

WA'S PARKS, WILDLIFE AND CONSERVATION MAGAZINE

# LANDSCOPE

Volume 40 Number 3  
Autumn 2025 \$7.95

Two cockatoos are perched on a dark, textured branch against a plain grey background. The cockatoo in the foreground is facing right, with its wings partially spread, showing vibrant orange-red feathers. The second cockatoo is perched slightly higher and further back, also facing right, with its wings fully extended, revealing the same striking orange-red plumage. Both birds have white bodies and distinctive red crests.

**CAPTIVATING  
COCKATOOS**  
Mastering nature  
photography

**Conservation  
superpower**  
Celebrating WA parks

**Beyond bee hotels**  
Helping native bees

**Ancient landscape**  
Exploring Mount  
Frankland



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ON THE COVER

**Front cover** Young pink cockatoos (*Cacatua leadbeateri*).  
Photo – Keith Lightbody

**Back cover** Caldyanup Trail, Mount Frankland National Park.  
Photo – Bron Anderson

LANDSCOPE is produced and printed on Whadjuk Noongar Boodjar, the traditional lands of the Whadjuk people of the Noongar Nation. We pay respects to them, their Elders past and present and to all Aboriginal people and acknowledge their continuing connection to lands across Western Australia.

Nature represents a place of balance. Amidst the giant jarrah trees scuttle tiny ants, and soft sand is found alongside jagged rocks. These elements serve to complement each other, reminding us that everything has its place and its purpose in a thriving ecosystem. Nature also represents the place of unsung heroes. Seldom is a tree root celebrated, and yet without it, the tree would fall at the slightest adversity of the elements.

As the success of the tree relies on factors behind the scenes, so too do significant and sizeable programs such as the recently completed Plan for Our Parks initiative that has seen the establishment of more than six million hectares of new conservation estate (see 'More than 5 million reasons to celebrate WA parks' on page 12).

Plan for Our Parks has created 277 career opportunities for Aboriginal people in different aspects of on-Country management. Behind the scenes, the department's People and Culture team jumped into action to ensure these new recruits are set up to perform their roles and will continue to support them after the program is completed.

Caring for our environment is a shared responsibility, and partnerships between community partners (see 'Wild Wonders of Western Australia' on page 28), Traditional Owners, land managers and citizen scientists help foster mutual respect for the environment so we can collaboratively care for WA's rich biodiversity.

Monitoring the number of visitors to marine areas reflects another largely unseen role (see 'Navigating the waters of visitor monitoring in marine areas' on page 42). On-ground research scientists collect data about visitor use that informs park management and allows for a strategic approach to safeguarding these sites.

As this edition of LANDSCOPE goes to print, a whole range of personnel, from local to interstate, have come out in force during the recent bushfires in the south-west to protect and conserve flora and fauna for generations to come.

While the addition of more than six million hectares of conservation estate is a significant achievement, none of this would have been possible without the collective efforts of people, both on the frontline and working tirelessly in the background.

**Parul Chauhan, Chief Human Resources Officer**

Department of Biodiversity, Conservation and Attractions



**Contributing Freya M Jackson** is a bee researcher and conservationist originally from New Zealand, now based in Western Australia. She holds a Master's degree in Ecology from The University of Auckland, where her award-winning research focused on the impacts of introduced honey bees on native pollinator communities. Currently pursuing her PhD at Murdoch

University, Freya specialises in studying the nesting behaviour and habitat needs of ground-nesting bees, particularly *Lasioglossum dotatum*.



**Simon Cherriman** is an award-winning environmental scientist/ecologist, writer, educator, wildlife filmmaker and an enthusiastic advocate for the unique Australian bush and its creatures. Simon is a WA Parks Foundation ambassador and a popular and highly engaging public speaker. As well as being the founder of The Re-Cyc-Ology Project, he manages the small business iNSiGHT Ornithology, which specialises in bird-related research and environmental education.



**Sally Stabler** is the Marketing and Partnerships Officer at the WA Parks Foundation. Originally from Bunbury, Sally developed a passion for the outdoors and hiking while exploring Australia's diverse landscapes. Now back in her home state of WA, she is dedicated to supporting the WA Parks Foundation in protecting the heritage and biodiversity of the state's unique parklands for future generations.



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**Cartography** Promaco Geodraft.

**Prepress and printing** Advance Press, Western Australia.

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ISSN 0815-4465

Please do not send unsolicited material, but feel free to contact the editors by email ([landscape@dbca.wa.gov.au](mailto:landscape@dbca.wa.gov.au)).

Published by the Department of Biodiversity, Conservation and Attractions, 17 Dick Perry Avenue, Kensington, Western Australia.

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*LANDSCOPE* is printed on recycled paper which contains 55 per cent recycled fibre and is made from pulp, which is derived from well-managed forests, controlled and recycled sources.

**This page** Blue-banded bee (*Amegilla* sp.) on a one-sided bottlebrush (*Calothamnus quadrifidus*).

Photo – Nicole Ilich



Department of Biodiversity, Conservation and Attractions

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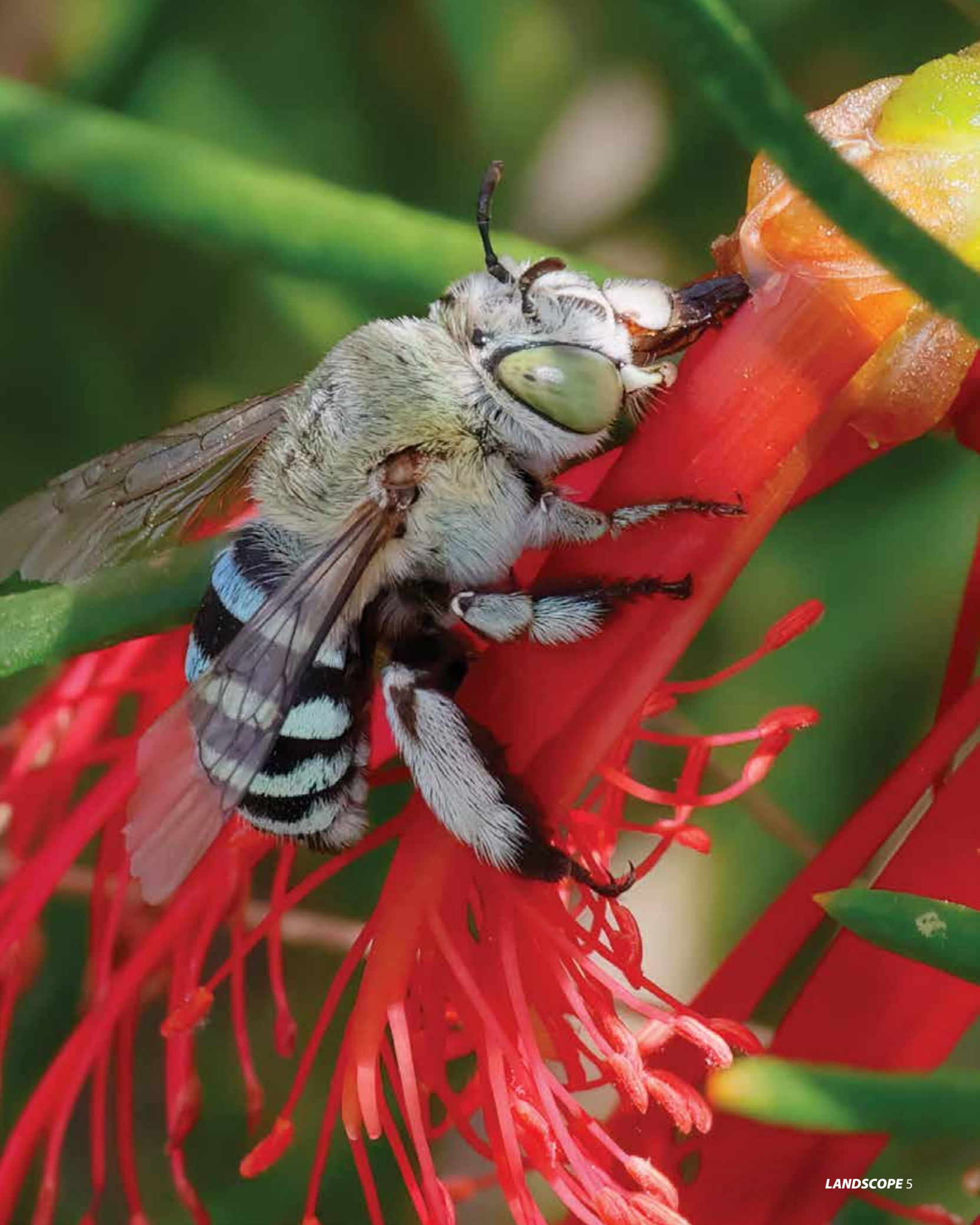
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Snap  
shot



### READER'S PIC

#### **Euro (*Osphranter robustus*)**

Photo and words by Rick Dawson

"I was out at Coomaloo Creek, 50 kilometres east of Jurien Bay, which is a Carnaby's black cockatoo (*Zanda latirostris*) breeding ground when I saw this adult female euro (*Osphranter robustus*) and her joey. I was doing Carnaby's nesting surveys as a research associate for DBCA when I was lucky enough to spot the pair and capture this amazing moment."

**Have you got a fantastic nature photograph you would like to see published in *LANDSCOPE*?** Send it, along with a 100-word description of the species or how and where you took the shot, to [landscape@dbca.wa.gov.au](mailto:landscape@dbca.wa.gov.au).

## Community-built quenda habitats at Helena River

A determined group of environmentalists worked together to construct and install five quenda (*Isodoon fusciventer*) shelters along the Helena River. The project was intended to take place as part of DBCA's Catchment Officers Support Network (COSN) Quenda Habitat workshop, but the workshop was cancelled.

Since site preparations for the workshop were already underway with the quenda refuge site selected, the group set to work anyway.

Fauna monitoring cameras on loan from Western Shield were installed with the expert help of DBCA zoologist Dr Michelle Drew, which identified that quenda were in the area.

They worked together and managed to construct five purpose-built strongholds for quenda, supported by planting a beautiful habitat of 320 local native species.

Thanks go to David O'Brien and the Shire of Mundaring; Phil, Rachel and Henry and the Helena River Catchment Group; Calvin, Sam, Gemma, Amanda, Rosanna and the Ellen Brockman Integrated Catchment Group (EBICG); Brett the Tractorman; Bryce, Cat, Roweena and the South East Regional Centre for Urban Landcare (SERCUL), Robyn from the Mundaring Garden Centre for donating additional tubestock, Dr Michelle Drew and Bronwyn, Rupert, Alison and Debbie from DBCA's Healthy Catchments Program for making the day such a success.



**Above right** The Gap and Natural Bridge have reopened to the public after works to construct a new carpark and access road have been completed.

Photo – DBCA

**Left** Volunteers building quenda refuges.

Photo – Bronwyn Scallan



### **Makeover for Torndirrup National Park**

Major upgrades valued at \$11 million have recently been completed across Torndirrup National Park's iconic attractions.

Home to viewing platforms at The Gap and Natural Bridge, Torndirrup National Park attracted more than 609,000 visits last financial year, with visitation up nearly 20 per cent since 2021.

The completed works include:

- an extra 76 car parking bays, nine long-vehicle bays and five accessible bays at The Gap, Bald Head, Misery Beach and Stony Hill;
- new picnic facilities and interpretation panels at Bald Head, Misery Beach and Stony Hill;
- track surface upgrades along the length of the 13-kilometre Bald Head Trail;
- new accessible toilet facilities at Bald Head;
- a viewing deck and seating for views over King George Sound at Misery Beach, and staircase access to the beach via a link path from the car park; and
- an upgraded 500-metre walk trail loop at Stony Hill and a new 72-metre all-access concrete walkway for 360-degree views over the park and ocean.

Guest column

**Jo Lanagan**

*Chair, Conservation and Parks Commission*



In 2019, the Western Australian Government announced the Plan for Our Parks initiative (see 'More than 5 million reasons to celebrate WA parks' on page 12). The Conservation and

Parks Commission members welcomed this exciting announcement to increase the conservation estate by five million hectares. The Commission's legislative requirements enable it to act as an independent and trusted community steward and government advisor for the protection of Western Australia's biodiversity and conservation estate.

