

NATURA Far South Coast

Observing and understanding the flora and fauna of Bermagui/Wallaga Lake's forests and shorelines

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What a difference a month or, thanks to an intense weather system, even just a few days makes. While the beginning of November saw our gardens, forests, flora and fauna all feeling the effects of a protracted period of hot and very dry conditions the last few days of the month brought a complete turnaround with heavy rainfall and strong winds battering the region. Here at Beauty Point I recorded a total of 144 mm of rain in my gauge during November, 118 mm of which fell on the penultimate day of the month. I know many of you received much more than that over a 24 hour period with some inland and more southerly areas recording totals in excess of 300 mm, and I hope that the adverse and extreme weather conditions late in the month did not impact any of you too heavily.

As welcome and much needed as the heavy rainfall has been – what a bonus to be moving into an El Niño summer with full dams and water tanks! – there have been some negative impacts across the region including, very sadly, the loss of shorebird nests and eggs. This was very much in evidence at Wallaga Lake where. in the space of just a few hours, the lake water level rose dramatically, flooding across and closing the Wallaga Lake Rd and submerging the lakeside nest and eggs of at least one Pied Oystercatcher pair, and probably the nests of other shorebirds as well. The flooding prompted fast action by the Bega Valley Shire Council who, by 9.30 on the morning of Thursday Nov. 30, had manually opened the lake entrance so that the lake could drain and flush out as the tide receded a great outcome for those wanting or needing to travel and for the health of the lake but too late to avert a disastrous start to the breeding season of the shorebirds that choose the Wallaga Lake shoreline as prime real estate on which to lay their eggs and raise a family. **BELOW** - Wallaga Lake in flood on the morning of Nov. 30, 2023, and the excavator brought in by the Bega Valley Shire to open the lake entrance. The photo at left was taken at 9.05 a.m. just after the excavator had moved down onto the sand to commence digging a channel and the photo at right was taken 20 minutes later, at 9.25 a.m., as the excavator began to work from the ocean side to complete the channel that would open the lake to the sea.



It should be noted that Wallaga Lake's ground-nesting shorebirds were similarly impacted during last year's breeding season when heavy rain while the lake entrance was closed flooded the same nesting sites that were inundated this year. With nests and eggs now possibly lost for a second consecutive year perhaps it is time to consider a more proactive management of the Wallaga Lake entrance, and a program put in place by the Bega

Valley Shire Council to open the lake *before* rather than *after* a rainfall event. Not only would the nesting shorebirds and overall health of Wallaga Lake and the biodiversity it supports benefit from such a program but, with the inconvenience of a flooded and inaccessible vital transport link alleviated and the cost to council for the repair and clean-up of roads and other infrastructure once the water had subsided greatly lessened, surely such a program would have significant environmental and financial benefits for all? Although these thoughts on the management of the Wallaga Lake entrance are purely my own I hope they raise some points worthy of your own consideration and discussion. I would most certainly welcome hearing your own thoughts on the issue via my email deb_taylor142@hotmail.com

PROTECTING OUR SHOREBIRDS

Several of Australia's native shorebirds, including but not limited to endangered Hooded Plovers, Little Terns and Pied Oystercatchers, nest on our ocean beaches and in the foredunes and dunes behind them during late spring and summer. Because this nesting takes place when our beaches are at their busiest, and because the nest-scrapes in the sand and the well-camouflaged eggs and chicks are very difficult to see, the breeding success of these birds is a risky and precarious business. If disturbed, adult birds will abandon a nest to avoid its detection and will not return until the perceived threat has passed. If this disturbance extends for a long period of time the unattended eggs and chicks can overheat, overcool (both of which can result in the death of hatched or unhatched chicks) or be eaten by predators such as gulls, ravens, foxes or domestic cats and dogs. The difficult-to-see eggs and chicks can also be accidentally stepped on and crushed, or the tiny, vulnerable chicks frightened and forced into hiding by beachgoers or uncontrolled dogs. Chicks that are frequently disturbed and therefore spend more time hiding than feeding are at great risk of starvation with death often the ultimate outcome.

Shown at right are a **Red-capped Plover** and a **Pied Oystercatcher**. Both of these bird species breed, nest and raise their young on our beaches and in the dunes that back them. I photographed the Red-capped Plover (right) near Camel Rock north of Bermagui, and the Pied Oystercatcher (far right) on sand flats at the entrance to Wallaga Lake.



