Working together for Ngwayir

by Deon Utber and Kim Williams

Recently upgraded to 'critically endangered', the ngwayir, or western ringtail possum, is receiving reinvigorated attention from members of the community, scientists and government agencies, as they work collaboratively to implement conservation actions under the guidance of a new recovery plan and recovery team.

The western ringtail possum (*Pseudocheirus peregrinus occidentalis*) or ngwayir, as it is known by Aboriginal people, is often encountered by people who live within its range in the State's south-west. However, despite being commonly seen within urban areas, this arboreal marsupial is threatened and was upgraded from 'endangered' to 'critically endangered' in 2017. This has led to a higher degree of scrutiny among community members and increased efforts into recovery actions for its conservation.

DISTRIBUTION AND BIOLOGY

Today, ngwayir occur in three distinct subpopulations – on the Swan Coastal Plain, in the southern forests and on the South Coast. However, sub-fossil data indicate it once had a much broader distribution. When the *Western Ringtail Possum Recovery Plan* was prepared in 2014 it was believed there were fewer than 8000 mature individuals in the Western Australian subspecies. However, it is necessary to review and update this data to gain a better understanding of how the western ringtail possum is faring today across the full population range.

Ringtail possums are a tree-dwelling, leaf-eating (folivorous) marsupial, which have a prehensile tail. They are easily distinguished from brushtail possums (*Trichosurus vulpecula*), or 'koomal' due to their slim, white-tipped tails, darker fur and smaller, rounder ears. Along the Swan Coastal Plain, core habitat for the ngwayir is primarily peppermint woodland (*Agonis flexuosa*) and tuart woodlands (*Eucalyptus gomphocephala*) containing peppermint. However, they are not dependent on peppermint for habitat and have been known to utilise other types of vegetation – such as marri, jarrah and sheoak – in areas outside the Swan Coastal Plain.

Ngwayir can start breeding at about 12 months of age and usually have a litter of one. However, on rare occasions, they have been recorded with two or three young. After a brief gestation period – two to four weeks – the neonates spend about three months in the pouch and are then weaned at six to eight months. Young ngwayir stay with their mothers for eight to 12 months, and then disperse to make their own way. They can live for up to four years.

Reproductive success can be dependent on habitat quality; there is a strong correlation between low nitrogen content in tree canopies and lower birth numbers. This is evident in peppermint woodland that has a higher nitrogen content and a subsequent higher birth rate.

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THREATENING PROCESSES

Ngwayir face a number of threatening processes that are all too familiar to many native Australian animals: habitat removal, fragmentation and predation, and the impacts of climate change. These threats can impact ngwayir populations to varying degrees, depending on whether they occur near coastal populations where housing development and predation pressures are high or inland where other land management practices and introduced predators are the primary concerns.

Historically, clearing for agriculture along the southern Swan Coastal Plain, between Mandurah and Busselton to Dunsborough, targeted the fertile soils and low-lying lands, which formed much of ngwayir's key habitat in this area. Further fragmentation of vegetation by urban development has increased pressure on the ngwayir across its range because of reduced vegetation patch size and isolation of remnants, as well as

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Main Ringtail possum.
Photo – Geoff Taylor/Lochman Transparencies
Background Peppermint and tuart woodlands are key habitat for the ringtail possum.
Photo – Brett Dennis/Lochman Transparencies

Above Ngwayir young stay with their mother for eight to 12 months.
Photo – Ann Storrie

increased risk of predation by cats, dogs and foxes. Increasing urbanisation has also led to higher numbers of possums being struck by vehicles and electrocuted on power lines as they attempt to move through suburbia between remnants. Urban development and fragmentation are particularly prevalent threats in the Swan Coastal and South Coast management zones.

Away from the coast, in the southern forests zone, impacts by land management practices and predation by introduced predators are of greater concern than development. Activities such as forestry and inappropriate fire regimes can impact the quality of habitat for food and refuge and expose ngwayir to predation by introduced predators.

The impacts of climate change are also likely to affect all populations of ngwayir due to its habitat requirements, its poor ability to migrate and its sensitivity to drought-induced stress. Rainfall has reduced by at least 20 per cent in the past 30 years, and it is predicted that increased average temperatures will cause further decline. It is likely that these changes will lead to increased fire frequency and intensity, which will cause a reduction in habitat quality and result in the further contraction of the possums' range into more fertile and mesic environments, where they are available.

A LITTLE HISTORY

The western ringtail possum was listed as specially protected fauna in 1983 and a dedicated recovery team was assembled during the late 1990s. The team developed an *Interim Recovery Plan*, which was released in 1997, to address urgent recovery actions. The plan focused on improving knowledge of the biology and ecology of ngwayir, much of which was initially established by independent researcher Barbara Jones, and the effect of threatening processes on the species' long-term survival.

The rapid urban development on the southern Swan Coastal Plain was having a dramatic impact on key possum habitat through habitat loss and fragmentation. So, in 1991, the first trials of capturing and translocating possums from development sites to habitat in secure conservation reserves were undertaken.

Translocations from development sites over the next 10 years provided opportunities for a number of PhD and Masters level studies into translocation techniques and survival, animal diseases, best practices for rehabilitation of sick and injured western ringtail possums, population genetics, animal physiology and the development of new capture techniques such as 'darting'.