Substantially increasing the conservation estate means greater protection for threatened flora, fauna and vulnerable areas, including wetlands, and marine and forest areas. This created opportunities to enhance the social impact, highlighted the importance and benefit of nature-based activities, and recognised that an increased conservation estate creates tourism opportunities for the economy.

By the end of 2024, the conservation estate had increased by 6.5 million hectares under the Plan for Our Parks initiative.

A positive outcome has been the engagement with First Nations peoples to jointly manage land and waters with government through formal and informal agreements. Joint management plans emphasise First Nations people's deep cultural connection with land, waters and their long-standing stewardship of Country. With genuine intent, appreciation and the exchange of knowledge and practices, joint management benefits First Nations peoples, government and the broader community. These partnerships create ongoing jobs and training for Aboriginal people, with the expected creation of 277 jobs. Joint management also creates opportunities for First Nation corporations to develop nature-based, adventure and cultural tourism operations, bringing intergenerational benefits to all people.

It is gratifying to witness the positive shift in how the Western Australian Government values the knowledge First Nations peoples bring to conservation management.



Government of Western Australia  
Conservation and Parks Commission



## Monitoring species at the Houtman Abrolhos

At the remote Houtman Abrolhos Islands National Park, 60 kilometres off the coast of Geraldton, Parks and Wildlife Service staff and researchers have been carrying out surveys over the spring and summer seasons.

The islands are home to the most northern population of Australian sea lions (*Neophoca cinerea*) with numbers at around 200, according to the latest monitoring.

Parks and Wildlife staff have been trialling eight 60-centimetre-tall wooden shelters to help protect young Australian sea lion pups from the heat and male sea lions during breeding seasons.

Between August and May each year, hundreds of thousands of seabirds flock to Houtman Abrolhos Islands to nest and raise their chicks.

One of these species is the greater crested tern (*Thalasseus bergii*), which breeds on the southern section of Pelsaert Island and is particularly vulnerable to disturbances.

Parks and Wildlife staff have closed a small section of the southern Pelsaert Island beach for protection during the breeding season.

**Above** Greater crested tern (*Thalasseus bergii*) colony.  
Photo – Andrew Burbidge

## New boardwalk at Mangrove Cove

Bunbury's popular Mangrove Cove has a new and improved boardwalk winding through the mangroves.

The new boardwalk opened in January 2025 and replaces the previous 190-metre-long boardwalk at the site, which had existed for more than 20 years. It follows the footprint of the site's previous boardwalk and was carefully designed to improve accessibility, allowing more people to enjoy the area.

Part of Kalgulup Regional Park, Mangrove Cove is located on the Leschenault Inlet and is home to the State's southern-most population of white mangroves.

The new boardwalk complements an 820-metre dual-use pathway and the precinct's popular all abilities nature playground. New interpretive signage provides insight into some historical facts, Noongar cultural values, local birdlife and the wonders of white mangroves (*Avicennia marina*).



**Above right** Mangrove Cove boardwalk.  
Photo – DBCA



## Mount Frankland National Park

*Mount Frankland National Park is located 28 kilometres north-east of Walpole in Australia's south-west. The park covers 31,000 hectares of tingle, jarrah and karri forest as well as the impressive Mount Frankland Wilderness Lookout.*

**M**ount Frankland National Park is one of seven national parks that make up the Walpole Wilderness. Established in 2004, the Walpole Wilderness is an important component of an international biodiversity hotspot.

**Above** Spectacular views across the Walpole Wilderness.

*Photo – Cassidy Newland*

*Opposite page*

**Clockwise from top left** Carnaby's black cockatoos (*Zanda latirostris*). *Photo – Rick Dawson*; Rich biodiversity across the landscape. *Photo – DBCA*; Visitor rest spot among the trees. *Photo – DBCA*; Caldyanup Trail. *Photo – Bron Anderson/DBCA*; Bee on a triggerplant (*Stylidium* sp.). *Photo – DBCA*; Accessible lookout platform at Mount Frankland. *Photo – Michael Hemmings*

The area protects old-growth karri and jarrah forests, wetlands, threatened ecological communities and endemic flora and fauna.

### HISTORY

Mount Frankland and the Walpole Wilderness are the traditional lands of the Minang Aboriginal people of the Noongar Nation. The Aboriginal name for Mount Frankland is Caldyanup, and this ancient land is recognised for its visual and aesthetic appeal and rich Aboriginal heritage.

In the early 1900s, Minister for Lands and Agriculture James Mitchell visited this area with a view towards development in the south-west.

On a trip to Monastery Landing on the Frankland River, he was so impressed by the beauty of the river and the surrounding forest that he made an on-the-spot decision to set aside the area for conservation.

### THINGS TO DO

Enjoy the easy, universally accessible walk to the Mount Frankland Wilderness Lookout, or take the more challenging hike to the summit of Mount Frankland for uninterrupted 360-degree views across the Walpole Wilderness.

The Mount Frankland Wilderness Lookout takes in vast areas of karri, tingle and jarrah forest, treeless heathland and distant granite peaks. The path to this lookout curves around the side of Little Mount Frankland and takes visitors to a vantage point high above the forest floor.

The Caldyanup Trail circumnavigates the base of Mount Frankland allowing a closer look at the intricacies of the granite environment. The Caldyanup Lookout provides expansive views of the Walpole Wilderness and a safe way across the granite without disturbing the delicate mosses and lichens that grow there.

Visitors can enjoy a picnic in the forest or explore Mount Frankland by following



one of the various walking trails on offer. Whether climbing to the summit, or enjoying the Mount Frankland Wilderness Lookout, there are many photographic opportunities available.

Mount Frankland is a fantastic place to visit all-year-round. The forest provides a cool, shady picnic spot during the warmer months and the park comes alive with colourful wildflowers in late winter, spring and early summer.

Munda Biddi Trail cyclists can access Mount Frankland via a spur trail. Keen riders may choose to use the Mount Frankland car park as a base to explore other sections of the trail further afield.

Camping is not permitted at Mount Frankland. The nearest campground is located 20 kilometres west at Fernhook Falls.

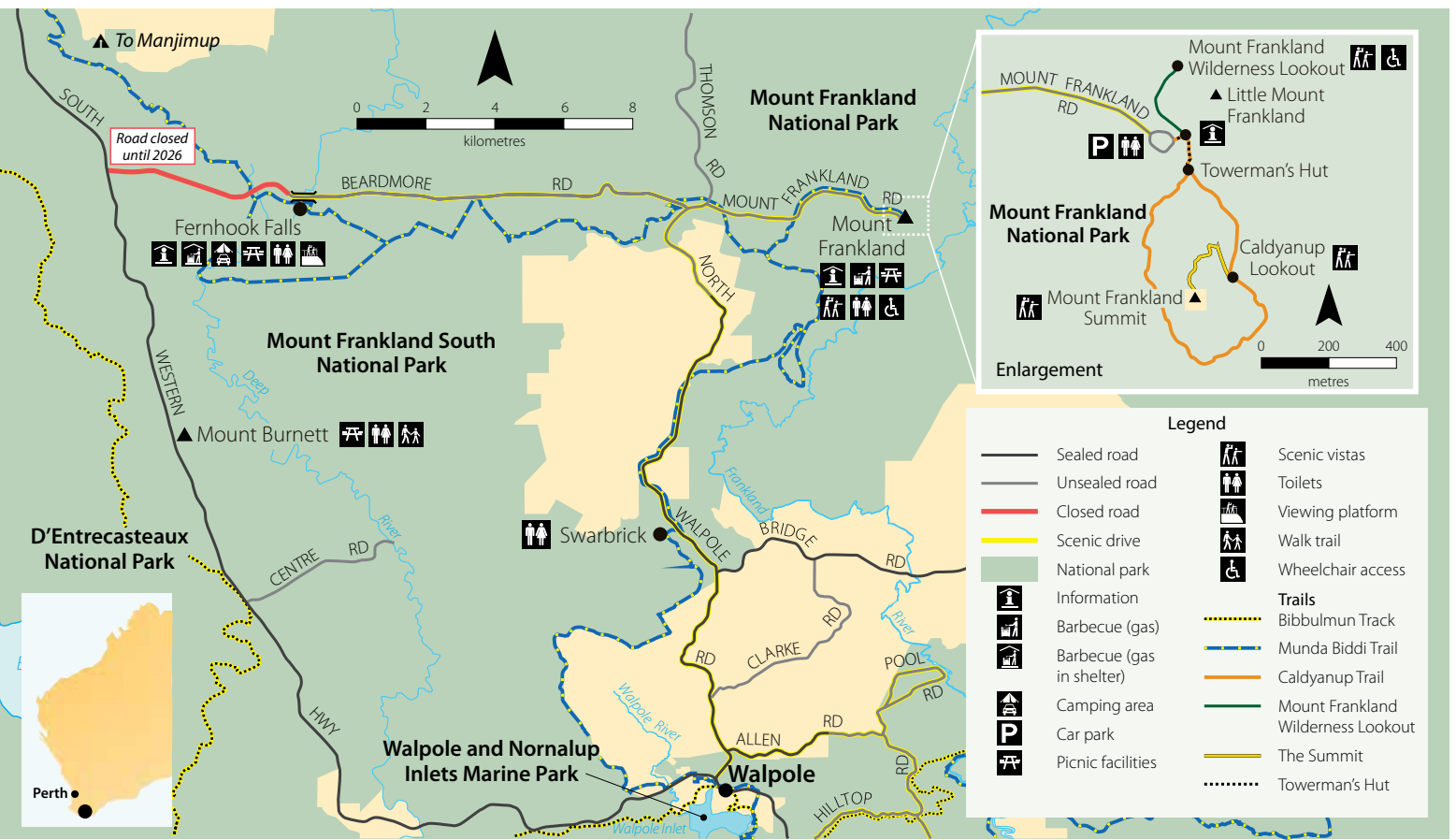


Discover more about Mount Frankland National Park

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



# Parks for people Mount Frankland National Park



## PARK TRAILS

### Mount Frankland Wilderness Lookout



**Class 1 – Easiest**  
**600-metre return**

This accessible path leads to a lookout offering views across the Walpole Wilderness. The view includes expanses of forest and treeless heathland as well as granite peaks in the distance. This sealed path is suitable for all levels of experience, fitness and ability.

### Towerman's Hut



**Class 1 – Easiest**  
**200-metre return**

Enjoy a short stroll to a shady picnic area with gas barbecues and picnic tables. Here you can look into the old towermen hut. During the fire season, officers climbed from the hut to the summit of Mount Frankland several times a day to monitor the weather. This sealed path is suitable for all levels of experience, fitness and ability.

### The Summit



**Class 4 – Difficult**  
**1.2-kilometre return**

Climb to the summit of Mount Frankland for 360-degree views of the surrounding landscape. This hike is quite difficult and requires you to climb a ladder and a series of steep steps. A good level of fitness and bushwalking experience is required. Please consider weather conditions before proceeding.

### Caldyanup Trail



**Class 3 – Moderate**  
**1.6-kilometre return**

This hike circumnavigates the base of the granite mass through karri forest allowing a closer look at this unique environment. A good level of fitness is recommended. Be aware that the granite sections may be slippery.

**Above right** Mount Frankland Wilderness Lookout.

*Photo – Bron Anderson/DBCA*



## Do it yourself

**Where is it?** 300 kilometres south of Perth, 28 kilometres north-east of Walpole

**Total area** 31,000 hectares

**Things to do** Hiking, bird watching, cycling, rock climbing, wildflower photography

**Nearest Parks and Wildlife Office** Walpole District Office, South Coast Highway, Walpole (08) 9840 0400

## PLAY TRAILS



Nature Play WA's *Play Trails* app adds an element of adventure and competition to outdoor activity, and you can now play... anywhere!

In partnership with local governments and community groups, *Play Trails* allows you to follow trails across Western Australia and participate in fun challenges, solve puzzles and score points.

The app's new 'Play Anywhere Trail' can be completed in any outdoor location. To download the Play Anywhere Trail, enter the code ANYWHERE or find the Play Anywhere Trail on the interactive map.

There are a range of activities, games and quizzes that can be completed in any outdoor space that utilise different senses that encourage creativity and interaction with nature.

