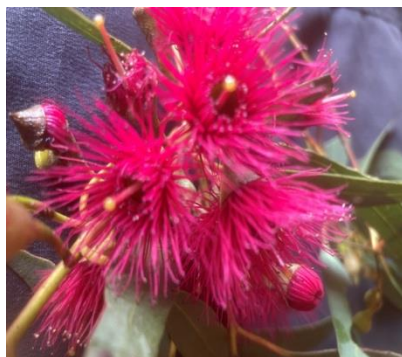


Castlemaine Naturalist

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Monthly newsletter of the
Castlemaine Field Naturalists Club Inc.



Yellow Gum. *Eucalyptus leucoxylon*
Photo: Greg Moore

Native Trees and Their Benefits During Climate Change

Jill Williams

Our guest speaker for the May Monthly Meeting was Dr Greg Moore OAM, Senior Research Associate, School of Ecosystem and Forest Sciences, The University of Melbourne. Greg began by stressing an important concept which should be taken as a minimum standard – 'A forest is defined as tree canopy equal to or greater than 30%; less is woodland'. The greater Melbourne has less than 20% tree cover and is still in decline. The target canopy cover for urban cities in Australia under climate change scenarios and to reduce the Urban Heat Island (UHI) effect should be **30%**.

For street trees Greg listed up to 20 criteria the general community requires such as: straight trunks, full and dense canopies at maturity, non-shedding of bark and leaves, bear bright flowers, to live a long time, tolerant of soil compaction and city pollutants, to not cause damage to infrastructure, be maintenance free and more. Exotic species of *Ulmus*, *Quercus*, *Platanus* and *Fagus* have been bred and selected for these traits since roman times but have Australian native trees been assessed against the same criteria? Greg presented data and arguments which demonstrate that the Australian native



Example of Urban Heat Island.
Stock photo

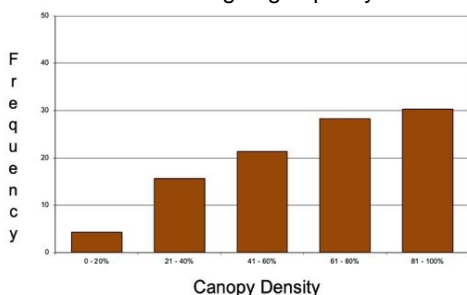
Yellow Gum, *Eucalyptus leucoxylon* F.Muell. has the potential to be a successful street tree well beyond its natural range; and it has bright colourful flowers.

Of the many thousands of native species across the greater urban area, there are over 20,000 Yellow Gum individuals. Where safe to do so, 300 were randomly selected for analysis. Greg's research group gathered data for many physical and phenotypic characteristics including:- Height, DBH (Diameter at Breast Height), Canopy spread (E/W & N/S), General Canopy habit, Live Crown Ratio (ratio of live crown height / tree height), Trunk taper (ratio DBH/trunk diameter at ground level), trunk straightness and lean. The type of soil, degree of soil compaction, the type of

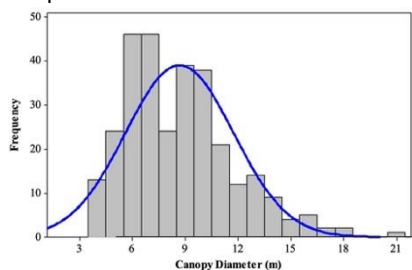
road and the presence or not of utility lines above which may require frequent pruning of the canopy were recorded. There were many other criteria included in the project.

The results showed that the Yellow Gum performed well for the criteria and revealed that most specimens exhibited good habit, vigour and health.

