

bushland news



Issue 110 **Winter** 2019 *Time of Makuru and Djiilba in the Noongar calendar.*

NatureLink Perth

a new network to nurture
a biodiverse and livable city



Department of Biodiversity,
Conservation and Attractions



Bushland News is a quarterly newsletter of Urban Nature, a Department of Biodiversity, Conservation and Attractions Parks and Wildlife Service program to support community involvement in bushland conservation.

Photo – Jane Chambers

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Next issue

Spring Bushland News

Spring *Bushland News* contributions should be sent to [Urban Nature](#) by **10 September 2019**. *Bushland News* seeks original contributions. If your submission has been or may be published elsewhere please let us know. Compiled and edited by Julia Cullity.

NatureLink Perth

a new network to nurture a biodiverse and livable city



by Jane Chambers

Urban tree canopies reduce the urban heat island effect and absorb greenhouse emissions. Inclusion of nature can create an aesthetically interesting city, attracting people to WA, and increasing property values. And vitally, it sustains biodiversity and prevents extinctions of endangered species.

"We cannot solve our problems with the same thinking we used when we created them." Albert Einstein

Systems Thinking

Our natural assets are scattered and disconnected across Perth. Ecosystems work through linkages. We need to incorporate this interconnectedness into urban planning and development, so they can be sustained. There are many people across Perth with knowledge, ideas and projects on this issue but we are often working in isolation, in silos. So, we seek to bring all these stakeholders together – to hear and understand different perspectives and find a common ground – to create a way forward to champion the concept of *Nature Sensitive Urban Design* in Perth.

Continued next page ...

Cover photo: Blue skimmer dragonflies (Orthetrum caledonicum) mate in a backyard pond in Perth. Habitat features in parks and gardens create stepping stones that link natural areas and help maintain Perth's renowned biodiversity. Photo – Jane Chambers.

NatureLink Perth aims to connect and coordinate a diverse array of stakeholders to champion nature sensitive urban design and nurture a biodiverse and livable city.

A United Nations report recently warned that a million species globally are under threat of extinction. As one of the 36 global biodiversity hotspots, Perth supports a high diversity of locally endemic species. Sadly, this world class biodiversity is threatened through individual planning decisions – "death by a thousand cuts". There is currently no holistic strategy or plan, informed by ecological understanding, to conserve our natural estate or integrate nature into our city and our remaining urban bushlands and wetlands are at risk.

These climate and extinction statistics are alarming. They emphasise the urgency to act. However, negative environmental news stories can be disempowering. Leading to what the American Psychological Association has termed 'eco-anxiety' - where people "are deeply affected by feelings of loss, helplessness and frustration due to their inability to feel like they are making a difference".

[NatureLink Perth](#) seeks to engage and empower people to focus on a positive vision, to ensure we sustain nature in our city for the benefit of people, the environment and the economy. The benefits of integrating nature with daily life are well established: promoting physical health, mental health and child development.





Nature sensitive urban design integrates nature into the city providing a multitude of benefits to both people and our biodiversity. Image – Zoe Myers.

What is “Nature Sensitive Urban Design”?

Nature sensitive urban design respects and integrates ecosystem function into urban planning and development. For example, through creating and conserving wildlife and ecological corridors in urban areas, retro-planning nature sensitive greenspaces – parks, road verges, streams and drains, and backyard garden habitats. It creates the links across the city that nature needs and provides an invaluable place for people.

NatureLink Perth: the first six months

We are building our stakeholder champions network. To date, we have engaged with 11 State Government departments (including 21 sections), 13 local governments, 20 non-government organisations, 10 scientists, 8 developers/consultants, 25 plus friends groups and 2 organisations from the arts community. The perspectives and information from these 70 plus meetings are being collated to determine “What needs to be done to enable nature sensitive urban design and nurture a biodiverse and livable city?”.

We welcome you to our inaugural Naturelink Perth [Symposium](#) on 4th July 2019. A strategic, creative and interactive symposium where everyone can participate throughout the day. Visit our [website](#) and you can sign up to our mailing list to stay in the know as we continue building this network. Let’s make Perth a great place to live – for all species.

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Study published on change over the last 20 years in the threatened clay pans of the Swan Coastal Plain

by Grazyna Paczkowska

Urban Nature was involved in a study recently published on [‘Temporal changes in threatened ephemeral claypans over the annual and decadal timescales in south-west Australia’](#).

The clay pans of the Swan Coastal Plain are known for their amazing floral diversity but like any urban or agricultural remnant face constant threats such as weed invasion, frequent fires, disease, feral animals, changes in local hydrology and disturbance from unauthorised recreational activities. In 2012 the clay pan communities were listed as critically endangered under the federal *Environmental Protection and Biodiversity Conservation Act 1999*. Examples of sites containing these floristic communities include Greater Brixton Street Wetlands, Ellenbrook, Bullsbrook and Meelon nature reserves and at Urban Nature we have been involved in the on ground management of these sites.

Back in 2012 Urban Nature joined forces with Dr Neil Gibson, then from the Science and Conservation division of our department and the leading author of *A Floristic Survey of the Southern Swan Coastal Plain, 1994*, to [revisit and rescore](#) a series of clay pan flora survey plots established in early 1990s on the Swan Coastal Plain.

It was hoped that the study would provide insight into how this critically endangered ecological community has changed over 20 years and guide its future management.

For two spring seasons we relocated and rescored 30 of the 33 original 1990’s 10x10 metre survey plots, visiting 12 locations across the clay pans’ geographic range, ranging from nature reserves to road reserves between Gingin and Austin Bay.

In March 2019, the results of this study were published in the [Australian Journal of Botany](#). The increase in weed species in these clay pan communities over the span of twenty years was a major finding with important management implications. Of special concern were several invasive species of geophytes and grasses from South Africa and management of these species was identified as a major conservation issue in these threatened wetlands. There are substantial [resources](#) available on how to [manage](#) some of these problematic weeds, and our former Urban Nature colleague and co-author of this study, Kate Brown, has contributed significantly to this knowledge.

Urban Nature’s involvement in the management and research of these threatened clay pan communities will continue. We are happy to report that more federal funding through the National Landcare Program’s Regional Land Partnership with Perth NRM has been secured for on-ground management of these threatened ecological communities, including four years of follow-up weed control at Greater Brixton Street Wetlands and Lake Wannamal nature reserves.



Comparison of one plot in the clay pans along Mundijong Rd with photos taken in 1992 (top) and twenty years later in 2012. Although the number of species has not changed significantly at this site, of particular concern was the appearance of a South African geophyte, *Babiana angustifolia* (baboon flower). This can be seen in the centre foreground of the 2012 photo with green-brown leaves dying back to its corms (underground storage organs) at the end of the growing season. This weed can form dense monocultures capable of displacing native flora. Photos – Neil Gibson (1992) and Kate Brown (2012).

Lowlands Nature Reserve



Urban Nature has been partnering with conservation and land management students from Baldy's Secondary College, Greening Australia, Landcare SJ and funder Alcoa in restoration planting at Lowlands Nature Reserve on the Serpentine River. The project will re-establish *Lepidosperma persecans*, an understory plant that provides shady habitat for species that live in and along the river and protects the banks from erosion. The students began a trial to compare survival rates of nursery tubestock with sedges transplanted from mature specimens previously planted on-site. They were involved in all aspects from fencing, transplanting and planting to random placement and monitoring of the trial. Photo – Jesse Collins.

The Fauna of John Forrest National Park *by Nicole Willers, Elisa Skillen and Paul Udinga*

John Forrest National Park (JFNP) is Western Australia's first national park, proclaimed in 1900. At 2676 ha, it's a large remnant of bushland within the urban footprint of Perth. The park contains wandoo and jarrah-marri woodlands, riparian areas, granite outcrops and heathlands. Despite large numbers of visitors to the park, it still contains quiet areas, relatively undisturbed by people. With its size, variety of habitats and strategic position at the edge of the Darling Scarp, JFNP is an important area providing habitat for flora and fauna.

However, JFNP suffers from many of the same threats that other urban bushland remnants experience, such as weed invasion, *Phytophthora* dieback and feral predators. To better understand and manage these threats, funding was successfully sought through Perth NRM in 2015 for a collaborative project with the Shire of Mundaring and the Jane Brook Catchment Group across a number of sites. JFNP was a focal point for this project with most of the funding used to map and control invasive watsonia, freesia and woody weeds along the Jane Brook. This complemented the considerable efforts to control weeds carried out by the Friends of John Forrest National Park for more than 10 years.

The focus on flora values led to questions around what fauna species persist in the park, and how can we adaptively manage to best protect them. Although JFNP sits on Perth's doorstep, there was little contemporary

information on its fauna. A comprehensive survey by Ninox Consulting in 1990–91 carried out pitfall and cage trapping across the park. Vertebrate surveys took place in spring and autumn, with a total of 100 cage trap nights, 500 Elliot trap nights, 720 pitfall trap nights and eight bird survey quadrats. The surveys detected 110 species: eight native mammals, six feral mammals, 10 frogs, 23 reptiles and 63 birds. Supplementary surveys around the same time recorded an additional three species, increasing the total of native mammals to 10 and ferals to seven. More recent records had only consisted of roadkills, opportunistic sightings and community bird surveys.

In 2017 fauna surveys were carried out by Parks and Wildlife staff using cage and pitfall traps at representative sampling sites, and 25 remote cameras randomly placed across the park. A total of 320 cage and 160 Elliot trap nights took place in autumn, 2252 remote camera days in winter and spring, 216 pitfall trap nights in spring, and 10 bird survey quadrats. Table 1 lists the species recorded: seven native mammals, five feral mammals, three frogs, 18 reptiles and 51 birds. Interestingly 35 of these bird species (67%) are recorded as declining in the Perth region, yet are still managing to survive in this large, intact patch of bushland. Additional fauna records suggest that two other mammals, chuditch and brush-tailed phascogales, also occur in or around the park, likely at low densities.