Fortunately, there are programs in place to protect these vulnerable shorebird populations with the National Parks and Wildlife Service (NPWS) working closely with volunteers to locate, signpost and temporarily fence as many nest sites as possible. Signposting alerts beachgoers to the presence of nesting shorebirds so that those areas can be avoided and fencing provides a refuge space where birds can sit on their eggs and chicks feed without disturbance. Of course, neither the adult birds nor their chicks remain within these signposted or fenced areas and will be out and about on the open beach and in the dunes as they forage for food away from these protected areas. For this reason your constant vigilance and care when walking in coastal areas is requested during the crucial nesting season. As a beachgoer there are many things you can do to help protect and nurture our shorebirds, and I have attached a list of ways you can help to the end this month's NATURA.

None of the suggestions are difficult or arduous to follow, and are given following advice issued by NPWS and Birdlife Australia. I hope you will not only read through the list but share it with any visitors you may have, especially over the upcoming busy Christmas season when the birds are at their most vulnerable. Both the birds and I thank you in advance for your care, consideration and diligence as we share our beautiful beaches over the coming months.

HOODED PLOVERS

Hooded Plovers are one of the most threatened beach-nesting birds in Australia, if not the world. Endemic to south-eastern Australia, the Hooded Plover population is estimated at 3,000 birds across their range with less than 70 birds residing in NSW. With such low numbers remaining, and with one of the lowest chick survival rates in the world, the conservation status of the Hooded Plover is **critically endangered**.

Unlike their larger relatives the Masked Lapwings, Hooded Plovers do not aggressively defend their nests. Instead, they run away from the nest to keep its location hidden and to draw potential predators away from the eggs and chicks. If the threat lingers, or such disturbances are too frequent, both the eggs and chicks can be exposed to predators or lethal high or low temperatures as the parent birds stay away for extended periods. The chicks are also at risk of starvation if they have to spend long or frequent periods of time hiding rather than feeding because of threats or disturbances. For these reasons, Hooded Plover chicks have less than a 10% chance of survival ... an alarming and depressingly low figure that offers little hope for the bird's survival without our care and due diligence. In Queensland and northern NSW the Hooded Plover has already been driven to extinction by increased coastal development and beach usage so let's all do everything we can to ensure the same fate does not befall the birds we share our local beaches with. By following the advice on the list above, and by being mindful of the bird's possible presence on the beaches you visit, you will be giving them their best possible chance of survival and population recovery.

BELOW from left to right – a Hooded Plover nest and eggs, a young chick and, in the last photo, a juvenile (left) and adult bird (right). All the above photos were taken by Glenn Ehmke and supplied to Birdlife Australia, NPWS and/or other agencies for use in media releases and publications.



Affectionately known as “Hoodies”, Hooded Plovers are non-migratory and live as residents along the eastern and southern coasts of Australia. The birds are highly selective of the ocean beach habitats that best support their survival and reproductive needs with each Hoodie pair occupying a distinct territory, and the species widely dispersed across its range. The NSW Hoodies reside and nest on the beaches south of Jervis Bay, favouring those that have broad, flat and open high-energy shorelines that wash up a lot of seaweed and are backed by low sand dunes. Both the adult birds and their chicks forage for insects, sandhoppers and small

crustaceans and bivalve molluscs at all levels of the beach during all tide phases. Nesting occurs from August to March and coincides with the peak period of human use of their beach habitats. The nests are little more than a shallow scrape in the sand, either on the upper beach above the high tide mark or in the adjacent backing dunes, and may be encircled or lined with pebbles, seaweed and other beach debris. Sites with little or no surrounding vegetation are preferred. One to three blotched, buff-coloured eggs are laid usually 2 days apart, and are incubated by both parents for 28 days before hatching. The newly hatched chicks are tiny but, because they are not fed by their parents, must leave the nest and begin to feed themselves within just a few hours of their emergence from the egg. Although able to feed independently young Hooded Plover chicks cannot regulate their own body temperature during their first few weeks, and require parental brooding so they do not get too hot or too cold. Until they are able to fly at the age of 5 weeks the chicks also rely on their parents to alert them to danger as they feed along the water's edge or in the wrack line of beach-cast seaweed. Warning calls from a parent will either send the chicks running towards cover in nearby sand dunes or make them crouch low on the sand or beneath vegetation and debris on the beach until the threat has passed. If it is *you* that the chicks are hiding from, this is the time when they are most at risk of being trodden on. Your constant vigilance and awareness as you share the beach with the Hoodie chicks at this crucial time of their lives cannot be stressed enough. **A few fun facts** - An adult Hooded Plover is between 19 and 23 cm long, about 10 cm tall and weighs 90 to 100 grams. Newly hatched chicks are the size of a 20c piece and grow to the size of an adult in just 5 weeks what a remarkable growth rate! In order to grow so quickly Hooded Plover chicks need to eat a lot, and often, and can travel up to one kilometre along the beach as they forage for food. The requirement of a constant food intake so they can grow and become airborne as quickly as possible is the reason why the chicks are prone to death by starvation if they are forced to hide rather than feed for extended periods.

