

# Nature Conservation (Swampland Cool Skink) Conservation Advice 2026

Notifiable instrument NI2026—459

made under the

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

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## 1 Name of instrument

This instrument is the *Nature Conservation (Swampland Cool Skink) Conservation Advice 2026*.

## 2 Commencement

This instrument commences on the day after its notification day.

## 3 Conservation advice for Swampland Cool Skink

Schedule 1 sets out the conservation advice for Swampland Cool Skink (*Pseudemoia rawlinsoni*).

Simon Clulow  
Chair, Scientific Committee  
7 October 2026

# Schedule 1

(see s 3)

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# CONSERVATION ADVICE

## SWAMPLAND COOL SKINK – *Pseudemoia rawlinsoni*

### CONSERVATION STATUS

The Swampland Cool Skink – *Pseudemoia rawlinsoni* Hutchinson & Donnellan (1988) – is recognised as threatened in the following jurisdictions:

|          |                                                                                          |
|----------|------------------------------------------------------------------------------------------|
| National | <b>Vulnerable</b> , <i>Environment Protection and Biodiversity Conservation Act 1999</i> |
| ACT      | <b>Vulnerable</b> , <i>Nature Conservation Act 2014</i>                                  |
| NSW      | Not Listed, <i>Biodiversity Conservation Act 2016</i>                                    |
| VIC      | <b>Endangered</b> , <i>Flora and Fauna Guarantee Act 1988</i>                            |
| SA       | <b>Vulnerable</b> , <i>National Parks and Wildlife Act 1972</i>                          |
| TAS      | <b>Rare</b> , <i>Threatened Species Protection Act 1995</i>                              |

### ELIGIBILITY

The Swampland Cool Skink is listed as Vulnerable in the ACT Threatened Native Species List under IUCN Criterion A – A2bc, A3c, A4c and Criterion B – B2ab(ii,iii,iv). The main factors that make the species eligible for listing in the Vulnerable category are an estimated national population decline of >30% over the past 3 generations (and projected to continue over the next 3 generations), its limited area of occupancy (AOO), severe fragmentation of small, relatively isolated subpopulations, decline in the area of occupancy, decline in the area and quality of habitat, and decline in the number of subpopulations nationally (DCCEEW 2026; Attachment A).

### DESCRIPTION AND ECOLOGY

The Swampland Cool Skink (also known as the Glossy Grass Skink at lower elevations) is a small skink, up to 65 mm snout-vent length (SVL). Overall colouration is light olive-brown to rich reddish-brown with distinct and continuous stripes of black and pale cream. Females having longer bodies and greater tail widths, and males have larger heads and longer legs (Wotherspoon et al. 2024).



Swampland Cool Skink (Stuart Harris – NatureMapr)

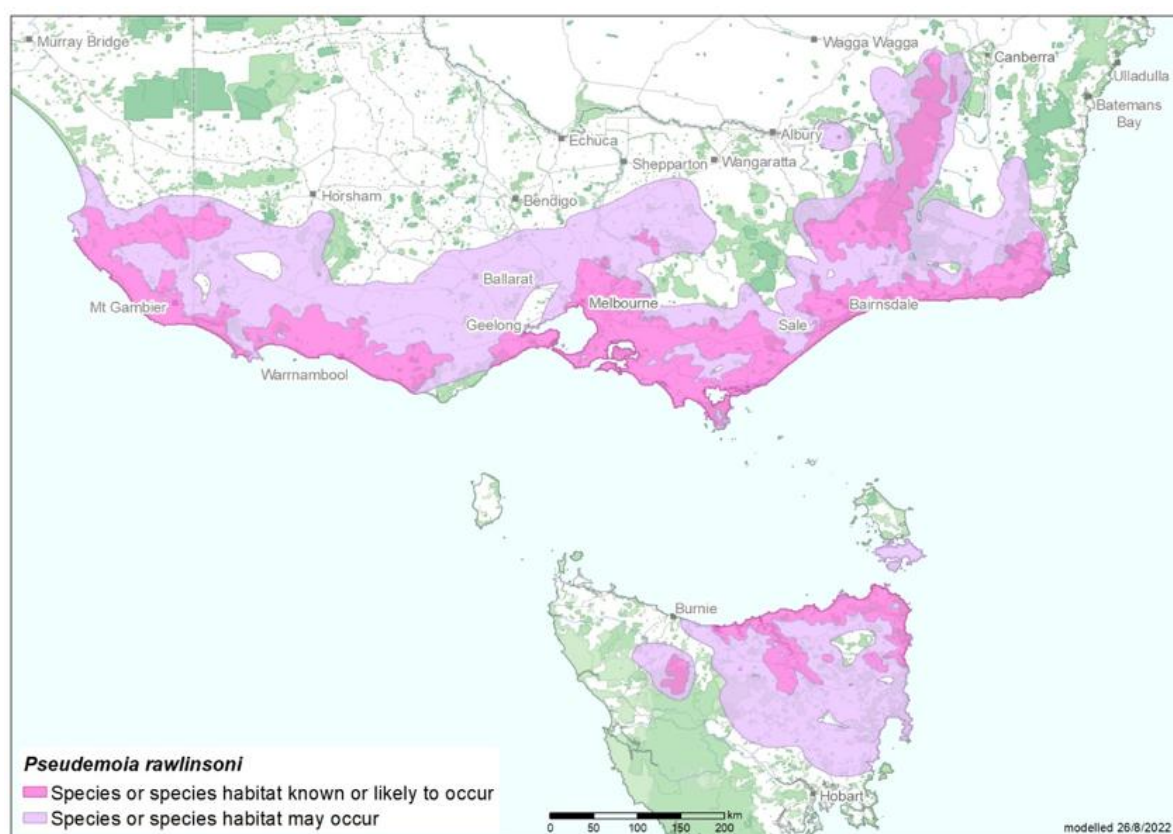
Mating occurs in late summer and autumn, with females then storing sperm over winter for fertilisation in spring and giving birth to 1–9 live young (mean 4.65) in mid–late summer (Hutchinson and Donnellan 1988; Robertson and Coventry 2019; Wotherspoon et al. 2024). Female body size is positively correlated with litter size in the glossy grass skink (Wotherspoon et al. 2024). The species reaches sexual maturity at 3 years of age, at a body size of ~40 mm SVL (Wotherspoon et al. 2024). Given the estimated lifespan of the species around 7 years, the generation length of the glossy grass skink has been estimated to be 5 years (Wotherspoon et al. 2024).