Continued next page ...



*The 2017 fauna survey team at John Forrest National Park.
Photo – Simon Cherriman.*

Table 1: list of vertebrate species recorded at JFNP during fauna surveys in 2017.

Bird species with declining populations in Perth are marked with an arrow ↓. Introduced species are marked with an asterisk *.

Bird species

pacific black duck	rainbow bee-eater↓	New Holland honeyeater↓
Australian hobby↓	splendid fairy wren↓	white-naped honeyeater↓
peregrine falcon↓	white-browed scrubwren↓	varied sitella↓
square-tailed kite↓	weebill↓	golden whistler↓
collared sparrowhawk↓	western gerygone↓	rufous whistler↓
brown goshawk↓	inland thornbill↓	grey shrike-thrush↓
painted button-quail↓	yellow-rumped thornbill↓	grey butcherbird↓
common bronzewing↓	western thornbill↓	maggie
red-capped parrot↓	spotted pardalote↓	grey fantail
rainbow lorikeet	striated pardalote↓	willy wagtail
Australian ringneck	western spinebill↓	Australian raven
western corella	red wattlebird	maggie-lark
red-tailed black cockatoo↓	singing honeyeater	dusky woodswallow↓
Carnaby's cockatoo↓	brown honeyeater↓	scarlet robin↓
galah	white-cheeked honeyeater↓	western yellow robin↓
elegant parrot		silveryeye
owlet nightjar		mistletoe bird↓
laughing kookaburra *		tree martin↓

Mammal species

- mardo
- western brush wallaby
- black rat *
- honey possum
- feral cat *
- western grey kangaroo
- feral pig *
- brush tail possum
- quenda
- house mouse *
- echidna
- feral fox *

Frog species

- quacking froglet
- bleating froglet
- hooting frog

Reptile species

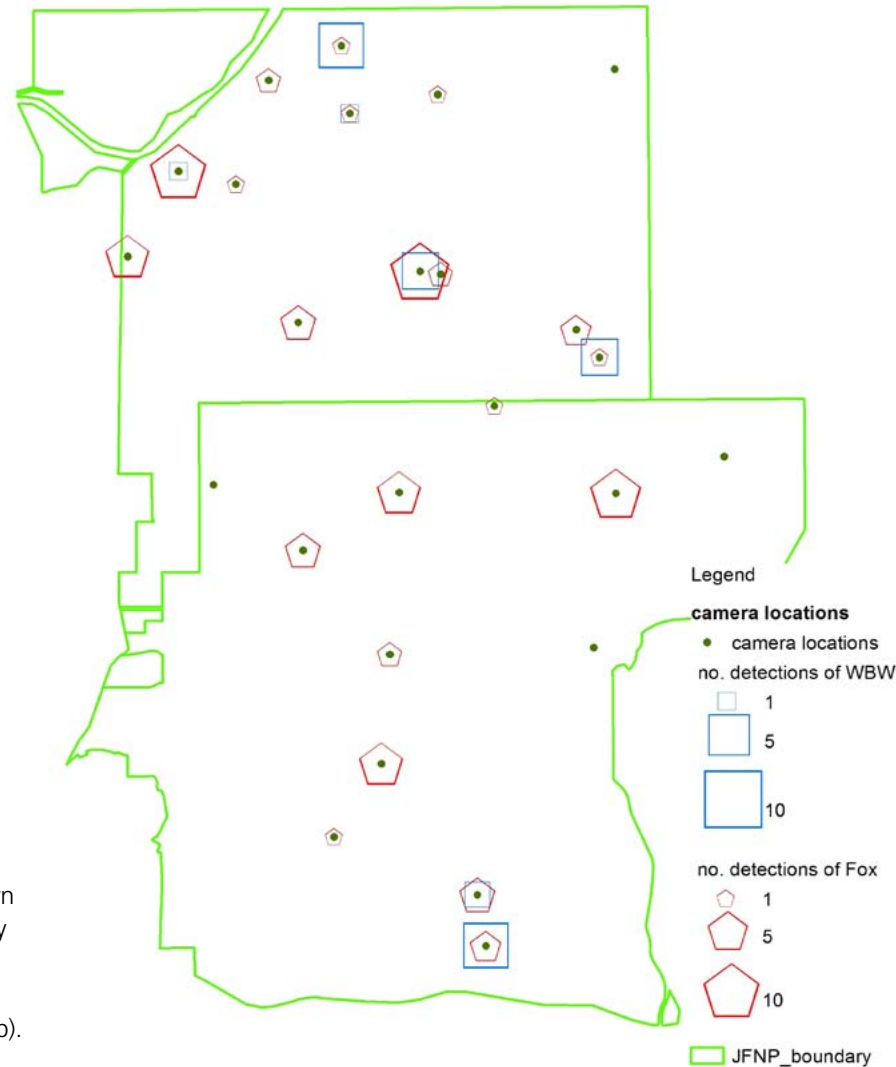
- Stimson's python
- southern shovel nose snake
- fence skink
- common dwarf skink
- Gould's hooded snake
- Gould's (sand) goanna
- south-west sandplain worm lizard
- marbled gecko
- southern five-toed mulch skink
- carpet python
- southern blind snake
- black headed monitor
- pretty worm lizard
- clawless gecko
- elegant slider
- pale flecked morethia
- bobtail
- Burton's legless lizard

Two mammal species from the previous fauna survey were not detected in the recent survey – the common dunnart and western pygmy possum. Both species are typically found in heath and are vulnerable to predation. The brush tail possum was a new species detected during the recent survey. From being previously uncommon, it has expanded into many urban bushland remnants in Perth over the last 20 years.

Fauna surveys have limitations because some species are difficult to detect, occur seasonally or require different sampling methods. Pitfall trapping, which typically detects frogs and reptiles, was only carried out in spring during the 2017 survey but was done in spring and autumn during the 1990–91 survey and could account for the decrease in detections for these faunal groups.

Remote cameras provide a snapshot of activity across the park that was not available during the 1990–91 survey. The number of detections of all species is shown in Table 2. JFNP is not baited with 1080 and fox activity across the park was not well understood prior to this survey. The cameras recorded widespread fox activity and high numbers of detections at many sites (see map). Similarly, western brush wallabies were only known from a couple of areas in the park from occasional sightings. Interestingly, the cameras detected them in several additional areas showing they are more widely distributed across the park than previously known. However western grey kangaroos dominated with five times as many detections as the next most common species, the fox.

Continued next page ...



Number of detections for fox and western brush wallabies at camera monitoring sites within JFNP.



Top: John Forrest National Park has recorded the highest frequency of fox detections from any recent remote camera fauna survey in Perth Hills. This has led to a program of fox trapping in the park. Future remote camera surveys will help ascertain the effectiveness of this control.

Above: A pleasant surprise from the remote camera survey was the discovery that the priority species, western brush wallaby, was more widely distributed across the park than previously known.

Fox activity at JFNP was significantly higher than other sites surveyed by Parks and Wildlife during 2016–18 with a detection frequency of 35. Nearby Talbot Road Nature Reserve, in a highly urbanised setting, was the next highest with a detection frequency of 17. Monitored sites in more rural and forested areas around Perth typically showed lower detection frequencies between 7 and 14. However, these sites are baited with 1080 to manage fox numbers whereas Talbot Road and JFNP are not. The high fox activity in JFNP may be the result of a combination of factors including the large size of the park being able to support high numbers of foxes, the surrounding semi-rural matrix of private property that provides supplementary food and shelter, and the connectivity to other areas allowing for ongoing movements in and out of the park.

The information obtained from the fauna surveys enables better management of the values and threats in the park. In response to the new information about how widespread fox activity was, a grant was successfully sought from the Parks of the Darling Range Community Advisory Committee to carry out fox control. In late 2018, 11 foxes were removed from the park followed by another round of trapping in April 2019 when nine foxes, a cat and a goat were removed. These efforts serve to manage predation by foxes, giving greater protection to fauna in the park.

The remote camera survey will be repeated in the future to determine if the removal of foxes has had an impact on fauna detections.

Sincere thanks to all the volunteers and staff that assisted with the 2017 fauna survey, and in particular Simon Cherriman, Geoff Barrett and Bob Huston for bird surveys, and Rebecca Kay, Rebecca Warner and Friends of JFNP for associated works and projects.

Table 2: list of species from JFNP 2017 with remote camera detection rates >1.

Species	Detection frequency (per 1000 camera days)	Total number of sites detected
western grey kangaroo	154	25
feral fox	35	21
brush tail possum	11	12
western brush wallaby	11	6
black rat	10	1
Australian ringneck	10	1
quenda	10	5
echidna	8	11
magpie	7	5

More information

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Strategic Assessment of Perth and Peel Regions review update

In April 2018 the State Government appointed an independent four-member panel to undertake a review of the Strategic Assessment of the Perth and Peel Regions in consultation across governments, and with industry, local governments and non-government organisations. The WA Government has considered the panel's report which identified three critical 'gateway issues' – legal risk, flexibility and funding. The State Government has extended the review in order to undertake further work on these gateway issues. The panel is expected to provide a supplementary report to Government mid-2019. Once the issues have been addressed the State Government will make an informed decision on whether to proceed with a [Strategic Assessment of the Perth and Peel Regions](#).

2019 State and Territory Landcare Awards nominations

Landcare Australia is inviting nominations for the 2019 State and Territory Landcare Awards which recognises individuals and groups across the country for their outstanding contributions to preserving the unique Australian landscape.

In 2019, Landcare celebrates its 30-year national anniversary. Over the last three decades, Landcare has played a leading role in changing Australia's approach to sustainable agricultural practices, environmental protection, conservation of land and waterways, coastlines and biodiversity. The Landcare Awards are an opportunity to recognise and celebrate Landcare champions from rural and urban communities motivated by a shared vision to restore and protect the environment in their local community. [Nominations](#) for WA close 10 July.