OUR NATIVE POLLINATORS the who, the how and the why

Since 2015 Australian Pollinator Week has been an important and much anticipated addition to the calendars of naturalists and environmentalists around the country. Held every November, this annual event is a time when individuals, communities, businesses and organisations can come together to celebrate, raise awareness, increase knowledge and support the needs of our insect pollinators through a variety of community events and group activities. This year Pollinator Week events were held between 11-19 November and I, along with 2 like-minded friends, attended the "What's the Buzz?" seminar at the Eurobodalla Regional Botanic Gardens to learn about bees and other native pollinators. What a fascinating day it was with presentations by both Peter Abbott (author of "Native Bees of the ACT and NSW South Coast – A Spotter's Guide") and Roger Farrow

(author of "Insects of South-Eastern Australia"). If you are looking to add to your home reference library I can highly recommend these books – I have both and they are well-thumbed and oft referenced. Truth be told, they spend more time off the bookshelf than on it.

At left – Butterflies such as the **Caper White** (*Belenois Java*) shown here are not just a pretty addition to our gardens. As they flutter from flower to flower to feed on nectar as this one is, they inadvertently but beneficially transfer pollen between the blooms they visit, thereby contributing to the vital process of pollination.



We all know about and understand the importance and value of pollination – the process whereby the male sex cells (pollen) are transferred to the reproductive female parts of a flower. The successful transfer of pollen between flowers of the same species leads to fertilization and the development of the seeds, fruits and nuts that feed not only us but countless other animals and, through cross-pollination, ensures the genetic diversity that allows plants to thrive. For many, knowledge of insect pollinators does not extend much beyond the European honey bees that were introduced into Australia by early settlers to ensure a good supply of honey. Because they are a flying insect, a few or possibly a lot of these bees escaped and established their own feral hives in forests and other native habitats. Today, these introduced bees are found throughout much of Australia. Despite their dominance and existence within agricultural, horticultural and many natural settings, be it in commercial or hobbyist hives or as feral populations, many of our native floral species cannot be pollinated by these introduced honey bees. For this reason there is an increasing awareness, understanding and appreciation of our native pollinators. This knowledge is becoming even more urgent and crucial as the Verroa Mite threat spreads increasingly through commercial honey bee hives.

At right – Hover flies in the Syrphidae family are the second most important insect pollinator group after bees. The hover fly shown here - a **Native Drone Fly (*Eristalinus punctulatus*)** - is a big fly with a hairy body capable of picking up and transporting large amounts of pollen. Research trials carried out on hybrid carrot crops showed that, even when far less abundant than European honey bees, Native Drone Flies were a substantially more effective pollinator in agroecosystems. Proof indeed that our native pollinators should not be underestimated! Research trial reference - [The golden native drone fly \(*Eristalinus punctulatus*\) is an effective hybrid carrot pollinator that lives within Australian crop agroecosystems - Davis - 2023 - Ecological Solutions and Evidence - Wiley Online Library](#)



When one thinks of insect pollinators, bees are usually the first and sometimes only insect that comes to mind, but did you know that flies, wasps, beetles, thrips, butterflies and moths also make considerable contributions to the pollination process? All of these insects, including the ubiquitous bees, share some important features that allow them to do what they do so well. Firstly, they all fly and are therefore capable of visiting many flowers and plants in a relatively short space of time. Secondly, they are highly motivated to interact with a flower's pollen because both the pollen and nectar offered by flowers are high-energy food sources that allow these insects to go about their busy daily lives. Plants encourage this interaction by producing attractive flowers to advertise the presence of nectar, and a scent to lure potential pollinators and direct them towards the flowers' pollen receivers. Strong or pungent smelling flowers tend to be visited by flies and beetles while sweet smelling flowers attract more bees, wasps, butterflies and moths. Let's have a closer look at just a few of these insects and the way they interact with and pollinate the flowers they visit.