Swampland Cool Skinks are active during the day and bask in the sun on low vegetation, logs and rocks, preferring undisturbed weather and site conditions (DCCEEW 2026). It is quite secretive in behaviour. Its diet has not been reported but is likely to include small arthropods (W. Osborne pers comm).

## DISTRIBUTION AND HABITAT

The Swampland Cool Skink occurs in temperate regions of southeastern Australia (Hutchinson and Donnellan 1988; Farquhar et al. 2024a) including northern Tasmania (DPIPWE 2021), south-eastern South Australia, southern and eastern Victoria, south-eastern NSW and the high country in the ACT (Map 1). The species is patchily distributed across its range, being largely restricted to coastal or near-coastal areas, except for disjunct populations in the Australian Alps (Hutchinson and Donnellan 1988; Farquhar et al. 2024a).

**Figure 1: Modeled distribution of the Swampland Cool Skink (Source DCCEEW 2026)**



Source: Base map Geoscience Australia; species distribution data [Species of National Environmental Significance](#) database. Caveat: The information presented in this map has been provided by a range of groups and agencies. While every effort has been made to ensure accuracy and completeness, no guarantee is given, nor responsibility taken by the Commonwealth for errors or omissions, and the Commonwealth does not accept responsibility in respect of any information or advice given in relation to, or as a consequence of, anything containing herein.

Species distribution mapping: The species distribution mapping categories are indicative only and aim to capture (a) the habitat or geographic feature that represents to recent observed locations of the species (known to occur) or habitat occurring in close proximity to these locations (likely to occur); and (b) the broad environmental envelope or geographic region that encompasses all areas that could provide habitat for the species (may occur). These presence categories are created using an extensive database of species observations records, national and regional-scale environmental data, environmental modelling techniques and documented scientific research.

The Swampland Cool Skink is a habitat specialist and occurs in densely vegetated and moist microhabitats, typically those found at the margins of creeks, swamps, lakes or otherwise boggy areas (Hutchinson and Donnellan 1988; Cogger 2014; Wilson and Swan 2021; Farquhar et al. 2024a, b).

While there are very few documented records of the species in the ACT, it has been recorded in swampy upland (subalpine and high montane) habitats above about 1200 m elevation. Specific habitats include bog, wet heath (*Baeckea-Epacris* spp.), fen and wet sod-tussock grassland (Gilmour et al. 1987; Helman et al. 1988; Green and Osborne 2012; W. Osborne pers. obs.).

In the ACT, the species has been recorded in Namadgi National Park, including east of Smokers Flat (Gilmour et al. 1987; at Piccadilly Circus, Mount Ginini and Ginini Flats (Hutchinson and Donnellan 1988); in the upper Cotter Catchment (Helman et al. 1988); and at Ginini Flats in 1988 and 1992, and Eighty Acres in 1989 (ACT Wildlife Atlas 2025). At Mount Ginini, during the 2018 Bush Blitz a record was made (Bush Blitz 2020) and specimen collected for the Australian National Wildlife Collection. While surveying for the Alpine She-oak Skink (*Cyclodomorphus praealtus*) in 2024, no sightings of the Swampland Cool Skink were made but a few sightings were made of other species in the *Pseudemoia* genus including for the Southern Grass Skink (*P. entrecasteauxii*) and Spencer's Skink (*P. spenceri*) (Atkins and Pulsford 2024).

