The southern greater glider

New South Wales and Saving our Species draft conservation strategy

Saving our Species

NSW GOVERNMENT

Acknowledgement of Country

Department of Climate Change, Energy, the Environment and Water acknowledges the Traditional Custodians of the lands where we work and live.

We pay our respects to Elders past, present and emerging.

This resource may contain images, or names of deceased persons in photographs or historical content.

Artist and designer Nikita Ridgeway from Aboriginal design agency Boss Lady Creative Designs created the People and Community symbol.

Cover photo: Southern greater glider (*Petauroides volans*). Pavel German/DCCEEW

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The southern greater glider: a unique marsupial

Protecting greater gliders in New South Wales

The southern greater glider *(Petauroides volans)* is the largest gliding marsupial in Australia. The species inhabits eucalypt forests and woodlands across eastern Australia, from Victoria through to central Queensland.

Listed as endangered in New South Wales in 2022, it is at high risk of extinction due to various threats including habitat degradation, fragmentation and the loss of hollow-bearing trees due to land use changes and climate change.

Greater gliders feed almost exclusively on eucalypt leaves. They are nocturnal and have large eyes, which help them to navigate in the dark. During daylight hours, they shelter in tree hollows across a small home range.

A glider may use up to 18 tree hollows across its range for shelter.

Greater gliders can move effectively through the tree canopy, but gaps in vegetation can be barriers to movement and make them vulnerable to competition, increased predation and other threats.

The greater glider is a flagship species for forest ecosystems. These ecosystems are particularly susceptible to land use change, unsustainable forestry operations and unsuitable fire regimes. Preserving intact forest ecosystems is essential for the conservation of the greater glider, and will also benefit other forest-dwelling species, particularly by providing refuge sites in a changing climate.

Conservation status of the greater glider

The greater glider (southern and central) was uplisted from vulnerable to endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* on 5 July 2022.

In November 2022, the southern greater glider was listed as endangered under the NSW *Biodiversity Conservation Act 2016* by the NSW Threatened Species Scientific Committee. This listing was based on reductions in the abundance, distribution and habitat of the species following an assessment across its full range, which extends from central Queensland to central Victoria.

Before this listing, 3 greater glider populations in New South Wales had conservation protection under threatened species legislation. However, these populations have now been incorporated into a species-level endangered listing.

Figure 1 **Greater gliders are nocturnal and have large eyes; in the light of a torch, their eyes reflect a bright shine. Photo: Karen Hutchings/DCCEEW**

Saving our Species is the NSW Government's flagship commitment to threatened species

Saving our Species is a program of the NSW Department of Climate Change, Energy, the Environment and Water (the department). It provides guidance to coordinate threatened species conservation on all types of land across the state. By combating threats and working with our partners and local communities to restore and protect vital habitat, Saving our Species can help strengthen biodiversity in these landscapes and secure a future for native species like the southern greater glider.

How New South Wales protects the southern greater glider

The Saving our Species program provides a conservation strategy to guide actions and supports staff to do on-ground work to help prevent extinction. The program also works with partners to align efforts to help conserve gliders. In addition to the conservation work done under Saving our Species, the state also regulates forestry and native vegetation clearing and supports research into greater gliders.

Forestry operations conducted in Crown forests where greater gliders are known to occur are required to apply the site-specific biodiversity condition for greater gliders. This condition is regulated by the NSW Environment Protection Authority and can be found at: Site-specific biodiversity condition for Greater Gliders in the Coastal Integrated Forestry Operations Approval (IFOA) region.

The condition includes requirements for surveys, mitigation measures, and ongoing monitoring of species presence and response to operations, which inform adaptive management over time.

In addition, the December 2025 changes to the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* remove the exemption for forestry operations conducted under Regional Forestry Agreements (RFAs) from 1 July 2027. As a result, forestry operations in RFA areas will require approval under Commonwealth processes unless alternative arrangements between New South Wales and the Commonwealth are put into place. New South Wales and the Commonwealth will consider these changes in 2026.

Scientists from the department have also contributed to projects to better understand where gliders live and their ecology. Because of their cryptic nature, it can be difficult to count gliders and understand the size of their populations.