BEES - There are over 1,500 species of native bees in Australia, most of which are solitary and make their nests in soil or dead wood rather than in a hive. These bees, as well the introduced European honey bees, have developed a number of adaptations that make them particularly good collectors and carriers of pollen, and are capable of moving large quantities of it between the flowers they visit. These adaptations include body and/or leg hairs that collect pollen as the insects feed.

Blue-banded Bees are probably the most well-known and most adored of all our native bees and, although slightly smaller, have a similar body shape to honey bees. They are commonly seen darting around blue or mauve flowers such as salvias and lavenders but also visit other flowers. Blue-banded Bees are excellent pollinators with a single insect able to achieve a pollination rate equivalent to that of multiple honey bees. Most importantly, Blue-banded Bees can perform a special type of pollination known as *buzz pollination*. Some flowers hide their pollen inside tiny capsules. A Blue-banded Bee can grasp this type of flower and then shiver her flight muscles so that the pollen is vibrated free. Pollen released in this way is collected on the hairs of the bee's lower hind legs and then carried from flower to flower before the bee makes her way back to her nest. Quite a few of our native Australian flowers, such as *Hibbertia* and *Senna* species, depend entirely on buzz pollination and the native bees that are uniquely able to provide such a service. For such plants, European honey bees are of no benefit. It has also been shown that tomato flowers are pollinated better when visited by buzz pollinating bees such as our native Blue-banded and Carpenter Bees.

At right - A **Blue-banded Bee** (*Amegilla asserta*) that I photographed in the Bermagui Cemetery this month. This bee was feeding on a graveside exotic (a Kalanchoe I think?) but other Blue-banded Bees were feeding on nearby pigface plants. Like many of our native bees, Blue-banded Bees are solitary insects with each female having her own nest. Female Blue-banded Bees typically burrow into soft soil on the ground or in banks to make their nests but will also utilise soft mortar, mud-brick walls or other similar substrates. Although solitary, it is not unusual for Blue-banded Bees to nest in clusters of closely-spaced burrows.



Pollination by certain bee species can also be dictated by the shape of the flowers and the location of the nectar. Some legumes, including both Australian native plant species and commercially important crops such as Lucerne, have concealed nectar that can only be accessed by large, strong bees such as Leaf Cutter and Resin Bees, both of which belong to the Megachillidae family. The flowers of plants in the legume family are closed, but are forced open by the weight of a large insect when it lands on the lower petal to access the nectar. As the flower springs open under the weight of the bee, pollen is flung up onto the under body of the insect so it can be transported to the next flower.

FLIES – As pollinators, flies are increasingly being recognised for their potential as an alternative or supplemental option to bees in both natural and agricultural settings, especially in cooler or more arid areas. As mentioned in a previous NATURA issue (issue 7 – September 2023), **Hover Flies** in the **Syrphidae** family come a close second to bees when it comes to pollination efforts but there are many other flies that play a part in this vital service. Believe it or not, blowflies yes, *blowflies!* are now being investigated for their potential as commercially valuable pollinators. **Blowflies** belong to the **Calliphoridae** family and, as pollinators, have several advantages over bees – they are present all year round, they can function at lower temperatures, and they tend to spend longer at each flower thus increasing the potential for pick-up and drop-off of pollen. Of course, because flies do not live in hives as honey bees do, their management and control in commercial orchards and cropping fields does present some challenges but several options are being looked at to keep the flies within a prescribed agroecosystem. For smaller orchards or cropping plots netting can be used to contain the flies. For larger areas where netting may not be possible, researchers have found that genetic or bio-engineering can reduce the size of the flies to prevent them flying too far away, and that scent lures help retain the flies in open orchards or fields. These scent lures release the odour of decomposing protein that flies



like, and have the added advantage of attracting other flies that may be within a surrounding 1 to 1.5 km area. Although the rollout of commercially viable fly populations as managed pollinators is still a couple of years away eleven Australian blowfly species, including the **Lesser Brown Blowfly (*Calliphora augur*)** shown at left and photographed at Beauty Point, are currently being investigated. Flies in the families Bombyliidae (Bee Flies), Muscidae (House Flies), Rhiniidae (Nose Flies) and Stratiomidae (Soldier Flies), as well as those in the already acknowledged Syrphidae (Hover Flies) family, are also being looked at by researchers to discover what potential they offer as commercially valuable pollinators.