The South West Group is tracking foxes to guide future fox control programs *by Peter Nash*

The South West Group, a voluntary region of councils encompassing the Cities of Cockburn, Fremantle, Kwinana, Melville and Rockingham and the Town of East Fremantle, has partnered with the City of Canning in a project supported by State NRM Program funding, to determine how foxes move through the landscape in urban and peri-urban areas. The results of the project will inform the fox trapping programs of these local governments, ensuring that future trapping is strategically targeted for maximum effect, and the results will be made widely available to benefit all land managers.

The project will see 20 foxes of different ages and sex trapped, fitted with GPS collars and released. Each will be tracked over a 6–9 month period, then re-captured and euthanased. Their movements will be mapped and analysed to determine where and how quickly they are moving through the landscape and what food sources they are targeting at different times of the year. If foxes are found to be regularly moving through particular corridors, or are returning to particular food sources in particular seasons, future trapping can be concentrated in these locations at times when foxes are likely to be present.

After obtaining the necessary Animal Ethics Committee and Department of Primary Industries and Regional Development permissions to collar and release the foxes, and sourcing custom-built GPS collars from an international supplier, the trapping and collaring of foxes commenced in late April. Three foxes have been trapped, collared and released to date with another 17 foxes to be trapped and collared during spring programs. Preliminary results from the project are expected to be available early in 2020.



Twenty foxes will be fitted with GPS collars and released to track how foxes move through the landscape in urban and peri-urban areas of Perth. This fox is from the first cohort captured this autumn. The project will continue in spring. Photo – Graham Thompson.

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Global extinctions accelerating with up to a million species at risk *by Julia Cullity*

A [United Nations report](#) has found that nature is declining globally at unprecedented rates in human history. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment Report was compiled by 145 expert authors from 50 countries with another 310 contributing authors. The Report assesses changes over the past five decades on the relationship between economic development pathways and their impacts on nature. Key messages include:

- This is the most comprehensive assessment of its kind.
- A million species are now threatened with extinction.
- Current global response is insufficient.
- 'Transformative changes' are needed to restore and protect nature.
- Opposition from vested interests can be overcome for public good.

"The Report also tells us that it is not too late to make a difference, but only if we start now at every level from local to global" said IPBES Chair Robert Watson. "Through 'transformative change', nature can still be conserved, restored and used sustainably... By transformative change, we mean a fundamental, system-wide reorganisation across technological, economic and social factors, including paradigms, goals and values."

The full six-chapter report is expected to exceed 1500 pages and will be published later this year.

Inland thornbill – this small insectivore needs low, dense shrubs to help it thrive in our urban landscape. Photo – Georgina Steytler.



Calling urban birdwatchers! *by Tegan Douglas*

Do you know your silvereyes from your silver gulls? Can you pick a red-capped parrot from an Australian ringneck? Then we would love your help!

BirdLife is looking for birdwatchers in greater Perth who would be interested in championing their local urban bushland patch and lending their expertise to tell us about urban birds in Perth.

We know our urban bushlands are crucial habitat for many of our native birds, but the information that we have from some of our urban reserves is patchy - some are well-surveyed, others are not. Over the next two years, as part of BirdLife's [Connecting Urban Communities with Nature](#) project, with support from Lotterywest and help from you, we are planning to thoroughly census as many of our urban bushlands as we can. This will allow us to find out which birds are doing well (and those doing not so well) in our urban bushland, but will also allow us to see exactly what makes a bushland reserve more important for birds, and where we should be targeting our efforts to preserve the environmental values in these patches.

The surveys themselves are quite easy, and training and support is provided. If you would like to hear more, please contact [Tegan Douglas](#).

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The world's human population has more than doubled since 1970, unevenly across countries and regions, with the growth of urban areas doubling since 1992. Shibuya crossing in Tokyo is used by over 2.5 million people daily. Photo – Thomas La Mela/Shutterstock.com

Noongar boodjar rangers *by Julia Cullity*

The Noongar Boodjar Mentored Employment and Training Partnership is being delivered by South West Aboriginal Land and Sea Council via a service contract with the Department of Biodiversity, Conservation and Attractions (DBCA). This is one of 13 Aboriginal organisations across the state to share in the first round of funding from the State Government's five-year, \$20 million Aboriginal Ranger Program.

Twelve Noongar rangers have been employed with one Noongar man and a Noongar woman working in each of the six Noongar regions. I caught up with Elisha and Casey working in Whadjuk country (or boodjar) encompassing Perth and the Hills to hear about their experiences.

Elisha and Casey's families have a long history together. Their great, great, great grandfathers were politically active in the 1920s fighting for the right to educate Aboriginal children in public schools. Elisha says "I see our partnership in this as a bigger picture. Our families continuously have always been together and achieving things and I think it's really important. It's very exciting."

Both have given up other careers to establish a career in conservation, built on both western and indigenous knowledge. As Casey explains "There needs to be dual learning. We have got all western knowledge in terms of western science but there's a lot of indigenous knowledge of conservation and land management, general life. Our roles are important because they need to be combined. These positions will open up, hopefully, a discussion and maybe a change later on, more involvement, to do the best thing for the land."

Casey and Elisha have sought out mentors within the department with skills in training, park management and nature conservation and from the Whadjuk community. Elisha says they are "aware in our family of a lot of different sites we had custodianship over as Whadjuk people that are very important but now whenever we go into the bush we find something different. We're reconnecting and we are helping to reconnect family and other families with the sites".

The first Aboriginal deputation to the WA premier fighting for Noongar children to be educated in public schools, 1928. Back row: Wilfred Morrison (left), Norman Harris, Edward Jacobs, A. Kickett and William Bodney. Front: Edward Harris (left) and William Harris. Casey's great, great, great grandfather and uncles are the Harris and Kickett families and Elisha's grandfather's grandfather is Edward Jacobs. Photo – Bodney family, courtesy of Freshwater Bay Museum.



Casey Kickett (left) and Elisha Jacobs-Smith trainee Whadjuk Noongar rangers at Avon Valley National Park. Photo – Elisha Jacobs-Smith.

Within this 18-month fixed-term contract they are skilling up and getting as much experience across the department as they can. So far they have been involved in visitor management, training and assessing, prescribed fire, fauna trapping and feral animal control. An important role they bring to the department is being able to identify Noongar cultural heritage sites and set up protocols to help protect them. They can start the discussion and help change the ways things are done. They hope to continue in land management and bring an Aboriginal perspective to work either within the department or to managing land returned under the Noongar Native Title Agreement.

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Ringtail Possum Tally extends to Mandurah *by Jason Bird*

The GeoCatch Ringtail Possum Tally is entering its fourth year and continues to provide counts of ringtails from over 40 locations across southwest WA. There is now an opportunity for Mandurah residents to be involved in the tally, which will be run from mid-September to mid-October 2019. This is significant because surveys of ringtails in Yalgorup National Park suggest that numbers have declined recently, although they have now stabilised, and anecdotal evidence suggests that possums may be moving into urban areas adjacent to the park and surviving quite well.

In partnership with DBCA, Wirambi Landcare is co-ordinating the tally in the Mandurah area and will hold a number of workshops providing information on how to count ringtails and what people can do to help this critically endangered species.

The tally results will tell us where possums are living in the Mandurah area, whether they are surviving in the urban landscape and how to better manage and conserve this northern sub-population of ringtails.

If you live in the Mandurah area and think you have ringtail possums at your place and are interested to do an evening count this coming spring, please contact us.

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Critically endangered Western ringtail possums will survive in urban areas if they can stay off the ground, away from dogs and cars. Photo – Russell Hyde.

Dell Reserve

by Helen Green

Report in!

Please send us your regional report (200 words) and a photo by **Tuesday 10 September 2019**. Text may be edited in response to volume of submitted reports.

Drosera gigantea really lives up to its name. At Dell Reserve we've seen it grow up to 1m high.
Photo – Audrey Sole.

The River Conservation Society in York manages several remnant bush reserves, including Dell Reserve on the Talbot West Road.

This reserve was named after the Dell family. Edgar Dell, a botanical artist, migrated from England in 1924. He provided illustrations for the *Poisonous Plants of WA*, and with Charles Gardner published *Western Australian Wildflowers*. His sons John and Bernard pursued botanical careers and devoted themselves to preservation of the bush.

The society has recently recommenced flora surveys at Dell Reserve, an activity we last focussed on in 2003–2005. The reserve is characterised by a mosaic of terrain and soil types, a laterite ridge on the eastern boundary descending to a permanent waterhole (surrounded by *Lobelia anceps*), a sedgy wetland and heathland on the north-west corner. Jarrah, marri, flooded gums, Christmas trees, banksia and *Melaleuca preissiana* are well represented. The low heathland has many species of *Verticordia*, *Calytrix*, *Banksia*, *Dampiera*, *Hibbertia*, kangaroo and cat's paw, smokebush, bluebush, orchids and *Drosera gigantea* a metre high. In the past we installed bore holes to record water table levels and water quality. Future studies are planned: invertebrates, native bees, water and flora. We have recently found evidence of tortoises, frogs, bats, spiders and many insects in the reserve, and nesting Carnaby's cockatoos.

The society holds many of their monthly meetings in the reserves and then spends time on weed control, litter collection and erosion control on boundary tracks. Unfortunately, feral pigs are in evidence and pose a future management problem.

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email info@riverconservationsociety.org

Susannah Brook Catchment Group restoration of a wildlife corridor *by Sandy Stone*

Susannah Brook begins its flow through the upper part of the catchment through mainly agricultural land eventually meeting up with the Swan River. Only twenty per cent of the land is remnant bush and this is in poor condition. The Susannah Brook catchment requires good management and a new catchment group was created in August 2017 to restore and connect with the wildlife corridor begun by the previous catchment group.