Research to survey gliders draws on techniques such as drones and thermal imaging. This helps scientists to understand the relationship between greater glider abundance and habitat characteristics, which can inform conservation efforts.

Saving our Species provides a strategy for aligning on-ground conservation

A landscape approach to protect the greater glider

Under the NSW *Biodiversity Conservation Act 2016*, the Saving our Species program is required to develop a conservation strategy for any species listed as threatened. The aim of a Saving our Species conservation strategy is to secure a threatened species from extinction in the wild.

Figure 2 **Preserving intact forest ecosystems, such as this forest in Cunnawarra National Park, is essential for the conservation of the threatened greater glider and will also benefit other forest-dwelling species. Photo: Rob Cleery/DCCEEW**

The southern greater glider is in the Saving our Species' landscape management stream. Each management stream guides a distinct conservation approach. A landscape species approach focuses on supporting species that require large areas of habitat and rely on many different partners working together to conserve them.

For landscape species, an action toolbox is developed to identify threats, management actions and the appropriate scale for these actions. When staff or partners identify specific places that are important for glider conservation, local sites are established using the actions in the toolbox. At each location, the critical threats present will inform the actions selected.

The actions in the southern greater glider toolbox were developed in consultation with species experts, including land managers, universities, zoologists and conservation biologists. Experts and partners appreciate the toolbox approach because it is flexible and allows new partners to join the project over time. The toolbox aims to focus efforts on the most critical actions that will secure the species in the wild.

The department is currently working in partnership with private landowners, universities and non-government organisations to leverage research and investment opportunities that address the key priorities for the greater glider outlined in the action toolbox.

Saving our Species greater glider conservation strategy

Southern greater gliders are found throughout the state's eastern forests. The toolbox actions listed below can be used to guide conservation projects for gliders anywhere within the priority management area.