The development of 'possum-friendly' protocols to reduce the likelihood of physical harm or death to the possums during vegetation clearing operations were introduced, as were the requirements for experienced fauna spotters to be present, to direct machine operators and ensure animal welfare issues are implemented.

Hear more about the ngwayir

Scan this QR code or visit Parks and Wildlife Service's '*LANDSCOPE*' playlist on YouTube.

Above left Brushtail possums (koomal) are distinguishable from the ringtail possum by their lighter fur, thicker tails and pointed ears.

Above Ngwayir are also known to utilise marri, jarrah and sheoak.
Photos – Jiri Lochman

Above and far right Artificial possum boxes are supporting breeding.
Photo – Ann Storrie

Right Local arborists have joined forces with GeoCatch and the Western Ringtail Possum Recovery Team to install nesting boxes.
Photo – GeoCatch

Below Ringtail possum.
Photo – Ann Storrie

Western ringtail possums

Ngawyir have dark-brown fur with a lighter-coloured belly. Their tail grows to 30–35 centimetres and has a white tip. It is prehensible, which means it can curl around branches and aid in climbing. Ringtails have large, brown eyes and small, rounded ears. Adults weigh about one kilogram and have a body length of about 30–35 centimetres.

A series of trials were undertaken to evaluate the use of mitigation actions on or adjacent to development sites, including the use of artificial dreys and nest boxes and habitat planting and creation.

In 2006, a project was started to map the extent of habitat in the core Busselton to Dunsborough area. The information gathered provided a baseline from which the distribution and rate of habitat loss could then be evaluated. This was expanded in 2014 to include habitat suitability mapping and a habitat classification system across the Binningup to Dunsborough area, which continues to be used by government agencies to assess the likely impact of vegetation clearing proposals.

Population monitoring programs in the southern sections of the Swan Coastal Plain were established in locations such as the Tuart Forest National Park and Locke Nature Reserve, and the use of innovative techniques such as scat counts as well as traditional spotlighting were introduced.

Guidelines for developers and planning consultants were developed and the recovery team worked with the State and Federal governments on procedures to identify 'impact significance guidelines' and establish the criteria for offsetting habitat loss in addition to standard approval conditions.

A CALL TO ACTION

In January 2017 the western ringtail possum was upgraded to 'critically endangered' after a review of its conservation status by the Western Australian Threatened Species Scientific Committee.

The Federal Government released a *National Threatened Species Action Plan* with the aim of improving the trajectories of 20 threatened mammal species by 2020, including the western ringtail possum. The national action plan and the recent conservation status upgrade has reinvigorated activity for the plight of the ngwayir and led to a rapid increase in the number of community-based conservation projects being developed and funded through State and national natural resource management programs. These projects include surveys in areas of potential western ringtail possum habitat,

Left DBCA held a community and stakeholder workshop to discuss the conservation of ngwayir.
Photos – GeoCatch

Above Displaced and injured possums are cared for by wildlife rehabilitators.
Photo – Ann Storrie

for which there is little data, to improve our knowledge and understanding of where possums occur. Natural resource groups are also engaging with land managers and the general community to provide information about practical activities that can support possum conservation, and predator control.

In response to the increased attention and concern for the ngwayir, DBCA held a workshop with community and stakeholder groups to discuss the conservation of ngwayir and the need to re-form the Western Ringtail Possum Recovery Team. The object of re-forming the team was to ensure a coordinated approach to implementing the 2017 recovery plan. Workshop participants provided information on activities currently being undertaken and mapped these against the recovery plan actions. With these actions documented, continuing and future plans were discussed, and it was agreed that re-forming the recovery team was essential to enable collaboration and coordination of conservation efforts across community groups and government agencies.

The team reconvened in late 2017, with representatives from DBCA, local government, Main Roads and tertiary institutions and community members from the three management zones. The enthusiastic team has met regularly and is progressing the highest priority actions including developing consistency in survey and monitoring techniques, improving knowledge on the population status through a regional context survey, coordinating and advocating communication and identifying and promoting research into ringtail possum biology and behaviour.

The benefits of the re-convened recovery team are already being realised through interaction and advice being provided to natural resource management groups undertaking on-ground works, student research aimed at increasing the knowledge base for management, local government in developing a ringtail possum strategy, and government agencies investing in roadkill impact mitigation and regional context surveys. The team is working with wildlife rehabilitators to improve the delivery of care to displaced and injured animals and the understanding of changes introduced by the new Biodiversity Conservation Regulations 2018.

The recovery team is committed to a holistic approach to improve our understanding of ngwayir's conservation status across its full range and achieve practical conservation that will ensure the long-term preservation of this iconic Western Australian species.

Deon Utber is the Parks and Wildlife Service's South Coast Region Conservation Regional Leader. He can be contacted on (08) 9842 4500 or by email (deon.utber@dbca.wa.gov.au).
Kim Williams is the Parks and Wildlife Service's South West Region Conservation Regional Leader. He can be contacted on (08) 9725 4300 or by email (kim.williams@dbca.wa.gov.au).
Other contributors to the project included DBCA staff Ian Wilson, Sarah Comer and Geoff Barrett.