## THREATS

Details and the extent to which each threat is operating on the Swampland Cool Skink are outlined in the [Commonwealth Conservation Advice](#) (DCCEEW 2026). The Swampland Cool Skink is primarily threatened in the ACT by:

- habitat loss and changes caused by higher temperatures and impacts from increasingly frequent and more severe fires, both due to climate change, and feral hard-hooved animal impacts on the species habitat (including feral pig and deer damage, Gillespie (2018))
- compounding impacts including elevated predation levels after fire, especially by feral Cats (*Felis catus*) and European Red Foxes (*Vulpes vulpes*) (Stobo-Wilson et al. 2021), and habitat degradation by weeds.

## MAJOR CONSERVATION OBJECTIVE

The priority management objective should be to maintain in the long term, viable, wild populations of the species as a component of the indigenous biological resources of the ACT and as a contribution to regional and national conservation of the species. This includes the need to maintain natural evolutionary processes.

## CONSERVATION PRIORITIES

Conservation actions are detailed in the Commonwealth Conservation Advice (DCCEEW 2025).

Conservation and management priorities for the Swampland Cool Skink in the ACT should be to:

- ensure core habitat and projected core habitat under climate change are protected from disturbance (including trails or park infrastructure), planned burns and fragmentation
- undertake climate modelling to predict future distribution of the species within the ACT under a range of climate change scenarios

- in collaboration with other stakeholders and jurisdictions, conduct targeted surveys to improve understanding of the species occurrence and habitat requirements in the ACT with specific attention to this species in other relevant surveys including work in the bogs and fens, e.g. alongside the ACT Bog Program (Atkins and Pulsford 2024)
- work with other jurisdictions and stakeholders to support the research priorities for the species where practical, including studies of population genetic structure and diversity, possible thermal sex reversal, microhabitat requirements, minimum tolerable fire intervals and potential to create safe havens from predators and herbivores
- determine and incorporate the ecological needs of the Swampland Cool Skink into relevant ecological guidelines (e.g., ACT Government 2019)
- undertake targeted control of invasive predators and weeds within the habitat around skink colonies, particularly post fire if feasible, to manage impacts on populations with predator control undertaken so as not to adversely impact on other native species
- ensure active surveillance programs are in place to detect the presence of feral horses, deer and invasive predators (including pigs) around known colonies of Swampland Cool Skink, and undertake control as needed
- address knowledge gaps for this species to establish climate change ready management actions that may include opportunities for university and interjurisdictional research collaborations.
- actively seek opportunities to involve members of the local Ngunnawal community, and other Indigenous people with connection to the relevant land, in on ground conservation activities for this species
- engage with other jurisdictions to support regional and national recovery of the species.

## 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 need to be considered in developing and implementing actions arising from this advice.

### Critical Habitat

The Commonwealth Conservation Advice (DCCEEW 2026) identifies ‘habitat critical to the survival’ of the species refers to areas that are necessary:

- for foraging, breeding and dispersal activities
- for the long-term maintenance of the species
- to maintain genetic diversity and long-term evolutionary development
- for the reintroduction of subpopulations or recovery of the species.

All typical habitat (such as that described above) across the species’ distribution is likely to be critical to the survival of the species. Habitat which does not fit such a description (i.e. disturbed and/or exotic habitats), but is adjacent to suitable habitat, may become suitable for the species if the vegetation is left to regenerate and become sufficiently complex in structure (Farquhar et al. 2024b). In addition, habitat which does not fit such a description now, but a) may fit the description in the future, or b) could potentially be restored to support a population of the species, with the aim of improving connectivity between subpopulations and/or increasing the area of occupancy, is also considered critical to the species’ survival.

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. Most vulnerable in this regard are those species that occupy highly fragmented habitat with highly restricted distributions, such as this species. 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. For species whose physiological limits are known, biophysical models can provide a predictive understanding of the habitats required for persistence in the face of climate change through an integration of data on climate and other environmental variables with measures of morphology, behaviour, physiology and life history of the species.

How to respond to climate change is challenging if we are not to simply monitor resultant declines. Options for on-ground action to assist species such as the Swampland Cool Skink to accommodate climate warming (such as assisted dispersal between isolates subject to local extinction) need to be explicitly explored.

