



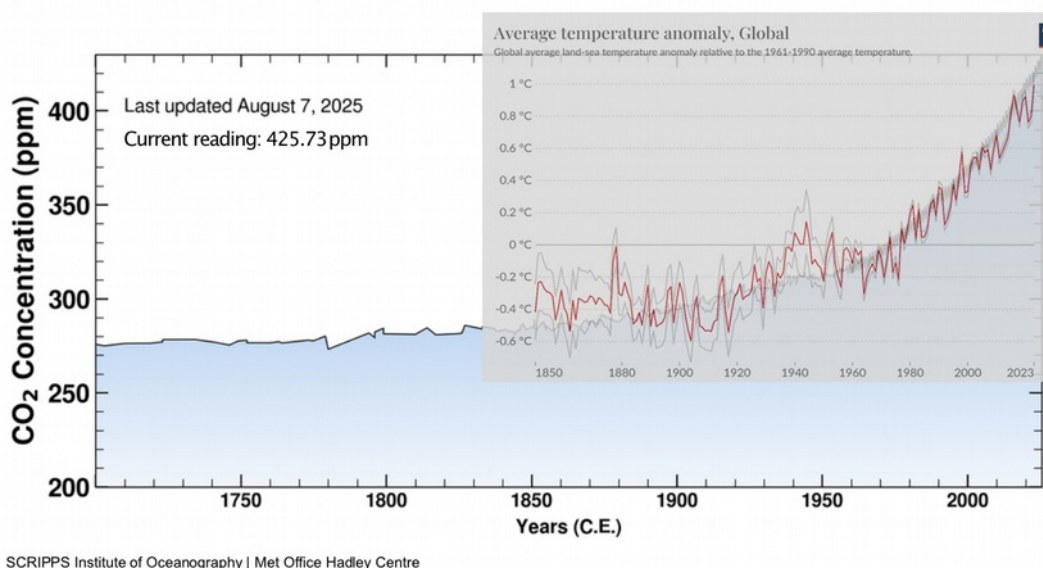
Eastern Greys enjoying winter sunshine
Photo: Noel Young

What will Climate Change bring to Castlemaine weather?

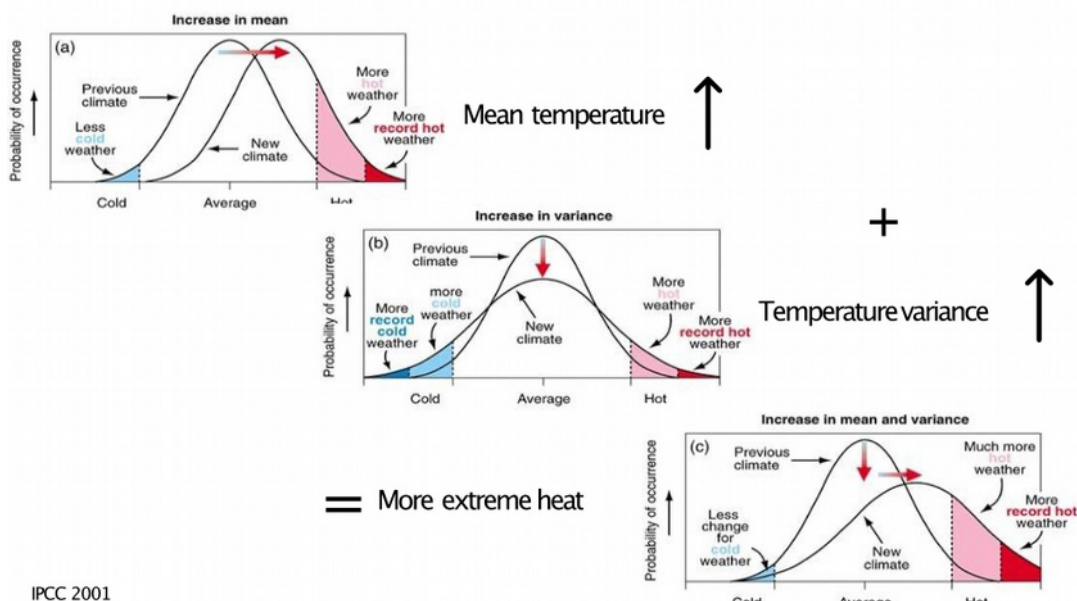
At the August meeting we were treated to an address by climate scientist, Dr. Linden Ashcroft, on the topic of how climate change is likely to affect Castlemaine's weather. Linden is an award-winning climate scientist and science communicator at the School of Geography, Earth and Atmospheric Sciences, University of Melbourne. Her research focuses on historical climatology, using pre -1900 documents and weather observations to improve understanding of Australia's past climate.