WASPS - Although the larvae of most wasp species are carnivorous and feed on the insects, insect larvae and spiders on which the female lays her eggs, the adults feed primarily on nectar and pollen. If you take a closer look you can often see them mingling with bees, especially on plants that are heavily in flower. Wasps are attracted to and feed on the nectar of a variety of flowers but some species, and especially some of those in the **Thynnidae** family – the **Thynnine** or **Australian Flower Wasps** - find themselves attracted to and pollinating orchids that offer no food reward. So how does this happen?

About 30% of the world's orchids don't produce nectar but instead employ sophisticated sexual trickery to attract the male insects they rely on for pollination. Here in Australia, at least 250 native orchid species have adapted this strategy. Indeed, it could be argued that Australian orchids are the queens of seduction. This underhanded approach to pollination is achievable because female thynnine wasps are flightless and, when ready to mate, release a pheromone to attract a male. The orchids that rely on these wasps for pollination very cleverly, but rather deviously, release chemical copies of those pheromones so their flowers are irresistible to male thynnines. Lured by the scent, and with high expectations, the male wasps come from near and far in search of a waiting female. Instead, they find themselves face to face with a plant, but the orchids have yet another trick up their sleeve (leaf?)! Having lured the wasps this far they tease the males even further by displaying colours and ultraviolet spots on their flowers that mimic the light reflected off the back of a waiting female the deception is complete and the male wasps, suitably fooled, cannot resist the allure! Because many male wasps may be attracted to a single bloom, a tussle often ensues with the wasps pushing and shoving each other as they compete for mating rights until, at last, one wasp is victorious. Grasping the flower, the victor picks up pollen as he attempts a futile copulation. This pollen is transferred to the next seemingly receptive yet similarly deceptive "female". For these wasps it seems that both love and lust are blind.

The photo at right shows a female thynnine (Australian Flower Wasp) perched atop foliage as she emits pheromones to alert potential suitors to her availability. For her sake, I hope the lads are not distracted and waylaid by devious orchids along the way, and that she is not left waiting for long.



The orchids that employ such floral duplicity include those in the genera *Calleana* (Duck Orchids) and *Corybas* (Spider Orchids), as well as 2 genera of Elbow Orchid - *Arthrochilus* and *Thynninorchis* (a name that not-so-subtly hints at the plant's dependence on thynnine wasps). In order to optimise their chance of pollination, the flowers of these orchids are shaped to ensure the male wasp is in the best possible position to make contact

with the pollen during an attempted copulation. Some orchids, however, have taken such efforts even further. The flowers of Elbow Orchids in the genus *Arthrochilus* have small hooks which pin the wasp in place long enough to ensure the successful transfer of pollen. The hooks also ensure that a maximum amount of pollen is dislodged as the wasp struggles to free himself from the flower's unwelcome embrace. Hammer Orchids (genus *Drakaea*) are so called because the main lip of their flower is hinged partway along and is activated by the weight of the wasp so that he is, rather unceremoniously, flipped upside down and then whacked into the pollen how very undignified!

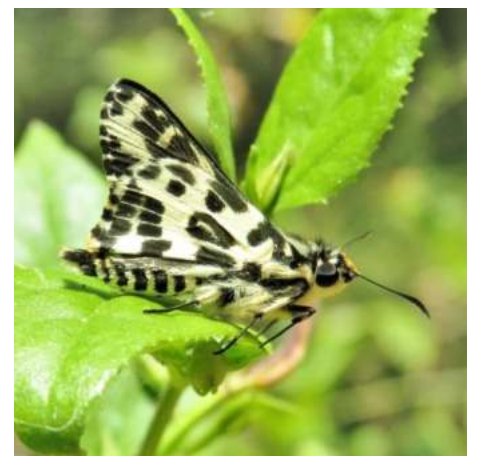
Many Australian orchids that mimic female wasps have their own specific pollinator and, as a general rule, it is one species of wasp to one species of orchid. There are, however, exceptions to this rule including the 5 species of Australian tongue orchids that belong to the genus *Cryptostylis*. These orchids are one of the few sexually deceptive groups in Australia that are not pollinated by a thynnine wasp. Instead, all 5 species share a single pollinator - the **Orchid Dupe Wasp** (*Lissopimpla excelsa*) which belongs to the family **Ichneumonidae**. Although the overall shape of each tongue orchid species is different, all 5 species have small grips, or "love handles", that mimic the shape of a female dupe wasp and are enough to fool and entice the male dupe wasp into a mating.