75% of trees had the broadly round canopy shape preferred in a street tree and nearly 60% of trees had a canopy density rating above 60%. Canopy spread varied from 4m up to 21m, but most trees were in the range of 6-11m in spread. This is a suitable range for urban trees, where low traffic suburban streets are often 7m across. Unsurprisingly, most trees were growing in soils that were moderately to highly compacted, another positive result. 92% of trees had a live crown ratio in excess of 41% which indicates that *E. leucoxylon* trees provide valuable shade in a compact canopy. This growth habit and the shade provided can reduce the UHI effect and enhance the species' role in the city's capacity to respond to a warming climate. A 30% canopy cover can reduce the temperature by approx. 5°C. The species showed good tolerance to pruning when tree height threatened to interfere with overhead power lines. The rapid renewal of the canopy and restoration of foliage density demonstrates an ongoing capacity for carbon sequestration!



Frequency (%) of canopy density of Yellow Gum, *E. leucoxylon* street trees.



Frequency distribution of canopy diameter (m) of Yellow Gum, *E. leucoxylon* street trees.

Flower colour does not breed true in *E. leucoxylon* but most trees had red/pink flowers. Flowering occurs in most months but winter flowers provide a food source for birds and insects. There is variability in several criteria so careful selection and propagation from better specimens could improve its performance. Yellow Gum provides many of the environmental services demanded of urban trees as climate changes.

The form of typical *E. leucoxylon* trees growing as street trees across Melbourne:



Left – the dense rounded canopy.

Right – a more open & rounded canopy composed of multiple lower order large branches.

Photos: G. Moore





Left – a taller more upright, straight single stemmed tree.

Right – a tree encroaching upon but not touching powerlines. The power poles shown are 6-7m high.



During question time Greg also highlighted that the environmental benefits of street trees exceed the costs associated with managing the trees. They need to be managed to maximise both their performance and life spans. As a tree grows and the new tree grows over the old wood, its diameter increases and so a slow growing old tree can take in and sequester more carbon than a quick growing seedling. A very recent study, calculated that to replace the carbon stored in one large, urban, mature oak, would require 48,000 seedlings, but there was no space to plant them. The SA government and the ACT have recognised that the tree canopy is declining and will initiate procedures to reverse the decline. Can Melbourne and other cities/towns in Victoria also see that this situation is unsustainable environmentally?

CFNC Excursion, 11 May 2024 – Coliban Main Channel, Taradale

Lou Citroen

The Saturday excursion to Coliban Main Channel on 11 May, led by Euan Moore and Jenny Rolland, attracted a lot of interest from near and as far as Melbourne. Around 20 assembled at the 'Octopus' in Castlemaine on a mild, sunny Autumn afternoon, setting off to Taradale to meet up with another half a dozen or so there. Euan then led the cavalcade to our destination another 10 minutes south out of the township.

This outing was selected from Damian Kelly's *Castlemaine Bird Walks* and the easy walk extended a little over 2 km out to the turn-around point as suggested in the guide.

History and function of the channel (quoted from Damian's guide):

It starts south of Taradale at one end of the Taradale Channel Siphon, a remarkable engineering feat from the late 1800s which takes water from one side of the Back Creek valley to the other on its path from Malmsbury Reservoir to Bendigo and is still in use today. This construction allows the channel to traverse a deep valley without any pumping.



Back Creek syphon outlet.
Photo: Lou Citroen

Our walk along the maintenance track followed the contour and was therefore fairly flat. This allowed our group to saunter

at a leisurely pace, to share observations and appreciate the bushland, mainly of medium to large peppermint, box and stringy-bark trees with a moderately dense under-storey on the higher side of the channel, transitioning to farmland on the lower side. The Long-leaved Box, *Eucalyptus gonicalyx*, was in flower.

Collectively, keen eyes and ears identified a variety of birdlife, vegetation, and some beautiful fungi(!). Two frog species were heard (Brown Treefrog and Common Eastern Froglet) and an Eastern Grey Kangaroo was seen.



The group walking along the channel.
Photo: Lou Citroen.



White Punk fungus, *Laetiporus portentosus*. Photo: Lou Citroen

Whilst at this time of year our feathered friends were a little quiet, a 'bird call' at the end of the day – a collective listing, from the group, of bird species spotted – still managed a pretty impressive 27 species. Refer to table below.

One last photo opportunity, as the distant hills were bathed in brilliant late afternoon sunlight to bring out bright greens and dramatic cloud formations, and it was time to head for home to reflect on a special day, shared in wonderful company.

