in the species (LHIB 2016). While there may be several threats operating on the Lord Howe silvereye, there is no evidence to suggest that these threats are contributing to continuing

NSW Threatened Species Scientific Committee

decline in the species or its habitat, nor are they likely to rapidly drive the species to Critically Endangered or Extinct within a very short period of time.

11. In view of the above, the NSW Threatened Species Scientific Committee is of the opinion that the Lord Howe silvereve *Zosterops lateralis tephroleurus* Gould, 1855 is not eligible to be listed as a threatened species in any category under the Act.

Assessment against *Biodiversity Conservation Regulation 2017* criteria

The Clauses used for assessment are listed below for reference.

Overall Assessment Outcome: The Lord Howe silvereve *Zosterops lateralis tephroleurus* was found to be ineligible for listing as a threatened species as none of the Clauses were met.

Clause 4.2 – Reduction in population size of species

(Equivalent to IUCN criterion A)

Assessment Outcome: Data deficient.

| (1) - The species has undergone or is likely to undergo within a time frame appropriate to the life cycle and habitat characteristics of the taxon: | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------------------|-----------------------------------------------|
| | (a) | for critically endangered species | a very large reduction in population size, or |
| | (b) | for endangered species | a large reduction in population size, or |
| | (c) | for vulnerable species | a moderate reduction in population size. |
| (2) - The determination of that criteria is to be based on any of the following: | | | |
| | (a) | direct observation, | |
| | (b) | an index of abundance appropriate to the taxon, | |
| | (c) | a decline in the geographic distribution or habitat quality, | |
| | (d) | the actual or potential levels of exploitation of the species, | |
| | (e) | the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites. | |

Clause 4.3 - Restricted geographic distribution of species and other conditions

(Equivalent to IUCN criterion B)

Assessment Outcome: Not met.

| The geographic distribution of the species is: | | | |
|------------------------------------------------------------|-----|-----------------------------------|----------------------------|
| | (a) | for critically endangered species | very highly restricted, or |
| | (b) | for endangered species | highly restricted, or |
| | (c) | for vulnerable species | moderately restricted, |
| and at least 2 of the following 3 conditions apply: | | | |

NSW Threatened Species Scientific Committee

| | | | |
|--|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| | (d) | the population or habitat of the species is severely fragmented or nearly all the mature individuals of the species occur within a small number of locations, | |
| | (e) | there is a projected or continuing decline in any of the following: | |
| | | (i) | an index of abundance appropriate to the taxon, |
| | | (ii) | the geographic distribution of the species, |
| | | (iii) | habitat area, extent or quality, |
| | | (iv) | the number of locations in which the species occurs or of populations of the species, |
| | (f) | extreme fluctuations occur in any of the following: | |
| | | (i) | an index of abundance appropriate to the taxon, |
| | | (ii) | the geographic distribution of the species, |
| | | (iii) | the number of locations in which the species occur or of populations of the species. |

Clause 4.4 - Low numbers of mature individuals of species and other conditions

(Equivalent to IUCN criterion C)

Assessment Outcome: Not met.

| | | | |
|----------------------------------------------------------------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| The estimated total number of mature individuals of the species is: | | | |
| | (a) | for critically endangered species | very low, or |
| | (b) | for endangered species | low, or |
| | (c) | for vulnerable species | moderately low, |
| and either of the following 2 conditions apply: | | | |
| | (d) | a continuing decline in the number of mature individuals that is (according to an index of abundance appropriate to the species): | |
| | | (i) | for critically endangered species very large, or |
| | | (ii) | for endangered species large, or |
| | | (iii) | for vulnerable species moderate, |
| | (e) | both of the following apply: | |
| | | (i) | a continuing decline in the number of mature individuals (according to an index of abundance appropriate to the species), and |
| | | (ii) | at least one of the following applies: |
| | | (A) | the number of individuals in each population of the species is: |
| | | | (I) for critically endangered species extremely low, or |

NSW Threatened Species Scientific Committee

| | | | | | |
|--|--|--|-------|----------------------------------------------------------------------------------|--------------|
| | | | (II) | for endangered species | very low, or |
| | | | (III) | for vulnerable species | low, |
| | | | (B) | all or nearly all mature individuals of the species occur within one population, | |
| | | | (C) | extreme fluctuations occur in an index of abundance appropriate to the species. | |

**Clause 4.5 - Low total numbers of mature individuals of species
(Equivalent to IUCN criterion D)
Assessment Outcome: Not met.**

| The total number of mature individuals of the species is: | | | |
|-----------------------------------------------------------|-----|-----------------------------------|-------------------|
| | (a) | for critically endangered species | extremely low, or |
| | (b) | for endangered species | very low, or |
| | (c) | for vulnerable species | low. |

**Clause 4.6 - Quantitative analysis of extinction probability
(Equivalent to IUCN criterion E)
Assessment Outcome: Data deficient.**

| The probability of extinction of the species is estimated to be: | | | |
|------------------------------------------------------------------|-----|-----------------------------------|--------------------|
| | (a) | for critically endangered species | extremely high, or |
| | (b) | for endangered species | very high, or |
| | (c) | for vulnerable species | high. |