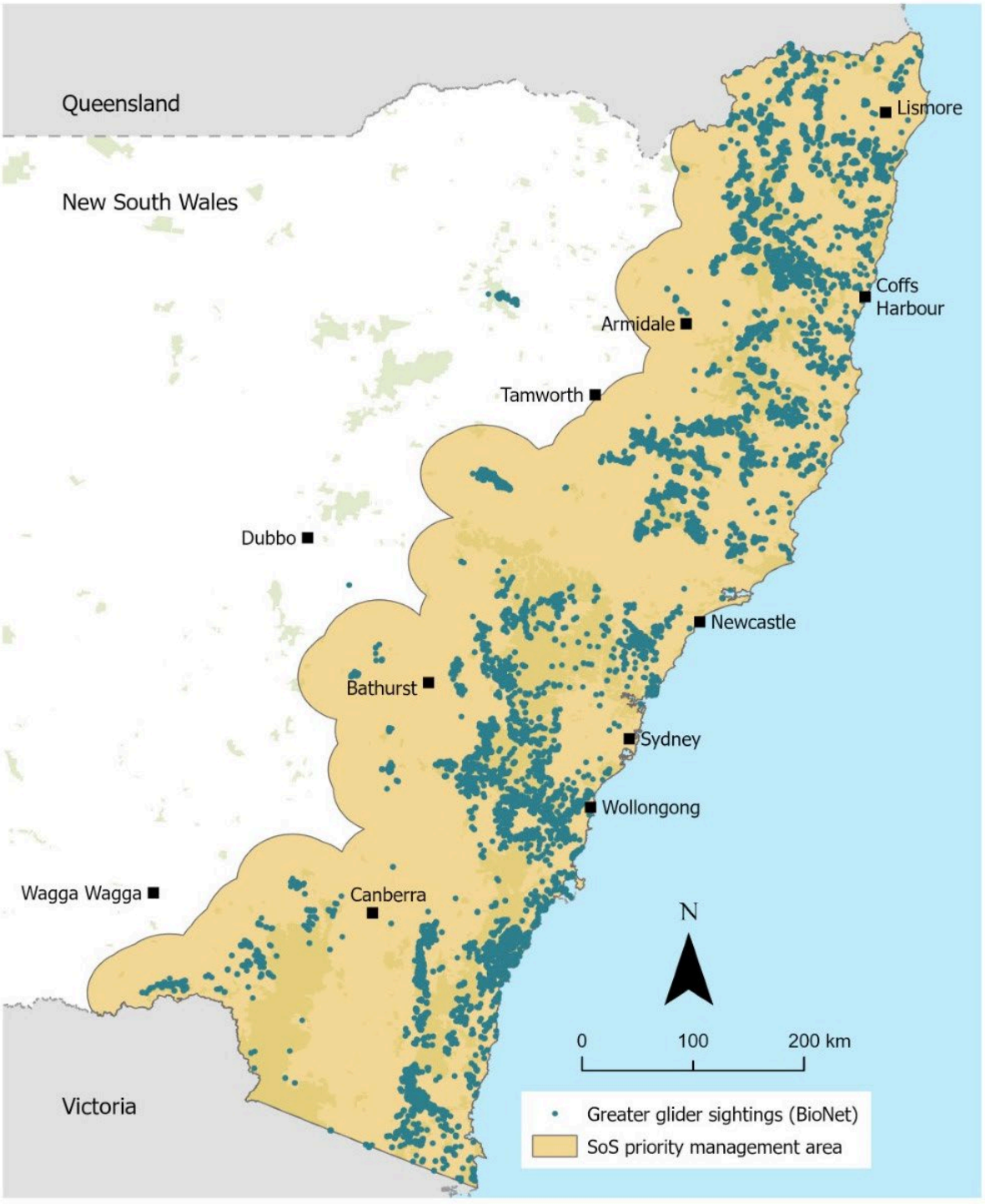

Figure 3 **Map showing greater glider sightings across New South Wales, and the Saving our Species priority management area**

Table 1 Action toolbox

Threat	Action description	Scale (site, area, state)
Loss and fragmentation of habitat causing reduced habitat connectivity as a result of forestry, agricultural, urban and rural development.	Liaise with relevant local and state government agencies that manage and regulate infrastructure, development and forestry to provide advice on the species distribution, ecology, threats and habitat requirements to inform management and planning.	Site, area, state
Loss and fragmentation of habitat causing reduced habitat connectivity as a result of forestry, agricultural, urban and rural development.	Map priority populations and habitat suitability to target areas for corridor establishment and patch enhancement. Use this to inform habitat restoration planning at appropriate scales and locations. Consult ecological experts and restoration scientists to determine the most suitable tree species (and potential genotypes) for planting in specific areas.	Area, state
Loss and fragmentation of habitat causing reduced habitat connectivity as a result of forestry, agricultural, urban and rural development.	Conduct habitat restoration to increase connectivity between mapped priority areas.	Site, area
Loss and fragmentation of habitat causing reduced habitat connectivity as a result of forestry, agricultural, urban and rural development.	Develop a coordinated register and program of structured monitoring at relevant time scales based on age and type of restoration action. This will assess the success of restoration actions, including improvements to habitat connectivity.	Site, area
Loss and fragmentation of habitat causing reduced habitat connectivity as a result of forestry, agricultural, urban and rural development.	Prepare local management plans to focus on securing robust populations within specified local areas, with success measured against a clear population target. Support private landholders to develop management plans for their properties. This may include population monitoring, targeted threat management and habitat improvement.	Area
Loss and fragmentation of habitat causing reduced habitat connectivity as a result of forestry, agricultural, urban and rural development.	Liaise with the Biodiversity Conservation Trust and landholders to encourage long-term or in perpetuity conservation agreements to protect remnant habitat and corridors for the species on private property.	State

