Ecology of European Red Fox

The Royal Botanic Garden Sydney (RGBS) is undertaking a long-term research project on the ecology of European Red Fox in urban areas, in which Randwick City Council Bushcare volunteers have the opportunity to participate. Predation by the fox is listed as a key threatening process across Australia. Although foxes occur in urban areas, the focus of past management and research has been on agricultural and wilderness areas. Consequently, we have a limited understanding of urban fox ecology, how foxes interact with native species in urban areas, and how these interactions alter the behaviour of native species.

The research project therefore aims to compare fox behaviour across a gradient of human density from Sydney City to the Blue Mountains. Foxes will be fitted with GPS transmitters to track their movements, motion activated cameras will be set up at numerous sites to detect foxes, and fox scats will be analysed.

You can get involved by collecting any scats you find at your Bushcare sites. We’ve recently received scat collection kits from the RBGS, and will keep a supply of them in the Bushcare vehicle during all working bees. So, please familiarise yourself with how to identify and collect fox scats! Refer to the information below; further details are provided in the scat collection kits.

Identifying Fox Scats

• Fox scats are a similar size to small dog scats, but tend to be thinner/elongated, with a ‘curved whip tail’ at the end.
• Fox scats contain hair, vegetation, seeds and bone, whereas domestic dog scats tend to be of uniform consistency without obvious plant or animal material.

Important notes for collecting scats

- Do not touch the scat with bare hands and wash hands thoroughly after collecting it.
- Scats can be collected when fresh (moist) to dry, but very dry/old scats that turn to dust when touched are not useful.
- If the scat is moist, allow the scat to dry completely in the collection envelope before placing the collection envelope into the resealable bags (envelope and bags are provided with the collection kits).

‘Picking up poo’ not your thing? Bushland staff are more than happy to do the dirty work! Please just let us know about any scats you find.
Sometimes it takes being away from a Bushcare site to notice how much it can change. Being on maternity leave has given me that opportunity and my how all the sites have transformed! It’s nothing short of amazing to see how much has grown and the amount of effort that has been put in over the last eighteen months.

We have welcomed Katie on-board the bushland team and many of you have met her by now. We get to know Katie better in this edition of the bushland news, along with a local indigenous student studying bush medicine. We’re also calling all budding photographers, as well as those who are happy to take a quick snap here and there, not only to add to the ongoing documentation of bushland in Randwick Council, but also to win a prize or two!

Welcome Katie

Hello all, I am Katie Oxenham – the new Bushland Officer at Randwick City Council. I job-share with Cian, and work Thursday-Sunday.

A little bit about me…

I’ve previously worked for the City of Sydney, where I developed an Urban Ecology Strategy for the Council area that focused on native revegetation programs in Council parks (particularly Sydney Park at St Peters, which is worth a visit) as well as various community education initiatives. Prior to that I worked for Sydney Olympic Park Authority, where I oversaw implementation of the park’s Biodiversity Management Plan, which included a long-term monitoring and habitat enhancement program for the endangered Green and Golden Bell Frog and other threatened and ‘priority’ species, as well as bush regeneration works focused on the endangered Sydney Turpentine Ironbark Forest and Coastal Saltmarsh communities. In the past I’ve also worked as an ecological consultant on projects throughout New South Wales as well as in Uganda and Bangladesh, and on a threatened species reintroduction project in the South Australian arid zone.

Most recently though, I spent two years in Namibia, where I was assisting local communities to sustainably manage their natural resources and to generate income from them. For example, I trained community members to sustainably harvest Devil’s Claw, a native plant with medicinal properties (not to be confused with the weed known as Devil’s Claw in Australia), and to negotiate higher purchase prices with buyers who export this plant to pharmaceutical companies in Europe. I also trained community rangers to undertake wildlife monitoring and anti-poaching patrols, and to document human-wildlife conflict incidents such as elephant damage to crops in order to assist farmers to apply for compensation. It was an incredibly interesting experience and I highly recommend Namibia as a stunning place to visit!

It’s great to be back in Sydney and getting to know the Randwick City Council area. I’m really looking forward to working with you all and to achieving some great outcomes at each of the Bushcare sites.
Thanks to knowledge from his elders, La Perouse community’s first indigenous PhD graduate in microbiology, Dr Shane Ingrey, is using modern science to shine a spotlight on the medicinal potential of local plants.