Shown at right is a **Large Tongue Orchid** (*Cryptostylis subulata*) that I photographed on the Montreal Goldfield in December 2022. Unfortunately, I have not yet observed an interaction between this plant and its associated dupe wasp pollinator, but will certainly be looking out for it over the coming months. Of course, I will keep you informed of any successes I may have, and share any photos I may take.

BUTTERFLIES and MOTHS – Although, as adults, some butterfly and many moth species do not feed, the majority of those that do feed on nectar, the sugar-rich liquid which is secreted by flowers and which collects in pools below the sexual organs of a plant. The location of this nectar ensures that butterflies, moths and other nectar feeders cannot avoid contact with the flower parts associated with pollination. As these insects enter the flowers in search of food, they brush against the *anthers* – the pollen-bearing male parts of a flower – and in doing so collect specks of pollen on their bodies. When the insect visits another flower for more nectar this pollen is dislodged and transferred to the *stigma* – the pollen receiving female parts of a flower – thereby allowing pollination to occur. Although butterflies and moths cannot carry as much pollen as bees they *are* capable of moving it over greater distances. Excellent examples of this capability include Bogong Moths (*Agrotis infusa*) and Monarch Butterflies (*Danaus plexippus*), both of which are migratory species that regularly stop to feed and refuel during their long-distance journeys, but non-migratory species can also fly across a large area as they search for food.

The photo at right shows a **Spotted Sedge-Skipper** (*Hesperilla ornata*) at rest after feeding on a nearby flower. If you look very closely you can see tiny grains of pollen on its head, wings and leg hairs, some of which may be dislodged at the butterfly's next feeding station. If that flower is the same species as that from which the pollen grains were collected, pollination may occur. Unlike bees that visit many flowers whilst carrying lots of pollen, nectar-feeding insects such as butterflies can be considered as "unreliable pollinators". Even so, their contribution cannot be dismissed and should not be undervalued.



BEETLES - Beetles belong to the insect order Coleoptera. Within this large order, there are many, many species in many families that aid in the pollination of plants. These families include, but are certainly not limited to, Buprestidae (Jewel Beetles), Cantharidae (Soldier Beetles), Cerambycidae (Longhorn Beetles), Coccinellidae (Lady Beetles), Curculionidae (True Weevils), and the aptly named Pollen Beetles in the Nitidulidae family. (Before you ask no, I do not know why so many of these family names begin with the letter “C”) Because many of these beetles feed predominantly on pollen rather than nectar, they do, as pollinators, have several disadvantages. First and foremost, they consume the very item that the plants want delivered to another flower. They also tend to be generalist feeders and will eat other parts of the plant, including entire anthers and stamens – in other words, the plant’s sexual organs. Finally, they could be considered as “unreliable pollinators” because they may not go near the female parts of the flower as they feed. Nevertheless, they should not, and cannot, be overlooked as valuable and essential pollinators of the plants they visit.

Many of the beetles that feed on pollen have hairy bodies and legs which, during the process of feeding, become coated in pollen grains. These pollen grains can then be transferred to another flower on the same plant, or to another plant of the same species, as the insect seeks out more food. Many beetles show a strong preference for flowers that are horizontally orientated and grow in a mass. Because they are clumsy fliers, these types of flowers give the beetles a better chance of an ungraceful but successful crash landing, and also give them a pad on which they can mate. **A fun fact** – Beetles are sometimes referred to as “mess and soil pollinators” because they will eat through leaves and petals, leaving small holes, bits of plant matter and frass in their wake.



ABOVE – the first two photos show *Neorrhina punctatum* (**Punctate Flower Chafer** – family **Scarabaeidae**). This beetle feeds on the variety of floral blooms including, as seen here, *Syzygium* ‘Cascade’ (a Lilly Pilly) and Sago Flower (*Ozothamnus diosmifolius*). The third photo shows a clerid beetle - *Eleale pulchra* (no common name - family **Cleridae**). Clerid beetles such as this one have brushes on their mouthparts that allow them to gather pollen, and are often referred to as Checkered Beetles. If you look at these photos you will see just how hairy these and other pollinator beetle species can be.