## Population Viability

With highly fragmented and declining species, such as this species, it is important to ensure actions maintain connectivity and genetic diversity to prevent functional extinction. This occurs when populations decline in abundance and become fragmented to such an extent and that the genetic diversity of the species is reduced, leading to genetic problems (e.g., inbreeding depression) and the species no longer has the capacity to rebound should conditions improve or to respond to management intervention. Systematic monitoring and collection of population data, including reproduction and survival data when available, should be used to assess population viability and species distribution. An assessment of genetic variation and inbreeding risk should be made in the case of this species, particularly for small and isolated populations to inform risks. If genetic problems exist more intensive options for bringing the species to a position where it has the potential to recover may need to be explored, such as genetic rescue.

## Jurisdictional Collaboration

The location of the species habitat in the ACT high country along the NSW border requires the development of any policies and action/recovery plans to be discussed between relevant 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. Referring 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 – Glossy Grass Skink (DCCEEW 2026)
- Namadgi National Park Plan of Management (ACT Government 2010)
- ACT High Country Bogs and Fens Action Plan (ACT Government 2024)

## LISTING BACKGROUND

The Swampland Cool Skink is listed as a Vulnerable species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), effective 6 February 2026. It is assessed as Vulnerable under Criterion 1 (A2bc+A3c+A4c) and Criterion 2 (B2ab(ii,iii,iv)) of the EPBC Act. In 2026, under the *Nature Conservation Act 2014*, the ACT Scientific Committee recommended the Swampland Cool Skink be listed in the Vulnerable category in the ACT Threatened Native Species List to align with the EPBC Act listing.

## ACTION PLAN DECISION

The ACT Scientific Committee does not recommend that the Minister for the Environment should make the decision to have an action plan for the species in the ACT under the *Nature Conservation Act 2014* at this time. The species has only been recorded in the ACT once since the early 1990s, along the ACT/NSW border in Namadgi National Park. The key habitat areas of the species are in the ACT High Country Bogs and Fens Endangered Ecological Community along the ACT/NSW border in Namadgi National Park (above 1200 m above sea level) and its habitat is protected there. Actions in the High Country Bogs and Fens Action Plan will monitor and manage the habitat of this species. Targeted skink surveys can be conducted alongside the ACT Bog Program (Atkins and Pulsford 2024).

A National Recovery Plan is not required as an approved Commonwealth conservation advice was deemed as an effective, efficient and responsive document to guide the implementation of priority management actions, mitigate key threats and support the recovery for this species ([28/01/2026](#)). (DCCEEW 2026).

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## FURTHER INFORMATION

Further information on the related ecological community Action Plan or other threatened species and ecological communities can be obtained from: Environment, Planning and Sustainable Development Directorate (EPSDD).

Phone: (02) 132281, EPSDD–Environment website: <https://www.act.gov.au/environment>

# ATTACHMENT A: LISTING ASSESSMENT ([DCCEEW 2026](#))

## THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

The Threatened Species Scientific Committee finalised this assessment on 02 October 2025

### Attachment A: Listing Assessment for *Pseudemoia rawlinsoni*

#### Reason for assessment

This assessment follows evaluation by experts of the species' conservation status.

The fires that burnt more than 7.7 million hectares across southern and eastern Australia in 2019–2020 severely impacted native wildlife and habitat. This created an urgent need for hundreds of species and ecological communities (ECs) to be assessed against EPBC Act criteria for threatened listing status, so that the recovery and future resilience of fire-affected species and ECs could be supported by statutory protection commensurate with their post-fire status, and to ensure EPBC Act lists are as current and accurate as possible, helping improve environmental resilience and preparedness for future fire events.

As part of the Australian Government's fire response the Department engaged scientific experts to deliver a number of Species Expert Assessment Plans (SEAPs) for groups of fire-affected and non-fire affected species and ECs, to enable hundreds of species and ECs to be assessed against EPBC Act criteria for threatened listing status and improve the currency of EPBC Act lists in a timely manner.

This assessment follows evaluation of the conservation status of the glossy grass skink through the SEAP project.

#### 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 3 includes the key assessment parameters used in the assessment of eligibility for listing against the criteria. The definition of each of the parameters follows the [Guidelines for Using the IUCN Red List Categories and Criteria](#).

**Table 3 Key assessment parameters**

| Metric                       | Estimate used in the assessment | Minimum plausible value | Maximum plausible value | Justification     |
|------------------------------|---------------------------------|-------------------------|-------------------------|-------------------|
| Number of mature individuals | unknown                         | unknown                 | unknown                 | Insufficient data |

