PENINSULA FIELD NATURALISTS CLUB INC.

Mornington Peninsula, Victoria, Australia

NEWSLETTER: MARCH 2022

Interesting Encounters With Wildlife Of Western Queensland
Zoom presentation, October 2021, by Rog Standen

This talk centred on observations of interest from visits to Idalia NP, Noonbah Station, Boodjamulla NP, Moondarah Dam, Welford NP, Lark Quarry and the travel between them, on a trip made in late 2019.

I started the talk with some not-so-good news about emus that encounter hazards crossing roads and trying to negotiate fences that are continually being erected along outback roads. It was rather sad to see the casualties, but it illustrated the many challenges faced by our wildlife from our on-going development.

But the talk then swung into an upbeat story about a pair of courting Rainbow Bee-eaters at Moondarah Dam at Mt Isa. What stunning birds they are. The male brought a live Common Glider dragonfly to his mate, who promptly smashed it against the perch before swallowing it whole.

The dragonflies were so plentiful that one bee-eater returned with two dragonflies in its beak. As they were a male and female Wandering Percher (*Diplacodes bipunctata*), I suspect they were joined in mating mode when they were captured.

A group of wood ducks flew off from the bank of a billabong at Idalia NP, leaving a clutch of young ones behind. Fifteen minutes later, the parents returned, calling to the young ones while landing out on the water. The ducklings dutifully responded and swam out to their parents. Then the parents swam them back to shore and walked them up over the bank and away from any trouble (me sitting quietly beside the billabong)!

At Noonbah Station I could hear crunching and 'plop, plop' noises coming from within some dense vegetation. Creeping in to get a better look I discovered a pair of Red-tailed Black-cockatoos feasting on the Bignonia Emu-Bushes (*Eremophila bignoniiflora*). They eat like all cockatoos – very wastefully - as they snap off a twig, take the fruit from it and then drop the rest. They tore off the fleshy outer covering of the fruit to extract the seed within.

Right in the middle of the campground at Idalia was an impressive bower of the Spotted Bowerbird. He had accumulated an array of mainly bones and glass out on the front apron, but within the avenue of the bower, he had a stash of green fruit. He carefully selected what fruit he needed and carried them back to place them precisely where they created what he hoped would make the greatest impression on his female visitors…. When he was happy with himself, he would start dancing, with bowing and raising of his head, whilst displaying the dazzling lilac head-dress normally hidden behind his head. All the while making strange whirring and guttural sounds.

When birding away from home territory, sometimes my initial judgement can be influenced by what I know and not what I see. A juvenile Red-

winged Parrot at first reminded me of a juvenile Regent Parrot, but quickly the detail of what I was looking at changed that ID. A broader, shorter tail, is the first obvious difference. So, then the red-wing came to mind.

Red-winged Parrots are such beautiful birds. Adults are readily identified even on the wing due to their undulating flight, but when you see the males there is no mistaking them. I spotted two adults passing leaves through their bills scraping off the lerps. This was presumably to add some extra nutrition to their parenting role when feeding their young fledgling parrots that I also watched them doing.

A Grey-crowned Babbler at Boodjamulla NP had found the larva of a psychid, or case moth, still encased in its shelter that is carried around by the larva all the time. It proved to be no protection from the babbler though, which crushed and squeezed the larval case to get the nutritious meal inside. But these babblers were quite clever in uncovering another food source! They had learned to find antlion larva at the base of their traps. The babbler would hop from one trap to the next and probe the base to find any live larva waiting there buried in the sand for their next meal to stumble in. Very clever indeed to recognize the small, inverted conical holes as a potential food source.

I don't think I had thought much about where Fairy Martins built their nests before bridges were made, but there were several examples of natural sites seen on this trip. Under the trunk of a large tree overhanging a waterhole and within the shelter of a clay bank out in the middle of the Bulloo River at Welford NP were two I took note of.

Just a short drive from Boodjamullla NP is Riversleigh, which is coupled with deposits at Naracoorte in SA, 2000km away to form the "World heritage Area of Australian Fossil Mammal Sites (Riversleigh/Naracoorte)". They are known for the extreme diversity and preservation of their fossils. While Riverslea is famous for its marsupial lions and carnivorous kangaroos, I liked the huge flightless bird, the dromornithod, affectionately called "Big Bird" by paleantologists. They were huge birds, up to 3.5 metres tall and about 300kg. It is hard to imagine such a bird. The fossil remains were found in ancient lakebeds, often with other aquatic animals. Maybe they were a bit like a gigantic swamphen?