The Dharawal people of southern Sydney have known about the medicinal benefits of the local flora for millennia, but thanks to knowledge passed down the generations, the local community’s first indigenous PhD graduate in microbiology is using modern science to shine a new spotlight on the plants’ potential.

Dr Shane Ingrey has become the fourth Indigenous student to graduate from UNSW with a PhD in 2015, receiving his doctorate in microbiology during a ceremony on the Kensington campus last week.

As he told The Australian newspaper, his study, which put traditional knowledge under the blowtorch of modern microbiology, has found a scientific explanation for some of the plants’ medicinal qualities — and could yield new treatments for antibiotic-resistant bacteria, viral infections or even cancer.

“When I was talking to my grandmother about these plants, she would say which ones to use and which ones not to use. She’d say: ‘Use these plants for your study but keep these other ones to yourself’.

Dr Ingrey isolated endophytes — bacteria and fungi that live in plant tissue — and screened their DNA for genes that produce antibiotic proteins.

When the tests came back positive, he cultivated the natural products of these organisms and tested them again for antibacterial and antifungal activity.

The project identified five natural substances already known to have antibiotic qualities, as well as a previously unknown polyketide — a compound produced by the same class of enzymes that generates many modern pharmaceuticals and insecticides.

Transforming traditional knowledge into modern drugs is nothing new. Youyou Tu, co-winner of this year’s Nobel prize for medicine, developed malaria therapies from herbal traditions rooted in the discoveries of a 4th-century Chinese alchemist.

But unlike Chinese traditions, Aboriginal medicinal insights were never written down.

“Our knowledge was all passed down by word of mouth,” Dr Ingrey says.

That knowledge was passed down from Dr Ingrey’s great-grandmother who was born in an Aboriginal camp on La Perouse beach in the late 1800s.

“Most of the stuff for the study came from my grandmother. When I was talking to her about these plants, she would say which ones to use and which ones not to use.

“The plants were used for infected wounds, sore throats, upset stomachs, fungal infections. She’d say: ‘Use these plants for your study but keep these other ones to yourself,’” he says.

Dr Ingrey plans to apply for an Australian Research Council grant to continue the research.

In the meantime he teaches biology and maths to indigenous years 11 and 12 students at nearby Matraville Sports High School.

Some of them think they don’t have the talent to make it to uni, which couldn’t be further from the truth. They just need the right support.

Dr Ingrey was nurtured through UNSW’s Nura Gili program, a pathway scheme that embraces indigenous knowledge and culture.

“We are very proud of Dr Ingrey’s achievements, particularly given the nature of his PhD research topic,” says Dr Reuben Bolt, Acting Director and Academic Coordinator at UNSW’s Nura Gili Indigenous Programs Unit.

“The knowledge of traditional medicine passed down from his elders played a significant in shaping the science for the study.

“Dr Ingrey’s research will no doubt help raise awareness about the significance and wisdom of Indigenous knowledge, and the ways in which it can further assist in the development of new science.”

This story was originally published in The Australian.
What Can You Show Us?

Many of us carry complex mobile devices in our pockets these days. Not only do they make and receive phone calls, but we can access emails, check the weather forecast, google the answer to a pending question, and take high resolution photos. The Bushland Team are interested in photos of your Bushcare and Parkcare sites. If you are carrying a phone with camera capabilities, and you see something interesting such as an unknown insect, a plant in flower, a bird or a frog – we’d love to see it!

Even photos of your site as a whole, or shots of an area you’re concentrating on would be greatly appreciated as we endeavour to update our photo library.

Photos can be emailed to Bushcare@randwick.nsw.gov.au, or even sent via message to the Bushcare mobile on 0410 314 830.

PHOTOGRAPHY COMPETITION!

Along with everyday photos from your sites, we are holding a photography competition for those shots that really capture the essence of our local bushland and the volunteers that work so hard to preserve it.

There will be three categories for entry including: Featured Flora, Frolicking Fauna, and Veracious Volunteers with prizes awarded for each category.

To enter, simply email your photo, along with your details and where the photo was taken to Bushcare@randwick.nsw.gov.au or post printed copies to:

The Bushcare Officer
Randwick City Council
30 Frances St
Randwick NSW 2031

* Photos must have been taken within Randwick City Council and entrants must be current active Bushcare or Parkcare Volunteers.