To introduce this somewhat complex topic she brought us up to speed with a summary of the science behind the concerns and implications of 'global warming' leading to adverse changes in climate around the world.

We were reminded that while only 0.1% of the atmosphere is made up of greenhouse gases, the increase since the Industrial Revolution is more than enough to disturb the balance of sunlight energy input and heat radiation to space. The natural balance of this process gave a planetary average of 15°C, which is currently around 16°C and rising. We were shown the classic graphs of increasing CO₂ in the atmosphere (the Keeling curve extended back in time by measurements from ice cores) and averaged atmospheric temperature increase superimposed to show a close correlation.



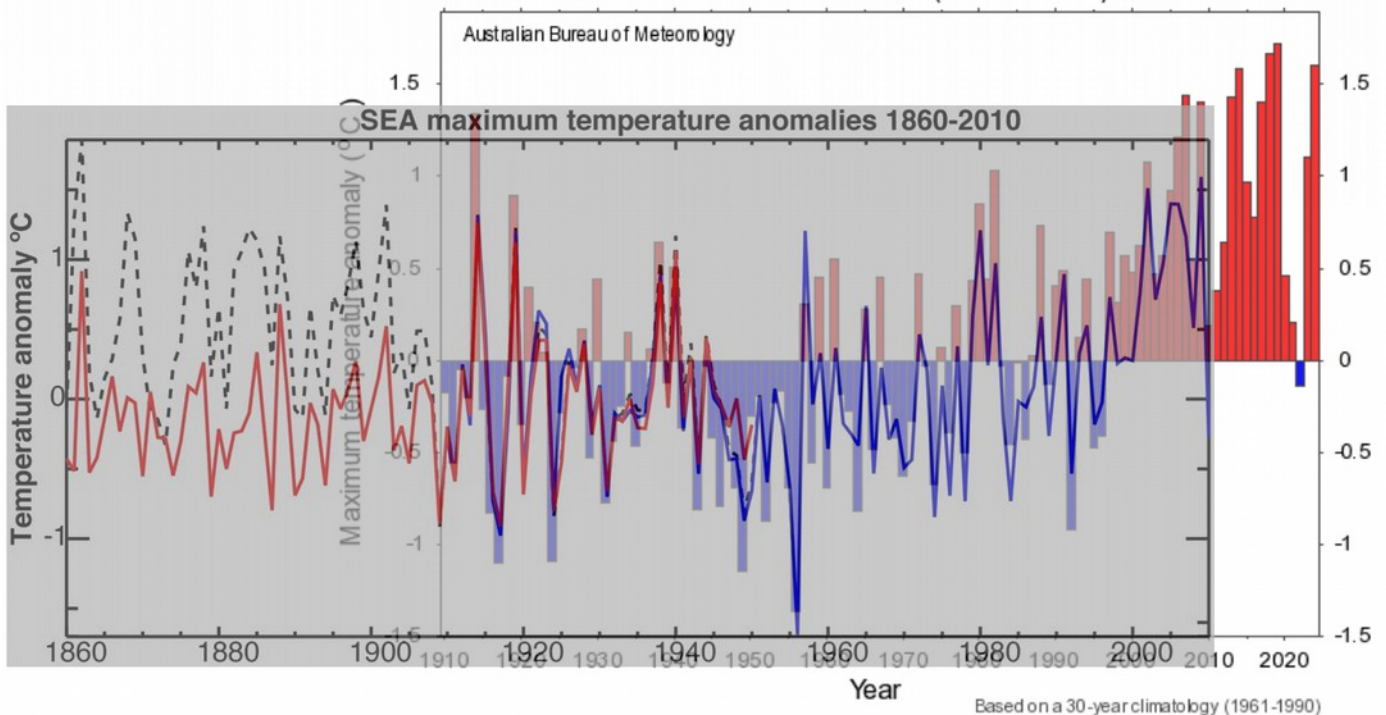
The Castlemaine Field Naturalists Club acknowledges the Dja Dja Wurrung community as the Traditional Owners and Custodians of the Country where we meet and study the natural environment. We pay our respects to their Elders, past, present and future.