An internet connection is needed to download the trails, but once installed you don't need to have the internet to complete the activity. So if you're looking to get the kids active outdoors, make sure you download the *Play Trails* app.

*The Play Trails app is available for free download from the App Store and Google Play.*



## EMERGENCY WA



Alerts and warnings for emergencies and hazards across Western Australia are now easily accessible on your phone via the Department of Fire and Emergency Service's new *Emergency WA* app.

Using the app, you can set up to 10 different watch zones and choose the alerts and warning within those areas that you want to be notified about.

I set up large watch zones around my home and the area where my parents live, and now receive almost instant notifications any time Advice, Watch and Act, or Emergency Warning alerts are issued within those zones. This gives me peace of mind that I can act quickly in an emergency situation and keep up to date as things change.

It's quick and easy to turn notifications on and off, meaning if I'm holidaying anywhere else in WA, I can easily set up a watch zone and get notifications for that area as well.

The app also lets you share your location with family and friends, call 000 directly from the app in an emergency, upload critical documents, and listen to emergency broadcasts.

*The Emergency WA app is available for free download from the App Store and Google Play.*



## AUSTRALIAN NATIVE PLANTS – 7TH EDITION



The seventh edition of *Australian Native Plants*, a horticultural encyclopaedia first published in 1977, has been fully revised in the decade since its previous incarnation.

The hundreds of updates in this edition include revised names, reclassifications, new plant profiles and updated photos.

With native gardens growing in popularity, this book is the perfect guide for those planning and maintaining a native garden. The first eight chapters provide all the information you need to select, propagate and care for native plants, with the remaining chapters containing more than 3500 plant entries. Each entry describes a plant and details how to propagate and cultivate it, its family, and natural distribution.

At 680 pages and only available in hard cover, *Australian Native Plants* is one for the serious native gardener.

Sadly, author John Wrigley passed away in 2014, shortly after the sixth edition of the book was published, and the current edition includes a moving tribute from co-author Murray Fagg, with whom he shared a 45-year professional history.

*Australian Native Plants – 7th edition is available from select bookstores and online with an RRP of \$175.*

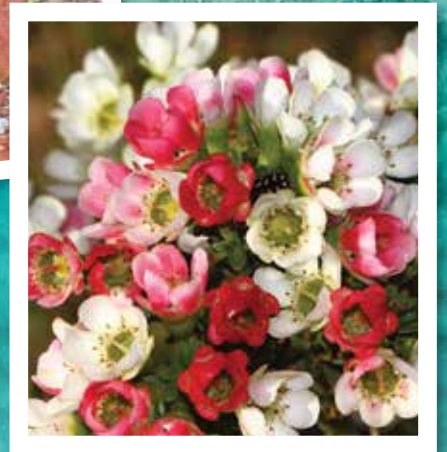
**Below** Lesser bottlebrush (*Callistemon phoeniceus*). Photo – Jean and Fred Hort







More than  
**5 million reasons**  
to celebrate WA parks



In 2019, an ambitious target was set. Five million hectares of new conservation areas would be created across Western Australia—with the support of Traditional Owners—to enable the potential of a truly significant conservation outcome.

by **Sophie Henderson and  
Carolyn Thomson-Dans**



In a State as vast and varied as Western Australia, the richness of biodiversity is staggering. These ancient lands are brimming with stories and songlines of custodians that traversed the dry deserts, deep forests and seemingly limitless stretches of coastline in kinship with nature for more than fifty thousand years.

Today, efforts are being made to add more than six million hectares of land

**“Consolidating the sites into national parks ensures that the area’s unique native plants and animals are adequately protected as part of WA’s conservation network.”**

.....  
*Previous page*

**Main** Nyinggulu (Ningaloo) coastal reserves.

*Photo – Samille Mitchell/DBCA*

**Inset (left to right)** Australian sea lion (*Neophoca cinerea*), Houtman Abrolhos Islands National Park. *Photo – Tourism WA*; Beaches along the south coast. *Photo – L-A Shibish*; Black-flanked rock-wallaby (*Petrogale lateralis lateralis*), Nyinggulu (Ningaloo). *Photo – Tourism WA*; Large waxflower (*Chamelaucium megalopetalum*). *Photo – Rob Davis*

*This page*

**Above** Burringurrah (Mount Augustus).

*Photo – Peter Nicholas/DBCA*

**Above right** Aboriginal rangers in the midwest employed through Plan for Our Parks.

*Photo – DBCA*

and waters to the conservation estate; an amount to rival the size of Tasmania.

## NEW LEASE ON LIFE

More than two decades ago, the State Government purchased certain pastoral leases for the purpose of converting them into national parks and conservation reserves.

The pastoral leases, most of which were in the Pilbara, Midwest, Murchison and Goldfields regions, had remained unreserved until the Plan for Our Parks initiative commenced in 2019 (see ‘Plan for our Parks’, *LANDSCOPE* Winter 2019).

Plan for Our Parks was announced with an ambitious target to add five million hectares to the conservation estate. Five years since the program started, Plan for Our Parks has exceeded this target and secured 6.5 million hectares of new and expanded national and marine parks and other conservation reserves, bringing with it significant cultural, environmental, social and conservation benefits.

The initiative has expanded the conservation estate to protect some of the State’s most valuable natural assets and cultural values, including wetlands, rangelands, forests, marine areas and scores of threatened flora and fauna.

It has also changed the future of joint management in WA, with the vast majority of the new parks and a number of existing national parks being jointly vested and jointly managed with Traditional Owners.

## CONSERVING NATURE

Nature itself makes an incredible contribution to mitigating changes to the

climate, the impacts of invasive species and infectious diseases. As humans, we cannot be healthy in an unhealthy environment, and it is in our best interests to preserve the natural world around us.

More than 1000 native plant and animal species are currently regarded as threatened in WA, which is part of a broader issue across Australia and the world.

These new additions to WA’s conservation estate has meant 671 priority flora and fauna have been afforded protection in the past five years.

The new and expanded parks stretch from the Kimberley in the north, across WA’s Rangelands, through population centres in Perth and Bunbury, to WA’s south-west forests and along the southern coastline.

Spectacular biodiverse areas such as Houtman Abrolhos Islands National Park, Ningaloo Coast and Matuwa Kurrara Kurrara National Park have all been protected.


## COMING TOGETHER

The reservation of national and marine parks involves the consent of native title holders by way of an Indigenous Land Use Agreement (ILUA) in accordance with the Commonwealth *Native Title Act 1993*. Plan for Our Parks has involved ILUAs with 21 different Traditional Owner groups across the State.

For Yinggarda Traditional Owner Terry McKie, having a sense of agency as to the use of the land is a significant step.






“It gives us the ability to control some of the outcomes within the area, like caring for Country as such, which is very

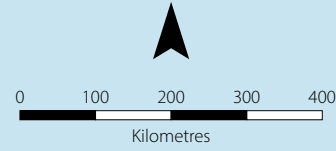
## LEGEND

 Land and waters under Plan for Our Parks

 Roads

### Tourism regions

-  Australia's North West
-  Australia's Golden Outback
-  Australia's Coral Coast
-  Destination Perth
-  Australia's South West



Discover more about  
Plan for Our Parks

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



important to Aboriginal people,” Mr McKie said.

Through this partnership, Jidi Jidi Ranger Stuart Robinson has set foot on parts of Country he has not traversed for many years.

“It’s good to come up into the Country, exploring it to see what’s there, and finding sites that we didn’t know about before,” Mr Robinson said.

Yinggarda Traditional Owner Kath Ryan, sees Plan for Our Parks is an opportunity to have their voices heard.

“It’s a way of letting the younger generation and others know what is special about the land,” Ms Ryan said.

Plan for Our Parks is providing long-term employment opportunities and support for Traditional Owners to manage Country in the new reserves and parks. Especially since the areas identified for conservation are diverse ecosystems and heritage sites and known to be home to threatened species that need protection.

Once fully implemented, more than 269 full-time jobs will have been created across the State.

The majority of these positions are for Traditional Owners, including new jobs for Aboriginal rangers working on Country, to assist in Closing the Gap in line with WA’s Aboriginal Empowerment Strategy.

Nikita Smith said her role as a Jidi Jidi Ranger helps her feel close to the land.

“You feel connected to the land when you’re out doing what you’re doing. Especially with this job, looking after Country.”



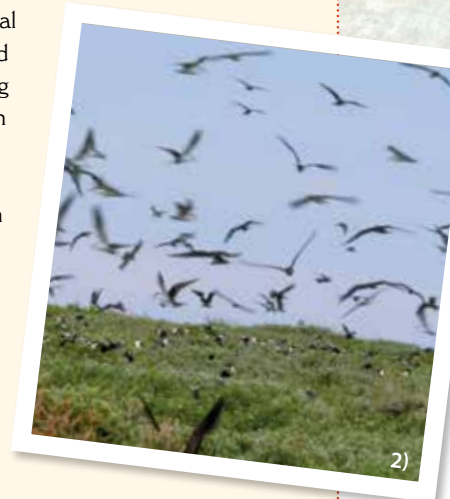
## Houtman Abrolhos Islands National Park – the first park created

The creation of Houtman Abrolhos Islands National Park, about 80 kilometres west of Geraldton, coincided with the 400-year anniversary of the European sighting of the islands by Dutch navigator Frederik de Houtman in 1619. It has the distinction of being the first park created under Plan for Our Parks.

The Abrolhos is an increasingly popular destination for fishing, diving and nature-based tourism due to the area’s incredible marine diversity. Some 200 species of coral vie for space in the protected islands and along the edges of nutrient-rich channels. Green, beige, blue and purple staghorn and plate corals sprawl out to capture light in the shallows and can be seen in only a metre of water. The Abrolhos was the site of the notorious *Batavia* mutiny of 1629, and a cannon from the *Batavia*, removed for use as a mooring years ago, can be seen beneath a jetty on Beacon Island.

The improved visitor facilities in the new park are drawing in more local, interstate and international visitors, with increased opportunities for nature-based tourism and recreation on the islands.

The Abrolhos is the most important breeding area for seabirds in the State (see ‘Houtman Abrolhos: a seabird haven’, *LANDSCOPE* Autumn 2021). Pelsaert Island has more species of breeding seabird—more than 17 species—and more individual seabirds than any other island in Western Australia. The tamar wallaby (*Notamacropus eugenii*) has the distinction of being the first Australian marsupial recorded by a European, as Pelsaert saw the animals here in 1629 while in command of the *Batavia*.



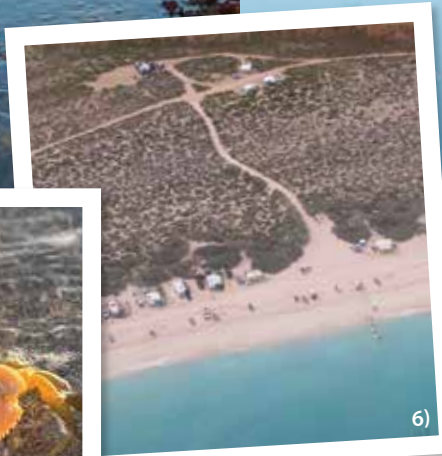
## Ningaloo Coast – a global icon

The jointly managed Nyinggulu (Ningaloo) Coastal Reserves, stretching 215 kilometres alongside Ningaloo Marine Park in Ningaloo World Heritage Area, were created under Plan for Our Parks to protect the natural and cultural values of Ningaloo, one of Western Australia's most spectacular tourism destinations.

The reserves are rich in ceremonial and mythological significance and protect turtle nesting areas, seabird and shorebird roosting and breeding areas, the threatened black-flanked rock-wallaby (*Petrogale lateralis lateralis*) and priority-listed flora species.

As joint managers of the reserves, the Nganhurra Thanardi Garrbu Aboriginal Corporation and Department of Biodiversity, Conservation and Attractions (DBCA) will safeguard culture, protect wildlife, support tourism and enhance economic development opportunities for Traditional Owners.

The reserves will preserve the sense of remoteness. Affordable and self-sufficient camping and caravanning experiences will be maintained, with a focus on experiencing a unique wilderness.



### Opposite page

**Top left** Houtman Abrolhos Islands National Park.

1) Quandong fruit (*Santalum acuminatum*).