The channel was not flowing which allowed masses of water beetles, *Aulonogyrus strigosus*, to congregate on the surface of some pools. To also spot a pair of camels with young in an adjacent paddock was something of a surprise, as were the two life-sized Jabiru sculptures!

The excursion concluded with the usual gathering to share observations over a cuppa and some nibbles.



An Inch Ant (*Myrmecia pyriformis*) in a bed of moss.

Photo: Cathrine Harboe-Ree

Bird List

Australian Magpie	Golden Whistler	Spotted Pardalote
Australian Raven	Grey Shrikethrush	Striated Pardalote
Black-faced Cuckooshrike	Laughing Kookaburra	Varied Sittella
Brown Thornbill	Little Pied Cormorant	Weebill
Buff-rumped Thornbill	Little Raven	Welcome Swallow
Crimson Rosella	Magpie-lark	White-browed Scrubwren
Eastern Rosella	Maned Duck	White-eared Honeyeater
Eastern Spinebill	Pied Currawong	White-throated Treecreeper
Galah	Red Wattlebird	Yellow Thornbill

SEANA 2024 Autumn get-together, Phillip Island

Over the weekend of 19-21 April, several members of our club joined with those from many other Field Naturalist Clubs from around SE Australia for the Autumn SEANA get-together, ably hosted by the Field Naturalist Club of Victoria. A feast of different half-day excursions was on offer for us to choose from, visiting different corners of the island and with different focuses - geology, botany, fungi, birdlife or invertebrates. A boat cruise out to Seal Rocks was also an option.



Bird spotting at Rhyll Inlet (JR).



Fossicking in the rock pools, Kitty Miller Bay (JR).

Evening meals were well catered for with an excellent speaker each time: Ed Thexton and Gerry Drew gave a passionate presentation on their group's work to "Save the Western Port Woodlands" (see Judy Hopley's separate article), Leon Altoff, convenor of the FNCV Marine Research Group presented stunning photos of a smorgasbord of marine invertebrates and Graham Patterson from the FNCV described his walking trip along the Victorian coast, resulting in three beautifully presented books providing route maps and detailed information on the natural history of different segments. The FNCV also had some books from their bookshop for us to peruse and purchase.

A photo gallery to represent the different excursions and topics follows, contributed by our members Sue Albert (SA), Geoff Harris (GH), Philip Hopley (PH), Euan Moore (EM) and myself (JR).

It was a thoroughly enjoyable weekend and a great chance to meet fellow naturalists and to explore a different region of our state under the guidance of local experts. The next SEANA get-together will be held in Marysville on 25-27 October, hosted by the Ringwood Field Naturalists Club. *Mark your diaries!*

Jenny Rolland

Fungi and lichens were seen on many walks.



Left: (GH) Trooping Crumble Cap (*Coprinellus disseminatus*) on left plus Turkey Tails (*Trametes versicolor*) on right.

Right: (PH) Golden-eye lichen (*Teloschistes chrysophthalmus*).



Geology: there were several striking geological formations around the island, largely associated with volcanic basalt flows.



The Colonnades – basalt columns (SA).



Weathered basalt at Woolamai beach (JR).



Pyramid Rock - an eroded remnant of basalt columns resting on a pink granite base (JR).

Birding:



Cape Barren Goose (*Cereopsis novaehollandiae*) - seen everywhere on the island (GH).



Short-tailed Shearwater (*Puffinus tenuirostris*) burrows, Cape Woolamai (JR).



Pacific Gull (*Larus pacificus*), Wollamai beach (EM).

Coastal vegetation and marine life:



White mangrove (*Avicennia marina*), Rhyll Inlet (GH).



Purple Dewplant (*Disphyma crassifolium*), Forrest Caves (EM).



Mermaid's Necklace (*Chaetomorpha coliformis*), Kitty Miller Bay (EM)



Afro-Australian Fur Seals, Seal Rocks (GH).