The broad effect of this temperature increase is shown at left. The “bell curve” representing the spread of temperature is shifted and broadened with resulting changes at the extremes.

Part of Linden's work has involved extending the temperature records back to 1850 with careful corrections for various inadequacies. The next graph (below) of the trend in maximum temperature anomalies (south-east Australia) shows an alarming increase from the 1990's on.

Annual maximum temperature anomaly
Southeastern Australia (1910 to 2024)



What is the difference between climate and weather?

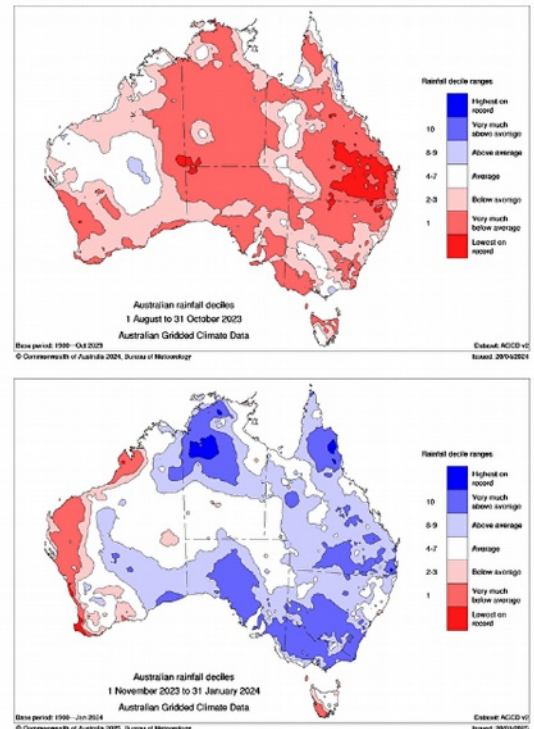
“Climate is what you expect, and weather is what you get”, or perhaps “Climate is what you expect and weather is what gets you”. Linden used an analogy of the wardrobe; your range of clothes would be chosen for the climate, but on a given day you would choose to wear what is appropriate for the weather.

The following part of Linden's talk was a dive into the rather complex drivers of Australia's climate, the most important being the ENSO (Southern Oscillation), a cycle the end points of which are generally known as 'El Niño' and 'La Niña' from its South American derivation. This has the general effect of pitching Australia into either a drought (El Niño) or a wet excess (La Niña) and is related to the direction of warm water currents and moisture laden air in the Pacific. However, its effect varies considerably, and is complicated by other influences like the Indian Ocean Dipole (IOD) and the Southern Annular Mode (SAM). A La Niña episode is a more reliable indicator of excess rainfall than El Niño is of a drought.