| Metric                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Estimate used in the assessment | Minimum plausible value | Maximum plausible value | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <b>Trend</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Declining                       |                         |                         | An estimated 42 % of the predicted range of the glossy grass skink has been converted to agricultural (38 %) or urban (4 %) land, and field surveys throughout Victoria failed to find this species at 52 % of its historical sites (Farquhar et al. 2024a). As such, the number of mature glossy grass skinks is inferred to be declining. Victoria represents the bulk of the species' distribution (69.6 % of its AOO), and it is inferred that similar declines have occurred in other mainland regions of this species' range (South Australia, New South Wales, Australian Capital Territory) because of similar land use pressures and changes in these jurisdictions. |
| <b>Generation time (years)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 5 years                         | 5                       | 5                       | Examination of museum specimens, in combination with body size (snout-vent length) histograms from field-caught individuals indicates that the glossy grass skink reaches sexual maturity at 3 years of age, at a body size of approximately 40 mm SVL (Wotherspoon et al. 2024). Given the estimated lifespan of the species (approximately 7 years), the generation length of the glossy grass skink has been estimated to be 5 years (Wotherspoon et al. 2024).                                                                                                                                                                                                            |
| <b>Extent of occurrence</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 359 845 km <sup>2</sup>         | -                       | -                       | EOO was calculated by Farquhar et al. (2024a) using methods in the IUCN guidelines (IUCN SPC 2024) and the software application GeoCAT, using records obtained from state governments, museums, and citizen science projects dating from 1950–2022.                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Trend</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Projected future decline.       |                         |                         | There is insufficient data to indicate whether subpopulations at, or near, the edge of this species' range are declining to such an extent that the EOO is currently contracting. However, 60 % of the climate range of the glossy grass skink is projected to disappear by 2050 (Cabrelli & Hughes 2015).                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Area of Occupancy</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 948 km <sup>2</sup>             | -                       | -                       | AOO was calculated by Farquhar et al. (2024a) using methods in the IUCN guidelines (IUCN SPC 2024) and the software application GeoCAT, using records obtained from state governments, museums, and citizen science projects dating from 1950–2022.                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <p>AOO is a standardised spatial measure of the risk of extinction, that represents the area of suitable habitat known, inferred or projected to be currently occupied by the taxon. It is estimated using a 2 x 2 km grid to enable comparison with the criteria thresholds. The resolution (grid size) that maximizes the correlation between AOO and extinction risk is determined more by the spatial scale of threats than by the spatial scale at which AOO is estimated or shape of the taxon's distribution. It is not a fine-scale estimate of the actual area occupied. In some cases, AOO is the smallest area essential at any stage to the survival of existing subpopulations of a taxon (for example, breeding sites for migratory species).</p> |                                 |                         |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Metric                          | Estimate used in the assessment | Minimum plausible value | Maximum plausible value | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------|---------------------------------|-------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Trend</b>                    | Contracting.                    |                         |                         | <p>An estimated 42 % of the predicted range of the glossy grass skink has been converted to agricultural (38 %) or urban (4 %) land, and field surveys throughout Victoria failed to find the species at 52 % of its historical sites (Farquhar et al. 2024a). As such, there is clear evidence that the AOO of the glossy grass skink is decreasing. In addition, the climate range of this species is projected to decrease by 60 % by 2050 (Cabrelli &amp; Hughes 2015).</p> <p>Fire may be the primary threat causing declining AOO of the glossy grass skink in eastern parts of its range where fires have burned vast expanses of contiguous forest (Legge et al. 2021). However, throughout much of this species' range, AOO is contracting primarily due to the conversion (loss and degradation) of habitat for agriculture and infrastructure (Farquhar et al. 2024a,b).</p> |
| <b>Number of subpopulations</b> | 50                              | 7                       | > 50                    | <p>Based on occurrence data compiled for the glossy grass skink and considering both naturally occurring and anthropogenic barriers, the maximum number of subpopulations may be greater than 50, (Farquhar et al. 2024a).</p> <p>For the purposes of this assessment, we estimated the number of subpopulations to be 50, to reflect the limited dispersal and patchy distribution of this species (Farquhar et al. 2024a,b; Wotherspoon et al. 2024).</p>                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Trend</b>                    | Declining                       |                         |                         | <p>An estimated 42 % of the predicted range of the glossy grass skink has been converted to agricultural (38 %) or urban (4 %) land, and field surveys throughout Victoria (which makes up the majority of the species range) failed to find the species at 52 % of its historical sites (Farquhar et al. 2024a). As such, there is clear evidence that the number of glossy grass skink subpopulations is decreasing. It is also inferred that similar declines have likely occurred in other mainland regions of this species' range (South Australia, New South Wales, Australian Capital Territory) because of similar land use pressures and changes in these jurisdictions.</p>                                                                                                                                                                                                   |