A tiny Northern Blind Snake (*Ramphotyphlops diversus*), wriggled erratically as it crossed the open ground where I found it one hot night. Their eye is reduced to a small dark spot completely under the skin. The mouth is underneath the front of their snout (a bit like a shark), which makes them well suited for their life underground hunting for ants and termites. I have worms in my garden that are larger than these tiny beasts.

Gulf Snapping Turtles (*Elseya lavarackorum*) only come ashore to lay eggs and bask. Algae and other growth can be seen across the shell from spending their whole life in the water. These turtles are herbivores and primarily consume leaves, roots and fruit of both pandanus and cluster figs, so it was not surprising to find them in Lawn Hill Creek as the sides are thick with pandanus and cluster

fig trees were readily found along the creek.

Because of the abundance of pandanus, Purple-crowned Fairy-wrens have made their homes along the creek too. A pair was raising their young alongside the canoe hire place, making them extremely comfortable with people being around. This enabled me to study them well. The details of this can be found in the Peninsula Birdlife magazine but there was a wide range of prey brought in by both parents, on an irregular basis (depended on how long it took them to find the food I suspect). Whilst daddy-long-leg spiders were the main food I could identify, there were fresh caterpillars, moth or butterfly pupae, moths and some other invertebrate larva photographed. The disturbing thing to me about this situation was that there were only the two parents bringing in food. In a healthy population, there are helpers from previous seasons helping. I could tell there were only the two as they had distinctive placement of cobweb on their bodies which meant I could tell if they were the same ones or not.

I finished off the talk with some examples of wildflowers found along a drive around Welford NP.

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Main Ridge Nature Conservation Reserve
11 December 2021

This reserve, towards Flinders on the Mornington-Flinders Road, occupies about 70 hectares of native bush, descending from the north side of the road down to a small creek, which is a tributary of Mantons Creek, which in turn enters Western Port Bay between Shoreham and Flinders. An older wooden sign on the entrance from Barkers Road indicates that the reserve, or part of it perhaps, was formerly designated the Main Ridge Flora Reserve. The chief interest is the flora, but we observed some interesting birds as well.

The higher part, near the road, consists of an open woodland mainly of Messmate, with some other eucalypts, and an understory including several species of Acacia, Sweet Bursaria, Prickly Currant-bush, and Tree Everlasting. Further down the slope there were more Swamp Gums, with Musk Daisy-bush, Prickly Moses and Kangaroo Apple. At the bottom near the creek were both Rough and Soft Tree-ferns, some other ferns, and plants such as Elderberry Panax and Sigesbeckia.

Plants at the ground level stratum included Bidgee-widgee, Southern Tick-trefoil, Bottle-daisies and Small-leaf Bramble.

The showiest flowers included Pale Vanilla-lily, Climbing Glycine, two Wahlenbergias, Prickly Starwort and Fireweed Groundsel.

Introduced plants were not very prominent—apart from Sweet Vernal Grass along the tracks—but the usual suspects of Sweet Pittosporum, Cat's-ear, Pimpernel, and Centaury were noted.