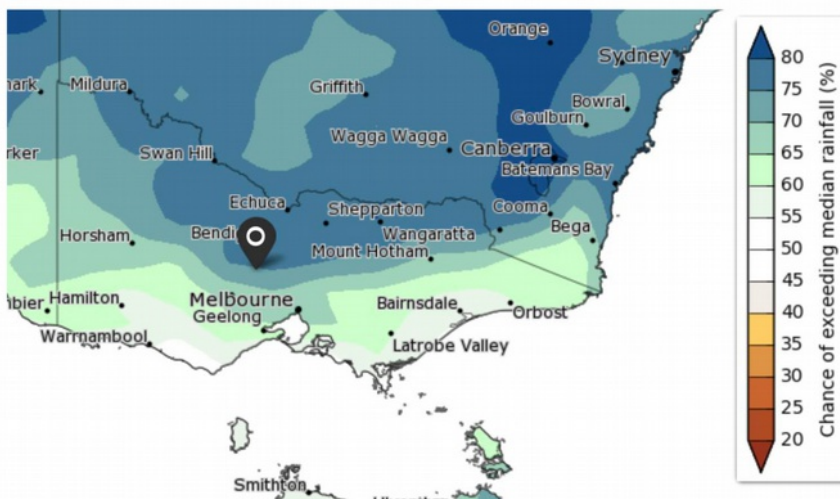
As examples of El Niño unreliability, we were shown rainfall maps including the one below depicting 2023/24 rainfall. The three months of 2023 from August to October were the driest on record through most of Australia, but from November on it was very wet, while this was all in El Niño conditions.

For example, 2023

- El Niño active from September 2023 to 2024
- Late Autumn–early spring VERY dry
- Wetter than average from November to Jan thanks to tropical cyclones and weaker westerly winds over southern Australia (positive SAM)



SEPTEMBER TO NOVEMBER FOR CASTLEMAINE

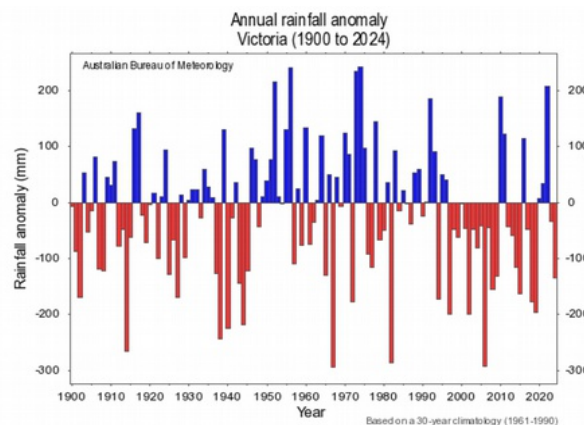


Castlemaine has a temperate oceanic climate with a clear seasonal cycle and a few below zero events in the cold months. Our average rainfall is about 600mm with most of the rain falling in winter from cold fronts. What are the trends in annual rainfall for Castlemaine? What does this mean for Castlemaine's weather outlook?

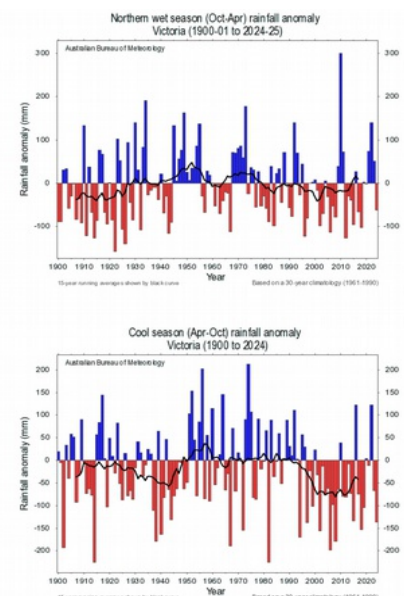
At present, the IOD is commanding attention, as the predicted warm ocean currents to the NW of Australia (Indian Ocean) may induce extra atmospheric moisture which can carry south to invigorate the cold fronts that effect the SE, thus the current prediction of higher than normal rainfall for the next few months in Victoria.