Entries close 5pm Wednesday 31 August 2016.
### bushcare

<table>
<thead>
<tr>
<th>GROUP</th>
<th>LOCATION</th>
<th>WORKING BEE TIME</th>
<th>JUNE</th>
<th>JULY</th>
<th>AUGUST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bundock Park</td>
<td>Car park on Donnellan Circuit, Clovelly</td>
<td>9.00am – 1.00pm</td>
<td>11</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Fred Hollows Reserve</td>
<td>Alison Rd entrance (July), Bligh Pt entrance (June &amp; August), Randwick</td>
<td>9.00am – 1.00pm</td>
<td>8</td>
<td>13</td>
<td>10</td>
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<tr>
<td>Gordon’s Bay</td>
<td>South west corner of Victory Street car park, Clovelly</td>
<td>9.00am – 1.00pm</td>
<td>12</td>
<td>10</td>
<td>14</td>
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<tr>
<td>Grant Reserve</td>
<td>Outside the entrance to Wylies Baths, Neptune Street, Coogee</td>
<td>9.30am – 11.30pm</td>
<td>14 &amp; 28</td>
<td>12 &amp; 26</td>
<td>9 &amp; 23</td>
</tr>
<tr>
<td>Ladies’ Pool</td>
<td>McIvers Rock Baths, Grant Reserve, Coogee</td>
<td>9.00am – 11.00am</td>
<td>5 &amp; 23</td>
<td>3 &amp; 28</td>
<td>7 &amp; 25</td>
</tr>
<tr>
<td>Lake Malabar</td>
<td>End of Manwaring Avenue, Maroubra</td>
<td>1.00pm – 4.00pm</td>
<td>15</td>
<td>20</td>
<td>17</td>
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<tr>
<td>Long Bay Foreshore</td>
<td>Corner of Howe Street and Bay Parade, Malabar</td>
<td>9.00am – 1.00pm</td>
<td>4</td>
<td>2</td>
<td>6</td>
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<tr>
<td>Maroubra Dunes</td>
<td>South Maroubra SLSC car park</td>
<td>9.00am – 1.00pm</td>
<td>2</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Randwick Environment Park</td>
<td>Corner of Dooligah Avenue and Barragulung Street, Randwick</td>
<td>9.00am – 12 noon</td>
<td>1 &amp; 18</td>
<td>6 &amp; 16</td>
<td>3 &amp; 20</td>
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<tr>
<td>Little Bay Landcare</td>
<td>Between 119 and 121 Bilga Crescent, Malabar</td>
<td>Contact Kerry Gordon on (02) 9311 7647 for more information.</td>
<td>8.00am – 12 noon</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>Magic Point (Malabar Headland)</td>
<td>Contact Claire Bettington on (02) 9344 8969 for the meeting place.</td>
<td>9.00am – 1.00pm</td>
<td>9, 16, 23 &amp; 30</td>
<td>14, 21 &amp; 28</td>
<td>11, 18 &amp; 25</td>
</tr>
<tr>
<td>Malabar Headland West</td>
<td>Contact Don Kerr on (02) 9311 2865 for the meeting place.</td>
<td>9.00am – 1.00pm</td>
<td>5, 12, 19 &amp; 26</td>
<td>3, 10, 17, 24 &amp; 31</td>
<td>7, 14, 21 &amp; 28</td>
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### parkcare

<table>
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<tr>
<th>GROUP</th>
<th>LOCATION</th>
<th>WORKING BEE TIME</th>
<th>JUNE</th>
<th>JULY</th>
<th>AUGUST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alison Rd</td>
<td>Corner of Alison Road and Beach Street, Coogee</td>
<td>8.00am – 9.30am</td>
<td>28</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>Clyde Street</td>
<td>Clyde Street Reserve, Randwick</td>
<td>1.00pm – 3.00pm</td>
<td>18</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Grant Reserve</td>
<td>Vehicular entry to Coogee Surf Life Saving Club</td>
<td>8.00am – 10.00am</td>
<td>21</td>
<td>19</td>
<td>16</td>
</tr>
<tr>
<td>Old Tramline</td>
<td>Dudley Street entrance, Randwick</td>
<td>7.30am – 9.30am</td>
<td>9</td>
<td>14</td>
<td>11</td>
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At an impressive 55cm in height, the Powerful Owl (*Ninox strenua*) is Australia’s largest owl. It is a forest-dwelling species that mainly occurs east of the Great Dividing Range, from south-eastern Queensland to South Australia.