[Susannah Brook Catchment Group Inc.](#) has received funding from the Western Australian Government State Natural Resource Management Program, over a period of three years to begin a restoration project at Susannah Brook Reserve. It will visually enhance the public area, by replacing weedy eucalypts and casuarinas with local native trees and reduce flooding and the very muddy walk paths experienced during winter.

The perennial grasses and cotton bush will gradually be removed over the three years by a contractor and hand weeding by the group. This will require extra funding in the future, the traces of historical farming are not an easy task to mitigate and the project will be a long-term initiative.

Some 2000 seedlings from a local grower were planted in June. There are several man-made dams, legacy of previous farming practices on the reserve, so planting local provenance seedlings along the riparian areas provides a fantastic opportunity to begin returning the site to ecological balance and promote biodiversity.

The slowly increasing growth of vegetation will encourage more fauna to use the corridor, especially birds which we are monitoring once a month at present with the assistance of volunteers from Birdlife.



Site one, Susannah Brook Reserve, with weedy trees removed in foreground ready for planting this winter. Photo – Sandy Stone.

Birdlife has provided the group with a bird survey plan and we are using [Birdata](#) to collect our observations. EMRC will test the water quality in spring and one of the members of the group has a PhD in aquatic ecology so our macroinvertebrates are covered. Photo monitoring is already recording the changes to the site and will showcase the historical changes.

Contact

Sandy Stone

Susannah Brook Catchment Group

email sandyroger.stone@gmail.com

Djeran on the river *by Sharon Munro*

It was a glorious Sunday morning when Perth NRM and the Baigup Wetlands Interest Group (BWIG) gathered on the shore of the *Derbarl Yerrigan* (Swan River) in Bayswater. Forty volunteers from across the Perth region joined us to learn about Noongar culture, history, and the season of *djeran*.

Djeran is the season of adulthood, an important time when courtship ceremonies and marriages took place. The Noongar people would camp along the wetland chains and their diet would change to include *kyooya* (frog) and *booyi* (turtle) meat. During this time the *bayoo* or *jeeriji* (zamia palm) nuts were collected and prepared for eating and the banksia trees start to flower.

Thanks to funding from State NRM Community Stewardship Grants, we were able to hold a special event to celebrate *djeran* and care for *boodja* (country) by planting sedges and trees endemic to the Baigup Wetlands. The name Baigup itself comes from Noongar language, meaning 'place of sedges'.



Elder Marie Taylor shared cultural knowledge about the season of *djeran* and Noongar history and ecological knowledge of the *Derbarl Yerrigan*, the Swan River. Photo – Sharon Munro.

Elder Marie Taylor welcomed us to *boodja* and taught us about *djeran*, Noongar history and ecological knowledge. Elder Marie shared stories about foraging for food along wetlands and the river, spoke of Noongar family structures and how each age group had their own responsibilities such as not letting the fire go out, and interesting facts like how *marri* (red gum) wood wasn't used in fires because it doesn't burn hot enough to keep a family warm. She shared with us a children's song about hunting for *kyooya* in Noongar language and the importance of having children experience the joys of playing in and connecting to nature.

After Elder Marie's fascinating talk, it was time to give back to *boodja* and the BWIG volunteers guided us in a planting activity to help restore the health of the Baigup Wetlands. The volunteers had a wonderful time, working efficiently to add 300 new plants and help infill bare areas of the riparian vegetation. After all the work was done, we enjoyed a cuppa and some morning tea on the bank of the *Derbarl Yerrigan*, enjoying the sunshine and good company.

This event was part of the [Perth NRM](#) Six Seasons Program, where we partner with volunteer groups to celebrate each of the Noongar seasons across the Perth region. Makuru was celebrated at The Spectacles and the next event will be for [Djilba at Jorgensen Park](#), Kalamunda.

Contact

Community Team

Perth NRM

email community@perthnrm.com



During the past several years Lake Joondalup has been visited by up to three oriental honey buzzards. These beautiful large raptors normally reside in Russia, China and Japan, migrating down to South East Asia. Bird watchers from all around Australia have visited the area for the opportunity to see and photograph these majestic birds. A prime viewing area to sight these birds has been a large open area in the north west of Lake Joondalup. Whilst looking for the honey buzzards another twelve species of raptors have been recorded. As a consequence the site, located off the junction of Lakeside and Joondalup Drives, has been given the name of "Raptor Ridge" by birdos. Due to the amount of interest and visitor numbers a request for a bird watchers' shelter or bench seat was made and has been installed by DBCA. The seat will be greatly appreciated, not only by the bird watching fraternity but by the many other park users. Photos – Gary Tate.



Re-igniting landcare in the Wooroloo Brook Catchment

You're invited to join like-minded volunteers to help re-ignite landcare interest in one of the largest water catchments in Perth's eastern region, the Wooroloo Brook catchment. Encompassing approximately 36,000 ha across the Shire of Mundaring and the City of Swan, the Wooroloo Brook catchment is the centre of a volunteer recruitment project being coordinated by the [EMRC](#).

Currently there is no active catchment group working in this region. For a period of 20 years, the Wooroloo Brook Land Conservation District Committee worked intensively across the catchment, injecting more than \$1.2 million into landcare initiatives in the region. Since this group disbanded in 2009, there are now only three active friends groups working within the Wooroloo Brook catchment.

Top: The Wooroloo Brook flowing through F.R. Berry Reserve. Volunteers wanting to protect the biodiversity of the catchment and the natural values of the brook should contact EMRC. Photo – EMRC.

Key conservation priorities for this water catchment include:

- Improving water quality
- biodiversity conservation and improving ecological linkage;
- minimising land degradation;
- controlling invasive weed species, such as blackberry and cotton-bush; and
- protecting the Aboriginal heritage of Wooroloo Brook, a registered Aboriginal site.

This project is seeking interest from community volunteers who would like to get involved in landcare initiatives within the Wooroloo Brook catchment. The EMRC, in conjunction with the Shire of Mundaring and City of Swan, will provide assistance to volunteers to form a new landcare group.

Contact

Karen Warner

EMRC

phone 9424 2242

email karen.warner@emrc.org.au



The Friends of Brixton Street Wetlands has been actively documenting a variety of fungi species found within the reserve in the past few years. Brixton Street Wetlands is home to at least 310 flora species and 53 fungi species in 19 ha making it one of the most biodiverse remnant bushlands in Perth. To increase awareness about the importance of fungi in urban areas, the group has published a set of photographic cards with the support of the City of Gosnells. The set contains 10 cards that features 10 different fungi species photographed by Subas Dhakal and is available for purchase; email or phone Regina 9459 2964. The friends aim to develop and maintain a webpage dedicated to fungi species recorded in the reserve into their website. Photo – Subas Dhakal.

Rescuing the Serpentine River *by Steve Fisher*

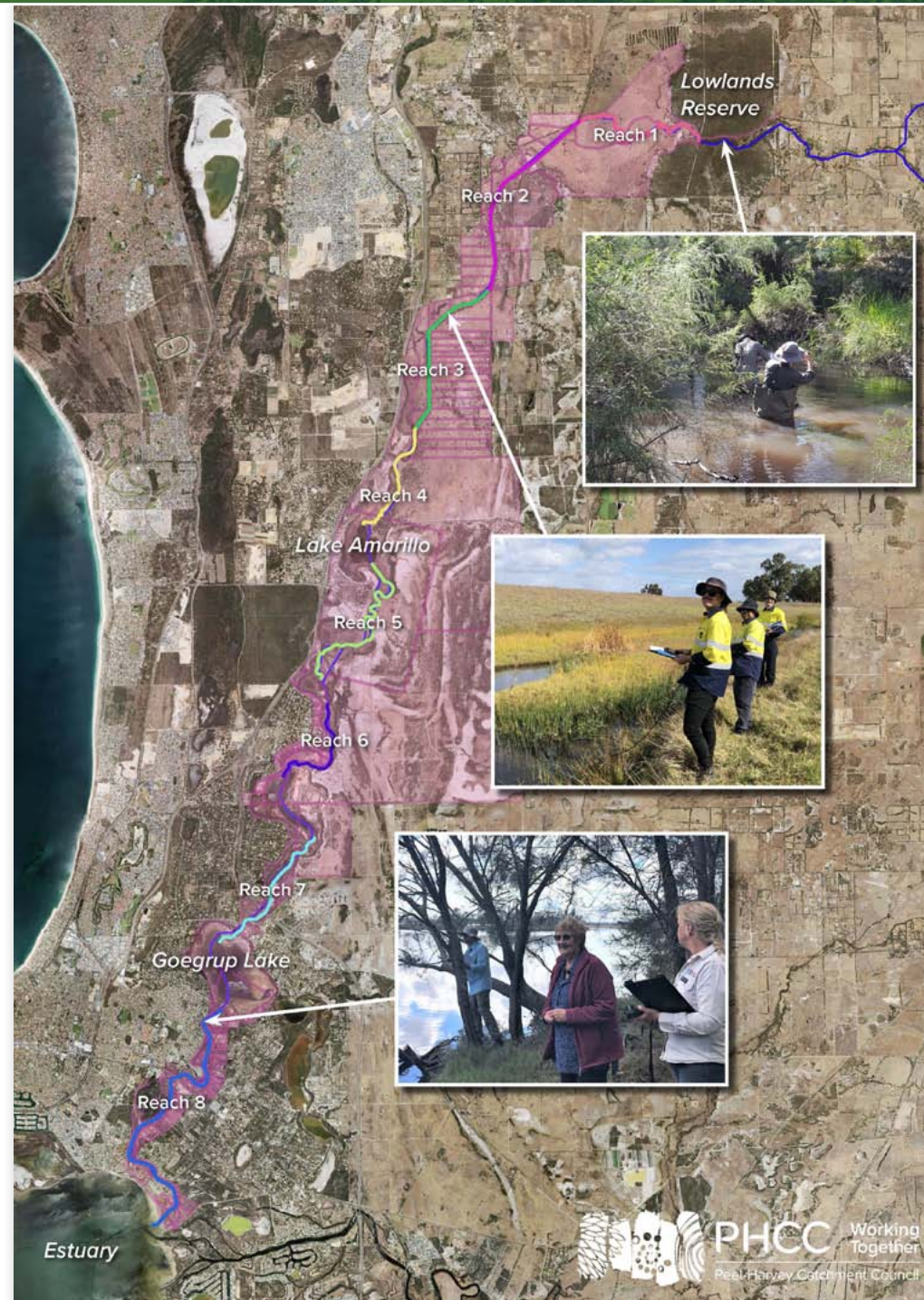
Over the past year scientists from the Peel-Harvey Catchment Council (PHCC), Department of Water and Environmental Regulation and Urbaqua Ltd have been working their way along the Serpentine River identifying its key assets and attributes as well as threats to the health of the river. The team, assisted by community volunteers including members of Alcoa’s Graduate Program, have made detailed observations from the air by helicopter and drones, from the water and on foot. Assessments of geomorphology, infrastructure, land uses, river connectivity, vegetation condition, abundance and diversity of fish, freshwater crayfish and aquatic invertebrates, as well as threats such as the prevalence and spread of the noxious weed water hyacinth have all been used to ground-truth and fill knowledge gaps from earlier desktop studies. Other attributes such as the cultural significance of the river have also been captured through on-going consultation with the local Noongar people and landholders in the Serpentine catchment.