Pale Vanilla Lily

Twining Glycine

PLANT LIST MAIN RIDGE NCR 11 December 2021	
INDIGENOUS DICOTS	
Acacia melanoxylon	Blackwood
Acacia provincialis	Wirilda
Acacia verticillata ssp. ovoidea	Prickly Moses
Acaena novae-zelandiae	Bidgee-widgee
Brachyscome decipiens	Field Daisy
Bursaria spinosa	Sweet Bursaria
Clematis aristata	Austral Clematis
Coprosma quadrifida	Prickly Currant-bush
Daviesia leptophylla	Narrow-leaved Bitter-pea
Desmodium gunnii	Southern Tick-trefoil
Eucalyptus obliqua	Messmate Stringybark
Eucalyptus ovata	Swamp Gum
Eucalyptus radiata	Narrow-leaved Peppermint
Eucalyptus viminalis ssp. viminalis	Manna Gum
Geranium potentilloides	Cinquefoil Cranesbill
Glycine clandestina	Climbing Glycine
Goodenia ovata	Hop Goodenia
Lagenophora stipitata	Blue Bottle-daisy
Lobelia anceps	Angled Lobelia
Olearia argophylla	Musk Daisy-bush
Olearia lirata	Snow Daisy-bush
Oxalis perennans	Wood-sorrel
Ozothamnus ferrugineus	Tree Everlasting
Polyscias sambucifolia	Elderberry Panax
Ranunculus lappaceus	Australian Buttercup
Rubus parvifolius	Small-leaf Bramble
Senecio linearifolius	Fireweed Groundsel
Sigesbeckia orientalis subsp. orientalis	Indian Weed
Solanum aviculare	Kangaroo Apple
Stellaria pungens	Prickly Starwort
Veronica calycina	Hairy Speedwell
Veronica plebeia	Trailing Speedwell
Viola hederacea	Ivy-leaved Violet
Wahlenbergia gracilis	Sprawling Bluebell
Wahlenbergia stricta	Tall Bluebell
MONOCOTS	
Arthropodium milleflorum	Pale Vanilla-lily
Burchardia umbellata	Milkmaids
Dianella tasmanica	Tasman Flax-lily
Lomandra longifolia ssp. longifolia	Spiny-headed Mat-rush
Tetrarrhena juncea	Forest Wire-grass
FERNS	
Adiantum aethiopicum	Common Maidenhair
Blechnum nudum	Fishbone Water-fern
Calochlaena dubia	Common Ground-fern
Cyathea australis	Rough Tree-fern
Dicksonia antarctica	Soft Tree-fern
Pteridium esculentum	Austral Bracken
NON-INDIGENOUS PLANTS	
Anthoxanthum odoratum	Sweet Vernal Grass
Bellis perennis	English Daisy
Centaurium erythraea	Common Centaury
Cirsium vulgare	Spear Thistle
Dactylis glomerata	Cocksfoot
Hypochoeris radicata	Cat's-ear
Lysimachia arvensis	Pimpernel
Pittosporum undulatum	Sweet Pittosporum
Prunella vulgaris	Self-heal

Bird count amounted to 26 species; we were pleased to see Rufous Fantail, Satin Flycatcher, Mistletoebird and King Parrot in that number.

King Parrot

Bird List For Main Ridge NCR 11th December 2021	
Galah	Eastern Yellow Robin
Australian King-Parrot	Golden Whistler
Crimson Rosella	Rufous Whistler
Eastern Rosella	Grey Shrike-thrush
Fan-tailed Cuckoo	Satin Flycatcher
Shining Bronze-Cuckoo	Magpie-Lark
Laughing Kookaburra	Rufous Fantail
White-throated Treecreeper	Grey Fantail
Superb Fairy-wren	Grey Butcherbird
Brown Thornbill	Australian Magpie
Little Wattlebird	Mistletoebird
New Holland Honeyeater	Silvereye
Eastern Spinebill	Common Blackbird

Other sightings included Common Brown and Varied Sword-grass Brown Butterflies, and several dragonflies—unfortunately our dragonfly expert wasn't with us.

We also encountered some very friendly leeches

All Photos by Lee Denis

We followed a circuit walk which leads through most of the vegetation communities. Like most parks on the Peninsula it had suffered some damage in the high winds that occurred not long before, but Parks crews had been out to clear the tracks. A very interesting location.**—Lee Denis**

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Langwarrin Surprises
6 December 2021

Seven keen members entered the Langwarrin Flora and fauna reserve on a warm December morning for what was scheduled as a birding outing. Fossicking among the grass at the Warrandyte Road entrance, members were distracted by orchids—like the Large Tongue Orchid (*Cryptostylis subulata*) and Horned Orchid (*Orthoceras strictum*)—before the birding got into full swing.

Photo: Rog Standen

The SEC Track generally is not renowned for its birds but has some interesting flora, including Swamp Isotome (*Isotoma fluviatilis* ssp *australis*) and Hundreds and Thousands (*Stylidium inundatum*), plus a good crop of Wild Parsnip (*Trachymene compositae*), that is giving a stunning display up on the McClelland Track. Several flies, bees and beetles were feeding on their flowers, including a brightly coloured Jewel Beetle (*Castiarina oblita*).

Regular birds like Red Wattlebird, Common Bronzewing and White-eared Honeyeaters were seen and heard there. After moving into the forest, more birds started to appear, or at least were heard. Close-by calls of Sacred Kingfisher were causing Leanne some grief, but persistence pays off and later-on one was seen, albeit briefly as it flew off, much to her delight. Calls were keeping the group's interest up and our heads up from searching for plants. "Was that a Golden or Rufous Whistler?", was a common query as both continued with their various calls as we crossed the reserve.