Notched Shore Crab (*Paragrapsus quadridentatus*), Kitty Miller Bay (EM).



Lineated Cominella (*Cominella lineolata*), Kitty Miller Bay (EM).

Save Western Port Woodlands

Judy Hopley

At the recent SEANA Autumn gathering on Phillip Island, the opening night guest speakers were Ed Thexton and Gerry Drew, from the "Save Western Port Woodlands" group.

The woodlands are a forest corridor of conservation reserves and remnant vegetation on other public land and on private property along the Bass Highway. The rare coastal forest is under threat from a surge in sand mining activities.



Gerry provided an interesting insight into how the group to save the woodlands was formed and the wins and losses along the way. It was inspiring to hear how a small group of people from diverse backgrounds managed to raise awareness and funds to support their bid to save the woodlands from encroaching sand mining. From sausage sizzles and art raffles to lobbying politicians and organising petitions to appearances at lengthy VCAT proceedings, the "kitchen-table" group amassed skills and expertise that have led to a dedicated campaign supported by many other environmental organisations.

Ed spoke about the biodiversity of the remaining woodlands that provide habitat for many species including Southern Brown Bandicoots, Lace Monitors, Koalas and birds such as Powerful Owls, Swift Parrots and Scarlet Robins. In addition, the area is rich in native orchids and other flora. Ed's photographs revealed how beautiful the forest and its inhabitants are and how threatening sand mining is to this last remnant of coastal forest.

Late last year a proposal that the State Government purchase the eastern half of the now defunct Holden Proving Ground at Lang Lang, an integral part of these woodlands, for the preservation of vegetation was made by the group with the support of Trust for Nature, the Victorian National Parks Association and other groups. While to date there has been no response from the Environment/Tourism Minister, the SWPW group is not giving up, believing that this site is too important to lose.

Additional information and how to assist the group is available at: <https://www.savewesternportwoodlands.org/> and <https://vnpa.org.au/campaigns/western-port-woodlands/>

Life in a Colony of the Imperial Hairstreak Butterflies (*Jalmenus evagoras*)

Mez Woodward

Over February/March I had the privilege of watching a colony of Imperial Hairstreak butterflies (*Jalmenus evagoras*) through two life cycle stages on a knee high Late Black Wattle sapling (*Acacia mearnsii*). The butterflies are quite small (up to 4cm) but their iridescent blue wings made spotting easy.

This small sapling clearly met their two primary requirements for a host plant: an acacia species; and a healthy presence of ants of *Iridomyrmex* genus. In a mutualistic relationship, worker ants offer ceaseless protection to the butterfly larvae and pupae in return for the enticing sugary brew which larvae and pupae can secrete. Amazingly, both larvae and pupae can also produce sounds to communicate with the ants.



Iridomyrmex ants attend late stage caterpillars



Males & ants await the females emergence from her pupal case

Male butterflies are competitive, and mating takes place almost immediately after the female emerges from her pupal case, often even before she can fly! The two males photographed were hanging around this particular pupa, both they and the ants clearly knowing a female was about to emerge. On my return a short time later only an empty pupal case remained. I had completely missed the show.

Eggs are tiny (0.6mm), greenish, totally exquisite works of art as shown. The female photographed spent some time exploring and probing a number of crevices and holes in the branches and trunk before choosing her site. Ants were busying

about her and were particularly attentive once she started ovipositing.

Survival of the larvae depends significantly on the presence of sufficient ants for protection as well as the tree foliage supplies. For this colony the tiny acacia was completely defoliated and in the end there was no evidence of larvae or ants.



Female preparing for egg laying



Egg cluster at base of Acacia trunk

Some egg masses remain and perhaps will overwinter. The ant nests will hopefully remain to service new populations next season. The particular species of *Iridomyrmex* has yet to be confirmed on iNaturalist.

