

Bushland Newsletter

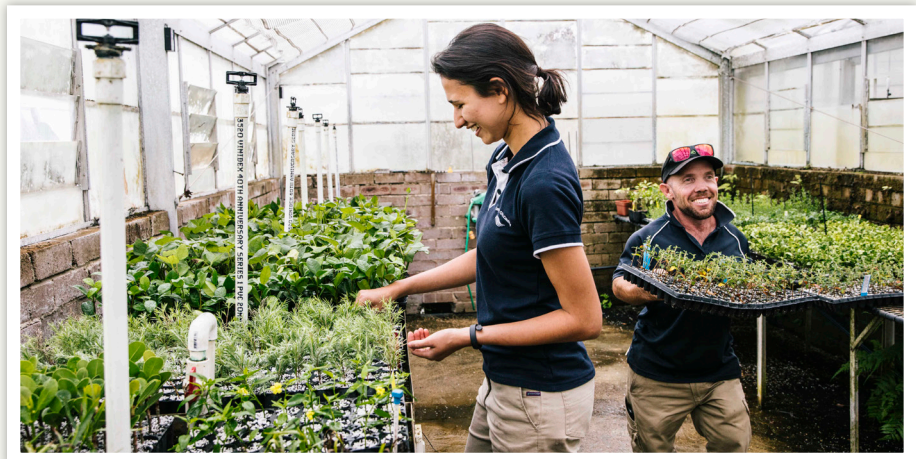
SUMMER 20/21



On the go with Emily

Though it has been a difficult 12 months in many ways, this past spring has brought with it the rains we missed during the same period last year. This resulted in a burst of life, with many plants appearing to bloom and bud in double-time, to make up for missing out last year. Throughout the Randwick City area we have seen a bumper wildflower season, including sightings of many rare orchid species. For some, the slowing down of social obligations and travel may have provided the opportunity to appreciate the show nature was putting on right in our backyard. With rains set to continue, it will be interesting to see the difference in wildlife, as waterways fill and plant life thrives. It's certainly going to be an ideal summer for the growth of weeds, so, weather permitting we will need all hands on deck to support our native plants to ensure they keep their competitive edge.

Emily Strautins
Randwick City Council
Bushland Officer



Randwick City Council Nursery is Open for Business

Randwick Council Community Nursery is open to the public. Randwick City Council nursery is once again open to the public (although remains closed to vehicle access). The nursery has adopted social distancing measures and strict hygiene practices. All visitors are being asked to register at the front gate upon arrival. For those who would like, the nursery is still offering contact-free pick-up. The stock list can be viewed via the council website and orders placed by phone or email.

The nursery's popular Saturday open days, held quarterly, have been suspended until further notice as part of the council's ongoing efforts to minimise the spread of COVID-19.

2 February - World Wetlands Day

Wetlands are rich with biodiversity and are a habitat for a dense variety of plant and animal species. Latest estimates show a global decline of biodiversity, while wetlands are disappearing three times faster than forests. The day offers a unique opportunity to highlight wetland biodiversity, its threatened status, why it matters and to promote actions to reverse its loss. This day also marks the date of the adoption of the Ramsar Convention on Wetlands on

2 February 1971, named after the Iranian city in which it was signed.

21 February - Kadoo First Contact Tour: Bushwalk and cultural tour

Join Kadoo First Contact Tours and learn from their expert guides about Aboriginal culture at La Perouse. Starting at the La Perouse Museum this guided tour will take you through the native bush and coastline of La Perouse (Guriwal) where you'll explore the Dreaming of this land, taste bush tucker, be involved in a traditional ochre ceremony and a 'Welcome to Country'. Learn how the Aboriginal people hunted, fished and gathered throughout the area, and traditional cultural weaving practices.