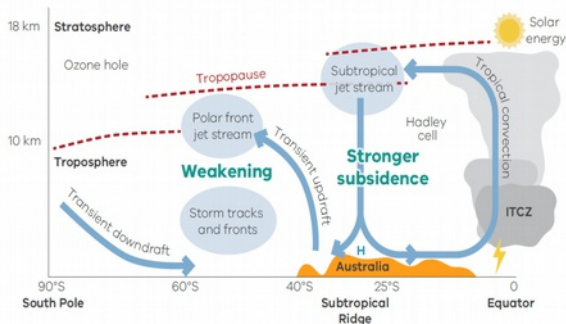
This illustrates one of the many factors influencing our rainfall, and how tricky it is to predict the influence of climate change on local precipitation.

The main trend from all the data indicates increasingly dry winters, though in the warmer months there is no clear trend. The graph set at right shows rainfall anomalies from 1900 and splits of summer and winter for the same timespan.

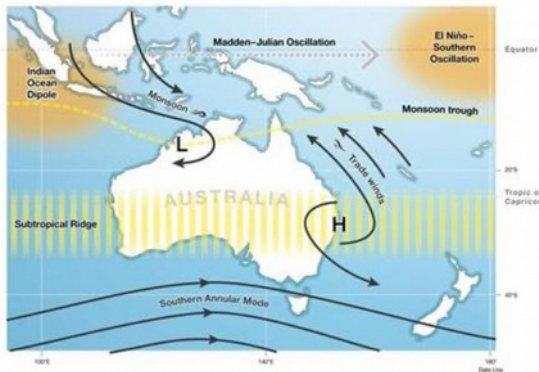
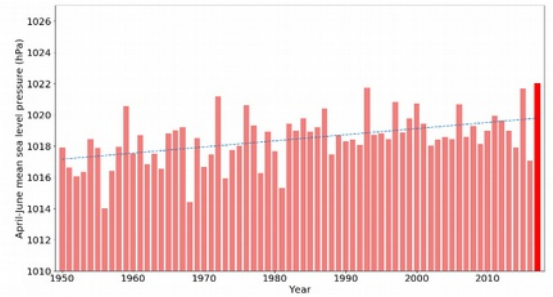


There is a drying trend in southern Australia during the cooler season, and no clear trend in summer





High pressure systems are becoming stronger and more frequent over southern Australia during winter, associated with stronger global circulation. This means calm clear weather in autumn and winter, with less rainfall



The drying trend in winter is explained by the expanding equatorial circulation (Hadley Cell) moving the subtropical ridge (high pressure zone) further south and increasing its strength across southern Australia. This trend is reflected in the increasing mean pressure graph (above right) for April to June from 1950. In the warmer season, expansion of the tropics leads to more rainfall from the North.

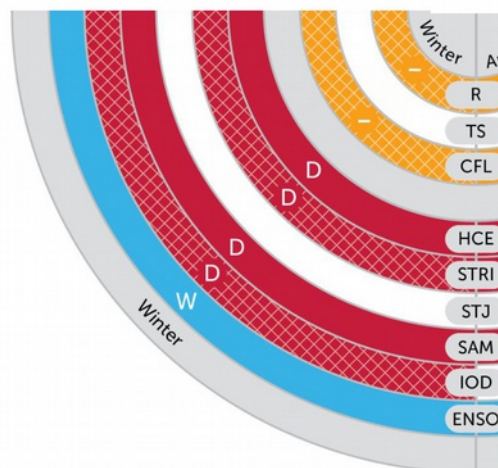
As a result the number of lows is decreasing in winter and the average rainfall from each low or front is also decreasing. Rainfall from combined events is generally increasing during summer, but with higher variability.

In winter the story is pretty clear: components at most scales explain the drying trend. (right)

Things are messier in the warm half of the year; there is a combination of wetter and drier influences. This means less confidence in the significance of trends.

The panel below summarises the predictions for Castlemaine on four scales:

- 1: Local weather;
- 2: synoptic chart changes;
- 3: the continental climate influencers (ENSO etc.) and
- 4: overlying global trends.