2) Abrolhos Islands National Park is a breeding area for brown noddies (*Anous stolidus*).

3) New boardwalk at East Wallabi Island.

Photos – Samille Mitchell/DBCA

### This page

4) Green turtle (*Chelonia mydas*), Ningaloo Marine Park. Photo – Craig Duncan 5) Golden ghost crab (*Ocypode convexa*), Ningaloo.

6) Caravans on the beach, 14 Mile Camp, Ningaloo. Photos – Aberline Attwood/DBCA

7) Marine life at Ningaloo Reef. Photo – Samille Mitchell/DBCA

## MORE PEOPLE IN PARKS, BETTER FACILITIES

Local and international tourists want to see and experience WA's amazing natural environment.

There is considerable opportunity for further development of nature-based and cultural tourism attractions and facilities, based on the remoteness, isolation, vast open spaces and spectacular scenery of the new conservation areas.

Capital investments are also underway within the parks, such as new tracks and paths to enhance visitor access, interpretive material, ranger facilities to facilitate direct engagement between visitors and rangers, and the development of new camping experiences.

Park assets drive tourism, and the newly created parks give people new reasons to travel to the regions.

Of that, a significant portion of \$7.7 billion—or 46 per cent—was spent by those visitors who travelled beyond Perth and its surrounds and out to the State's unique regions.

Together with joint management partners, the parks offer opportunities for visitors to experience Aboriginal culture and heritage, offering a rich new lens through which to view Country.

The parks will make an important contribution to aspirations for WA to become the premier destination for authentic Aboriginal cultural tourism experiences, articulated in the State Government's *Jina: Aboriginal Tourism Action Plan 2021–2025*.



## Matuwa Kurrara Kurrara National Park – largest ILUA in Australia

An ILUA signed in October 2022 with Tarlka Matuwa Piarku Aboriginal Corporation was the largest exclusive possession native title agreement in Australia and the largest for the creation of a new jointly managed and jointly vested conservation estate ever reached in WA.

It enabled the creation of the Matuwa Kurrara Kurrara National Park and nature reserve at Lake Carnegie in the remote Goldfields, adding more than 800,000 hectares to WA's conservation estate. The reserves protect Martu Aboriginal cultural heritage

values and the area's unique biodiversity and empower Traditional Owners to work on Country. Traditional Owners can also pursue tourism and other economic development opportunities in the new reserves.

Matuwa Kurrara Kurrara National Park was formerly two pastoral leases purchased by the State Government more than 20 years ago. It is also a dedicated Indigenous Protected Area with more than 480 plant species as well as the centre of one of Australia's biggest threatened animal translocation projects. Lake Carnegie is listed on the Commonwealth Directory of Important Wetlands, and is culturally significant to Martu Aboriginal people. It is also home to the elusive and critically endangered night parrot (*Pezoporus occidentalis*).



## South coast marine protection

WA's south coast marine environment supports vast kelp forests, productive reefs and islands, and marine species found nowhere else such as the ruby sea dragon (*Phyllopteryx dewysea*). It is home to southern right whale (*Eubalaena australis*) nursery areas and seal and sea lion colonies. Despite being globally recognised for its diverse marine life, until November 2024, less than one per cent of State waters on the south coast were protected as marine reserves.

Creation of the South Coast Marine Park has added approximately 1.3 million hectares to WA's marine park network making it the first oceanic marine park on the south coast. The marine park is comprised of four adjoining parks, the boundaries of which align with the Wagyl Kaip Southern Noongar, Esperance Tjaltjiraak, Ngadju and WA Mirning Native Title determination areas. Joint management of the parks is commencing with Wagyl Kaip Southern Noongar, Esperance Tjaltjiraak and WA Mirning Native Title holders. Joint management with Ngadju Native Title holders will be enabled through the Western Bight Management Plan.

The four parks collectively protect the incredible marine biodiversity of the south coast of WA and maintain its cultural heritage, while allowing sustainable fishing and activities such as diving, boating and tourism and will bring visitors and economic benefits to the area.





6)

## Gathaagudu – a global destination

Known in the Malgana language as Gathaagudu, Shark Bay is a World Heritage listed site, globally recognised for its cultural and natural values including dugongs (*Dugong dugon*) and stromatolites, and spectacular camping and recreation destinations like Steep Point and Zuytdorp Cliffs.

Under Plan for Our Parks, 183,000 hectares of new conservation areas have been created at Gathaagudu—the spectacular Edel Land National Park, Nanga National Park, Yaringa Nature Reserve and the Malgana portion of Pimbee Nature Reserve, all to be jointly managed with the Malgana Traditional Owners.

Edel Land National Park includes Steep Point, the westernmost point on the Australian mainland at the northern end of the dramatic Zuytdorp Cliffs, one of Australia’s most renowned land-based fishing and remote camping spots.

Under the ILUA that facilitated the creation of the new parks, some of the State’s most well known and beloved parks—Dirk Hartog Island National Park, Francois Peron National Park, Monkey Mia Conservation Park and Shell Beach Conservation Park—have also been jointly vested in and managed with the Malgana Traditional Owners, with four Traditional Owners to be employed to jointly manage Country.



7)

8)



## LOOKING FORWARD

Every natural ecosystem works in balance. Plan for Our Parks has protected millions of hectares of precious natural assets while creating and strengthening partnerships with Traditional Owners, so

we can all share the many benefits of a beautiful natural environment.

It is providing transformative job, training and career development opportunities for Aboriginal people in all areas of land management.

The program has set a new benchmark for joint management of parks with Traditional Owners—it is the most successful native title agreement-making program for conservation ever undertaken anywhere in Australia.

The legacy of these changes will be experienced and appreciated for generations to come.

### Opposite page

**Top left** Matuwa Kurrara Kurrara celebration event. *Photo – Samille Mitchell/DBCAs*  
**1)** Night parrot (*Pezoporus occidentalis*). *Photo – Bruce Greatwich* **2)** ILUA celebrations at Matuwa. **3)** Southern right whales (*Eubalaena australis*). *Photos – Peter Nicholas/DBCAs* **4)** Sustainable fishing brings visitors to the south coast. *Photo – Tourism WA* **5)** South Coast Marine Park. *Photo – L-A Shibish*

### This page

**6)** Shark Bay World Heritage Area. *Photo – Samille Mitchell/DBCAs* **7)** Bottle Bay, Francois Peron National Park. *Photo – Chris Monagle Tourism WA* **8)** Thunder Bay, Edel Land National Park. *Photo – Carolyn Thomson-Dans*

**Left** Matuwa Kurrara Kurrara National Park. *Photo – Peter Nicholas/DBCAs*

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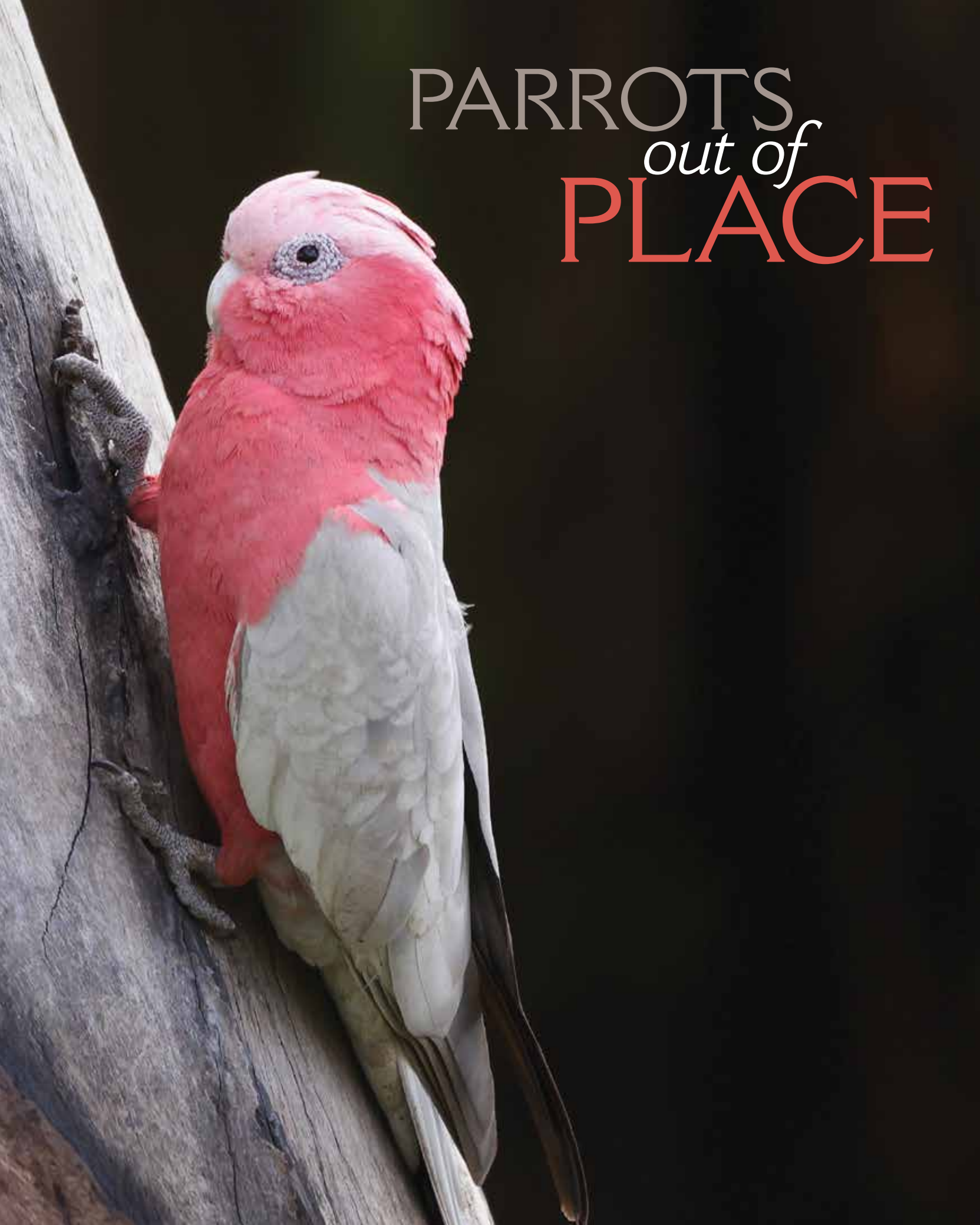
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While human impacts have changed the landscape in some parts of Western Australia, population numbers of the iconic pink and grey galah (*Eolophus roseicapilla*) seem to be benefitting from the changes.

by Simon Cherriman

PARROTS  
*out of*  
PLACE





**W**hen Europeans first paddled a longboat up the Derbarl Yerrigan (Swan River) in 1697, Perth was a very different place. The coastal plain was almost entirely covered in unbroken Banksia woodland and the hills were blanketed in virgin forest of giant jarrah and marri trees.

Inland of the Darling Range stretched an enormous woodland of wandoo,

**“Although nowadays it is almost impossible to not see galahs in the Perth region, they did not become widely established until approximately 35 years ago...”**

*Previous page*

**Main** A male galah pauses from stripping bark from a nest tree.

**Inset clockwise from top** A heavily worked ‘galah scar’ on a jarrah tree; galahs produce large broods compared to other cockatoos; galahs have benefitted from European changes to Australia.

*This page*

**Above** Galahs defend all three hollows in this old jarrah tree.

**Above right** Repetitive ‘eye wiping’ behaviour gives bark-stripped areas a smooth, chalky appearance.

*Photos – Simon Cherriman*

weerluk (salmon gum) and other assorted eucalypts. This land supported an incredible diversity of birds, especially the colourful, charismatic and cheeky parrot and cockatoo species Australia is renowned for.

Unfortunately, the three centuries since have brought drastic changes to both the landscape and the birdlife it can support. Felling of trees at the landscape scale, replacing them with shallow-rooted cereal crops, spreading many introduced grasses, and installing thousands of bores and dams altered southern inland WA forever.

While the diversity of parrots and cockatoos is the same as historically (with no local extinctions recorded in southern WA), the abundance and distribution of the many kinds is now very different.