Threat	Action description	Scale (site, area, state)
Loss and fragmentation of habitat causing reduced habitat connectivity as a result of forestry, agricultural, urban and rural development.	Monitor species responses to mitigation measures and artificial crossing structures and liaise with researchers to improve understanding of the species biology and prioritise conservation actions.	Site
Disenfranchisement of Traditional Owners and Aboriginal custodians negatively impacting cultural and conservation outcomes.	Liaise with Aboriginal custodians and communities to identify sites and projects that reflect their connection to the species and to Country, including participation in building and communicating traditional and evolving knowledge of the greater glider to contribute to the conservation of the species.	Site, area, state
Loss of hollow-bearing trees.	Prepare tree hollow survey guidelines to apply consistently across tenures for a range of land managers. Develop a survey and monitoring plan for artificial hollow trials that includes maintenance, monitoring and replacement requirements to minimise negative impacts such as pest species.	Site
Loss of hollow-bearing trees.	When applicable, trial artificial hollows to increase habitat availability in areas with low hollow density. Liaise with universities and other research stakeholders to trial artificial hollows where appropriate. If research determines artificial hollows are an appropriate response to tree hollow loss, integrate artificial hollow actions into longer term conservation planning at priority sites.	Site
Loss of hollow-bearing trees.	Provide support for private landholders to maintain existing hollow-bearing trees and to conduct replanting and revegetation to promote long-term hollow creation. Protect trees with a diameter at breast height of 50 cm or more, wherever possible, to ensure future hollow resources are available in the landscape.	Site
Altered microclimatic conditions due to climate change causing variation in rainfall, drought, temperature and	Conduct research into the species microclimate and habitat requirements, including variability and mix of tree species and leaf moisture. Identify climatic refuges that maintain appropriate microclimate conditions for the	Site, area, state

Threat	Action description	Scale (site, area, state)
heat waves, which reduces leaf moisture and increases toxin content.	species. Liaise with researchers to model future habitat suitability and predict the effects of drought and other climatic variables on food availability, food quality and climate refugia.	
Altered microclimatic conditions due to climate change causing variation in rainfall, drought, temperature and heat waves, which reduces leaf moisture and increases toxin content.	Conduct experimental trials to develop methods to increase leaf moisture during drought or heat waves.	Site
Too frequent or high-severity fires impacting greater glider populations, habitat and hollow-bearing trees.	Liaise with private landholders and operational agencies to provide advice on the species status, habitat requirements and sensitivity to high-severity and high-frequency fires to update fire planning systems and relevant management plans.	Site, area
Too frequent or high-severity fires impacting greater glider populations, habitat and hollow-bearing trees.	Monitor and map species records and den trees before and after fire to assess impacts on populations and tree hollow availability. Mark den trees as a glider fauna asset.	Site, area
Too frequent or high-severity fires impacting greater glider populations, habitat and hollow-bearing trees.	Liaise with Aboriginal custodians and communities to incorporate traditional ecological knowledge to guide fire management plans and maintain habitat connectivity.	Site, area
Loss of habitat connectivity and fragmentation leading to loss of genetic diversity and inbreeding depression.	Use population data, habitat monitoring and genetic research to evaluate the risk of inbreeding and restricted gene flow. Consider targeting restoration actions to increase connectivity between genetically distinct populations and determine whether a future translocation may be appropriate if habitat requirements are met.	Site, area
Barbed wire fences entangle greater gliders and damage their gliding membranes.	Engage land managers and local councils to encourage wildlife-friendly fencing. Develop guidelines outlining alternatives to barbed wire fences and disseminate through public education forums.	Site, area, state

Threat	Action description	Scale (site, area, state)
Lack of knowledge of the impact of critical threats on population trends and the effectiveness of management actions.	Contribute to cross tenure data sharing opportunities including a national monitoring strategy and nationally coordinated species information database.	State
Lack of knowledge of the impact of critical threats on population trends and the effectiveness of management actions.	Monitor trends in population density and occupancy to understand the species response to threats and management actions across tenures. Apply consistent data collection methods to inform adaptive management. Include targeted surveys in habitat areas where existing data is lacking, and critical threats are identified.	Site, area, state

Monitoring actions

Regular monitoring of the effectiveness of management and trends in local populations and ecological communities at a site scale is an important component of all strategies. The toolbox and any site-based management will be adapted, and actions added or removed over time in response to monitoring results.

Monitoring actions at each site will be developed in alignment with Saving our Species' *Monitoring, evaluation and reporting guidelines for conservation projects*, which can be obtained online at Saving our Species Monitoring Evaluation and Reporting.