Rainfall trends

Southern Australian rainfall (R)
Rainfall from thunderstorms (TS)
Rainfall from cold fronts/low pressure (CFL)

Trend estimate

— — — — —
Negative Nil Positive

Trends in rainfall drivers

W Wetting favoured
D Drying favoured

Hadley Cell extent (HCE)

— — — — —
Equatorward Nil Poleward

Subtropical ridge intensity (STRI)

— — — — —
Weaker Nil Stronger

Subtropical jet (STJ)

— — — — —
Equatorward Nil Poleward

Southern Annular Mode (SAM)

— — — — —
Negative Nil Positive

Indian Ocean Dipole (IOD)

— — — — —
Negative Nil Positive

El Niño Southern Oscillation (ENSO)

— — — — —
La Niña-like Nil El Niño-like

Confidence

— — — — —
Low Mod/High



In winding up Linden proposed that the biggest source of uncertainty about our future climate is people and the likelihood of action being taken to limit climate change. On a positive note she points out that the majority of us (some 75%) care about climate change, and it is a loud minority that oppose action. Stories such as our observations have more power to persuade than cold statistics, and to bear in mind that people all have their own backgrounds, experiences and judgements influencing their attitude to this vexed topic.

In summary, our climate and weather interact in many different timescales. Predicting future rainfall changes across Victoria in a warmer world is tricky, because there are so many factors involved. The more we can limit global warming, the more we reduce our risk of more extreme events.

At the conclusion of this most interesting address, Linden invited questions from the audience. This led to a searching discussion around how to cope with an existential crisis, and what can educators tell the children of today? Linden remarked that the greatest realists are “daughters, grand-daughters and insurance companies”

As I write this, There are wildfires burning out of control in southern Europe from Spain to Turkey, and

unprecedented monsoonal floods wreaking havoc in Pakistan. We could all make a long list of climate induced catastrophes over the last 20 or 30 years, but in Australia it is hard to discount the repeated bleaching of the coral reefs, widespread algal blooms and the massive firestorms in the summer of 2019, reflection on which was quickly cast aside by the Covid pandemic. The strength of action subsequent to Covid really needs to be applied to the climate crisis.

It is fortunate that we all have the capacity for 'cognitive dissonance' as a kind of self protection, or as Robyn Williams of ABC's Science Show once wryly proclaimed “I only despair on Mondays, Wednesdays and Fridays”. Currently the science trashing and climate denial of the Republican

Government in the USA is adding to the problem, and the implications of this were discussed.

But Linden explained that from her own experience the best, perhaps the only attitude to take is to contribute something positive. One of the best ways to stay positive is to act positive. She suggested that this does include activities that we are familiar with such as landcare, nature observations, group activities, citizen science and so on. “No one can do everything, but everyone can do something” was a motto attributed to iNaturalist. It all helps to spread the message which hopefully will isolate the powers of resistance and the merchants of doubt.

Noel Young

All illustrations kindly supplied by Dr. Ashcroft

References:

<https://wires.onlinelibrary.wiley.com/doi/full/10.1002/wcc.820>

Victoria's Water in a Changing Climate Report (2021) <https://www.water.vic.gov.au/our-programs/climate-change-and-victorias-water-sector/water-and-climate-science-research/victorian-water-and-climate-initiative>

https://en.wikipedia.org/wiki/El_Ni%C3%B1o%E2%80%93Southern_Oscillation

Local Grassland Treasures

August excursion by Kerrie Jennings

On a crisp, clear morning in early August, we met just outside Maldon, eager to visit three distinctly different roadside sites in the Baringhup area. In doing so, we crossed not only the Loddon River, but the boundary dividing two distinct bioregions – “Goldfields” and “Victorian Volcanic Plains”.

Our search was for ‘Grassland Treasures’, increasingly rare across Victoria, with less than 1% of native grasslands remaining. Firstly, we visited a small remnant of Grassy Woodland that had been regenerating unpretentiously on a country roadside. Here we took a few moments to ground ourselves in the landscape beneath Mount Tarrengower and in the late winter season – interestingly, the Dja Dja Wurrung calendar tells us it's

Wararak and Gurruk time (Silver wattle and magpie time) (Jul-Aug). We set about closely examining and identifying plant species, initiating a plant list for our small remnant, noting wildlife and enjoying an enthusiastic curiosity.