| Metric                                             | Estimate used in the assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Minimum plausible value | Maximum plausible value | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Basis of assessment of subpopulation number</b> | <p>There are seven main genetic lineages within the glossy grass skink (Wotherspoon et al. 2024), which are associated with major breaks in this species' range. This provides a basis for seven geographically distinct regions among which little genetic exchange is likely to have occurred. These regions are:</p> <ol style="list-style-type: none"> <li>1) Australian Alps</li> <li>2) Gippsland</li> <li>3) Port Phillip Bay</li> <li>4) Western Victoria</li> <li>5) Coastal South Australia</li> <li>6) Inland South Australia</li> <li>7) Mainland Tasmania</li> </ol> <p>However, the number of subpopulations is estimated to be 50 because there is an extremely low chance that most subpopulations within each region are connected by dispersal, based on the combined findings of Farquhar et al. (2024a,b) on dispersal ability and habitat connectivity. Although there are 7 genetic sub lineages, this is not informative for the purpose of designating 'subpopulations', given this divergence pattern reflects past patterns of isolation, and hence tell us little about current connectivity. Extensive landscape fragmentation is precluding dispersal, and this will most likely continue in the future. The glossy grass skink is a small lizard with limited dispersal capacity, which rarely ventures into disturbed habitat matrix (Farquhar et al. 2024a). As such, it is reasonable to assume that clusters of records are subpopulations that are not connected to other subpopulations in instances where obvious dispersal barriers exist (agricultural landscapes, urban and industrial landscapes, major transport infrastructure, and natural biogeographic barriers such as oceans).</p> <p>Based on a review of all known glossy grass skink sites against aerial satellite imagery, it is estimated that this species' range is composed of approximately 50 subpopulations, between which there is extremely low chance of dispersal and hence recolonisation (Farquhar &amp; Chapple 2024 pers. comm.). Of these subpopulations, most (&gt; 60 %) are in highly modified regions, very small in area, and with an estimated number of less than 100 mature individuals (Farquhar &amp; Chapple 2024 pers. comm.).</p> <p>These conclusions are based on (1) the plausible taxon-specific abundance and dispersal characteristics at a scale that is appropriate for the species (Farquhar et al. 2024b), and (2) an inference of population fragmentation obtained from a well-established understanding of the degree of habitat fragmentation (Farquhar et al. 2024a).</p> |                         |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>No. locations</b>                               | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1                       | 20                      | <p>The number of locations is estimated to be nine based on the finding that the 2019–2020 fires impacted 11 % of the species' range (Legge et al. 2021). Based on this proportion of the species' range affected, a similar such disturbance event could impact all subpopulations of glossy grass skink in East Gippsland and the Australian Alps bioregion.</p> <p>While 11 % of the species' range was burnt by the 2019–2020 fires, only 5 % was burnt at high to very high severity. If the species were only impacted by high to very high severity fires, an upper estimate of 20 locations based on a single high intensity event is assumed.</p> <p>The climate range of this species is projected to decrease by 60 % by 2050 (Cabrelli &amp; Hughes 2015). As climate change is predicted to impact the entire range of the glossy grass skink, there is the potential for the species to only have a single location.</p> |
| <b>Trend</b>                                       | Insufficient data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                         |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Basis of assessment of location number</b>      | While habitat conversion for agriculture and infrastructure is the prevailing threat throughout many parts of the species' range, the number of locations is defined by fire because it is the most plausible threat that could severely impact the maximum estimated number of locations at one time.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                         |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Metric               | Estimate used in the assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Minimum plausible value | Maximum plausible value | Justification |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------|---------------|
| <b>Fragmentation</b> | <p>Glossy grass skinks have a highly fragmented and disjunct distribution (Farquhar et al. 2024a). An estimated 42 % of this species' predicted range has been converted to agricultural (38 %) or urban (4 %) land (Farquhar et al. 2024a). Habitat conversion and/or high intensity grazing usually results in the complete loss of the glossy grass skink (Farquhar et al. 2024b). This provides an explanation for the loss of the species from approximately 52 % of historical sites that were surveyed throughout Victoria (Farquhar et al. 2024a).</p> <p>Based on a review of all known glossy grass skink sites against aerial satellite imagery, experts estimated that this species' range is composed of approximately 50 subpopulations, between which there is extremely low chance of dispersal and hence recolonisation (Farquhar &amp; Chapple 2024 pers. comm.).</p> <p>Of these 50 subpopulations, most (&gt; 60 %) are in highly modified regions, very small in area, and with an estimated number of less than 100 mature individuals (Farquhar &amp; Chapple 2024 pers. comm.). Experts indicate that the majority (&gt; 50 %) of subpopulations of the glossy grass skink have few individuals and are unlikely to be viable in the long-term (Farquhar &amp; Chapple 2024 pers. comm.).</p> |                         |                         |               |
| <b>Fluctuations</b>  | Australian skinks are not known to experience extreme fluctuations in EOO, AOO, number of subpopulations, locations, or mature individuals.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |                         |               |