Unfortunately, the day kept warming up and Pat had to

withdraw before it became too uncomfortable. Leanne and Lee reconciled their birding lists at lunchtime and resolved that 30 was the tally. A good morning of birding. But, Lee was the most excited he'd been for a while after Heather found a Blue Pincushion (*Brunonia australis*) flower, the first Lee has seen in the reserve in all the years he has been prowling its tracks!

Photo: Lee Denis

After lunch, Lee showed the remaining members a patch of Common Elbow Orchids (*Thynninorchis huntianus*), much to my satisfaction, having searched that area with Lee several times over the years without a result. I would never have found them on my own – such a delicate little flower.

I find one of the benefits of being a member of the Field Naturalists is the mix of interests and expertise that can be enjoyed and appreciated when on outings, whether it has birding or anything else as a focus.**—Rog Standen**

Elbow Orchid. Photo: Rog Standen

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Wilson Botanic Park, Berwick
12 February 2022

This Park opened to the public in 1992 and covers some 40 hectares; from the 1850s to the 1970s the site was a basalt (bluestone) quarry. About half of the present park was donated by the owners, and the rest was purchased by the City of Casey. It has been developed as a botanic park, featuring a great variety of plants from all around the world.

Basalt Lake. All photos: Lee Denis

The design is based on three lakes left over from quarrying operations—Waterlily Lake, Anniversary Lake, and Basalt Lake. The first is self-explanatory, and is surrounded by garden beds featuring Swamp Lily (*Crinum pedunculata*) and, on the other side of the path, a dry-land plants garden featuring succulent plants.

Anniversary Lake is the largest of the three, with steep rocky sides around most of its perimeter, and is home to a great number of Eastern Longneck Turtles. On its northwest corner is a grassy area where you can get down to water level; very popular for picnics and for feeding the water birds. We noted Black Ducks and Wood Ducks there, with the turtles competing with them for the bread being thrown in! The only other birds we observed on this lake were Australasian Grebes.

The surrounds of Anniversary Lake were very popular on a Saturday afternoon; fewer people were to be found around Basalt Lake, which is reed-fringed and has a bird hide. As usual no birds were visible from the bird hide, but Coots, Moorhens and Swamphens could be seen from the banks.

The bird list for the Park comes to about 80 species—we saw only a quarter of that number, but in the quieter surrounds of Basalt Lake we observed Spotted Pardalote, White-browed Scrubwren and Grey Fantail, birds usually seen in bush settings. The Park is close to the north-east edge of the urban sprawl: it is surrounded on two sides by houses, but to the north and east is a fairly open area including the Grassmere Creek corridor, and a little further east, Beaconsfield NCR. So there is something of a wildlife corridor.

Monkey Puzzle

The main feature of interest around Basalt Lake is a plantation of what are billed as 'fossil trees'—trees of the ancient Auricariaceae and Podocarpaceae families. These include Buny-bunya, Wollemi and Hoop Pines, Monkey-puzzle Tree, several species of Kauri (*Agathis* sp.) and Brown Pine, (aka Mount Spurgeon Black Kauri Pine or Mount Spurgeon Black Pine), *Prumnopitys ladei*, which is a member of the Podocarpaceae family endemic to North Queensland at two locations including—as you might guess—Mt Spurgeon. It is included on the Rare or Threatened Plants list.

Other plant highlights include a rose garden—if you like that kind of thing—and a variety of conifers.

Of particular interest is the revealed geological history. The oldest rocks are mudstones from the Silurian era, modified into hornfells by granitic intrusions which cooled to become granodiorite. After a long period of erosion revealed the granodiorite and deposited more sediments to form more layers of mudstones, volcanic activity about 25 million years ago resulted in extensive lave flows which cooled to form basalt. Columnar jointing can be seen in the rock face.

The mudstones have yielded many plant fossils, dated to about 60 million years ago, which show that tropical and temperate tree species including beeches and eucalypts coexisted in the area at that time. There was also a small coal seam found in the excavation of what is now called Anniversary Lake, which also yielded fossils.

The site is the source of the oldest eucalypt fossils found in Australia.

After circumnavigating the lakes we climbed to the perimeter track, from where some spectacular views can be obtained.

Dainy Swallowtails

At a couple of points, one on the perimeter track and one near what is called the Hoo Hoo Tower, we saw butterflies flying in a circuit of about 15 metres diameter. These were Dainty Swallowtails (*Papilio anactus*); the males occupy territories that are partly enclosed by trees or shrubs—I have only ever seen them in gardens, never in the bush (although I have seen one on Frankston foreshore). The same glade seems to be used every year.