**Clause 4.7 - Very highly restricted geographic distribution of species–
vulnerable species
(Equivalent to IUCN criterion D2)
Assessment Outcome: Not met.**

| | |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| For vulnerable species, | the geographic distribution of the species or the number of locations of the species is very highly restricted such that the species is prone to the effects of human activities or stochastic events within a very short time period. |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Senior Professor Kristine French
Chairperson
NSW Threatened Species Scientific Committee

NSW Threatened Species Scientific Committee

References:

- Blair R (1996) Land use and avian species diversity along an urban gradient. *Ecological Application* **6**(2), 506-519.
- Canberra Ornithologist Group (COG), Lord Howe Island Board (LHIB) (2018) Landbirds on Lord Howe Island, NSW Survey Report 5. *Unpublished report* (Lord Howe Island, NSW)
- Carlile N (2023) Personal communication via email 30 November 2023. Senior Research Scientist, Conservation Science, Science, Economics and Insights Division, Department of Planning and Environment.
- Catterall CP, Wyatt WS, Henderson LJ (2008) Food resources, territory density and reproductive success of an island Silvereye population *Zosterops lateralis*. *Ibis* **124**(2), 405-421.
- Department of Environment and Climate Change (DECC) (NSW) (2007) Lord Howe Island Biodiversity Management Plan (DECC: Sydney NSW) Available at: <https://www.dcceew.gov.au/sites/default/files/documents/lord-howe-island.pdf> (accessed 25 May 2023)
- Ford HA (1989) 'Ecology of Birds: an Australian Perspective.' (Surrey Beatty: Chipping Norton, NSW)
- Gould J (1855) On some new species of birds collected by Mr McGillivray. *Proceedings of the Zoological Society of London* **23**: 164–166.
- Harper GA (2023) The Lord Howe Island Rodent Eradication Project: Rodent Eradication Checkpoint 2023. Lord Howe Island Board, Lord Howe Island, Australia. Unpublished report.
- Higgins P, Peter J, Cowling S (Eds) (2006) 'Handbook of Australian, New Zealand & Antarctic Birds – Volume 7 Boatbill to Starlings.' (Oxford University Press: London)
- Hoffman BD, Graham R and Smith D (2017) Ant species accumulation on Lord Howe Island highlights the increasing need for effective biosecurity on islands. *NeoBiota* **34**, 41-52.
- Hutton I, Parkes JP, Sinclair ARE (2007) Reassembling island ecosystems: the case of Lord Howe Island. *Animal Conservation* **10**(1), 22-29.
- IUCN Standards and Petitions Subcommittee (2022) Guidelines for Using the IUCN Red List Categories and Criteria. Version 15.1 [Online]. Available at: <http://www.iucnredlist.org/documents/RedListGuidelines.pdf> (accessed on 25 May 2023)
- Knape J, Jonen N, Skold M, Kikkawa J, McCallum H (2011) Individual heterogeneity and senescence in Silvereyes on Heron Island. *Ecology* **94**(4), 813-820.
- Lord Howe Island Board (LHIB) (2016) Lord Howe Island Weed Management Strategy (LHIB: Lord Howe Island, NSW) Available at: <https://www.lhib.nsw.gov.au/sites/default/files/2022->

NSW Threatened Species Scientific Committee

[09/LHI%20Weed%20Mgmt%20Strategy%202016_2025.pdf](#) (accessed 25 May 2023)

Lord Howe Island Board (LHIB) (2023) Permanent Park preserve closure [Online]. Available at: <https://www.lhib.nsw.gov.au/permanent-park-preserve-closure> (accessed 25 May 2023)

NSW Parliamentary Counsel's Office (PCO) (2005) Lord Howe Island Regional Environmental Plan (Online). Available at: <https://legislation.nsw.gov.au/view/html/repealed/current/epi-2005-0693/lh> (accessed 5 June 2023)

Office of Environment and Heritage (OEH) (2019) Silvereeye (Lord Howe Is. subsp.) – profile (Online). Available. At: <https://threatenedspecies.bionet.nsw.gov.au/profile?id=10899> (accessed 6 December 2023)

O'Dwyer TW, Carlile N, O'Neill L, Fairlamb H, Bower H (2023) Protection and mortality of non -target terrestrial bird species during the eradication of rodents on Lord Howe Island, Australia. *Paper in review with Biological Invasions* (Department of Planning and Environment and Lord Howe Island Board: New South Wales)

Rooke IJ (1984) The secretive silvereeyes. *Journal of the Department of Agriculture, Western Australia Series 4* **25**(1), 9.

Schodde R, Mason IJ (1999) 'The Directory of Australian Birds: Passerines.' (CSIRO: Melbourne, Victoria)

Waite E, Closs GP, van Heezik Y, Dickinson JM (2013) Resource availability and foraging of Silvereeyes (*Zosterops lateralis*) in urban trees. *Emu Austral Ornithology* **113**(1), 26-32.