\$20 per person, bookings are essential. Visit the 'What's on' page on our website for more information randwick.nsw.gov.au

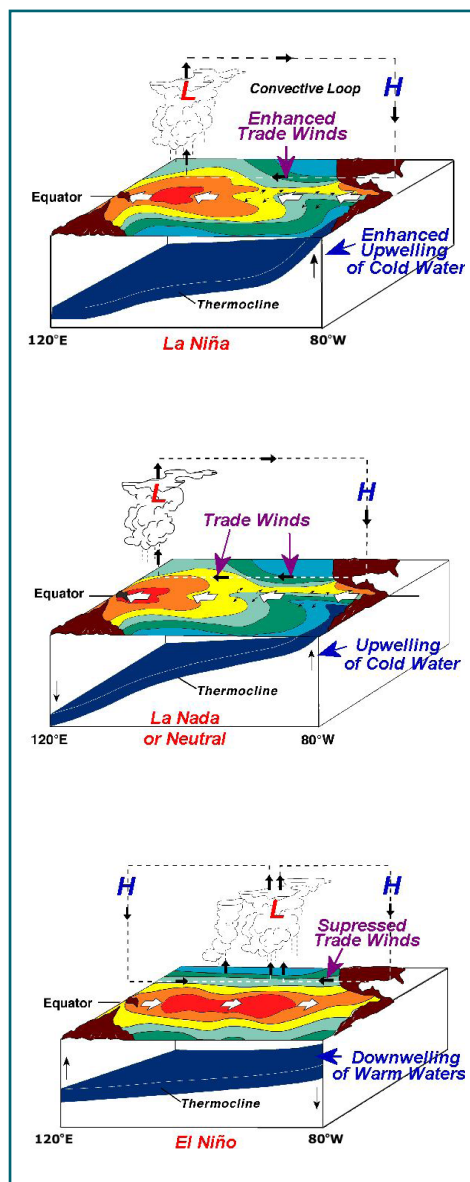


What is El Niño-Southern Oscillation (ENSO)?

Global weather patterns are influenced by the intricate relationship between the ocean and the atmosphere.

The El Niño-Southern Oscillation (ENSO) is just one of several global climate drivers that results in the changes to weather conditions, however its affect can be among the most significant. ENSO is caused by the surface of the oceans cooling and warming cyclically in response to trade winds. Ocean's surface cools and warms cyclically in response to the strength of the trade winds. In turn, the changing ocean temperature alters rainfall patterns, as warmer waters increase evaporation. Scientists recognise the extreme ends of the spectrum, El Niño and La Niña, by the severe droughts and intense rains each brings to different parts of the world. This natural cycle can shift over the span of a few months to a few years.

In conditions defined by climatologists as 'neutral', high air pressure predominates in the eastern Pacific, while low pressure predominates in the west. The difference in pressure generates the trade winds, which blow east to west over the surface of the tropical Pacific, pushing warm waters westward. The deeper, cooler waters then surface in the east, replacing the warm waters. During episodes of La Niña, the differences



©National Weather Service

in pressure are more marked, the trade winds blow more strongly, and the cold-water currents in the eastern Pacific intensify.

The challenge of understanding the impacts associated with the ENSO cycle is that the resulting weather conditions experienced in different parts of the world can represent opposite extremes. Atmospheric circulation patterns that promote hurricanes and typhoons in the Pacific can knock them down over the Atlantic. Whilst some areas of ocean may experience warmer ocean temperatures causing algal blooms so significant, they turn the ocean green, drawing in massive volumes of carbon dioxide and promote a flush of marine life. Simultaneously other parts of the ocean experience a crash in fish stocks.

History

These cycles have been occurring long before human observations. Evidence collected from coral samples and other paleoclimatic indicators suggest cycles of warmer seas and increased rain have been occurring since the last ice age, tens of thousands of years ago. Earth scientists, historians and archaeologists have theorised that the ENSO cycle may even have had substantial influence on several key events in human history. The Spanish conquest of the Incas and Peru, for

example, may have been aided by favourable north-easterly winds as a result of El Niño conditions. Some evidence even suggests that these climatic shifts could have influenced the demise or disruption of several ancient civilizations, including the Moche, the Inca and other cultures in the Americas.

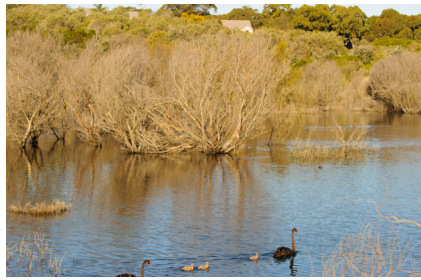
The first recorded observations of the phenomenon occurred long before the development of the science necessary to understand it. For centuries, Peruvian fisherman reaped a bounty off the Pacific coast of South America, where north- and west-flowing currents pulled cool, nutrient-rich water from the deep. But every so often, the currents would stop or turn