I have often watched these butterflies behaving like this in the summer. They fly in an irregular and somewhat erratic circle throughout the day, one to two metres above the ground, very rarely alighting, sometimes on bushes and sometimes on the ground, and then only briefly. Every now and then they take a wider excursion, flying off in one direction for about 50 metres or so, before returing to resume their circuit. Occasionally another butterfly of the same species flies into the circuit, whereupon both immediately fly upwards in a spiral to four or five metres above the ground. Then one flies off and the other resumes the patrol.

According to Ross Field in *Butterflies identification and life history*, published by Museum Victoria, this species was first recorded in the Melbourne area in the 1930s, and became established perhaps in the 1970s. The females lay their eggs on Citrus plants, of which there are no indigenous species in Victoria—their presence here is believed to be related to the planting of citrus trees, such as lemons, in suburban backyards (I have seen them around the lemon tree in my backyard). There are native Citrus in NSW and Queensland, where the species originates. They do not appear to have adapted to other genera in the Rutaceae family which are found in Victoria, such as Correa.

The females stay fairly close to these larval food plants, while the males stake out their territories. The interaction that occurs when a second male enters their territory may be a contest between them for the territory; there is also a theory that in fact they do this to identify if the other is a suitable breeding partner (i.e. a female), since their gender recognition at a distance, either by sight or by detection of pheremones, is not very good.**—Lee Denis**

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Life along the railway line

Last newsletter (December 2021) showed the emergence of the Oecophorid moth (*Ageletha hemiteles*) from a clump of leaves found along the railway line near Mornington.

True Spittlebugs (Aphrophoridae) . All photos: Rog Standen

Another interesting find there was the spittle bugs, with their distinctive blob of foam that is made from protective bubbles. They were found on several different plants. This was the first time I have photographed them. They are the nymphs of Froghoppers and suck sap from the stem of the plant, protected from the weather and pests by their foam. Adults don't produce the spittle. Unfortunately, I haven't found the adult for the nymphs that I saw.

Leafhopper nymphs

Other nypmphs seen were those of a leafhopper, from the Cicadellidae family. These were being attended by ants that offer protection to the nymphs in return for a bit of sustenance in the form of honeydew secretions that the ants can take back to their nests to help feed their family. I also saw adult leafhoppers but am yet to determine if they were from the same species as the nymphs.

Also found there was something I have not known about, but had seen numerous times before, which was those small, hardened tubes found against tree stems. These are also the work of spittlebugs. Unlike the ones that create the foam shelters, these produce a hard tube to live within while they are in the larval stage. These are in the Clastopteridae family of the Hemiptera order.

Tube Spittlebugs

There were heaps of psylloid lerps found on many eucalypt tree leaves. The lerp is the protective covering of the animal beneath, which is a psylloid. In the picture, the black shapes with legs are the leftover cases of the nymphs as they grew into the next stage of their life. These particular psylloids are from the genus *Hyalinaspis*.

Psylloid lerps

Being springtime, it was not surprising to see so many lifeforms in their larval or nymph stages. A tiny cricket nymph (well it is not identified yet so might be a grasshopper or katydid) was rather cute sitting on a leaf that had clearly been the source of nourishment to other forms of life. How the various species are interdependent and interact is fascinating to try and uncover.

Of course there are a myriad of plants and birds to be found along the railway line too. These might be the subject of later newsletters perhaps.**—Rog Standen**

Macquarie Island
Heather Ducat, February 9, 2022

This is Heather's 20th talk to us!

Last year she spoke to us about the rest of this trip, a tour of NZ's subantarctic islands, in December 2019 aboard the Spirit of Enderby, with NZ Heritage Expeditions. Macquarie Island was part of the trip, but Heather was so enthused by Macquarie Island that it warranted a night of its own.

Royal Penguin. All photos: Heather Ducat

Macquarie Island is 1500km south of Tasmania, 3 days sailing, and Antarctica is 1300km further south. It is situated in the Furious Fifties, so the climate is cool, cloudy, wet and windy, with an average winter temperature of 5º and summer 8.8º. It can snow anytime, but because of the wind it doesn't last long. It rains 314 days per year on average, with an annual average of 966mm. In mid-summer there are 18 hours of daylight.