Population sizes of species like the endemic western rosella (*Platycercus icterotis*), brilliantly coloured purple-crowned lorikeet (*Parvipsitta porphyrocephala*) and Baudin’s black cockatoo (*Zanda baudinii*) have declined.

However, not all species were negatively impacted by the changes, with some benefitting enormously. One of these is the galah (*Eolophus roseicapilla*).

## PINK AND GREYS

Also known colloquially in Western Australia as the ‘pink-and-grey’, the galah once only occurred far inland, more than 500 kilometres to the north and east of

Perth (see ‘Pink cockatoos and solitude’ on page 48).

The species began to visit the south-west region in the early 1900s, but only occasionally. When land-clearing went full steam ahead between 1930 and 1960, population numbers boomed, colonising the south-west in a relatively rapid, widespread expansion.

This was the result of a huge increase in food sources (the seeds of grasses, including wheat), the supply of permanent water on farms, and most likely reduced competition from species that suffered declines following land clearing.

Also undoubtedly playing a role in its success is the bird’s high level of intelligence, which has allowed it to adapt its diet to include a range of introduced plant species like cotoneaster (*Cotoneaster* spp.), plane tree (*Platanus* spp.) and liquidambar (*Liquidambar* spp.), and the fact it has large broods compared to most other cockatoo species.

Although nowadays it is almost impossible to not see galahs in the Perth region, they did not become widely established until approximately 35 years ago (e.g. not breeding in Armadale until the 1980s).

Such information is only available because a few dedicated ornithologists carried out survey expeditions and regularly kept track of changes happening across the State. This historical



information, stored in the records of the WA Museum, highlights the importance to our society of ongoing wildlife studies and record-keeping institutions.

Relying purely on our memories paints a different picture of which birds are considered native, and which are not.

### HOLLOW HOSTILITY

So why are changes to populations of birds like galahs of interest, and how are they having a damaging effect on bushland?

Galahs are now so common in the south-west (including the Perth suburbs) that they outnumber most (if not all) other parrot and cockatoo species. But it's not just their sheer numbers that impact other birds.

Like other members of the Cacatuidae (cockatoo) family, they breed in tree hollows, being the only cockatoo species to line their chosen hollow with any form of nesting material (green gum leaves).

.....  
**Above** Immature male galah eating liquidambar fruit.

**Above right** Galahs are the only cockatoo that lines their hollow with green gum leaves.  
*Photos – Simon Cherriman*

**Right** Carnaby's black cockatoos (*Zanda latirostris*) are often chased from hollows by aggressive galahs.  
*Photo – Rick Dawson*





They also happen to be a very hostile guardian of tree-hollows—whether they are nesting in them or not—so once a galah pair moves into a tree, they will aggressively chase other species away both from the chosen hollow and any others within at least a 20-metre radius, deterring many birds from breeding. They have even been recorded driving out larger, threatened species like forest red-tailed black-cockatoo (*Calyptorhynchus banksii naso*) and Carnaby's black cockatoo (*Zanda latirostris*).

For most hollow-dependent species, their chosen nest cavity is used only while breeding for a relatively short time. But galahs show a long-term attachment to their nest, defending it for at least 10 months of the year. So, in small fragments of bushland with few tree hollows, it's easy to understand how this very dominant parrot reduces the availability of tree hollows for other parrot species that breed in the south-west.

## GALAH SCARS

Pushing animals out of their homes is one thing, but surely a bird can't harm any plants? Well, galahs chew huge patches of bark off the trunk, and wipe powder from their periophthalmic ring (the skin around their eyes) onto the bare patch, leaving a chalk-like appearance.

It is thought that 'painting' this smooth surface white makes it highly visible to

other galahs (and perhaps other parrots) and advertises ownership of the tree. The birds probably see an extra vivid mark by seeing in the ultra-violet spectrum. The blue patches just below the cheek on male budgerigars don't look particularly bright to humans, but to a female budgie that can see ultra-violet light, they glow very brightly.

It has been suggested that this galah chewing habit aims to stop nest predation by climbing animals such as goannas, which climb trees to raid nests. However, there is no real evidence to support this—goannas do not lose their footing on smooth bark.

There were also early theories that galahs aim to kill trees and speed up the hollowing process, thus creating future nest sites, but, as ornithologist Ian Rowley stated, no animal is known to be capable of such a degree of forward thinking. Also, the scars are not usually made right around the tree, instead they are located primarily on the same side of the tree as the entrance to the nest-hollow.

Whichever the case, galahs have become so common in a region where they previously didn't occur, and this isn't a good thing. In many patches of bush around Perth, all the large, hollow-bearing trees have a resident pair, defending their home from most other birds and giving them 'galah scars', causing stress to the trees.

## CHANGING LANDSCAPE

In bush around Perth, galahs can be seen occupying many tree hollows. This is coupled with introduced rainbow lorikeets (*Trichoglossus moluccanus*) taking over the other hollows and the occasional native Australian ringneck (*Barnardius zonarius semitorquatus*) or 'twenty-eight' squeezing in where they can.

The galah story gives us an example of how changes to a landscape in one area can cause a native species to become over-abundant and have large impacts to vegetation and species living in another landscape.

.....  
**Above left** The periophthalmic ring is a distinctive patch of bare skin surrounding the eye.

**Above** Galah scars are usually located on the same side of the tree as the entrance to the hollow.

Photos – Simon Cherriman

**Simon Cherriman** is an ornithologist as well as an award-winning environmental scientist, ecologist, writer, environmental educator, wildlife filmmaker and the Director of Insight Ornithology. He can be contacted at [waalitj84@gmail.com](mailto:waalitj84@gmail.com)



# Oh *what a tangled wattle we weave*

Once thought to be extinct, this wiry entangled shrub certainly lives up to its name—tangle wattle (*Acacia volubilis*)—with *volubilis*, meaning twining, in reference to the twisted, tangled and twining habit of the plant. Scientists are taking a closer look at the species that is only found in a small area in the Wheatbelt.

by Leonie Monks, Bree Phillips, Andrew Crawford, Josh Kestel and Rachel Binks

**A** *Acacia volubilis*, commonly known as tangle wattle, is a small shrub that only grows in the Wheatbelt region of Western Australia. The species was first collected near Quairading before being named in 1877. However, the species was thought to have gone extinct in the subsequent decades, as the area in which it had been found was highly cleared for the rapidly developing agricultural industry.

Then in 1996, botanists Brendan Lepschi and Terena Lally found a handful of living plants of the tangle wattle north of Cunderdin. Following the rediscovery, several additional small populations of tangle wattle were found, mostly on narrow, weed-covered road verges, around the towns of Cunderdin and Quairading. The rediscovery was exciting, but the species was in a precarious state.

Tangle wattle grows to half a metre in height and is named for the tangled appearance of the branchlets. In fact, the scientific name ‘volubilis’ means twining, in reference to the tangled, twining habit of the species. The flowers cluster together to form small spherical balls (known as inflorescences) that are golden in colour, occur in June and July and are likely insect-pollinated. Seeds of tangle wattle grow in pods that are released, once ripe, in mid-summer.

## MANAGING THREATS

The species’ rediscovery in 1996 stimulated further surveys to look for new populations of tangle wattle. Six years later, a total of 11 populations had been found, however many persisted on narrow

.....  
*Previous page*

**Main** Flowers of the tangle wattle (*Acacia volubilis*).

*Photo – Andrew Crawford/DBCA*

*This page*

**Top** Collecting a genetic sample from a roadside tangle wattle plant.

*Photo – Rachel Binks/DBCA*

**Above** Tangle wattle shrubs have a twining, tangled appearance.

*Photo – Andrew Crawford/DBCA*



**“...tangle wattle was at high risk of extinction and led to it being listed as Critically Endangered.”**

road verges and consisted of a handful of individuals totalling just 89 plants.

Threats to the species’ survival included clearing of road verges, weeds, herbicide, fertiliser drift from adjoining agricultural land and changed fire regimes. The small size of the populations was also a concern as small populations are less likely to attract pollinators, may have reduced seed set and seed may be more inbred (due to cross-pollination between related plants).

Together, these threats meant that tangle wattle was at high risk of extinction and led to it being listed as Critically Endangered. To help protect populations and support recovery, the Department of Biodiversity, Conservation and Attractions (DBCA) began trialling weed control measures, marking populations to help minimise accidental damage, continuing survey efforts to find new populations,

collecting and storing seed at the WA Seed Centre located at DBCA in Kensington, and beginning a translocation program.

## TRANSLOCATING TANGLES

The translocation, which commenced in 2004, involved the germination of seed collected and stored earlier at the WA Seed Centre, as well as a small number of cutting-grown plants.

An area amongst an existing healthy but small population in remnant bushland was chosen as the site for planting the seedlings as it provided appropriate habitat and minimal threats. To boost the chances of survival, the seedlings were fenced to protect them from rabbits and kangaroos and were watered once a week for the first two summers following planting.

After the initial planting, further plantings were undertaken. However, the number of seedlings available were



**Above** Close up of tangle wattle flowers.  
*Photo – Andrew Crawford/DBCA*

**Above right** Tangle wattle is a small shrub that flowers in winter.  
*Photo – Rachel Binks/DBCA*

constrained by the limited number of seed. By 2019, a total of 79 plants had successfully grown to maturity at the translocation site, with seedlings being more successful than cutting-grown plants. During this time, further survey work had also located an additional five populations. These new populations combined with translocation efforts meant that, just over 20 years after the handful of plants were rediscovered, the species was now known from approximately 260 plants across 17 populations.

## SEEDS FOR SURVIVAL

Despite these encouraging results from the efforts to conserve tangle wattle, more needed to be done to ensure the continuing survival of the species. Further translocations were required to increase the number of plants in some of the current populations and more populations were needed in secure locations. However, limited seed availability was a barrier.

It was decided that a seed production area (SPA), where plants are grown in a cultivated environment with optimised water and fertiliser regimes, was needed

to increase the amount of seed for future translocations.

However, prior to establishing an SPA, additional information was required. It had been noted that some plants of tangle wattle appeared to be reproducing clonally via underground runners (known as rhizomes), which meant the number of genetically differentiated plants was unknown.

This knowledge gap, in addition to the extensive distance between some of the populations (up to 80 kilometres), meant a better understanding of the frequency of clonality, population structure, and remaining levels of genetic diversity was required to inform the establishment of an SPA.

## WHAT'S NEXT

In 2024, DBCA in collaboration with the Australian Seedbank Partnership, received Australian Government funding to support the recovery of tangle wattle as part of the Saving Native Species Program.

The first step was to undertake detailed monitoring in conjunction with the collection of samples for genetic analysis. The genetic analysis will help determine how many unique individuals of tangle wattle exist, what level of genetic diversity remains in wild populations, and how effectively genetic diversity was captured in the current translocation.

Answers to these questions will guide decisions about how to establish the SPA and future translocations, including which



populations can be mixed together, and how to spatially arrange plants to boost cross-pollination and maximise genetic diversity.

Planning for the SPA is now underway and, once the results from the genetic study are known, the SPA can be set up with a science-based framework. It is hoped that diverse and abundant seed will be produced in the SPA that can be used to expand the number and size of translocations and ensure the long-term survival of this unique and beautiful tangle wattle.

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# *Wild Wonders* OF WESTERN AUSTRALIA

The incredible beauty of Western Australia's natural areas has been captured in high resolution with more than 980 entries as part of the WA Parks Foundation's *Wild Wonders of Western Australia* photo competition.

by **Sally Stabler**







**T**he WA Parks Foundation is Western Australia’s charity partner for parks; an independent and supportive organisation committed to connecting more people with the State’s outstanding network of national parks, marine parks and reserves. On a mission to connect people to nature, the Foundation delivers projects that celebrate, protect, and enrich WA’s parks. One such project is the *Wild Wonders of Western Australia* photo competition.