Make the most of these ideal growing conditions with the right preparations - your plants will thank you.

around, warm water from the tropics would drive the fish away and leave the nets empty. These periodic warm spells were most noticeable around December or January. As such the fisherman named the phenomenon 'El Niño' after the Christ child ("niño" meaning young boy in Spanish), since the effects of the warming of the surface waters of the eastern Pacific ocean—such as bringing rain to the dry Peruvian deserts—show up around Christmas. To reflect the reversal of the system, the opposite end of the spectrum was called La Niña. Literally translated as "girl" in Spanish. This name is also said to evoke the 'gift-giver', as these conditions brought cold, nutrient-rich

Don't let wet weather stop you from getting out and enjoying nature.



This summer may once again see the wetlands at Randwick Environment Park (not EnvironmentAL) fill, supporting an increase in local biodiversity.

water beneficial to marine life which resulted in greater fish catches off the Peruvian coast.

It was only in the 1920s that scientists begun to piece together the big picture of this global weather-maker. While working as the 'Director of Observatories' in India and studying the monsoon, the English physicist and statistician Gilbert Walker. He dubbed the alternating atmospheric weather pattern the "Southern Oscillation", noting how highs over the tropical Pacific coincided with lows over the Indian Ocean, and vice versa. It would be another four decades before meteorologist, Jacob Bjerknes made the final connection between the alternating warm and cool patterns in Pacific waters and the atmospheric circulation described by Walker. It was only at this point the entire pattern came to be known as ENSO, or El Niño-Southern Oscillation.

Impacts of the 2020-21 La Niña

The most recent El Niño event ended in 2016 and was associated with catastrophic coral bleaching on the Great Barrier Reef, severe droughts in Africa, South America and parts of the Pacific and South East Asia, and wildfires in Indonesia and Canada. Simultaneously there were dramatic increases in rainfall within the Eastern Pacific, causing severe flooding. In eastern Australia the presence of the

coming La Niña suggests that this summer will be wet. The period may therefore see an end to the current drought conditions, however there are concerns about potential cyclones and flooding. On a positive note it is likely this year's La Niña conditions will reduce the potential severity of the annual bushfire season. The last La Niña event stretched from 2010 to 2012 and resulted in one of Australia's wettest two-year periods, but conditions this year are forecast to be less extreme. La Niña years generally tend to see cooler than average maximum temperatures across most of mainland Australia south of the tropics, particularly during the second half of the year. However increased cloud cover can act as an insulator, resulting in warmer than average minimum temperatures across northern and eastern Australia. Wet, mild conditions throughout summer may mean ideal growing conditions for plants! Although flooding conditions can present a real risk for farmers and gardeners alike, the right preparations now can make all the difference.

What you can do

As climate change is predicted to make the regular ENSO cycles more extreme, it will be increasingly important to understand the signs. With better understanding scientists will be able to improve predictions and provide advanced warnings, essential to ensuring the right preparations can be made. Everyone from government, to natural resource managers and landowners may play different roles, whether it is adjusting the management of fisheries, planning resource allocated to combat mosquitoes or deciding which crops to plant. In preparation for this coming wet season, those with gardens can take steps to clear drains, stabilise slopes or increase the infiltration rates into lawns or garden beds through soil aeration and mulching.

To find out more:

earthobservatory.nasa.gov/features/EINino

nationalgeographic.com/environment/weather/reference/el-nino-la-nina/

abc.net.au/news/rural/2020-09-30/how-la-nina-will-impact-australia/12716500

Mutually Beneficial



A common ladybird (*Harmonia conformis*)

As a gardener, it's easy to assume all bugs are bad, but that is far from the truth. Many insects, like bees, are vital to pollination, and others perform an important role in controlling problem insects. Beneficial insects are a key part of permaculture gardening and integrated pest management.

By encouraging beneficials in the garden you can minimise your use of pesticides. In commercial horticulture, and sometimes the home garden, beneficials such as predatory mites and wasps are sometimes bought and deployed to control serious insect pests, but many can be encouraged by creating the right environment. Below is a brief rundown of some of the best beneficial insects.