Beetles have been pollinating plants for millions of years and, along with flies, were among the first insects to visit flowers. A false blister beetle has been found in amber dating from the Jurassic period (210 – 145 million years ago) and the beetle shown at left – a **Spotted Lax Beetle** (*Parisoplax nigronotus*) – is one of its close modern-day relatives. Although it looks quite smooth, the Spotted Lax Beetle is densely covered with pale hairs that pick up pollen grains as the insect feeds. Like the Jurassic beetle it is a species of false blister beetle.

SPIDERS AGAIN!!!

During November I was thrilled to encounter two spider species that I see only occasionally. Both of these spiders are small and look nothing like what you expect a spider to look like. The first one belongs to the **Araneidae** family, a large group of spiders that are commonly known as **Orb-weavers**. One of the most familiar, and most frequently encountered, spiders in this family are the big and very common garden orb-weavers that build their large, wheel-shaped webs each night, often across paths or other open areas in our gardens. It's highly likely that most, if not all, of you have executed at least one nighttime spider-dance after unwittingly stumbling through such a web, or been startled when suddenly confronted by the web's large inhabitant, usually and rather alarmingly at face level. **A few fun facts about garden orb-weavers** – the spiders that we commonly call garden orb-weavers belong to several genera including *Eriophora* and *Hortophora*. During the day these spiders hide in foliage but come out as the sun sets to build their large webs. These webs are constructed, taken down and then rebuilt on a daily (nightly?) basis and, despite their impressive size, usually take no more than 30-35 minutes to complete. Surprisingly, and rather obligingly, garden orb-weaver spiders can be taught to construct their webs away from areas where you like to walk. By gently breaking the web for a few consecutive nights (or by accidentally and less gently blundering through it repeatedly), the spider will get the hint and relocate its web to a less inconvenient location. Let's face it ... the spider is probably just as irritated by your destruction of its web as you are when face-slapped by 8 hairy legs!



Although the first spider I would like to introduce you to this month is an orb-weaving spider, it is much smaller and far less frequently seen than the more familiar garden orb-weavers mentioned above. This spider, shown at left, is a **Wrap-around Spider**. Wrap-around spiders belong to the genus *Dolophones* in the family **Araneidae** and subfamily **Araneinae**. There are 17 named *Dolophones* species, all of which are either endemic (15 species) or native (2 species) to Australia. Despite the naming of 17 species it is very difficult to identify individuals beyond

genus level without microscopic and DNA analysis. For this reason the majority of photographic records, including the one above, are identified simply as *Dolophones*. The wrap-around spider shown here is the most beautiful, and one of the largest, that I have ever seen. With a body width of 10 mm, excluding legs, (yes, I *did* measure her!), stunning silver-grey colour and gorgeous, well defined patterning this spider is an absolute beauty and I spent altogether way too much time observing and photographing her.

During the day, wrap-around spiders hide in plain sight of predators (and us!) by wrapping themselves tightly around tree branches and twigs. The ability of these spiders to blend so seamlessly with their surroundings comes not only from their cryptic colouring but also from their unique abdominal shape which resembles an inverted dish and allows the spider's concave underbelly to snugly hug the branch on which it is located. The upper surface of the abdomen is patterned with small, oval disks, each of which has a small slit. These slits allow the spider to perfectly and more tightly mould its body around curved surfaces, and to adjust the fit to suit the branch on which it is sitting. The patterning and typically brown colouring of these spiders makes them almost impossible to spot unless they move or are accidentally dislodged from their roost, and I am

always surprised and delighted when I find one. You may disagree, but to my eye they resemble tiny, arboreal, twig-hugging turtles how adorable! As the sun sets, wrap-around spiders begin to act less like a tree-hugging turtle and more like a typical orb-weaver. They begin their evening by dropping from a single silk thread so they can swing in mid-air and chance their luck on catching a passing insect. If this proves unsuccessful they build a vertical, circular web to catch a meal. These webs are taken down each morning before the spider takes up its camouflaged day-time position on a branch.