Observations

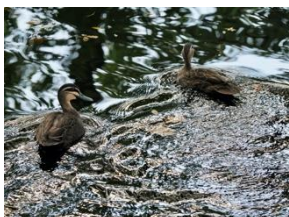
Peter Turner reported that the Flying Fox numbers in the CBG were reduced to only about 200 from approx. 2000. He also reported that the Powerful Owls in the CBG are expecting a new family member in August. The male had been seen taking food to the female in the nest hollow.

Geraldine Harris is pleased with the many White-naped Honeyeaters, *Melithreptus lunatus*, in her garden. While Mallard hybrid ducks in Lake Joanna show a range of colorations from almost full, introduced Mallard (*Anas platyrhynchos*) to native Pacific Black Ducks (*Anas superciliosa*). Euan Moore pointed out that Mallard ducks can be distinguished from Pacific Black Ducks by their beak and leg colours – the Pacific Black Duck has a dark beak, the Mallard yellow, and the Pacific Black Duck has green legs, the Mallard orange.

Photos – Geraldine Harris



White-naped Honeyeater
Melithreptus lunatus



Pacific Black Duck
Anas superciliosa



Hybrid Mallard / Pacific
Black Ducks



Alison Radford observed this Parson's Bands orchid near Newstead. It shows even after a dry autumn at least one orchid thought to rear its head.



Noel Young sighted this immature Grey Butcherbird (*Cracticus torquatus*) in the Castlemaine Botanical Gardens near the Barkers Creek on May 13th.



After the rain in early May, **Euan Moore** observed this moth, left, *Oxycanus silvanus*. They have a similar life habit as the Barmy Moth *Abantiades atripalpis* in that the larvae live and pupate in hollow tunnels underground. Rain will trigger the adults to eclose and emerge leaving an exuviae (pupal case) protruding from the soil. Within a day they mate and the females will lay and scatter hundreds of eggs on the soil surface.

Friday 24th May around 10:00am Euan Moore spotted two Rakali in Barkers Ck below the southern footbridge across the creek. One was quite active working its way from below the bridge upstream to where the creek narrows. It then ran up the bank and disappeared behind/into the base of a large tree about halfway up the bank. A second animal came out of the water and vanished into the grass at about the same time. Nice to see these in the creek. Unfortunately no photos.



Left: Patches of this bright orange Fire Fungus, *Pyronema omphalodes* were found by **Jenny Rolland** in burnt areas of the Walmer forest near Youngman's Track, where there had been a planned burn 4 weeks previously. This fungus is triggered to fruit and flower early after a burn and may play a role in recovery from a forest fire.

Right: Over a period of about 10 years this is the 3rd sighting of a Koala by **Jill Williams** in the Eucalypt buffer boundary planted around the Daylesford Waste Water treatment facility. This boundary of trees is supposedly to mitigate the risk of treated water reaching the Larni Barramal Yaluk.



FROM THE COMMITTEE

We have had very strong attendance at our last two meetings and excursions, and we now encourage everybody to participate in the winter Zoom meetings over the next three months, while keeping warm and dry at home. Instructions on how to register for the Zoom meetings will be in the email reminder for the meeting. The excursions will continue throughout, of course.

We are soon to release a completely revised *Geological Features of the Castlemaine District* brochure, which will provide an excellent guide to our interesting physical environment, and various Club members are busily working on two other projects. Some are walking the streets of Castlemaine checking the presence of native trees for the revision of the *Native Street Trees of Castlemaine* brochure and to provide input to a database that will be accessible through our website. Others are scanning archival material that will be held on the Club's cloud storage, allowing these physical documents to be placed in archival storage. Many of our past newsletters are available through the Biodiversity Heritage Library (BHL). Also thanks to BHL, our Club Wikipedia page is now online, see

https://www.wikiwand.com/en/Castlemaine_Field_Naturalists_Club.

If you have comments or suggestions about the page please let us know.