Ladybirds

There are around 260 named species of ladybirds native to Australia. Many of these, including the most recognisable orange ladybird with large black spots, feed on pest insects such as aphids, scale and mites. The adults and larvae are both predatory and can reportedly eat 40-100 aphids in a day. Other species like the Mealybug Ladybird,

A Fungus-Eating Ladybird (*Illeis galbula*).



feed mainly on mealybugs, while the Fungus-Eating Ladybird feeds on mildew. Not wanted in the garden is the lighter coloured 28 Spotted Ladybird, whose larvae are leaf-eaters and will attack cabbage, potato and bean plants.

Parasitic Wasps

Parasitic wasps lay eggs on or inside aphids, caterpillars, beetles and scale insects. When the eggs hatch the larvae feed on the host, slowly killing it. These wasps are often very small, discrete and difficult to tell apart from a small fly. Larger wasps are predatory rather than parasitic and feed on larger insects like caterpillars and grubs. Other wasps are important pollinators. Some wasps, like the fig wasp, are highly specific and without them the fruits would not develop.



A small parasitic wasp.

Lacewings

Lacewings can be identified by their large and delicate, lacy wings and the most common are green or brown. Another way to detect their presence in the garden is by spotting their eggs, which are white and laid on the ends of centimetre-long hair-like threads. The adults and larvae eat aphids, mites, whiteflies, small caterpillars, moth eggs and sometimes mealybugs.



A green lacewing (*Mallada signata*).

Praying Mantis

Praying mantis are voracious eaters, preying on a wide range of insects. Young praying mantis eat aphids, leafhoppers and mosquitoes, as well as caterpillars and other soft-bodied insects. Older praying mantis will eat larger insects such as beetles and grasshoppers. Look carefully as they are masters of camouflage.



A praying mantis.

Hoverflies

With its black and gold stripes, the hoverfly looks like a small bee. This insect gets its name from the way it hovers over favourite flowers. The female lays her eggs among aphid populations so her young will have an abundant food supply. The larvae also predate on scale insects, thrips and caterpillars. The adults feed on nectar and pollen and are important pollinators.



A hoverfly.

Assassin Bugs

Assassin bugs, with their mammoth-like proboscis, will target most insects good or bad, though they have a particular taste for grubs and caterpillars. Like the hoverfly, they use their distinctive mouthpart to extract the vital fluids from their victims. Assassin bugs often bite when handled, so best to stay out of their business.



An assassin bug awaiting a victim.

Ground Beetles

Many beetles, both the larvae and adults, are predatory and will eat a wide range of pests including nematodes, caterpillars, thrips and slugs. They are medium to large beetles and are found in a range of colours. These beetles are most active at night so it might take some time to find them.

Entomopathogenic Nematodes

These microscopic parasitic roundworms release a bacterium inside their host, which the nematode uses as a food source. Eventually the nematode reproduces, killing the host. They are commonly applied in a drench or spray to control fungus gnats, although they also target some beetles. The bacteria is harmless to humans.

Predatory Mites

A range of predator mites are commercially available that feed on the two-spotted mite. Some species also prey on thrips, mealybugs, fungus gnats and even soft-bodied insects like caterpillars. While they may not put an end to an infestation, they can reduce numbers to a tolerable level.

Ants

More than 3000 species of ants can be found in Australia, many playing a huge role in soil aeration, nutrient distribution, seed dispersal and pollination. They are also predators of a range of pest insects. For example, some ants in the genus *Pheidole* target citrus gall wasp. However, some introduced species have become serious pests in Australia, so accurate identification is necessary.



Ants play a large role in pollination.

Attracting Beneficial Bugs

Creating an insect-friendly habitat will help keep beneficial bugs in your garden. Grow a diverse range of plants that flower at different times of the year to provide beneficial insects with nectar and pollen when they need it. Ensure water is always available and provide rocks, densely planted areas, logs and mulch as shelter. You could also welcome beneficial insects by building an insect hotel. It's important to avoid pesticides in the garden as much as possible as these will kill the good bugs as well as the bad.

Get creative with an insect hotel.



Grow flowering plants with a flat or curved umbrella-type head made up of multiple flowers. Many of these come from the carrot family, including parsley and dill, as well as the onion family, including spring onions, chives and garlic. Insects are attracted to the silhouette of these plants, as it signals a source of both pollen and nectar. They also see this type of flower as an easy landing platform.



A ladybird on Queen Anne's Lace.

Plants in the mint family also have nectar-producing flowers that will attract a wide range of beneficial insects. Daisies, including species of long-flowering Cut-leaf Daisy (*Brachyscome*) and many other native daisies, attract larger pollinators such as bees.