### 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<br>Very severe reduction | Endangered<br>Severe reduction | Vulnerable<br>Substantial reduction |
| <b>A1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ≥ 90 %                                         | ≥ 70 %                         | ≥ 50 %                              |
| <b>A2, A3, A4</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ≥ 80 %                                         | ≥ 50 %                         | ≥ 30 %                              |
| <p><b>A1</b> 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><b>A2</b> 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><b>A3</b> Population reduction, projected or suspected to be met in the future (up to a maximum of 100 years) [(a) <i>cannot be used for A3</i>]</p> <p><b>A4</b> 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> <p>Based on any of the following</p> <ul style="list-style-type: none"> <li>(a) direct observation [except A3]</li> <li>(b) an index of abundance appropriate to the taxon</li> <li>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</li> <li>(d) actual or potential levels of exploitation</li> <li>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</li> </ul> |                                                |                                |                                     |

### Criterion 1 evidence

Eligible under criterion A2bc, A3c, and A4c for listing as Vulnerable

The generation length of the glossy grass skink is 5 years (Wotherspoon et al. 2024), and therefore the assessment period for this criterion is 15 years.

While there are no data from systematic monitoring programs for the glossy grass skink to enable a measurable assessment of national population trends, data is available to assess the glossy grass skink under this criterion.

Threats to the species (habitat loss and degradation, climate change, invasive species) have not ceased and are not clearly reversible. Therefore, the glossy grass skink is not eligible for listing under criterion A1.

To determine whether the glossy grass skink is locally extinct from historical sites, Farquhar et al. (2024a) implemented visual encounter surveys at 25 sites across the Victorian distribution of the species. These survey sites were in areas where this species had not been detected for 15 years (3 generations). The glossy grass skink was not present at 52 % of sites surveyed (Farquhar et al. 2024a). Where present, the glossy grass skink was readily detected, with an average time until first detection of 35 minutes. This provides confidence in absences and an approximately 50 % decline in the AOO of the glossy grass skink in Victoria over the past 3 generations.

Victoria represents the bulk of the glossy grass skink distribution (70 % of its AOO), and similar declines have likely occurred in other mainland regions of this species' range (South Australia, New South Wales, Australian Capital Territory) because of similar land use pressures and changes in these jurisdictions. However, as a conservative estimate, the glossy grass skink has declined by more than 30 % over the past 3 generations and therefore meets the criteria for listing as Vulnerable A2bc.

The climate range of the glossy grass skink is projected to decline by approximately 60 % by the decade centred on 2050 under a high emissions scenario from the baseline period 2010 (Cabrelli & Hughes 2015) assuming a linear rate of decline. While a linear decrease in climate range may be uncertain given the variable nature of rainfall across parts of the range, previous studies (Cabrelli & Hughes 2015) used this method to estimate declines. Since 2015, the species is estimated to have lost approximately 15 % of its climate range as of 2024 and is projected to lose 1.7 % of its climate range per year, or 26 % over the next 15 years (2025–2040). Notably this figure is a simplification as habitat loss due to climate change is not a linear process, and warming will accelerate with time. Therefore, a larger proportion of the 60 % of the climate range that is projected to be lost from 2015–2050 will likely be lost between 2040–2050. However, as habitat loss and degradation from agriculture, urban development and infrastructure development is highly likely to exacerbate the impacts of climate change, it is reasonable to expect that there will be a greater than 30 % loss of climate range and habitat over the next 15 years.

Criterion A3 has been proposed an effective way to incorporate predicted climate change impacts into conservation assessments (Mancini et al. 2024). Thus, the glossy grass skink meets the criteria for listing as Vulnerable A3c, and also A4c.

The Committee considers that the glossy grass skink has met the relevant elements of Criterion 1 to make it eligible for listing as Vulnerable under sub criterion A2bc, A3c, and A4c.

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

|                                                                                                                                                                                                                                                           | Critically Endangered<br>Very restricted | Endangered<br>Restricted | Vulnerable<br>Limited    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------|--------------------------|
| <b>B1.</b> Extent of occurrence (EOO)                                                                                                                                                                                                                     | < 100 km <sup>2</sup>                    | < 5,000 km <sup>2</sup>  | < 20,000 km <sup>2</sup> |
| <b>B2.</b> Area of occupancy (AOO)                                                                                                                                                                                                                        | < 10 km <sup>2</sup>                     | < 500 km <sup>2</sup>    | < 2,000 km <sup>2</sup>  |
| <b>AND at least 2 of the following 3 conditions:</b>                                                                                                                                                                                                      |                                          |                          |                          |
| (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

### Eligible under Criterion 2 B2ab(ii,iii,iv) for listing as Vulnerable

The glossy grass skink has a large estimated extent of occurrence (EOO) of 359 845 km<sup>2</sup> and therefore does not meet the threshold for Vulnerable under Criterion B1. The glossy grass skink has an estimated area of occupancy (AOO) of 948 km<sup>2</sup>, meeting the threshold for Vulnerable under Criterion B2.