The photo competition was held in late 2024 as part of the Foundation’s

.....  
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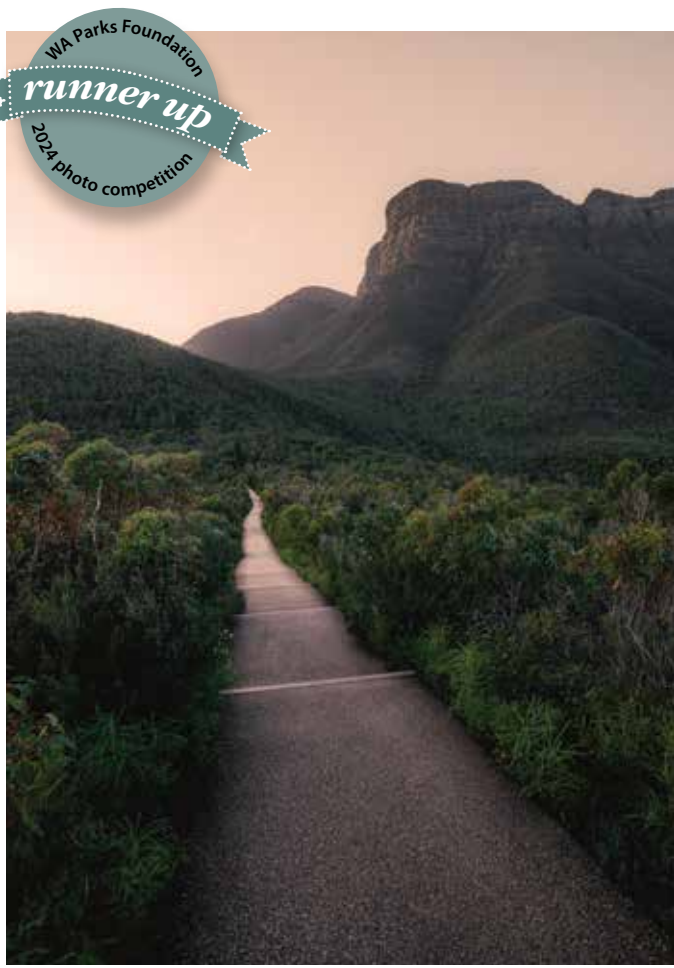
**Main** ‘Parenting Symphony’ at Herdsman Lake.  
 Photo – Naidu Kumpatla

*This page*

**Above** ‘Branco’s Sunrise’ at Gibb River.  
 Photo – Bryan May

**Right** ‘Do these figs make me look tiny?’ at Wungong Regional Park.  
 Photo – Naidu Kumpatla





WA Parks Foundation  
*runner up*  
2024 photo competition



**Far left** 'First Light' at Bluff Knoll.  
*Photo – Liam Drennan*

**Left** 'Peek-A-Boo' at Yanchep National Park.  
*Photo – Colin Wimbridge*

**Below** 'Dolphin Pod' at Cheynes Beach.  
*Photo – Lex Porebski*

**Far below** 'Aurora and Milky Way' at Boulders Rock.  
*Photo – Harrison Green*



WA Parks Foundation  
*runner up*  
2024 photo competition





increasingly popular Spring into Parks program supported by Lotterywest (see ‘Consciously connecting with nature’, *LANDSCOPE*, spring 2022).

The winning image for the 2024 competition was a stunning shot along the Gibb River by Bryan May. The Gibb River Road is a popular adventure following the 660-kilometre outback road that was originally constructed in the 1960s to transport cattle from outlying stations to the ports of Derby and Wyndham.

Bryan’s photo was taken at Branco’s Lookout, capturing the spectacular views from the cliff edge along the river. The lookout requires a steep climb to get to, showing Bryan really put in the effort to get the award-winning shot.

The second prize winner was a marvellous moment in time between two great crested grebes (*Podiceps cristatus*)

and their young, by Naidu Kumpatla. The image was captured at Herdsman Lake and fittingly titled ‘Parental Symphony’.

Herdsman Lake is the largest waterbird breeding site in the Perth metropolitan area and home to a huge variety of ducks, swans, and egrets to name a few. The surrounding flowering trees are a hotspot for western wattlebirds, red wattlebirds, willie wagtails, silvereyes and new holland honeyeaters.

The three runners up were Brian Yeo for ‘Dancing with the Waves’ (Red Bluff); Liam Drennan for ‘First Light at Bluff’ (Bluff Knoll); and Harrison Green for ‘Aurora and Milky Way’ at Boulders Rock (Midgegooroo National Park).

For the first time, a video component was added to the competition and the

**Top ‘Dancing with the Waves’ at Red Bluff.**  
Photo – Brian Yeo

**Above left ‘Thomas Dambo’s Santi Ikto Giant’ at Halls Head, Mandurah.**  
Photo – Donald Chin

**Above ‘Reflecting’ at Lake Clifton Thrombolites.**  
Photo – Vance Thompson

winning video by Toni Battle can be found on the WA Parks Foundation website [ourwaparks.org.au](http://ourwaparks.org.au)

**Sally Stabler** is the Marketing and Partnerships Officer with the WA Parks Foundation. She can be contacted at [marketing@ourwaparks.org.au](mailto:marketing@ourwaparks.org.au)



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A new, rare *Grevillea* species, found in only one location in south-west Western Australia, has recently been formally named. The species has been called *Grevillea kulikup* after the locality near which it was found. However, while the location of this newly described species has been known by botanists for a while, it was initially thought that this was just a northern occurrence of another, equally rare *Grevillea* species—*G. acropogon*.

*Grevillea acropogon* is found around Tone Bridge and for many years was known from a single location. Management of this critically endangered species by the Department of Biodiversity, Conservation and Attractions included fencing the population to protect plants from grazing, collecting seed, establishing a new translocated population and survey for new locations. It was during one of these surveys in 2014 that an earlier herbarium record from 2001 of *G. acropogon* near Kulikup was followed up and a small population was found. This new population, some 50 kilometres north of Tone Bridge, led to renewed survey efforts focused in the Kulikup area, however unfortunately no additional populations were found. Field observations at the time noted some differences between the plants at Kulikup and those at Tone Bridge and the habitat at each site was also slightly different, however no differences were seen between herbarium specimens from the two locations.

The discovery of the plants at Kulikup did raise questions around management options for *G. acropogon*. In particular, could seed from the Kulikup plants be used to increase plant numbers and genetic diversity at the translocation site near Tone Bridge? This led to a research project that included an investigation of the ecological and genetic differences between plants at the two locations. During the study the morphological and genetic differences between the two locations became so apparent that *Grevillea* taxonomist, Peter Olde, was asked to assess the plants at the two locations. After a field visit and



*Grevillea kulikup*

extensive study of herbarium specimens, Peter Olde was convinced that the plants at Kulikup were distinct from those at Tone Bridge and in 2024 named the Kulikup plants as a new species.

*Grevillea kulikup* is described as a spreading shrub to one metre in height and three metres in width. The branchlets and leaves are covered in fine hairs, which is the primary feature distinguishing it from *G. acropogon*. Flowers are red and held in inflorescences (bunches) of 18 to 24 flowers near the ends of the branches. Flowering occurs mainly between August and December and birds are most likely the pollinators.

To date, *G. kulikup* is only known from the single population located in the 2014

surveys where there are less than 20 adult plants. The site has now been fenced to protect plants from grazing by kangaroos, and seedlings have been grown and planted at the site to boost the size of the population and surveys for additional populations continue. The discovery of a new *Grevillea* species was an unexpected, but happy result of the research to support the conservation of *G. acropogon*. It shows that there is still much to learn and discover in our unique and biodiverse south-west Western Australia.

.....  
**Above** *Grevillea kulikup*.  
Photo – Andrew Crawford/DBCA



*Beyond*  
**BEE**  
**HOTELS**

*Expanding bee-friendly gardens  
to include ground-nesters*

by Freya Jackson





In recent years, the 'save the bees' movement has gained remarkable traction, encouraging people to think beyond the European honey bee (*Apis mellifera*). Murdoch University PhD candidate Freya Jackson shines a light on the importance of native pollinators and their surprising underground habits.





The European honey bee was brought to Australia in 1822 from England. Today, Australia is home to 530,000 commercially managed hives.

**A**ustralia is home to more than 1700 native bee species, many of which rely on natural soil conditions, free from human disturbance. These bees play a critical role in pollinating wildflowers and food crops, yet their underground habits have kept them out of the limelight.

.....  
*Previous page*

**Main** Leaf cutter bee (*Megachile* sp.)

*Photo – Jiri Lochman*

**Left** Insect hotel in an urban garden.

*Photo – DBCA*

*This page*

**Top** Reed bee (*Exoneura* sp.) foraging on heart leaf poison, a native pea flower (*Gastrolobium bilobum*).

*Photo – Freya Jackson*

**Top right** Reed bee.

*Photo – Marie Lochman*

**Above** Masked bee (*Hyalaeus* sp.).

*Photo – Jiri Lochman*

**Above right** Honey bees live in colonies in beehives.

*Photo – Field of Vision/Adobe Stock*

Encouragingly, gardens are being transformed with bee-friendly flowers and the installation of bee hotels to support above-ground nesting species.

These efforts represent a positive shift in attitudes toward conserving bees. However, there is a significant gap in these initiatives, one that overlooks a vast majority of Australia’s native bee population.

## GOING UNDER

What many gardeners and even conservation enthusiasts may not realise is that roughly 70 per cent of Australia’s native bees are ground-nesting species. These bees, which include beloved species like the blue-banded bee (*Amegilla* sp.) and the teddy-bear bee (*Amegilla bombiformis*), spend most of their lives beneath the soil.

Beyond these larger, more visually-striking species, there is a diverse array of smaller, often overlooked, bees from genera such as *Lasioglossum*, *Leioproctus*, and *Hylaeus*.

Research is being conducted at Mudoch University on the sweat bee (*Lasioglossum*

*dotatum*)—a very small three-to-four-millimetre bee that has a wide distribution across Australia.

These studies show that while these smaller species may lack the vibrant colours and size of their more recognisable counterparts, they are equally vital to pollination, playing an essential role in sustaining native wildflowers and crops. Despite their inconspicuous appearances, these bees make significant contributions to the health and resilience of Australia’s ecosystems.

While ground-nesting bees have started to garner attention in conservation research, they remain an overlooked piece of the puzzle for most gardeners—the very citizen scientists who have the potential to make a significant difference.

Urban and suburban gardens are becoming vital refuges for native pollinators as natural habitats face threats from land clearing, agriculture, and urbanisation. However, without addressing the needs of ground-nesting bees, many of these well-intentioned efforts fall short.

## Ground-nesting bee facts

### 1. Blue-banded bees can buzz pollinate

Blue-banded bees (*Amegilla* spp.) use 'buzz pollination', vibrating at precise frequencies to dislodge tightly packed pollen from flowers. This method is something European honey bees (*Apis mellifera*) are unable to perform. Buzz pollination is essential for many plants, including crops like tomatoes, eggplants, and native Australian flora, which rely on this specialised approach for effective pollination. Without native buzz-pollinating bees, these plants would struggle to reproduce and thrive.

### 2. They come in all shapes and sizes

Australia's native bees vary greatly in size from the tiny Euryglossina bees (just two millimetres long), to the large Dawson's burrowing bees (*Amegilla dawsoni*), reaching up to 24 millimetres.

### 3. They're solitary yet social

Most native bees, like *Lasioglossum* and *Leioproctus* species, are solitary, with each female constructing and provisioning her

own nest. However, some exhibit semi-social behaviour, where multiple females share a nest or help each other defend it. They do not have a queen, nor do they form colonies or swarm.

### 4. Some are picky eaters

While most native bees are generalists, some are specialists that rely exclusively on the pollen of specific plants. For instance, *Leioproctus conospermi* only visits *Conospermum* plants.

### 5. Bees with red eyes and metallic coats

Many native bees, such as some species of *Lasioglossum* and *Homalictus*, have striking metallic green or blue bodies. Others, such as *Megachile aurifrons*, have vivid red eyes—a trait that is unique to the females.



## WHAT YOU CAN DO

The good news is that supporting ground-nesting bees doesn't require grand gestures or specialist knowledge. In fact, with a few simple and thoughtful adjustments, gardeners of any skill level can make their outdoor spaces more welcoming to these essential pollinators. Whether your garden is large or small, there are practical ways to create nesting habitats that could make all the difference for these soil-dwelling species.

Perth-based wild bee ecologist, Dr Kit Prendergast, has been researching bees for many years and has demonstrated that native bees rely heavily on domestic gardens in urban areas as critical refuges, particularly as natural habitats continue to be lost due to urbanisation.