Native bees are attracted to Eucalyptus, Westringia and *Leptospermum* species as well as False Sarsparilla (*Hardenbergia violacea*) and many herbs.

Further reading: *Garden Pests, Diseases and Good Bugs*, Denis Crawford, HarperCollins Publishers, Australia, 2015; *Miniature Lives: Identifying Insects in Your Home and Garden*, Michelle Gleeson, CSIRO Publishing, Australia, 2016; *Pests, diseases, ailments and allies of Australian plants*, David L. Jones, Rodger Elliot and Sandra Jones, Reed New Holland Publishers, Australia, 2015; *The Bee Friendly Garden*, Doug Purdie, Murdoch Books, Australia, 2016

Working bee calendar

BUSHCARE

GROUP	LOCATION	DAY	TIME	DEC	JAN	FEB
Fred Hollows Reserve	Bligh Place entrance, Randwick	Wednesday	9am-1pm	9	As usual there will be a break from Bushcare throughout January for all council groups For non-council groups, contact organisers directly	13
Clovelly Bay	Opposite 18 Eastbourne Ave, Clovelly	Friday	9am-11am	11		12
Gordons Bay	Access via UNSW Cliffbrook Campus Grounds, 45 Beach St, Coogee	Sunday	9am-1pm	5		7
Grant Reserve	Coogee Surf Life Saving Club carpark (south of the beach)	Wednesday	8am-10am	16		17
Ladies Pool (Ladies Only)	At the entrance to the Ladies Pool, Mclver's Rock Baths, Coogee	Sunday and Thursday	8am-10am	6 and 24		7 and 18
Lake Malabar	End of Manwaring Avenue, Maroubra	Wednesday	1pm-4pm	16		17
Long Bay Foreshore	Opposite 9 Bay Parade, Malabar (near Malabar Ocean Pool)	Saturday	9am-1pm	5		6
Maroubra Dunes	The South Maroubra SLSC car park	Thursday	9am-1pm	3		4
Prince Henry	Alternate between opposite 2 Millard Dr & the corner of Jennifer & Harvey St, Little Bay	Saturday	9am-1pm	12		13
Randwick Environment Park	Access via corner of Dooligah Avenue and Burragulung Street, Randwick. Works take place within fenced area on the far side of the oval.	Wednesday and Sunday	9am-12pm	2 and 13		3 and 14
Wylies Baths	At the picnic tables above Wylie's Baths, Neptune Street, Coogee	Tuesday	9.30am-11.30am	8 and 22		9 and 23
Little Bay Landcare*	Between 119 and 121 Bilga Cresnet, Malabar.	Saturday	8am-12pm	5		6
Magic Point (Malabar Headland)*	Contact Claire Bettington on (02) 9344 8589 for the meeting place.	Thursday	9am-1pm	10, 17, 24		11, 18, 25
Malabar Headland West*	Contact Therese Weiss on (02) 9311 2652 for the meeting place.	Sunday	9am-1pm	6, 13, 20, 27		14, 21, 28

* Denotes non-council run groups. Please contact organisers directly.

PARKCARE

GROUP	LOCATION	DAY	TIME	DEC	JAN	FEB
Alison Road	Corner of Alison Road and Beach Street, Coogee	Wednesday	8am-10am	30	-	24
Clyde Street	Clyde Street Reserve, Randwick	Saturday	1pm-3pm	5	-	6
Old Tramline	The reserve between Dudley Street and Carrington Road, Randwick	Thursday	8am-11am	10	-	11

Native plant in focus

Dune Fan Flower (*Scaevola calendulacea*)

In recent months, those working on many of our coastal Bushcare sites may have been introduced to the native herbaceous plant Dune Fan Flower.

This locally indigenous plant would once have grown prolifically across the foredunes of coastal Randwick. As it sprawls flat along the ground, this plant is an important dune stabiliser. This means it plays an important role in reducing erosion, as well as supporting the growth of large plants which find it difficult to get established in shifting sandy soils.

Dune Fan Flower can be recognised by its fleshy, almost succulent, obovate-shaped leaves. When in flower, this plant produces sky blue to purple fan-shaped flowers, hence the name. If you're lucky enough to beat the birds, this plant also develops a particularly tasty purple fruit. Some describe the flavour as mildly sweet/ salty and rather juicy.