The second spider I'd like to share with you this month was brought to me for identification after it hitched a ride on a fellow walker during one of Barry Virtue's U3A "Bush and Birds" walks, and is shown at right. This is a **Whip Spider (*Ariannes colubtinus*)** and, with its curious long, thin and rather worm-like body looks more like an insect a young stick insect or mantid perhaps? than a spider. Indeed, the woman who brought it to me was very surprised to learn she was holding a spider in her hand. Whip Spiders belong to the **Theridiidae** family, a group of spiders that are commonly and variously known as Tangle-web Spiders, Cobweb Spiders or Comb-footed Spiders. The Theridiidae family of spiders is a large one and contains the infamous and well-known Redback Spider (*Latrodectus hasselti*). Most of the spiders within the family are small and, although their web structure can vary greatly, often construct messy, tangled webs.



Whip Spiders are common in forest habitats and gardens. They are often found about a metre above the ground, suspended upside down on delicate silk lines in spaces amongst shrubs and looking rather like a twig caught in a spider web an excellent camouflage strategy that makes them difficult for predators - and us - to find. Whip spiders specialise in feeding on small, often juvenile, wandering spiders. The spider sits in wait at the top of a few long silk threads that run down among the foliage. When an unsuspecting wandering spider walks up one of these handy silk "bridges", the Whip Spider runs down the line and uses the toothed bristles on the last segment of each back leg to rapidly comb out swathes of sticky silk to entangle and swaddle the struggling victim so it cannot escape. In case any of you are in need of reassurance (especially you Leila, because you were holding it) this spider poses no threat to humans despite its relationship to Red Backs.



Because they are so adorable, here is another photo of a **Blue-banded Bee (*Amegilla asserta*)** I photographed in the Bermagui Cemetery. This bee had been buzzing around pigface plants, occasionally landing briefly on a flower to feed, but here it is taking rest break on the stem of a weed. Although I was quite some distance from this bee it seemed to be watching me just as much as I watching it.

And that, I think, is a wrap for November. I hope all of you have learnt something, and that you will heed the advice pertaining to the protection of our shorebirds whether endangered or not. Until next month, and as always, be kind to each other and the environment,

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What can you do to protect our shorebirds?

- ❖ **Stay away from NPWS signposted or fenced nesting areas.** This will ensure that disturbance to nesting birds or harm to eggs and chicks will be minimised. It will also allow chicks to feed undisturbed so they have a greater chance of survival.
- ❖ **Walk down by the water's edge.** Because shorebirds nest above the high-tide mark you are unlikely to accidentally disturb birds or trample nests, eggs and chicks near the shoreline.
- ❖ **Stay off the foredunes and out of the dunes** because these are the areas where shorebirds nest. By avoiding these areas you are giving the birds a safe refuge in which to incubate their eggs and raise their chicks.
- ❖ **Use formal tracks to access the beach** and do not take short-cuts through the dunes. This will ensure you are less likely to disturb birds or accidentally step on hidden eggs and chicks. Additionally, dunes that experience too much foot traffic are likely to come under land management to combat erosion. Such management means that areas of bare sand are often planted out, removing valuable nesting habitat and forcing endangered shorebirds such as the Hooded Plover lower down onto the beach where they are more vulnerable.
- ❖ **Control your dogs.** If walking your dog along the beach please keep it leashed so it cannot disturb, scare or harm nesting birds and chicks. If you are on an off-leash beach please ensure that your dog stays away from the dunes and remains along the water's edge. **Never** let your dog off-leash near NPWS signposted or fenced areas.
- ❖ **Pick up rubbish on the beach,** be it yours or someone else's. Shorebirds and other birds and animals can easily become entangled in fishing lines, leading to injury and even death. Plastics can be ingested, either by accident or when mistaken for food. Food scraps left behind after a day at the beach encourage scavenging predators such as foxes, gulls and ravens that may also predate any shorebird eggs and chicks they encounter while they are in the area.
- ❖ **If you are a birdwatcher or photographer** please observe shorebirds from as great a distance as possible. Use binoculars or, if photographing, a telephoto lens and limit the amount of time spent in the area. Just a few minutes is optimal to minimise the amount of time eggs and chicks are left unattended by their parents.
- ❖ Lastly, **if you see a bird running in front of you or acting as if it is injured follow it!** Birds acting in this way rather than flying away have either eggs or chicks nearby and are leading you away so you don't harm them. In these instances, move slowly and carefully behind the bird as you watch where you put your feet imagine how awful you'd feel if you stepped on and killed a baby bird or crushed an egg!



At left - a **Crested Tern** I photographed at the Wallaga Lake entrance. Although similar in appearance to their endangered relatives the Little and Fairy Terns, these birds are larger and much more common. All three of these terns breed, nest and raise their chicks on our local shorelines.