We then progressed through Baringhup township, crossed the Loddon River and soon were on the basalt soils of the Volcanic Plains. Among the broadacre farming properties of Baringhup West, we explored a local roadside project area where a small number of *Pimelea spinescens* (Spiny Rice-flower) (CrE) plants remain under the care of Mount Alexander Shire Council, aided by Baringhup Landcare and volunteer firefighters from Baringhup West CFA, and others. This program involves

monitoring, regular burns to keep the vegetation ‘open’ and free from heavy grass cover, e.g. *Phalaris*, and weeds. We examined the foliage, recognised male and female flowers, viewed photos from the cool burn project, and heard from a local former CFA Captain and farmer who had supervised one of the first recovery site burns. We enjoyed an experience that is not guaranteed in the future without ongoing care and support.

Arriving at our final roadside stop, we explored captivating remnant Buloke Woodland and enjoyed a sunny, relaxed picnic lunch and conversation with locals, exchanging ideas and knowledge, while soaking up the birdlife, gentle native grasses, and pondering our recent discoveries and understandings.



Yellow-flowering *Pimelea spinescens*
Photo: Geraldine Harris



Photo centre: Lou Citroën



Photo: Kerrie Jennings



Photo: Kerrie Jennings



Photo: Lou Citroën

Fauna and Flora list from the excursion 09/08/2025

Stop 1 – Hayes Rd

Thelymitra leaves: at least 2 sp., possibly 3
Arthropodium strictum, Chocolate Lily
Lomandra sp.
Burchardia umbellata, Milkmaids
Thysanotus patersonii, Twining Fringe-lily
Pimelea linifolia, Slender Rice-flower
Dianella revoluta, Black-anther Flax-lily
Gonocarpus tetragynus, Common
 Raspwort
Austrostipa sp., Spear Grass
Pelargonium rodneyanum, Magenta
 Stork's-bill
Acacia verniciflua, Varnish Wattle
Xerochrysum viscosum, Sticky Everlasting
Rytidosperma sp., Wallaby Grass
Hibbertia riparia, Erect Guinea-flower
Brachyloma daphnoides, Daphne Heath
Goodenia sp.
Bulbine bulbosa, Bulbine Lily
Hydrocotyle laxiflora, Stinking Pennywort
Rumex brownii, Slender Dock

Drosera aberrans, Scented Sundew
Melichrus urceolatus, Urn Heath

Birds:

Australian Magpie
 Galah
 Grey Shrike-thrush
 Long-billed Corella
 Weebill
 Striated Pardalote

Stop 2 Green Lane

Pimelea spinescens, Spiny Rice-flower (CrE)
Themeda triandra, Kangaroo Grass
Austrostipa sp., Spear Grass

Birds:

Australian Magpie
 Black Kite
 Eurasian Skylark

Feral species:

Pig – possible pig tracks (animals have been sighted in the local area)

Stop 3 Buloke

Allocasuarina luehmannii, Buloke (CrE)
Amyema linophylla subsp. *orientalis*,
 Buloke Mistletoe (CrE)
Acaena sp.
Austrostipa sp., Spear Grass
Xerochrysum viscosum, Sticky Everlasting
Einadia nutans, Nodding Saltbush
 **Lepidium africanum*, Common
 Peppercross
 * Introduced

Birds:

Brown Treecreeper
 Galah
 Grey Shrike-thrush
 Little Raven
 Welcome Swallow
 White-plumed Honeyeater
 Willie Wagtail
 Owl sp.

Observations



Little Pied Cormorant
Photo: Noel Young

Geraldine Harris



Above: On the Baringhup excursion - Euan keyed this plant as *Leiocarpa websteri*, Narrow Plover-Daisy.



Top right: At Baringhup I was also interested to note the same rings on the branchlets and on the old dead tree trunk of the *Allocasuarina luehmannii*, Buloke (Critically Endangered).



Lower right: At home at Barkers Creek - I photographed some fine markings on the trunk of a young eucalypt in our garden. Can anyone identify them?