The study area is restricted to the middle and lower reaches of the Serpentine River between Lowlands Nature Reserve and the Peel-Harvey Estuary (as shown in the map), with assessments made at the ‘reach’ scale. For each of the eight reaches, observations were made using standardised methods to allow comparison of condition between each reach and so future assessments can determine whether the condition of each has improved, declined or been maintained. These reach-by-reach assessments are being compiled into a River Action Plan for the Serpentine River, which will identify sites where priority actions should take place to improve the ecosystem health of the Serpentine River and the adjoining riparian zone.

The development of the River Action Plan is a component of the *Connecting Corridors and Communities - Restoring the Serpentine River* project funded by the Alcoa Foundation. This [three-year project](#), commenced in 2018 and is aimed at improving the ecological condition of the Serpentine River. Since European settlement of the Peel Region in the nineteenth century, the Serpentine River and catchment has undergone many changes.

Continued next page ...

Map showing the extent and reaches assessed in the development of the Serpentine River Action Plan.



This has included extensive clearing of vegetation for agricultural and urban development, the creation of an artificial drainage network to drain flood-prone areas and wetlands to improve agricultural productivity and inhibit flooding, de-snagging and re-engineering of the river's form to increase its capacity to convey water and the construction of the Serpentine Dam for drinking water. These changes have resulted in a severe deterioration of water quality, and a decline in water flows and terrestrial and aquatic biodiversity of the river corridor.

PHCC has commenced on-ground works such as revegetation, weed control, fencing and bank stabilisation to improve the condition of the river tributaries through a program of Community Environment Grants launched in 2018.

This program, also a component of the Alcoa Foundation-funded project, provided funding to landholders along the river corridor to work in partnership with PHCC to undertake restoration works on private landholdings.

The River Action Plan is scheduled for completion in July 2019. As PHCC Chair Caroline Knight says "We will use the River Action Plan to guide us in our future restoration works for the Serpentine River. By setting a baseline for the current condition of the river, the plan enables us to measure the improvement in river health as a consequence of our actions. Improvements in condition of the Serpentine River, will also complement PHCC's efforts in protecting the values of the Peel-Harvey Estuary.

The estuary is a major component of the Peel-Yalgorup Wetlands System, recognised under the Ramsar Convention as a Wetland of International Importance due to the habitat it provides for waterbirds including migratory shorebirds, fish and invertebrates and threatened ecological communities".

For those interested in learning more about this Serpentine River project and other restoration projects for the Harvey and Murray Rivers, PHCC is hosting an [information evening](#) on 18 July at their offices in Mandurah.

Contact

Steve Fisher

PHCC

email steve.fisher@peel-harvey.org.au



A sample of mostly native species of freshwater fish and crayfish from the Serpentine River at Lowlands Nature Reserve. Photo – Steve Fisher.



Aerial view of the Serpentine River near Karnup Road (reach 3). Photo – Jo Garvey.



WA Parks Foundation

by Melanie Wilshin



WA PARKS
FOUNDATION

The [WA Parks Foundation](#) is the official charity partner to promote and support Western Australia's national parks and conservation areas.

Its formation to support WA's conservation estate was an initiative of Western Australia's Governor at that time, the Hon Kerry Sanderson AC. To take her concept forward, she brought together an enthusiastic group, including representatives of DBCA.

The WA Parks Foundation was launched in October 2016. Its vision is for Western Australia's parks to be increasingly loved and visited, and the plants, animals, landscapes and cultural values they embody to be protected and a source of pride for all Western Australians.

As a non-profit, non-government organisation, the Foundation works with others including the Parks and Wildlife Service, other government agencies, the corporate sector and the community to achieve its aims.

Continued next page ...

Woodside, a partner of the WA Parks Foundation, is funding three new interpretation nodes at key sites in the Swan Canning Riverpark as part of the River Journeys Project to engage visitors in the environmental, historical and Aboriginal cultural significance of the Swan and Canning rivers. Photo –Tourism WA.



Kerry Sanderson is Chair of the WA Parks Foundation Board. “Our programs are developed to protect our national parks, to connect more people to parks by increasing access for all and to inspire a love of parks in a new generation of park stewards,” she said. “We depend on the generous support of private and philanthropic organisations and the corporate sector to ensure our national parks are understood, cared for and conserved. In that regard, we are fortunate to have a strong set of Founding Partners, namely Wesfarmers, Chevron Australia, Woodside Energy and Fortescue Metals Group. Their support is invaluable.”

The Foundation’s initial focus is peri-urban and Pilbara national parks and conservation reserves. Current projects are:

- **John Forrest National Park.**

Revitalisation of Western Australia’s first national park, working with DBCA to conserve and protect the rich flora, fauna, cultural and historic values. This includes providing more interpretation and an improved visitor experience. The recent improvements to the Jane Brook precinct undertaken by DBCA show what can be achieved and a business case is being developed to seek additional funds for a visitor centre.

- **Smart Park Maps.** A Smart Park Maps series being developed will make it easier to navigate Western Australia’s parks, particularly as there is often limited or no mobile network coverage. Geo-referenced, downloadable interactive maps will work with mobile devices. The Foundation, in partnership with DBCA, has recently completed pilot maps for Karijini National Park and is seeking sponsorship for smart maps for all of the State’s 100 national parks.
- **Swan Canning Riverpark – River Journeys Project.** This involves developing a network of walking trails featuring interpretation at 25 nodes or rest points located at key sites of environmental, historical and Aboriginal cultural significance. Six nodes have been completed by DBCA and WA Parks Foundation partner, Woodside, is funding a further three.
- **Spring into Parks.** Our first Spring into Parks program will be a wide-ranging series of events to encourage people of all ages to visit, enjoy and learn about our wonderful parks. The calendar is being developed with government and community groups.

As a relatively new non-profit organisation, the Foundation relies significantly on the efforts of our valuable volunteers. The Board, Sub-Committees and some project and communications roles are voluntary. A small office employs 2.4 staff.

Contact

Melanie Wilshin

WA Parks Foundation


email melanie@ourwaparks.org.au

The WA Parks Foundation and DBCA at Swan View Tunnel in John Forrest National Park discussing ideas to enhance visitor experiences at Western Australia’s founding national park. Photo – Colin Ingram


Opportunities for you to participate! Visitors always welcome but please confirm activities with contact person. Most activities are FREE!

Recurrent activities

Saturdays 15 minutes before sunrise

 **Research into bird populations** with the **Herdsmen Lake** Bird Banding Group. Contact: Bill 0438 910 252 calidris@iinet.net.au


Saturdays 8am–9am

 **Guided walks** with Friends of **Koondoola**. Second Saturday of each month. Meet Gate 2, corner Koondoola and Burbridge Ave, Alexander Heights. Contact: David 9448 9192


Saturdays 8am–9am

 **Guided walks** with Friends of **Lake Gwelup** naturalist David Pike. Third Saturday of each month. Meet at Scout Hall Carpark (near the tennis courts), Huntriss Rd, Gwelup. Contact: friendsoflakegwelup@gmail.com


Saturdays 8am–9am

 **Guided walks** and meeting with Friends of **Landsdale**. First Saturday of each month. Meet at third gate Landsdale Rd, east of Landsdale Farm School, Darch. Contact: David 9448 9192


Saturdays 8am–9am

 **Guided walks** with Friends of **Star Swamp**. Fourth Saturday of each month. Meet at the Henderson Environment Centre in Groat St, North Beach. Contact: Christine 0430 013 364

Saturdays 8am–9am

 **Guided walks** with Friends of **Trigg** Bushland. Fifth Saturday of each month. Meet in St Mary's School carpark, off Elliot Rd Karrinyup. Contact: David 9448 9192


Saturdays 8am–10am

 **Bushcare activities** with Swan Estuary Reserves Action Group at **Alfred Cove** Nature Reserve. Fourth Saturday of each month. Contact: Cathie 9339 2439 oneillc@westnet.com.au


Saturdays 8.30am–10.30am

 **Bushcare activities** with the Friends of **Booragoon** and **Blue Gum Lakes**. First Saturday of each month. Meet at the boardwalk into Booragoon Lake on Aldridge Rd, Booragoon. **Weeds course** third Saturday of each month at Blue Gum Lake. Contact: Mary-Ann 0456 357 799 molly.olly1@bigpond.com