COMING EVENTS

MONTHLY MEETING: Friday 14th June, 7.30pm by Zoom

“Citizen Science Unlocking the Natural History of Rosenberg’s Goanna”

Speaker: Dr Don Fletcher (Threatened Species Recovery Hub)

The June meeting will be the first of our 3 winter meetings by Zoom for 2024, with our guest speaker being Dr Don Fletcher, an ecologist with the National Parks Association of the ACT. Don will describe a Citizen Science research project on Rosenberg’s Goanna (*Varanus rosenbergi*) in Namadgi National Park, ACT that has been uncovering fascinating new information about this species which can aid in its conservation. Don will explain how a lot of time had to be spent in overcoming practical problems like ‘How do you catch female Rosenberg’s Goannas?’ and ‘How can you attach a GPS to an animal that spends most of its life underground, without it becoming trapped by the GPS and killed, or dislodging the expensive equipment underground?’ but there has also been time for some amazing discoveries.

How to join the Zoom meeting – you need to register in advance to receive the link for joining the Zoom session. Details for registering will be in our June **“Latest updates from CFNC”** email. Alternatively you can copy this url into your browser: <https://us06web.zoom.us/meeting/register/tZEuduipojH9xweZUIDgh06dPitcOMOZ8h>.

Observations: Members and visitors are invited to share their interesting observations at the meeting. Please email any photos to illustrate your report as JPEG file(s) to **Jill Williams** (jilliwill33@gmail.com) by noon on the day of the meeting.

EXCURSION: Saturday 15th June, 10.00am

“Fungi search” with Joy Clusker, Leonards Hill

For our June excursion, we will search for fungi with Joy Clusker who will give us tips on identification and where to find fungi. Since autumn has been dry, we will travel south to cooler, damper forests for a better chance to find a good range of fungi. So we will meet earlier than usual and take a picnic lunch.

Meet: at the Octopus (opposite the Castle Motel in Duke St) for a prompt **10.00am** departure (car-pooling as much as possible) or meet at **10.45am** at Leonards Hill, about 9.5km south of Daylesford, at the corner of Gambles Lane and the Ballan Daylesford Road (Google Maps [link](#)). Park in the open area on the corner as you turn left into Gambles Lane when travelling south. We will then travel in convoy down Gambles Lane and into the forest.

Bring: Water, snacks, **clean** sturdy shoes, chairs and lunch. Also a small mirror for viewing the underside of fungi caps would be useful.

Disclaimer: The opinions expressed in this newsletter are those of the contributors and not necessarily those of the club.

Castlemaine Field Naturalists Club PROGRAM

Monthly meetings will be held on-line via Zoom again during the winter months (June, July and August) commencing at 7.30pm. Please register in advance (see "Coming Events" page) to receive the link for joining the meeting.

Observations: Members and visitors are invited to share their interesting observations at these meetings. Please email any photos to **Jill Williams** (jilliwill33@gmail.com) by noon on the day of the meeting.

Excursions (Saturday following the monthly meeting) leave from the car park opposite the Castle Motel, Duke Street at 1.30pm unless stated otherwise.

See "Coming Events" page for more details about June events.

Fri June 14th, Meeting 7.30pm (by Zoom). Guest speaker: Dr Don Fletcher (Threatened Species Recovery Hub) "Citizen Science Unlocking the Natural History of Rosenberg's Goanna".

Sat June 15th, Excursion. 10.00am at the Octopus or **10.45am** at Leonards Hill, Daylesford. "Fungi search" with Joy Clusker.

Fri July 12th, Meeting 7.30pm (by Zoom). Guest speaker: A/Prof Jonathan Plett (W Sydney Uni) "How plants and fungi communicate during symbiosis".

Sat July 13th, Excursion 1.30pm "Street Trees of Castlemaine". Leaders: Rosemary Turner and Susan Luke.

Membership renewal reminder

Members are reminded that membership renewals are now overdue.
This June issue of the Newsletter will be the last for non-renewals.

Castlemaine Naturalist - email newsletter material to: newsletter.cfnc@gmail.com

* Deadline for the July edition: **28th June**

Subscriptions (Membership forms on CFNC website, fees due by 1st April)

Ordinary membership: Single \$35, Family \$50

Pensioner or student: Single \$25, Family \$30

Subscription includes the monthly newsletter, Castlemaine Naturalist.

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