Powerful Owls mate for life, with each pair occupying and defending a large territory. Like all owls, they are nocturnal and hunt by night – their favourite foods include Common Brushtail Possums, Common Ringtail Possums, and Grey-headed Flying-foxes, but they will also sometimes eat other birds, as well as ground-dwelling mammals such as rabbits. During the day they roost in leafy trees, often in gullies near watercourses, where they can be fairly easy to observe. They nest in large hollows, and have one or two young each year.

Powerful Owls are listed as threatened due to loss of habitat associated with clearing for logging and urban development. In particular, they are adversely affected by the removal of large hollow-bearing trees, which they require for nesting.

Despite their threatened status, Powerful Owls have been turning up in some unusual locations in Sydney in the last few years, perhaps because there is plenty of food (possums and flying foxes) for them here. For example, as you may be aware, a pair has been resident in the Royal Botanic Gardens for quite some time, and since 2014 another pair has been regularly recorded at Centennial Park. They are often very easy to see there – they regularly roost during the day in fig trees above the main kiosk. The photo above was taken on April 6 – the second owl was roosting close by in the same tree. The kiosk is a very busy place with dozens of people coming and going, but the owls seem completely unperturbed. When not in these fig trees, they are usually roosting in one of several other large trees within a 150m radius. Go and have a look! There are often keen bird photographers around who will help you to find them, if needed.

At this time of year, they call regularly at night ahead of the breeding season, so listen out for them too. A recording of their call is featured on the Birds in Backyards project website at [http://www.birdsinbackyards.net/species/Ninox-strenua](http://www.birdsinbackyards.net/species/Ninox-strenua).

BirdLife Australia have been monitoring Powerful Owls throughout the Sydney region since 2011; their website provides a lot more information on these interesting birds in Sydney. [http://birdlife.org.au/projects/powerful-owl-project](http://birdlife.org.au/projects/powerful-owl-project)
Small Birds in Randwick

Sydney’s bird assemblage was originally dominated by a wide variety of small woodland species such as wrens, honeyeaters, and finches. However, most of these have declined drastically due to urban development, which has resulted in the loss of the dense understorey habitat on which they depend, and many have disappeared altogether from many parts of Sydney. Most of the birds you see around Sydney these days are larger species such as the Noisy Miner, which is aggressive towards smaller birds, and the Pied Currawong and Australian Raven, which often prey on the eggs and chicks of small birds. Unlike small birds, these larger species have adapted well to urbanisation.

We’re lucky in the Randwick City Council area that our bushland still supports populations of some small birds, such as the Superb Fairy Wren, New Holland Honeyeater, Silvereye, Spotted Pardalote, Red-browed Finch, and Double-barred Finch.

There have also been interesting records of several other small birds that are uncommon in the area in recent weeks, including a Leaden Flycatcher (seen by Matt, Leanne and Katie at Randwick Environment Park), a Rufous Fantail (seen by Katie outside the Ladies’ Pool at Coogee), and a Rufous Whistler, Golden Whistler, Black-faced Monarch, and Spangled Drongo at Randwick Environment Park (seen by others and reported on the BirdLine website (www.eremaea.com)).

There has also been a record of an Emerald Dove in Double Bay in the Woollahra Council area, and numerous sightings of a Scarlet Robin at the southern end of Eastlakes Golf Course in the Botany Bay Council area. In addition, a Noisy Pitta – usually a secretive rainforest bird – has shown up in Centennial Park (already home to a pair of Powerful Owls as mentioned earlier in the newsletter), along with a Whistling Kite and a Pacific Baza, which although raptors rather than small birds, are still uncommon in Sydney.

Some of these species migrate during autumn, so are probably passing through – our Bushcare sites and other bushland areas probably provide important stopover points for them along their migratory routes. Randwick Environment Park in particular seems to be a hot spot for small birds, probably due to the variety of its habitats and its wetland, which when full is likely to attract a range of species in for a drink.

As well as restoring native vegetation communities, your efforts as Bushcare volunteers are therefore likely to be really important in terms of conserving and restoring habitat for small birds. Keep an eye (and ear) out for them during your next working bee, and when you’re out and about. Please report any interesting sightings to us!
HEDGE FUN

There are any number of reasons for planting a hedge, from building a ‘green fence’ around your property, to providing privacy, to screening unwanted views. A hedge can muffle noise, provide a sheltered microclimate for other plants, or create a neat edge to a garden bed. Hedges also provide great habitat for small birds.

The most important consideration in choosing a hedging plant is reliability and suitability to local conditions. The last thing you want is for one of the plants to die, creating an ugly gap. The type of hedge you want – high, low, formal, informal – will determine what species you use. Look for regular branching and species that keep their bottom branches as they mature.