Saturdays 8.30am–10.30am

 **Bushcare activities** with Swan Estuary Reserves Action Group at **Pelican Point**, Crawley. First Saturday of each month. Contact: Cathie 9339 2439 oneillc@westnet.com.au


Saturdays 9am

 **Bushcare activities** with Friends of **Brixton Street** Wetlands. Third Saturday of each month. Meet Alton St, Kenwick. Contact: Regina 9459 2964 tjdrd@bigpond.net.au


Saturdays

 **Bushcare activities** with Friends of **John Forrest** National Park. Equipment, instruction and morning tea provided. Starting times and tasks change according to the season. Contact: Jan 0409 299 861 joejanking1@bigpond.com

Saturdays and Tuesdays 9am–12 noon

 **Bushcare activities** with Friends of **Yellagonga** Regional Park. Nursery and project work each Saturday and Tuesday morning, regular workdays on the last Saturday of each month. Contact: friendsofyellagonga@bigpond.com


Saturdays, Sundays 9am–12 noon

 **Koala maintenance** at **Yanchep** National Park. Contact: Ciara 9303 7771.


Sundays 8am–10am

 **Bushcare activities** every Sunday with Friends of **Shenton Park** Bushland. Contact: Dani 0420 334 601 bojel@iinet.net.au

Sundays 8.30am

 **Bushcare activities** with Friends of **Wireless Hill**. Second and fourth Sunday of each month. Meet at main carpark. Contact Margaret 0402 105 649 s3mmatthews@hotmail.com


Sundays 9am–11am

 Friends of **Lake Claremont busy bee** and morning tea, second Sunday of each month. Meet at the south end of Strickland St, Swanbourne. Gloves and tools provided. Contact 0416 614 696 www.friendsoflakeclaremont.org


Sundays 9am–11am

 **Bushcare activities** with **Cottesloe** Coastcare. First Sunday of each month. Contact: Robyn 9384 7668, info@cottesloecoastcare.org website


Sundays 9am–12 noon

 **Bushcare activities** with the Friends of the **Spectacles** (Kwinana). Third Sunday of each month. Contact: Lynda 0419 983 956 fotsmail@gmail.com


Sundays 9am

 **Bushcare activities** with the Friends of **Samphire Cove** Nature Reserve, Halls Head. Last Sunday of each month. Contact: Barry bjsdoongin@gmail.com website


Sundays 9.45am–12 noon

 **Bushcare activities** with the Friends of **Piesse Brook**. Third Sunday of each month. Contact: Ken 9293 3159 bibbulman@hotmail.com 0402 243 351

Sundays 1pm–4pm

 WA Gould League's **Herdsmen Lake** Wildlife Centre holds **family nature days**. First Sunday of each month. \$5/\$20 family. Corner Selby St and Flynn St Wembley. Contact: 9387 6079 or register

Sundays

 **Wilson Wetlands** Action Group undertakes regular **work mornings** throughout the year on Sunday mornings. Contact: 0407 135 412 wilsonwetland@gmail.com

Activities Key



Hands on – bushland and wetland management activities.



Walks and tours – look, listen and enjoy guided walks and excursions




Skills development activities – talks, presentations, training courses and workshops.




Meetings and events – group meetings, expos, festivals and conferences.

Recurrent activities ... *continued*

Mondays 7am–8am

 Norma's Monday Morning **Weeding Group**. Friends of **Lake Claremont** weekly hand weeding. Learn basic weeding techniques and identification. Meet at south end of Strickland St. Contact: 0413 282 515.

Mondays 8am–10am

 **Litter collection** with Swan Estuary Reserves Action Group at **Milyu Nature Reserve**, South Perth. Second Monday of each month. Contact: Cathie 9339 2439 oneillc@westnet.com.au


Mondays

 **Plant learners' group** with **Eastern Hills Wildflower Society**, meets twice a month in a self-learning environment to identify plants and expand knowledge. Contact Pam eastern.hills.branch@wildflowersocietywa.org.au


Mondays

 **Propagation group** with **Eastern Hills Wildflower Society**, meets twice a month to share knowledge about propagating native plants. Contact Sandy eastern.hills.branch@wildflowersocietywa.org.au


Mondays, Wednesdays, Fridays 9am–12 noon

 **Bushcare activities** and wetlands walk trail maintenance with **Yanchep** National Park Volunteers. Contact: Ciara 9303 7771

Tuesdays 7am–9am

 **Bushcare activities** with Swan Estuary Reserves Action Group at **Alfred Cove** Nature Reserve each Tuesday. Contact: Margaret 9330 1791


Tuesdays 9am–11am and Saturday

 **Bushcare** with Friends of **Allen Park** every Tuesday and first Saturday of the month. Contact: Lesley 9384 7983 Judy 9383 1501, foapbg@gmail.com or [facebook](https://www.facebook.com/foapbg)


Tuesdays and Thursdays, 8am–10am

 **Coastcare activities** with **Stirling** Natural Environment CoastCare (SNEC). Contact: Sheldon 0488 190 651 Rae 0419 191 710 [website](http://www.stirlingcoastcare.org.au)


Wednesdays

 **Seed cleaning group** with **Eastern Hills Wildflower Society**, meets fortnightly to prepare seeds for propagation. Contact June eastern.hills.branch@wildflowersocietywa.org.au


Wednesdays and Saturdays 7.30am–9.30am

 **Bushcare activities** with **Bicton** Environmental Action Group. Planting, weeding and foreshore cleanup. Various dates. Contact: Peter 0439 467 855 pneesham1@hotmail.com [website](http://www.bicton.org.au)

Thursdays 7.30am–9.30am and some Saturdays 8.30am–12 noon

 **Coastcare activities** with Friends of **Sorrento Beach** and **Marmion Foreshore** followed by morning tea. Contact: Mike 0438 710 527


Thursdays 8am–9am

 **Bushcare activities** every Thursday with **Byford** Enviro-Link. Contact: Kristy 9526 0199


Thursdays, Saturdays and Sundays 9am

 **Morning walks** with Friends of **Bold Park** Bushland Volunteer Guides. Various dates. Contact: 9480 3996 friendsbp@bgpa.wa.gov.au [website](http://www.boldpark.org.au)

Thursdays and Sundays 10am–12 noon

 **Kanyana Wildlife** Centre, Discovery Centre **Tours**. Close encounters with native animals and interactive Discovery Centre. \$20 or less. Bookings essential. Contact: 9291 3900 info@kanyanawildlife.org.au [website](http://www.kanyanawildlife.org.au)

Thursdays and Fridays 9am–4pm

 **Wetland, bushcare and nursery** activities with The **Wetlands** Centre, **Cockburn**. Contact: Denise 0412 081 540 community@thewetlandscentre.org.au


Thursdays 7.30pm

 **Talks** with **Murdoch** Branch of the **Wildflower Society** to share passion and knowledge of nature. First Thursday each month. Cockburn Wetlands Education Centre. Contact: Christine 0468 676 933 murdoch.branch@wildflowersociety.org.au [Facebook](https://www.facebook.com/murdoch.branch@wildflowersociety.org.au)

Fridays 8am

 **Bushcare activities** at **Piney Lakes**. Volunteers need a site induction. Contact: Jacklyn.kelly@melville.wa.gov.au


Fridays and Sundays

 **Bushcare** with Friends of **Mosman Park** Bushland every Friday and the second Sunday of each month. Site determined the week before. Contact: mail@mosmanparkbushland.org


Fridays 7.30pm

 **Talks** with **Eastern Hills** Branch of the **Wildflower Society**. Fourth Friday each month, Octagonal Hall, 52 McGlew St, Glen Forrest. \$2 entry, visitors welcome. Contact: eastern.hills.branch@wildflowersocietywa.org.au, [facebook](https://www.facebook.com/eastern.hills.branch@wildflowersocietywa.org.au) [website](http://www.wildflowersocietywa.org.au).


Fridays and Saturdays 7pm–9pm

 First Friday and second Saturday every month, **Nocturnal Tours, Kanyana Wildlife** Centre. Meet nocturnal native wildlife and hear about endangered species breeding programs. \$20 or less. Bookings essential. Contact: 9291 3900 info@kanyanawildlife.org.au [website](http://www.kanyanawildlife.org.au)

Check calendar

 **Birdlife** hold regular **talks** and **excursions** each month. [View](http://www.birdlife.org.au) their calendar.

Check calendar

 **WA Naturalists** hold regular **excursions, photo groups** and **campouts** each month. [View](http://www.wanaturalists.org.au) their calendar for the activities of the four branches.

Check calendar

 **Wildflower Society of WA** holds regular **talks**. [View](http://www.wildflowersocietywa.org.au) their calendar.

Activities Key



Hands on – bushland and wetland management activities.



Walks and tours – look, listen and enjoy guided walks and excursions




Skills development activities – talks, presentations, training courses and workshops.




Meetings and events – group meetings, expos, festivals and conferences.

July

6–7 Saturday–Sunday

 **Planting** with Waterbird Conservation Group at **Maramanup**, Baldvis. Lunch and morning tea provided. Email waterbirdgroup@gmail.com for directions and RSVP.


7 Sunday 9am–12noon

 **Planting** along the Canning River with Roleybushcare, **Araleun** walk trail, Roleystone. Meet at track entrance off Thompson Rd. **AGLG**


9 Tuesday 8am

 **Birdwalk, Little Rush Lake**, Samuel Caporn Reserve, Yangebup. Meet near the playground on Grassbird Loop. **Birdlife**

9 Tuesday 9.30am–12noon

 **Exploring Bugle Tree Gully**, Mundaring. Explore the creek and find out about the animals that live there, then help with wetland planting. For families with children aged 4–11. [Bookings](#) or call 9424 2216.