Her research shows that, even in densely populated cities, well-planned home gardens can support native bees by providing nesting sites, floral resources, and shelter.

By shining a spotlight on ground-nesting bees, we can inspire gardeners to go beyond flowers and bee hotels and

consider the unique and often hidden needs of these vital pollinators. It's time to dig deeper—literally and figuratively—and give ground-nesting bees the attention they deserve.

In doing so, we're not just saving the bees; we're fostering the health of our ecosystems and ensuring future generations will continue to benefit from bees quiet yet crucial work.

.....  
**Above** Female blue-banded bee (*Amegilla chlorocyanea*) foraging on a *Hibbertia racemosa* flower.

**Inset** Female sweat bee (*Lasioglossum dotatum*) walking across sand towards her nest.

Photos – Freya Jackson

**Right** Prickly Moses (*Acacia pulchella*) are pollinated by native bees.

Photo – Andrew Brown/DBCA



Listen to more about native bees

Scan this QR code to listen to the episode or search for 'Western Australia by nature' wherever you get your podcasts.





## How to create bee-friendly gardens:

### 1. Plant a variety of bee-friendly flowers

- Choose a range of plants that bloom at different times of the year to provide a continuous food source.
- Opt for native wildflowers such as eucalyptus (a keystone species), wattle (*Acacia*), bottlebrush (*Callistemon*), spider flower (*Grevillea*), austral bluebell (*Wahlenbergia stricta*) and everlasting daisy (*Xerochrysum*).
- Bees love herbs such as lavender, thyme, basil, and mint. Let some go to flower to attract pollinators.

### 2. Avoid pesticides

- Use natural pest control methods and avoid pesticides or herbicides, which can harm bees directly or contaminate their food sources.

### 3. Create suitable nesting habitat for ground-nesting bees

- Leave patches of bare soil, preferably in sunny, well-drained areas.

## How to create a bee habitat for ground-nesting bees:



### 1. Select an appropriate site with:

- ample sunlight
- well-drained soil
- sparse vegetation.

### 2. Leave bare or lightly covered soil

Native ground-nesting bees need direct access to open soil for digging nests, as most cannot nest in lawns or areas covered with thick mulch, so:

- clear small patches
- select areas with minimal disturbance from people or animals to protect nests.

Tip: Look for existing nests by spotting small, perfectly round holes in the soil, sometimes clustered together. If you see a bee carrying pollen entering or leaving, avoid disturbing that area.

### 3. Create artificial soil hills and sand pits

- Construct mounds of soil about 30–60 centimetres high with gentle slopes.
- Dig a pit about 60 centimetres deep in a sunny area and fill it with a mixture of fine, pale-coloured sand and loam.

### 4. Encourage nesting with edges

- To support species like *Lasioglossum dotatum*, consider placing red paving bricks on sandy soil substrates with sufficient gaps between the pavers. Fill the gaps with sandy substrate to create an inviting nesting environment.

### 5. Avoid landscaping barriers

- Black plastic sheeting/plastic weed mats and other landscaping fabrics often prevent bees from accessing the soil to dig nests.
- If a barrier is necessary, use biodegradable options like newspaper or coconut fibre, which bees can penetrate and that will naturally decompose over time.

### 6. Limit pesticide use

- Pesticides can harm or kill bees, so it's best to avoid them entirely.

Tip: Combat aphids naturally by using plant-friendly sticky tape on tree trunks to block ants, allowing beneficial insects like parasitic wasps to control pests.

### 7. Plant native flowers and vines

- Ground-nesting bees need access to nectar and pollen close to their nests—small bees have very short foraging ranges of up to 75–400 metres (depending on the species).

### 8. Monitor and maintain the habitat

Once your bee habitat is established, it's important to keep it safe and functional:

- Minimise disturbance.
- Remove debris and weeds.
- Maintain moisture levels. Ground-nesting bees often benefit from damp soil to help them construct and maintain their nests.

### 9. Observe and enjoy

- Look for bees entering and exiting their nests with pollen, a sure sign your habitat is being used.

### 10. Educate others

- Share your experience and the importance of ground-nesting bees with your community to promote conservation efforts—and submit observations and insect activity on iNaturalist.



**Main** A garden rich with a variety of bee-friendly flowers.

Photo – Jacqui Martin/Adobe Stock

**Insets:** 1) Everlasting daisies (*Rhodanthe chlorocephala*). Photo – Andrew McInnes. 2) Bookleaf mallee (*Eucalyptus kruseana*). Photo – Karla Forrest. 3) Teddy bear bee (*Amegilla bombiformis*). Photo – Jiri Lochman

## Why domestic gardens matter for native bees

Urban sprawl often fragments and destroys native habitats, leaving bees with fewer options for nesting and foraging. Domestic gardens, however, can act as habitat 'islands', offering a patchwork of resources across urban landscapes.

### 1. Floral diversity in gardens:

Research has shown that domestic gardens with diverse native flowering plants support higher numbers of native bees compared to gardens dominated by non-native or ornamental species. This is because many native bees are specialists that rely on the pollen and nectar of specific native plants.

### 2. Accessible nesting sites:

Gardens that leave patches of bare soil, avoid heavy mulching, or incorporate features like hollow stems, compacted soil,

or sandy substrates provide crucial nesting sites for ground-nesting and cavity-nesting bees.

### 3. Urban adaptation:

Research has revealed that some native bees, such as the blue-banded bees (*Amegilla* spp.), are remarkably adaptable and can thrive in urban settings when the right resources are available—reinforcing the idea that even small gardens can support native pollinators.

.....  
Main *Polycarpaea longiflora*.

Photo – Karla Forrest

Right Native bee species vary greatly in size, shape and colour.

Photos – Kit Prendergast



*Lipotriches flavoviridis*



*Megachile monstrosa*



*Megachile chrysopyga*



*Leioproctus cf. lanceolatus*



*Amegilla chlorocyanea*



*Thyreus waroonensis*

## The role of gardeners

The average gardener holds the power to make a significant impact on native bees.

### 1. Cumulative impact:

With thousands of gardens in every urban area, small individual actions, like planting native flowers or leaving ground for bees to nest in, can collectively create vast networks of habitat for native bees.

### 2. Accessibility:

Supporting native bees doesn't require large-scale resources or expertise. Simple steps, such as planting native flowering plants or providing suitable nesting areas, can have a profound impact.

### 3. Shaping urban biodiversity:

By designing gardens with native bees in mind, gardeners contribute to the broader urban ecosystem, supporting other wildlife such as birds, butterflies, and beneficial insects.

### 4. Education and influence:

Gardeners can inspire neighbours, schools, and local communities to adopt bee-friendly practices, multiplying their impact and building widespread awareness about native pollinators.

.....  
Right Cape Range grevillea (*Grevillea variifolia*), Kalbarri beautiforia (*Beaufortia aestiva*) and *Thryptomene strongylophylla*.

Photo – Miles Brotherson/DBCA



**Freya Jackson** is a conservationist currently researching *Lasioglossum dotatum* while pursuing her PhD at Murdoch University. She can be contacted at [Freya.Jackson@murdoch.edu.au](mailto:Freya.Jackson@murdoch.edu.au)





# NAVIGATING THE WATERS

*of visitor monitoring in marine areas*

The beauty of Western Australia's marine areas cannot be understated. The tropical waters in the north to the cool, clear waters of the south-west are bursting with biodiversity that draws visitors from around the world. Establishing how many people visit WA's marine areas, as well as what activities these visitors get up to, requires a combination of people power and technological solutions.

by Brooke Shields, Kate Rodger and Amanda Smith



**W**estern Australia has some of the most beautiful marine areas in the world. Visitors are drawn to these destinations to connect with nature, observe the diversity of animals and plants, and engage in activities such as snorkelling, boating, surfing and fishing. But how do researchers monitor who is doing what, what areas they're visiting and what they value and enjoy about these places?

Scientists in the Visitor and Social Research Unit of WA's Parks and Wildlife Service were funded through the Woodside Pluto Liquefied Natural Gas (LNG) Project Offset D to identify and trial visitor-use monitoring methodologies and collection tools. The team headed to the Dampier Archipelago, located just off Karratha, approximately 1650 kilometres north of Perth.

One of the primary outcomes of the project was to identify a suite of monitoring methods that could be used to monitor visitors to the islands and surrounding waters with the view that these methods could be applied in other marine areas.

Marine areas are inherently difficult to monitor. They can have a multiple access points, both on the land and via the sea, so it's not as easy as being able to count people as they enter a terrestrial park through an entry station. Data on visitor numbers and activities informs how visitation is changing over time and helps park managers identify where there may be visitor risk issues or where site upgrades may be required, including access points and information signs.

Among other purposes, understanding visitor numbers, and where and what those visitors are doing, informs park managers about how to better manage the area to ensure people get the right information and have an enjoyable visit.

## DAMPIER ARCHIPELAGO

The Dampier Archipelago is a stunning and unique part of the world with extensive Aboriginal culture and history, as well as having the richest marine biodiversity in Western Australia.



*Previous page*

**Main** Stand-up paddleboarding near East Lewis Island.

*Photo – Tourism WA*

*This page*

**Above** Sturt's desert pea (*Swainsona formosa*) on the shore at the Dampier Archipelago.

*Photo – Amanda Smith/DBCA*

**Right** Cruise ship in Lalang-gaddam Marine Park.

*Photo – Kate Rodger/DBCA*



At the time the project began, 25 of the 41 islands were reserved for various reasons, mainly nature reserves, which provide habitat protection for turtles and seabirds. Camping is permitted on some beaches. The surrounding area is also an important industrial location for the State, with the Port of Dampier a major port for the export of iron ore, LNG and salt.

At the start of the project, researchers conducted a comprehensive literature review of available monitoring methods and technologies, some of which had historically been used in terrestrial settings but were able to be adapted to the marine environment.

The information that had already been collected by local staff was also reviewed, along with any other information that was available from other sources.

From there, a number of visitor monitoring methods were chosen to determine their applicability and useability for a marine setting including a recreational user survey.

Data were sourced from vehicle counters at key boat ramps and recreational fisher numbers using information from boat licence numbers for the local area. Bluetooth detection technology was also trialled at several locations across the State, which count the number of mobile phones within a certain area to give indicative visitation figures.

The recreational user survey was designed to map where people went and what activities they undertook (also known as public participatory geographic information systems or PPGIS). This survey provided a lot of useful information





about what people were doing in the Dampier Archipelago including which islands they visited, how often they were visiting, what activities they were doing and where they were launching their boats.

As a result of the outcomes from the survey, PPGIS is being used more often in other marine areas as it provides spatial data that can be overlaid with other cultural and environmental values.

It is very resource-intensive, however, and the surveys can take a reasonable amount of time for users to complete, so these types of surveys need to be well considered and resourced to provide the right information to help inform the management of the area.

Using indirect monitoring technologies like vehicle counters can be a less resource-intensive option of

getting indicative use numbers, but it's not without its challenges in marine environments and is only applicable at boat launching locations. In the case of the Dampier Archipelago, two key boat ramps were on City of Karratha tenure, so the local council agreed to install the counters and send researchers the data every month.

Mobile phone data was also investigated to see which islands people were visiting and when. This proved difficult and costly to obtain and there wasn't coverage over most of islands, meaning it was of very limited value.

## PEOPLE POWER

After trialling a suite of different monitoring methods in the Dampier Archipelago area and other locations across the State, it was discovered that collecting data on visitor use in marine areas often requires a combination of people power and technological solutions.

Using visitor-sourced methods, like surveys and interviews, researchers can get a lot of comprehensive information from marine area users, but these methods are resource-intensive.

Indirect monitoring methods also play an important role and use staff or equipment to count visitors or observe how they are moving through an area. These can include vehicle counters, bluetooth and other detection technologies, and booking systems for moorings, which provide indicative visitor numbers at specific sites and can be less resource intensive.

There are also direct monitoring techniques, such as aerial surveys or video monitoring, to explore visitor locations and activities but these may also be costly in staff time and other resources.

A decision on which visitor monitoring approaches to be used is a compromise between the need for accuracy, practicality and resourcing. Although some provide a lot of useful information, they may be extremely cost and resource intensive, so may not be possible or may have to be done more infrequently.