The island is an undulating plateau, 5km wide, and 35km long, with the highest point being 410m. There is a narrow coastal zone, to the high tide line, then coastal terraces, and the rest is upland plateau. Sealers discovered the uninhabited island in 1810, and set to work exploiting the seals and whales. Douglas Mawson visited in 1911 on his Antarctic travels, and recommended that the island be a nature reserve. It has been managed by Tasmanian Parks & Wildlife as a nature reserve since 1933, became a World Heritage site in 1997, and a Marine Reserve in 1999.

King Penguin

There was a risk of it losing its World Heritage status because feral animals were endangering the wildlife and vegetation, so starting in 2002 there were programs to eradicate rabbits and cats, then rats and mice, with the program completed by 2014. There are still some feral birds- mallard ducks, starling and redpoll finches. There is a permanent ANARE base there (Aust National Antarctic Research Expedition). Before any visitors go ashore there are strict biosecurity protocols, to make sure no soil or seeds are carried onto the island on clothing or boots.

Penguins: of the 17 species in the world, 9 live in NZ or NZ subantarctic islands. Macaroni penguins are the most common in the world, with 19m pairs, spread across most of the subantarctic islands in the South Atlantic and Southern Indian Oceans. The rarest is the Yellow-eyed Penguin. King, Gentoo, Rockhopper and Royal penguins all breed on Macquarie Island. In warmer climates penguins nest in burrows, but in the subantarctic they nest on the ground. Skuas predate the eggs and nestlings, and the Royal penguins have 2 eggs, and sacrifice the first one to the Skuas to give the second one more chance of survival. Emperor penguins breed in Antarctica; they swim at 20km per hour, and eat fish, squid and krill. King penguins are very similar looking in colour and markings, but are smaller. There are 200,000 breeding pairs on Macquarie Island. Gentoo penguins breed in the tussocks, with about 4000 breeding pairs.

Royal Penguin Breeding Colony

Altogether 29 species of birds breed on Macquarie Island- apart from the 4 species of penguins, there are 13 petrels, Great Skua, Kelp gull, the endemic King Shag, and assorted others. 72 species of birds have been recorded there. There are 4 species of albatross which breed there: Wandering, Black-browed, Grey-headed and Light-mantled Sooty and many others visiting.

Elephant seals dominate the beaches—80,000 on Macquarie, and about 600,000 worldwide; all noisy and smelly. Other species breeding on Macquarie Island include NZ fur seal, Subantarctic Fur seal and the Antarctica Fur Seal.

Elephant Seals

The geology of Macquarie is unique and is one of the reasons for its World Heritage status. It is the only island in the world formed from a mix of the earth's mantle and ocean crust. It is the exposed part of an undersea ridge, forced up by the collision of 2 tectonic plates, Pacific and Indo-Australian. The ridge surfaced about 700,000 years ago and the process of uplift continues, with many faults and regular strong earthquakes. The pillow lava has World Heritage status.

There are 4 vegetation communities. Tall tussock grassland occurs on steep slopes, terraces and valleys, and the dominant species are Poa tussocks and Macquarie Island Cabbage, a mega-herb. Herbfield occurs on wetter areas of the plateau and terraces, and has Macquarie Island Daisy, grasses and herbs.

Macquarie Island Daisy

'Mire' is saturated peat with a thin layer of vegetation, including the endemic 2 species of helmet orchid, mosses, herbs and grasses. Feldmark is on the elevated windswept areas of the plateau, with species of cushion plants, mosses, lichens and liverworts. Macquarie Island has 47 native vascular species, 80 mosses, 50+ liverworts, 100 lichen and 200 fungi species. The 4 endemic species are a cushion plant, a coastal grass and 2 helmet orchids.**—Judy Smart**

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Identifying Prickly Tea-Tree

Anyone who has pushed through the bush is familiar with Prickly Tea-tree, with its sharp-pointed leaves, which tends to grow in thickets difficult to get through. Two species of Prickly Tea-tree, *Leptospermum continentale* and *L. scoparium*, are recorded for the Mornington Peninsula, including Langwarrin Flora & Fauna Reserve. All sources say that they are very difficult to tell apart—for example, the Herbarium Victoria website Vicflora says that

Leptospermum scoparium *can approach* L. continentale *in appearance, leading to difficulties with identification. Where the two occur together (e.g. foothills of Dandenong Ranges)* L. scoparium *is usually a taller, leafier shrub than* L. continentale.

I have had several conversations on the subject with people around the local area, without coming to a conclusion, so I set out to try to establish a basis for identifying one from the other.