Peter Turner

On a walk in the Gardens (on 31/7) this Kookaburra was sitting low in a small tree near the path along the creek staring very intently. Then it flew down to the nearby grass - and pulled a meal out of the ground! Quite a long meal.

It is reported that magpies hear the worms etc in the ground that they feed on, and it seems that Kookaburras might too!



Below:

Pterostylis nutans seen on 17th August along Kalimna Road.

Photo: Peter Turner



Sue Luke

Two observations from Muckleford

30 November 2024, late afternoon. Tree Goanna (*Varanus varius*) about 1.2m in length spotted as it dashed up an Ironbark and stayed there for 3 days (pardon the poor quality of this image)

11 July 2025, mid-afternoon Koala (*Phascolarctos cinereus*) in a young River Red Gum. Appears to have some brown staining on rump, indicative of 'wet bottom' *Chlamydia pecorum*





Lou Citroën

Left: A pair of Galahs mutually preening.

Below: I managed to get a few lovely shots of this beautiful little froglet, no more than 30mm long. I uploaded it to iNaturalist but there's been no response as yet with ID.



Noel Young

Sometimes you take a headlong dive into things but end up with cold feet.

Coming Events In September

Wednesday Wildflower Wanders

During September and October, we will enjoy fortnightly late afternoon excursions on Wednesdays to nearby sites to enjoy the wonderful wildflower show in our local Box-Ironbark woodlands. Our first wander will be in Kalimna Park on **Wednesday 10th September at 4pm**.

Leader: Peter Turner

Meet: in the car park north of the Railway Goods Shed in Kennedy St ready to car-pool and leave at 4 pm, returning by about 5.30 pm.

Bring: Clean, sturdy footwear and a walking pole if you use one.

The Wildflower Wander will be cancelled in extreme weather conditions.

12th -14th September – Wedderburn Weekend

There will not be a Monthly meeting or Saturday Excursion in Castlemaine this month, instead a weekend of activities has been arranged in Wedderburn as advised earlier ([July "Castlemaine Naturalist" newsletter](#)). Bookings are full but contact the club castlemainefnc@hotmail.com for a possible late registration.



Masked Lapwings
Photo: Noel Young

Program

Monthly meetings return to “in-person” in October at the Uniting Church Hall, Lyttleton St. Castlemaine commencing at 7.30pm.

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

Excursions are held on the Saturday following the monthly meeting and leave from the northern end of the car park north of the Railway Goods Shed, Kennedy St. at 1.30pm unless stated otherwise.

See “Coming Events” page for more details about September events.

Weds 10th, 24th September 4.00pm
Wednesday Wildflower Wanders

Fri 12th-Sun 14th September
CFNC Weekend at Wedderburn

Weds 8th, 22nd October 4.00pm
Wednesday Wildflower Wanders

Fri 10th October 7.30pm
Meeting (UCH): “Saving Australia’s plants from extinction”
Speaker: Anna Murphy (Threatened Species Officer, DCCEEW)

Sat 11th October 1.30pm
Excursion: “Creating a wetland environment”, Chewton
Leader: Cathrine Harboe-Ree

See our website calendar of events for further dates and activities: [Calendar of Events – Castlemaine Field Naturalists Club](#)

Visitors are welcome at club activities

Castlemaine Field Naturalists Club Inc.

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Membership

Includes the monthly newsletter, Castlemaine Naturalist.
(Membership forms on [CFNC website](#))

Single \$35, Family \$50
Pensioner or student:
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Email items: newsletter.cfnc@gmail.com

October edition deadline: **26th September**

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Treasurer: Geoff Harris

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Jenny Rolland	Peter Turner
Jill Williams	Noel Young
Newsletter Editors: Noel Young, Jenny Rolland, Jill Williams	

Program Coordinator:
Jenny Rolland

Newsletter Distributor:
Geraldine Harris

The Nodding Greenhood *Pterostylis nutans* is the emblem of the club. Design by Rita Mills.

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