## REMOTE PARKS

Marine areas with direct access via beaches and boat ramps can be comparatively easier to monitor given their close proximity to access points, for example Marmion Marine Park near

.....  
**Above** Conducting patrols in Lalang-gaddam Marine Park.

**Above right** DBCA social scientist conducting visitor surveys at Penguin Island Conservation Park.

*Photos – Kate Rodger/DBCA*



Perth or Ngari Capes Marine Park in the south west, although there may be multiple stakeholders that need to be engaged in their management such as local government authorities.

Some marine parks are remote and more difficult to access, and often have significantly lower visitation, which can make monitoring much more difficult.

The more remote the park, the more difficult and resource-intensive it is to monitor. It can also limit the number of options or equipment that can be used and may require researchers to spend significant periods of time aboard vessels while monitoring visitors.

## UNDERSTANDING VISITOR USE

There are a variety of reasons why park managers need to know where people are going and what they're doing in marine parks. As with all scientific monitoring programs, a systematic, targeted, repeatable approach is key and by integrating a variety of different monitoring techniques, visitor use patterns in marine parks can be more effectively monitored and understood.

The collection of data on visitor use in marine parks usually needs a combination

of people power and technological solutions. It is often the physical locations and settings of sites, as well as the availability of resources, that determines what monitoring options are available.

Ultimately, marine parks are established to conserve biodiversity, but also to ensure that not only do visitors get to experience nature in all its glory but the parks are accessible for future generations to enjoy the same experience.

**Top left** Flatback turtles (*Natator depressus*) are monitored every year in the Dampier Archipelago.

Photo – DBCA

**Above left** Visitors exploring Lalang-gaddam Marine Park.

Photo – Kate Rodger/DBCA

**Above** Gidley, Angel and Dolphin islands, Dampier Archipelago.

Photo – Cliff Winfield

**Below** The islands are important nesting sites for bird species including the pied oystercatcher (*Haematopus longirostris*).


Photo – DBCA



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# Pink cockatoos

and solitude

After taking up the hobby of nature photography during the COVID-19 pandemic, amateur birder Beverley Oliver braved the rugged roads near Cocklebiddy to participate in a unique photography course at the famous Eyre Bird Observatory.

by Beverley Oliver

*Adventure out*



I've driven across the Nullarbor a few times, noting the turn off to Eyre Bird Observatory (EBO) about 15 kilometres east of Cocklebiddy, and always thinking I'd go there one day when my four-wheel-drive skills and courage aligned. Well, last November a tantalising offer galvanised me into action. Through Birdlife Australia, I heard there was a spot available in the renowned EBO Photography Course. I was hesitant about the drive in, daunted by driving solo down the scarp and then through (possibly) deep sand and the risk of getting bogged. I was greatly relieved when course convenor Keith Lightbody offered to meet me at the scarp and drive in with me, in convoy with other participants. Turns out that, with Keith tutoring me, it was an easy run.

The course participants were a diverse bunch of six who had travelled from Victoria, South and Western Australia. We were joined by Keith and his mate Mark, and wonderful caretakers Margaret and John. Best of all, eight avid bird photographers with various levels of expertise had 'found their tribe' for the next six days.

## RICH HISTORY

The observatory is more than a hundred years old, originally constructed as the Eyre Telegraph Station in 1877 before being relocated in 1897 and then abandoned in 1927. The site was restored in 1977 and now functions as Birdlife Australia's Eyre Bird Observatory.

It's well past its youth—it's very solid and rather stately, and I'd love the walls to share their stories. And yes, it's isolated.

Intrepid day visitors dropped in while we were on our photography course, which added to the tapestry of collected human interest. But most of the time, we ten residents enjoyed delectable meals and conversation—and many laughs—on the open back veranda. We knew that we had a telephone and emergency contact should the unthinkable happen, but to be so alone out there, and away from the clamour of the world, felt like a rare gift.

"Best of all, eight avid bird photographers with various levels of expertise had 'found their tribe' for the next six days."



## THE COURSE

The course took the shape of conversational and interactive sessions each morning with Keith, who has been offering the course for many years with a suitably well-polished approach. He is a skilled nature photographer, an excellent educator, and a very generous and patient tutor.

Even though we were all at different stages in our journeys as bird photographers, and our kit was similarly disparate, we all felt as though we learnt a great deal. Like many others, I took up this great pastime during the COVID-19 pandemic. I've since joined in a few courses and events to try to improve my birding and photography skills, and there is no doubt that this was my best value experience to date.

I learnt so much about birding, camera technique and post-processing. I'm still returning to and working my way through Keith's excellent resources. One of the best aspects of the course was the nightly 'show and tell' where we each shared photos on which we were seeking

feedback on how we could improve. Tips were shared thoughtfully and respectfully—and this 'learning by doing' approach was really helpful.

## SPECTACULAR SUBJECT MATTER

Of course, the subject matter of our photos was one of the most delectable aspects of the experience. Twice a day—morning and evening—we were in our outdoor studio photographing the pink cockatoos also known as Major Mitchell's cockatoos or Leadbeater's cockatoos (*Cacatua leadbeateri*) that came in for a drink (see 'Parrots out of place' on page 20). Sometimes there was a lone visitor, often they came in pairs, and occasionally in mobs.

We were particularly fortunate to see some 'biffo' one morning—two young male cockatoos were having a squabble. It didn't look serious, but our photos that day were much more interesting. These birds are so spectacular with their soft pink and white feathers, and their exhilarating red, white and yellow crests.



Previous pages

**Main** Pink cockatoos (*Cacatua leadbeateri*) are a major attraction for photographers at Eyre.  
Photo – Keith Lightbody

Opposite page

**Top** Looking west from the top of the dunes.  
Photo – Mark Davidson

This page

**Top** Getting the hang of equipment on the course.

Photo – Keith Lightbody

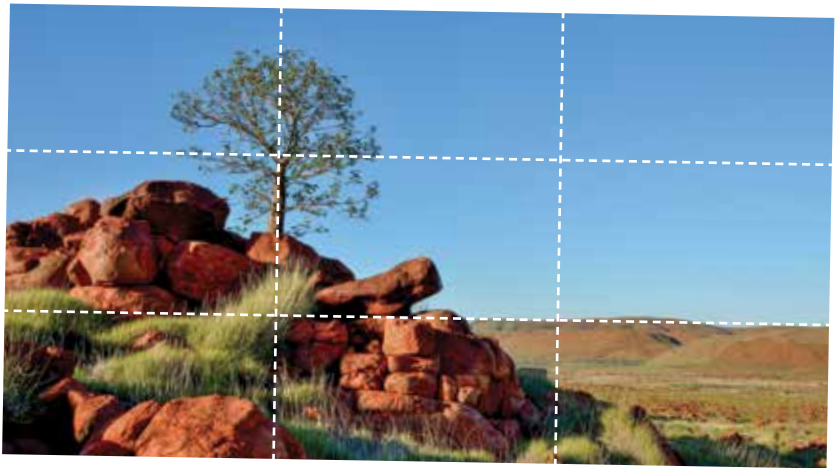
**Above** Eyre Highway signage marking the turn off to the observatory.

**Top right** Pair of juvenile nankeen kestrels (*Falco cenchroides*) in a nest log.

Photos – Mark Davidson

**Above right** Millstream Chichester National Park, demonstrating the 'rule of thirds' principle.

Photo – Peter Nicholas/DBCA



### Photography tips and tricks

**Light** is one of the most important considerations in photography. The amount and even the direction of light make a difference. The best time for natural light is the 'golden hour' between sunrise and 10am, and 4pm to sunset (depending on the season).

**Shutter speed** is the speed in which the camera captures the picture. Fast shutter speed freezes the subject, such as birds in flight and slow shutter speed will blur anything that is moving, such as flowing water. Slow shutter speeds are ideal for landscapes, especially during golden hour.

The **composition** of the image helps direct the focus to the interest point.

- The rule of thirds describes placing the interest point in a third of the image, either to the top, bottom, left or right, as opposed to the centre.
- Forced perspective refers to the depth of the image, putting the interest point in focus closer to the camera.
- The vanishing point refers to lines that lead your eye to a subject in the image.



**Top** Pink cockatoo on a weather vane.

**Above** A serious bit of kit.  
Photos – Mark Davidson

**Above right** A bathing brown falcon (*Falco berigora*).

**Below right** Fringed lily (*Thysanotus baueri*).  
Photos – Keith Lightbody



WA's beloved Bush Books series features publications about birds including *Birds in the Backyard* and *Australian Birds of Prey*. You can purchase one for \$6.95 from [shop.dbca.wa.gov.au](http://shop.dbca.wa.gov.au)

“Incoming!” was the cry that went up several times a day when these wonderful creatures came for a visit—that was our cue to grab our camera and take up your position. As we spent so much time at this, I found I learned to know the bird’s behaviour—which way it might land or take off, or when it was about to come down to a lower branch for a drink. It was a more studied approach to birding than walking through the bush hoping to chance upon an unsuspecting bird.

There was plenty of time for walking through the bush, and many species were seen and photographed on the walking paths around the observatory: grey butcherbird (*Cracticus torquatus*), brush bronzewing (*Phaps elegans*), red-winged fairy-wren (*Malurus elegans*), several species of honeyeaters and raptors. We also had a run to the beach where the birds were quietly going about their business: pied oystercatcher (*Haematopus longirostris*), pacific gull (*Larus pacificus*) and red-capped plover (*Anarhynchus ruficapillus*) were among them.

The flora around this area is also quite amazing: mallee fringe lily (*Thysanotus baueri*), flax lily (*Dianella* sp.), thick-leaved fan-flower (*Scaevola crassifolia*) and a blue

Eremophila species were just some of the plants in flower.

For photographers—and also for those who just want to experience the quiet and the wonderful environment, Eyre Bird Observatory has so much to offer. I’m so glad I girded my loins for the four-wheel-drive trek.

I know I will smile every time I pass that turn off in the future—what a wonderful experience with such excellent people. It was truly a once in a lifetime experience.



**Beverley Oliver** is an amateur photographer and bird lover, discovering her passion for capturing candid images of Western Australia’s flora and fauna.

## Marvellous marsupials

Australia is home to more than two thirds of the world's marsupials, but what is a marsupial? Marsupials are mammals that have a pouch to carry their young, called joeys. Joeys are born small, underdeveloped and would not survive in the outside world. Kangaroos for example are born the size of a jellybean and live in their mother's pouch for eight months before emerging.

### Who's in that pouch?

1. **Kangaroo** has a forward facing pouch, keeping joeys safe while hopping.

2. **Ring-tail possum** babies stay in their mother's pouch for up to 130 days.

3. **Quenda** has a backwards facing pouch. This prevents it from filling with dirt when digging for food.

4. **Chuditch** pouch is identifiable as circular folds of skin.

5. **Mulgara** pouch is formed by skin folds on the side of its body.

6. **Gilbert's Potoroo** babies leave mum's pouch after one week, but keep suckling for a few weeks.



### Kangaroo or wallaby?

Can you pick the difference between a kangaroo and a wallaby?



**Size:** Kangaroos are much larger, reaching up to two metres tall, while wallabies grow up to one metre.

**Shape:** Kangaroos have longer legs built for speed, while wallabies have smaller, compact legs built for agility to get over rocks and through dense vegetation.

**Habitat:** Kangaroos are found in open, grassy areas while wallabies are found in bushy and forested areas.

**Colour:** Kangaroos are usually a uniform colour all over, while wallabies can have a few colours and patterning on them.



Photos – 1. Sallyanne Cousans; 2. Ann Storrie; 3 & 8. Jiri Lochman; 4. Judy Dunlop/DBCA; 5 & 7. Simon Cherriman; 6. Tony Friend/DBCA



## Blue-banded bees (*Amegilla* spp.)

Unlike honey bees, blue-banded bees (*Amegilla* spp.) have pale blue stripes on their abdomen, with male bees having five bands and females having four. The bees are about 11 millimetres long and are solitary. They build their nests by themselves in a shallow burrow in clay soil or sometimes in mudbricks. Many blue-banded bees build their nest burrows in the same spot, close to one another, like neighbouring houses in a village.

Illustration by Bernadette Hartley

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ISSN 0815-4465

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