When I first began to learn about Australian plants, the two local prickly tea-trees were *Leptospermum juniperinum* and *L. scoparium*—for example, in J.H.Willis's *Handbook to Plants in Victoria*, published in 1972. It was simpler in South Australia, with only *L. juniperinum* listed in J.M.Black's *Flora of South Australia*, published in 1951 but still the only reference thirty years later. There were doubts about the species definitions, however; in Leon Costerman's *Native Trees and Shrubs of South-eastern Australia*, first edition in 1981, both of these species are described as 'complexes', meaning that they were possibly made up of several species.

The genus name *Leptospermum* was originally coined in 1776 by Johann and George Forster, botanists aboard the Resolution on Cook's second Pacific voyage, from the Greek leptos, meaning narrow, and sperma, meaning a seed. They used the name for a species that they found in New Zealand, *L. scoparium,* known there as Manuka (you may have heard of some controversy with NZ apiarists trying to reserve the name 'Manuka Honey' for the NZ product). In Australia it is also called Broom Tea-tree and Black Tea-tree—you have to admit that 'Manuka Honey' sounds better than 'Black Tea-tree Honey'! The specific name means 'broom-like'.

Leptospermum juniperinum ('like a juniper') was named by James E Smith, from a specimen collected by John White at Port Jackson, in 1797. It has had several names since,

including *L. scoparium* var *juniperinum*. In Willis and Black it was said to be widespread across Victoria and South Australia, as well as NSW.

In 1988 the genus was reviewed by Joy Thompson, a botanist at the NSW Herbarium*. Among many other changes, she determined that *L. juniperinum* does not occur outside NSW and Queensland. She named the Vctorian and South Australian plants as a new species, *L. continentale*. This definition has been followed by subsequent authorities, including the Victorian Herbarium, Flora of Melbourne, and in later editions of Leon Costerman's book.

Incidentally, there are three other species of *Leptospermum* recorded as native to the Peninsula—*L. laevigatum*, the familiar Coast Tea-tree; *L. myrsinoides*, (Heath Tea-tree) which is widespread in sand dune heaths, and *L. lanigerum* (Woolly Tea-tree), which is restricted to damper conditions. A major distinction between these species and the Prickly Tea-trees is that the latter hold their fruits for many years, whilst the former soon drop their fruits. The genus belongs to the family Myrtaceae along with Eucalypts, Callistemons and Melaleucas among others, generally having foilage that is aromatic when crushed.

Thompson finished her review of the genus with 79 species, only a couple of which are found outside Australia. She concluded that the genus arose in Australia, from where a few species colonised some neighbouring territories, including New Zealand in the case of *L. scoparium*—which she believed originated in Tasmania before spreading to mainland Australia and NZ, where it has greatly diversified. Many nursery varieties of Tea-tree are derived from NZ populations of *L. scoparium*.

She also provided a key to identification. The separation between *L. juniperinum* and the two local species of Prickly Tea-tree is given in that flowers of the former arise from old growth, in the latter from new growth. The distinction between *L. scoparium* and *L. continentale* rests primarily with the size and shape of the leaves, flowers and fruit. I began by summarising the characteristics of each species according to Joy Thompson's original paper, Flora of Melbourne, and the website of the Melbourne Herbarium, Vicflora. There is some variation in dimensions given by these different sources, but the general impression is that *L. scoparium* is generally larger, in overall height, flower and fruit size. However, there is considerable overlap: for example, the fruits of *L continentale* are said to be 5-8mm in diameter, while those of *L scoparium* are 6-10mm, so unless the fruits are 5mm or 9-10mm, fruit size is not an indicator of species. The most definite difference in the descriptions is in width of leaves: all sources agree that most *L continentale* leaves are less than 3.5mm wide, most *L scoparium* leaves more than 3mm wide.

As a visual guide, below are details taken from the NSW herbarium sheets for the two species, from the NSW Herbarium website (https://plantnet.rbgsyd.nsw.gov.au/). On the left is the sheet for *L scoparium*, while on the right is the holotype (i.e. the base reference specimen) for *L continentale*, collected by Joy Thompson.

Herbarium specimens
Left: L scoparium Right: L continentale
(https://plantnet.rbgsyd.nsw.gov.au/).

Armed with all of this information I set out to try to identify plants in the field at Langwarrin Flora & Fauna Reserve (LFFR) and Frankston Nature Conservation Reserve (FCNR). Most of the plants at both locations had narrow leaves, less than 3mm wide, with a small number having wider leaves. The width of the leaves did not appear to be correlated with size of flowers or fruits, or whether the plant was single or multi-stemmed.