10 Wednesday 10am–12noon

 **Awesome Owls** Citizen Science Programme for kids, **Herdsman Lake** Wildlife Centre. Learn all about Perth's owls, dissect an owl pellet to see what they've eaten, and join a guided bird walk. Hands-on fun contributing to scientific research! Suit ages 6+. \$20 parents free. [Register](#).


13 Saturday

 **Basic native plant id** workshop with the **Wildflower Society** of WA **Murdoch** Branch, The Wetlands Centre Cockburn, Hope Rd, Bibra Lake. [Registrations](#) \$25–30.


13 Saturday 8.30am

 **Birdwalk, Lightning Swamp**, Noranda. Meet at the SE corner gate on Della Rd. **Birdlife**

13 Saturday 9am–12noon

 **Planting** at the **Southern River Confluence**, Gosnells. Meet at north-eastern end of Windsor Dr. **AGLG**


13 Saturday 9–11.30am

 **Wetland Bird** workshop **Bibra Lake** for beginners. [Free registrations](#).


13 Saturday 10am

 **River Conservation Society AGM**, Greenhills Hotel York. Contact Audrey 0418 378 446.

14 Sunday 9am–1pm

 **Rehabilitating Roe 8 planting**, Malvolio Rd opposite Elinor Park, Coolbellup. All tools, equipment and plants supplied as well as a BBQ lunch. Please wear long pants, enclosed shoes and a hat. BYO water bottle. [Registrations](#).


16 Tuesday 2.30–4.30pm

 **Bird photography workshop** ages 12–16, **Centenary Park**, Belmont. \$5 for Belmont residents, \$15 non-residents. Bring your own camera or smart phone. [Register](#) or call 9477 7257.

16 Tuesday 2.30–4.30pm

 **Healthy Waterbirds Healthy Lake** for families with children 6 and over, **Centenary Park**, Belmont. Birdwatching walk and talk, BYO binoculars. Free [registrations](#) or call 9477 7257.

18 Thursday 4pm–6.30pm

 **River Rescue** bringing new life to our Estuary, a [S.H.A.R.E. in the Shed event](#) with **Peel Harvey** Catchment Council, 58 Sutton St, Mandurah. [RSVP essential](#).

20 Saturday 8.30am–12noon

 **Bushcare** with **Canning River** Regional Park Volunteers. Contact Jo 9458 3669.


20 Saturday 9am–12noon

 **Planting** at the **Gilwell Avenue Link**, Kelmscott. Meet along Gilwell Ave. **AGLG**

27 Saturday 9am–12noon

 National tree day **planting** at **Wright Brook**, Kelmscott. Meet corner Connell and Brookside Aves. **AGLG**


27 Saturday 10am–2pm

 **Fungi in Focus** Margaret Forrest Centre, Park Rd, **John Forrest** National Park, Hovea. Learn about common fungi families and take a guided walk. Lunch provided. **BSFH**


28 Sunday 9am–12noon

 National tree day **planting** at **Mills Park**, Beckenham. Meet carpark off Bickley Rd. **AGLG**

28 Sunday 9am–12noon

 National tree day **planting** at **Booragoon Lake** with City of Melville. Meet Aldrige Rd. No bookings, morning tea and equipment supplied.

28 Sunday 10am–2pm

 National Tree Day planting Frasers Landing, Coodanup. [Register](#).

Registration/contact details

AGLG Armadale Gosnells Landcare Group. Look for the AGLG sign at the meeting point, BYO gloves and dress for the weather. Morning tea provided. Call 0413 883 565 or check [facebook](#).

Birdlife WA All walks are free, no need to book. Call 9383 7749 Monday–Friday 9.30am–12.30pm.

BSFH Bush Skills for Hills. Free workshops, with refreshments. [Registrations](#) essential. Contact 9424 2216 or environment@emrc.org.au

Activities Key



Hands on – bushland and wetland management activities.



Walks and tours – look, listen and enjoy guided walks and excursions



Skills development activities – talks, presentations, training courses and workshops.



Meetings and events – group meetings, expos, festivals and conferences.

August


1 Thursday 8am

 **Birdwalk, Baigup Wetlands**, Bayswater. Meet at the carpark at the end of Milne St. [Birdlife](#)


3 Saturday 9am

 Spring into Armadale **walk Bob Blackburn Reserve**. Meet Aquatic Centre carpark, Champion Dr, Seville Grove. [Details](#).


3 Saturday 9.30am–11.30am

 **Dieback Treatment Training** West Swan Hall, Lot 1 West Swan Rd, Henley Brook. Hands-on workshop to treat trees against *Phytophthora* disease. Morning tea provided. [BSFH](#)


4 Sunday 8am

 **Birdwalk, Lake Gwelup**, Stirling. Meet at the carpark Stoneman St and Huntriss Rd. [Birdlife](#)

4 Sunday 9am–12noon

 **Planting** at the **Goolamrup Reserve**, Kelmscott. Meet corner Buckingham Rd and Roberts Rd. [AGLG](#)


10 Saturday 9am–12noon

 **Planting** at the **Southern River Confluence**, Gosnells. Meet at north-eastern end of Windsor Dr. [AGLG](#)


11 Sunday 9am–12noon

 **Planting** along the **Canning River**, Gosnells. Meet at corner of Astley St and Verna St. [AGLG](#)

17 Saturday 10am–2pm

 **Foreshore Condition Assessment Training, Woodlupine Brook**, Wattle Grove. Learn techniques for standardised assessment to make the most effective use of resources towards river protection. Lunch provided. [BSFH](#)


18 Sunday 10am–3pm

 **Science Community Expo Canning River** Eco Education Centre, Kent St, Wilson. Call 9461 7160

22 Thursday

 **Pest Animal Biosecurity Management**, indicate your interest by emailing the [Environment team](#), [WALGA](#).

24 Saturday 8.30am–12noon

 **Bushcare** with **Canning River** Regional Park Volunteers. Contact Jo 9458 3669.

24 Saturday 9am–12noon


 **Planting** along the **Southern River**, Gosnells. Meet at end of Chilcott Gardens, off Fremantle Rd. [AGLG](#)

31 Saturday 9am

 Spring into Armadale **walk Connell Avenue Reserve**. Meet end of Cockram Rd, Kelmscott. [Details](#).

September

7 Saturday 8am

 **Birdwalk, North Lake**, North Lake. Meet at the carpark north end Progress Dr. [Birdlife](#)

7 Saturday 9am–12noon

 **Weed Id Workshop** with Urban Nature and the City of Kwinana, Casuarina/Wellard Hall. [Registrations](#).

7 Saturday 9am–12noon

 **Planting** with the Friends of **Mary Carroll Wetlands**. Meet at the Eudoria St carpark. [AGLG](#)


12 Thursday 8am

 **Birdwalk, Star Swamp**, Watermans Bay. Meet at the carpark end of Mary Street. [Birdlife](#)

13 Friday–14 Saturday

 **Wildflower display** for Chittering Spring Festival, **Chittering Landcare** Centre, 175 Old Gin Gin Rd. Coaches welcome on Friday with notice. Family fun day Saturday with kids' activities and raptor and reptile display. Contact 9571 0400.

14 Saturday 9am–11am

 **Carnivorous Plants Zig Zag** Cultural Centre, Kalamunda. Discover carnivorous plants of the Perth Hills, their traps and prey including a guided walk. Morning tea provided. [BSFH](#)

14 Saturday 9am–12noon

 **Planting** along **Canning River** for Bushcare's Big Day Out. Park at Thornlie Community Centre, Glenbrook Rd and head down to the river. [AGLG](#)

14 Saturday 9.30am–11.30am

 **Djilba talk and stream activity** for Perth NRM's Noongar Six Seasons program at **Jorgensen Park**, City of Kalamunda. [Bookings](#) essential.

15 Sunday 8.30am

 Spring into Armadale **walk Lloyd Hughes Reserve**. Meet corner Martin St and Marmion St, Kelmscott. [Details](#).


21 Saturday 8am

 **Birdwalk, Herdsman Lake**. Meet at the carpark on Jon Sanders Dr between Stevenson Ave and Selby St North to the north of the lake. [Birdlife](#)


21 Saturday 8.30am–12noon

 **Bushcare** with **Canning River** Regional Park Volunteers. Contact Jo 9458 3669.

21 Saturday 9am–12noon

 **Planting** along the **Canning River**, Thornlie. Meet at Parkside Dr near Coolabaroo Neighbourhood Centre. [AGLG](#)


22 Sunday 9am–12noon

 **Planting** along the **Wungong River**, Palomino Reserve, Champion Lakes. Meet at end of Poad St. [AGLG](#)

28 Saturday 9am–12noon

 **Planting** along the **Canning River**, Gosnells. Meet corner Astley Stand Verna St. [AGLG](#)

28 Saturday 11am

 Spring into Armadale **walk Bungendore Park**. Meet at Bedforddale Bush Markets, Bedforddale Hall. [Details](#).

Please send us your October, November, December events by **Tuesday 10 September 2019**.

Activities Key



Hands on – bushland and wetland management activities.



Walks and tours – look, listen and enjoy guided walks and excursions



Skills development activities – talks, presentations, training courses and workshops.



Meetings and events – group meetings, expos, festivals and conferences.

Highlights

25 May–17 August

Solo art exhibition [Nikulinsky Naturally](#), sharing a lifetime fascination with the flora and fauna of arid WA. Lawrence Wilson Art Gallery, UWA.

4 July 9am–4.30pm

NatureLink Symposium, Murdoch University. A collaborative space to discuss and coordinate efforts to enable nature sensitive urban design and nurture a biodiverse and liveable city. [Registrations](#).

6 July–14 September

Warm up for Winter with Nearer to Nature outdoor, hands-on activities in the natural environment for children and families. Bookings [online](#) or call 9295 2244.

7–11 July

Australasian Mammal Society Conference Sydney.

8–6 July 10am – 12noon

School Holiday Adventures at **Herdsmen Lake** Wildlife Centre. Hands-on nature-based programs. \$20, parents free. [Bookings](#).