There are plenty of Australian natives that make great hedges. The nursery regularly stocks the plants listed below.

**The ever-reliable Westringia fruticosa** (Coastal Rosemary) can be lightly pruned to create an informal hedge or border or heavily pruned for a more formal hedge. Cultivars such as Aussie Box and Grey Box are naturally more compact and well-suited to hedging. The hardy Correa alba (White Correa) also makes a good low hedge.

Lillypillies are one of the most popular native hedging plants. They are reliable, relatively quick-growing and will grow in part shade as well as full sun. Syzygium (small-leaved lillypillies), with their weeping habit and pink-tinged new growth, make a beautiful informal hedge or screen. *Acmena smithii* grows more densely and makes an excellent formal hedge. The numerous *Acmena* cultivars mean a wide range of height options are available, including *Acmena ‘Allyn Magic’* (50-80cm high by 50cm wide) and *Acmena var ‘Minor’* (4m x 2m).

Regular pruning will also control the height of the hedge.

As a general rule, the smaller the leaf and the denser the habit of the plant, the better suited it will be to formal hedging, but even a more open native like ‘Moonlight’ Grevillea or ‘Honey Gem’ Grevillea can create a beautiful screen. A screen or informal hedge also has the advantage that it can be allowed to flower. *Melaleuca incana* (Grey Honey Myrtle), with its blue-grey leaves on graceful weeping branches, makes a great informal coastal hedge while a row of *Dodonaea viscosa* ‘Purpurea’ (Purple Hop Bush) provides an attractive filigreed screen with burgundy foliage.

The nursery also has a range of tough exotic plants that make great hedges. Rosemary and lavender can be grown as low hedges or border plants, while plants like Photinia and Viburnum are ideal for taller hedges.

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**FEATURE PLANT:**

**Grevillea Ianigera MT TAMBORITHA GREVILLEA**

This is a very popular form of the Woolly Grevillea. A pretty but tough groundcover, Mt Tamboritha Grevillea grows to 2m across with soft, pale green leaves and masses of pink and cream flowers from autumn to spring. Plant in full sun to part-shade in well-drained soils. Great for habitat and coastal gardens.
Winter Gardening Tips

**Planting:** Great veggies to grow in winter include broccoli, snow peas, cauliflower and broad beans. For instant flower colour to brighten winter days try pansies or polyanthus. For longer-lived plants, banksias are fantastic as many flower in autumn and winter. Banksia flowers are a great source of nectar for birds in winter when other food may be scarce.

**Watering:** Cut back on watering during the colder months as plants don’t need as much water, and check the soil moisture before watering. Water in the morning so plants have a chance to dry out through the day.

**Maintenance:** Winter’s a great time to do some upkeep in the garden. Pull out any weeds, remove dead flowers and keep a lookout for pests and fungal disease. After storms, remove any debris and prune broken stems or branches.

**Fertilising:** Most plants are having a rest during winter, so they generally don’t need fertiliser in the colder months. Come spring, when the weather warms and they start actively growing, feed plants with slow-release and liquid fertilisers.

**Planning:** Winter is the perfect time to do some garden planning. No matter what size of garden you have, now is the time to decide what you’d like in your patch, including veggies, flowers and shrubs. If you want to plant from seed or put in small seedlings you can find out the best time to plant so they will be at their peak in the warmer months.
INSECTS OF SOUTH-EASTERN AUSTRALIA: AN ECOLOGICAL AND BEHAVIOURAL GUIDE

by Roger Farrow

A regional insect identification field guide based on feeding category and host plant.

A walk in the bush reveals insects visiting flowers, patrolling the air, burrowing under bark and even biting your skin. Every insect has characteristic feeding preferences and behaviours. Insects of South-Eastern Australia is a unique field guide that uses host plants and behavioural attributes as the starting point for identifying insects. Richly illustrated with colour photographs, the different species of insects found in Australia’s temperate south-east, including plant feeders, predators, parasites and decomposers, are presented.

The guide is complemented by an introduction to the insects of the region, including their environment, classification, life history, feeding strategies and behaviour. Fascinating boxes on camouflage, mimicry and many other topics are also included throughout. Whether you are a field naturalist, entomologist or just want to know what’s in your backyard or at your Bushcare site, Insects of South-Eastern Australia will help you to identify the insects most likely to be encountered, as well as understand the basics of their ecology and behaviour.