The geographic distribution of the glossy grass skink is severely fragmented because more than 50 % of individuals live in small, isolated subpopulations that have a low probability of recolonisation following local extinction (refer to Table 3). The species is dependent on wetland environments, and it has a limited capacity for dispersal among areas of habitat that are patchily distributed throughout this species' range. This limited dispersal capacity is exacerbated by widespread conversion of land for agricultural and urban development across this species' range, and associated infrastructure further prevents dispersal between sites.

The greatest threat with the lowest plausible number of locations is climate change and its interaction with fire regimes, with a lower plausible value of 1 and an upper plausible value of 20 (based on the impacts of fire). A conservative value of 9 was used to reflect the extent of glossy grass skink habitat burned during the 2019–2020 fire season. The frequency of wildfire events now and predicted into the future (Williams et al. 2009; Tran et al. 2020; Canadell et al. 2021; Collins et al. 2021, 2022, 2023; Cawson et al. 2024) is suspected to provide insufficient opportunity for glossy grass skink subpopulations to fully recover between major fire events (Legge et al. 2021).

A continuing decline in AOO is inferred due to an observed decline in habitat quality and extent, and consequently, an inferred decline in the number of subpopulations caused by widespread agricultural and urban development and high intensity fire (see Table 1), thereby meeting sub criteria (b) (ii, iii, iv).

The Committee considers that the AOO of the glossy grass skink is limited, the geographic distribution is severely fragmented, the number of locations is limited, and a continuing decline is inferred in the area of occupancy, area and quality of habitat, and number of subpopulations. Therefore, the glossy grass skink has met the relevant elements of Criterion 2 to make it eligible for listing as Vulnerable.

### Criterion 3 Population size and decline

|                                                                                                                                                                                        | Critically Endangered<br>Very low                                             | Endangered<br>Low                                                        | Vulnerable<br>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<br>25 % in 3 years or<br>1 generation<br>(whichever is longer) | High rate<br>20 % in 5 years or<br>2 generation<br>(whichever is longer) | Substantial rate<br>10 % in 10 years or<br>3 generations<br>(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

#### Insufficient data to determine eligibility.

There are no population or subpopulation estimates available for the glossy grass skink. Therefore, the Committee considers there is insufficient information to determine the eligibility for glossy grass skink to be listed under this criterion.

## Criterion 4 Number of mature individuals

|                                                                                                                                                                                                                                      | Critically Endangered<br>Extremely low | Endangered<br>Very Low | Vulnerable<br>Low                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------|----------------------------------------------------------------------------------|
| D. Number of mature individuals                                                                                                                                                                                                      | < 50                                   | < 250                  | < 1,000                                                                          |
| D2. <sup>1</sup> Only applies to the Vulnerable category<br>Restricted area of occupancy or number of locations with a plausible future threat that could drive the species to Critically Endangered or Extinct in a very short time |                                        |                        | D2. Typically: area of occupancy < 20 km <sup>2</sup> or number of locations ≤ 5 |

<sup>1</sup> 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

### Insufficient data to determine eligibility.

There are no population estimates available for the glossy grass skink. Therefore, the Committee considers there is insufficient information to determine the eligibility for glossy grass skink to be listed under Criterion D.

The glossy grass skink has an area of occupancy much larger than 20 km<sup>2</sup> (948 km<sup>2</sup>), the number of locations is estimated to be 9, and there are no anticipated threats that could drive this species to qualify for Critically Endangered or Extinct within two generations (approximately 10 years). Therefore, the glossy grass skink does not meet the elements for listing under Criterion D2.

## Criterion 5 Quantitative analysis

|                                                             | Critically Endangered<br>Immediate future                                 | Endangered<br>Near future                                                 | Vulnerable<br>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

Distributional modelling (using a high emissions scenario from the baseline year 2010) on the glossy grass skink indicated that this species was projected to have an approximately 60 %

reduction in climate range by the year 2050 (Cabrelli & Hughes 2015). However, there is currently insufficient information to determine whether this is likely to result in a greater than 10 % chance of extinction in the wild over the next 100 years.

Therefore, there is insufficient information to determine eligibility of the glossy grass skink for listing in any category under this criterion.

### **Adequacy of survey**

There have been several systematic surveys for the glossy grass skink, using methods that are highly effective at detecting and monitoring this species (Farquhar et al. 2024a,b). Noting most of the survey effort for this species has been in Victoria, these surveys have been adequate to inform this assessment given Victoria covers a large majority of this species' range.

### **Public consultation**

Notice of the proposed amendment and a consultation document was made available for public comment for 31 business days between 13 June 2025 and 25 July 2025. Any comments received that were relevant to survival of the glossy grass skink were considered by the Committee as part of the assessment process and provided to the Minister for the Environment with the Committee's advice.