8–18 July

Rio Tinto **Earth Assist** school holiday program for students aged 15 plus. Step into the environment and contribute to real conservation programs. Bookings [email](#) or call 0475 947 402.

12 July

Pilbarra Coastal and Marine Science Symposium WA Maritime Museum, Fremantle. [Registrations](#) \$90–180.

21–25 July

29th International Congress for Conservation Biology [Conservation beyond boundaries: connecting biodiversity with communities, government and stakeholders](#). Kuala Lumpur, Malaysia.

22–26 July

Species on the Move 2019 a [conference](#) on species responses to climate change, Kruger National Park, South Africa.

31 July–1 August

Prescribed Burning Conference 2019: Evidence and Policy, The University of Western Australia. [Registrations](#) \$300 (\$150 concessions).

September

Bird surveys of the **Great Western Woodlands** 1–9 Helena and Aurora, followed by Jilbadji; 15–21 Transline, possibly extended to Naretha Bore. Volunteer surveyors are wanted [email](#).

2-5 September

Australian Rangelands Conference 2019 [Resilient future rangelands: integrating environment and livelihoods](#), Canberra, ACT.

5–6 September

WA Threatened Species Forum, Geraldton visit <https://www.nacc.com.au/> for more information.

15 September

Bushcare's Big Day Out [register](#) your event

17–18 September

Healthy People in a Healthy Environment IUCN science informing policy [symposium](#), Queensland Museum, Brisbane.

21–22 September

Birdlife Photography Biennial Conference, Fremantle. [Program](#) and [bookings](#) from \$250.

29 September–4 October

Australian Native Plant Society National Conference held every two years at a different location in Australia. [Blooming Biodiversity](#), Albany.

Month of October

Outdoors October check out [listed events](#) or register yours.

1-4 October

2019 WA State NRM and Coastal Conference Edith Cowan University, Joondalup.

24–29 November 2019

Ecological Society of Australia Annual Conference, Launceston.

3–5 December 2019

Australasian Wildlife Management Society Conference [Wildlife Management in Remote Landscapes](#), Darwin.

Community Rivercare Program aims to conserve the natural, cultural and social amenity values of the rivers, tributaries and urban drains within the Swan Canning Catchment. [Applications](#) **open 5 August** and **close 16 September** 2019 for projects commencing in July 2020.

Communities Environment Program [investing](#) \$150,000 per federal electorate (\$2500–20,000) for on-ground environmental projects in 2019–20. Expected to **open mid-year**, contact your local member for details.

Dahl Fellowships of up to \$25,000 awarded to individuals for projects that advance the conservation, education or research of eucalypts. [Applications](#) **close 31 July**.

Strengthening Rural Communities funding to support broad community needs in rural Australia, including environmental sustainability. [Applications](#) for small and vital grants **open year-round** and larger leverage grants **open August**.

Mary Bremner Bequest Grant Program for members of the Wildflower Society of WA or like-minded groups for projects, activities or events focused on WA flora. [Applications](#) **close 1 October**.

Wettenhall Environmental Trust small environmental grants scheme funds research and educational projects on flora and fauna conservation. [Applications](#) **open 1 July**.

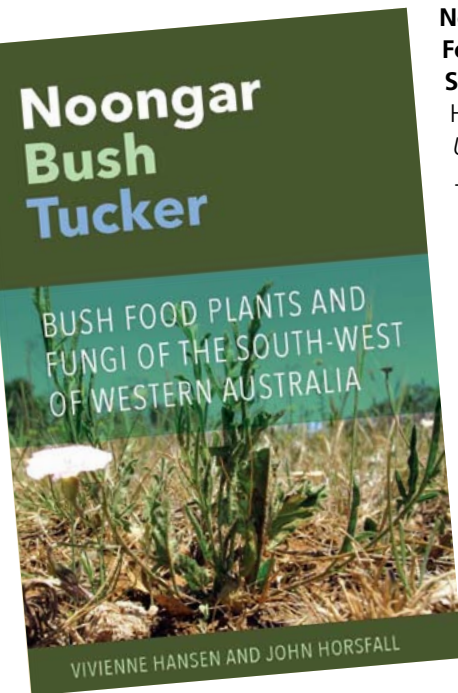
Local government community grants

These local governments provide small grants to their communities which can fund environmental groups' management and restoration projects. Eligibility varies. [Armadale](#) **opens September**, [Belmont](#) **closes 30 August**, [Cambridge](#) **opens 1 July**, [Fremantle](#) **opens September**, [Mandurah](#) **closes 14 August**, [Rockingham](#) **closes 2 August**, [Subiaco](#) **closes 24 September**, [Wanneroo](#) **opens 3 September**.

Bankwest Easy Grants supporting community groups reach their goals with grants of up to \$1000. [Applications](#) accepted **every month**.

Canon Oceania offering environmental grant of \$4000 product and \$1000 cash. [Applications](#) **opened 28 June**.

New publications



Noongar Bush Tucker: Bush Food Plants and Fungi of the South-West of Western Australia Hansen, Vivienne, John Horsfall UWA Publishing, 2019. \$34.99.

This book is an attempt to preserve bush tucker knowledge for future generations of Aboriginal and non-Aboriginal people to ensure the information is not lost with the passing of elders. The authors describe over 260 species of the edible plants and fungi that were regularly gathered by the Noongars of the Bibbulmun Nation of the south-west of Western Australia before and after colonisation. Many of these plants and fungi are difficult to find today because of land clearing for crops and the farming of sheep and cattle.

Community-Based Control of Invasive Species Martin, Paul, Theodore Alter, Don Hine, Tanya Howard (Editors) CSIRO, 2019. \$100

Based on research which involved government and citizen groups in Australia and the United States it examines questions including, 'how can citizens be engaged in voluntarily managing invasive species?', 'what communication strategies will ensure good motivation and coordination?' and 'how can governing bodies support citizens in their efforts?'. With chapters on institutional frameworks, changing governance, systems thinking, organisational learning, engagement, communication and behavioural change, this book will be a valuable reference for researchers and practitioners involved in natural resource management.

Website watch

Indigenous Knowledge website provides resources for school teachers to incorporate Aboriginal and Torres Strait Islander knowledge in the classroom. Using the themes of astronomy, fire and water it contains resources for Years 3–10 across seven learning areas of the Australian Curriculum. Although designed for teachers, others may find the content useful for their own personal and professional development. The project was commissioned by the Department of Prime Minister and Cabinet and was developed by the University of Melbourne.

Australia's faunal extinction crisis – interim report. Released in April 2019, this interim report addresses the wider ecological impact of faunal extinction, the adequacy of Commonwealth environment laws, existing monitoring practices, assessment processes and compliance mechanisms for enforcing law. The full report is due to be released in November 2019.

Rich and rare: Conservation of Threatened Species Follow-up Audit Western Australian Auditor General's Report, September 2017 available for free [download](#)

Designing Behaviour Change Interventions for Invasive Animal Control: A Practical Guide for practitioners developing and delivering intervention strategies related to invasive animals. Uses social psychology and behavioural economics to generate intervention strategies and behaviour change techniques to increase audience understanding, engagement and adoption of desired behaviours.

Early invader manual for [weeds at the early stage of invasion](#) has been released to help land managers deal with make informed decisions, invest resources wisely and have better biodiversity outcomes.

Threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomi* – 2018

This new national [threat abatement plan](#) came into force in February 2019 and aims to identify and protect environmental assets from the impacts of the pathogen. It includes strategies for *Phytophthora* prevention, reduction of impacts, recovery actions, and research actions.



Recent research

Gibson N, Brown K and Paczkowska G (2018) Temporal changes in threatened ephemeral claypans over annual and decadal timescales in south-west Australia [Australian Journal of Botany](#) 66(8) 609–617.

Ottewell K, Pitta G, Pellegrino B, Van Dongen R, Kinloch J, Willers N, Byrne M (2019) Remnant vegetation provides genetic connectivity for a critical weight range mammal in a rapidly urbanising landscape [Landscape and Urban Planning](#) 103587.

Dundas SJ, Adams PJ and Fleming PA (2018) Population monitoring of an endemic macropod, the quokka (*Setonix brachyurus*), in the northern jarrah forest, Western Australia [Australian Mammalogy](#) 40 (1), 26–35.

Foster CN, Barton PS, MacGregor CI, Catford JA, Blanchard W and Lindenmayer DB (2018) Effects of fire regime on plant species richness and composition differ among forest, woodland and heath vegetation [Applied Vegetation Science](#) 21 (1) 132–143.

Kingia by Julia Cullity

Kingia australis or grass tree is a true West Australian, restricted to the south west of WA. Noongar people called them bullanock and we also call them grass trees but they are not true trees, nor a grass, more like a tall shrub. *Kingia* is a genus that consists of only one species. They are from the Dasyopogonaceae family, a different family to *Xanthorrhoea*, the other plants we commonly call grass trees. Kingias' fruits, unlike *Xanthorrhoea*, are rounded and held in clusters on the end of long stalks leading to its other common name, drumsticks.

Kingias' trunks are formed from a stack of old leaf bases. They usually have only one trunk but this can branch if the growing tip is damaged, as in this photo. They have aerial roots which grow from the top of the plant down the stem and are concealed behind the leaf bases. A ring of roots grow annually until the plant is about 1m tall and afterwards only following a disturbance such as fire. These roots greatly extend the potential height and longevity of the plant by propping up the stem and then forming the base of the plant when the bottom of the trunk dies at 300–400 years old. Kingias are topped by a tuft of long, green leaves with the dead leaves retained as a skirt at the top of the trunk

These are slow growing plants with the trunk increasing in height by about 1.5cm per year, but they are a very long-lived species. This massive and unusually multi-branched kingia is 6m tall and would be at least 400 years old.



Photo – Julia Cullity