It has been previously observed that at LFFR there are two flowering periods of Prickly Tea-tree, an early one in October and a later one in December-January. Flora of Melbourne suggests that the earlier one is *L continentale*, the later one *L. scoparium*, but it is not so clear-cut from the other sources. In October there were only a small number of plants in flower, which all seemed to have narrow leaves. No plants with wide leaves were observed in flower at that time. The two sizes of leaves are illustrated in the figures below. Specimen 1 was flowering in October, while Specimen 2 nearby was not: it developed buds in late December and flowered in January. The flowers on both plants were about 10mm diameter, while the fruits on #1 were 6mm diameter. As it turned out #2 did not set fruit.

Specimen 1 - October flowering (top),
Specimen 2 - January flowering (below)
5 mm Grid

Most of the prickly tea-tree plants at LFFR did not flower until January. Specimens 3 and 4 were on opposite sides of the track; flowers on the latter were visibly larger than on Specimen 3, 13mm cf 10mm (i.e. 30% larger); fruits were also larger on #4, 7.5-8mm cf 6-7mm. All of these dimensions are within the ranges for both species. Specimen 3 was multi-stemmed, while the other was single-stemmed. Both had no leaves wider than 2mm.

Specimen 3, top, Specimen 4, below

At FNCR it was the wide-leaved form that flowered first: most of the leaves of plants flowering in October were more than 3mm wide. The fruits on these plants were smaller than those on nearby plants whose leaves were less than 2mm wide; both were within the size ranges of both species in the table above.

My conclusion is that if the size of the leaves is definitive, I've got it sorted. Otherwise I'm as confused as before, because there was no consistency in any of the other parameters. The early and late flowering forms can both have narrow or wide leaves; the size of fruits and flowers, whether the plant is single or multi-stemmed and its height and general form do not provide a reliable differentation as far as I can tell. It's enough to make one sceptical!

* Joy Thompson (1989) A revision of the genus Leptospermum (Myrtaceae) *Telopea* 3(3): 301-449

'Tea-tree'

In JH Maiden's book *The Useful Native Plants of Australia*, first published in 1889, the entry under *Leptospermum scoparium* says

It is said that this is the shrub the leaves of which were utilised by the crews of Captain Cook's ships for the purpose of making "tea", and that they were also used with spruce leaves in equal quantity for the purpose of correcting the astringency in brewing a beer from the latter

Maiden seems to assume that this occurred in the area around what is now Sydney; Cook did not enter Sydney Harbour, but landed at Botany Bay which is not far away. The entry also includes a list of synonyms, which include *L juniperinum.*

An internet search turns up another species, *Melaleuca alternifolia*, claimed to be the original tea-tree, with the added detail that Cook's crew learned to use it in this way from the indigenous people of northern Australia, as well as adapting it for the beer-making.

The published report of Cook's Endeavour voyage makes no mention of brewing tea or beer; however the report of his second Pacific voyage, in the Resolution (which did not visit Australia), mentions both the tea and beer-making as taking place in New Zealand, at Dusky Bay near the south-western corner of the South Island. He describes the plant as follows:

...the tea plant (a name it obtained in my former voyage, from our using it as tea then as we also did now)...is a small tree or shrub, with five white petals, or flower-leaves, shaped like those of a rose, having smaller ones of the same figure in the intermediate spaces, and twenty or more filaments or threads. ... The leaves are small and pointed, like those of the myrtle; it bears a dry roundish seed-case, and grows commonly in dry places near the shores. The leaves, as I have already observed, were used by many of us as tea, which has a very agreeable bitter and flavour when they are recent, but loses some of both when they are dried. When the infusion was made strong, it proved emetic to some in the same manner as green tea.

So it is possible that the plant was first used to make tea in Australia during the Endeavour voyage; however the plant he is describing is clearly a *Leptospermum*, not a *Melaleuca*. The only *Leptospermum* found in NZ is *L scoparium.*

Maiden concludes that *the taste of the infusion ... is too aromatic for the European palate*. I found it similar to a herbal tea, in a light infusion. I did not try boiling the leaves though.**—Lee Denis**

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Peninsula Field Naturalists Club Inc

Meetings are held on the second Wednesday of each month with a field trip the following Saturday. Further information and current Programme of Activities can be found at our website.

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