Dune Fan Flower (*Scaevola calendulacea*) with fruit and flower

Weedy look alike

The Dune Fan Flower can easily be confused with the exotic Bitou Bush (*Chrysanthemoides monilifera subsp. rotundata*) which is also a dune specialist, however, originates from South Africa.

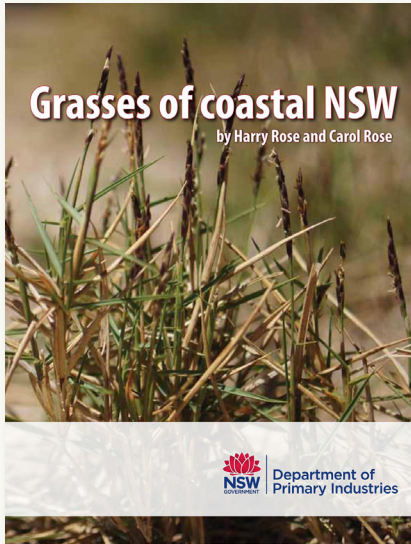
The two can be differentiated most easily by their growth form. Bitou Bush is a shrub, so will usually have a main trunk that has a woody texture, whereas Dune Fan-flower is a herbaceous plant often having many soft stems. Bitou grows erectly, usually straight upright. In contrast Dune Fan Flower has a sprawling habit, often appearing as though it is laying across the sand.

When plants are smaller, they can still be distinguished by the felty white fibres found on the new growth of Bitou Bush and not on the Dune Fan Flower. Even when young Bitou Bush will grow more erect than the sprawling, floppy habit of the Dune Fan Flower. Bitou Bush also has yellow flowers and very dark purple to black fruit.

And remember 'if in doubt, don't pull it out'. Ask your Bushcare supervisor or a more experienced bush regenerator to confirm identification.



Bitou Bush (*Chrysanthemoides monilifera subsp. rotundata*).
Note the white cotton-wool like fibres and bright yellow flowers



Grasses of coastal NSW

By Harry Rose and Carol Rose

This book has been recommended previously in the Bushcare Newsletter, but we are re-hashing it to highlight its value to novice and advanced botanists alike. Grass identification is notoriously difficult. It is worth taking on the challenge, as some of the most important weeds of Randwick are exotic grasses. This book is one of the easiest to use guides to the grasses of coastal NSW. It includes methods for identification, common look alikes and glossy photos that capture the detail necessary to complete identification.

This book is available via the DPI website or via some specialist book shops. total.nsw.edu.au/publications/field-crops-and-pastures/grasses-of-coastal-nsw

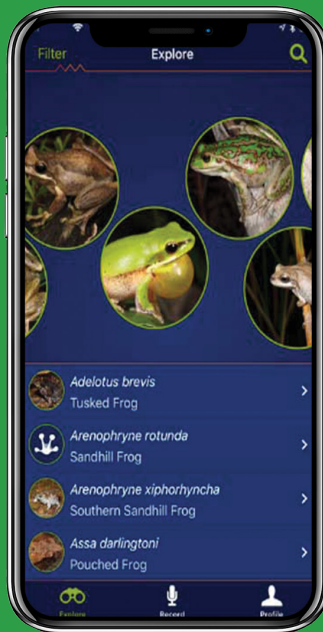
Phone Apps to help you live a more sustainable lifestyle

FrogID App



With the wet conditions predicted it will be an ideal summer for frogs. For anyone interested in learning more about frogs the Australian Museum has created an excellent resource in the FrogID app. FrogID contributes to a national citizen science project that is helping us learn more about what is happening to Australia's frogs. All around the country, people are recording frog calls with nothing more than a smartphone.

FrogID provides all the information required to identify frogs by their sounds or if you have trouble, provides an in-app recorder so that you can submit frog calls to be identified by the professionals. With tips on how to be a reasonable frogger, this can be fun for the whole family.



Bushcare Christmas Luncheon

Our Bushcare Christmas Luncheon was held recently, as a thank you to all our volunteers. The highlight of the event was a fascinating talk by Arthur White about Bentwing Bats, living an elusive existence on Malabar Headland and Cape Banks.

Thanks again to everyone who made it and to all of our volunteers who have contributed to Randwick Bushcare throughout the year!

