



Friends of Pallisters Reserve Inc.

Pallisters Reserve is a 254 ha wetland reserve at 457 Masons Road, Orford, owned by Trust for Nature, and managed by the Friends of Pallisters Reserve Inc. Established January 1990

Jan.
2024



Next meeting: Sunday, January 21, 2024

10am: Working Bee

noon: Lunch

1:00pm: Meeting

January Meeting Objectives

- Woolshed housekeeping
- Mowing and track maintenance
- Weed control
- Clear fallen tree limbs and branches
- Seed collection

At the Reserve

- It's been a bumper season for grass at Pallisters. Thanks to Frank and Leon for mowing the tracks in December.
- Frank also secured the picnic tables under the rear verandah so they do not turtle when more members sit on one side than the other.
- We have had the fire-breaks re-slashed.
- Julia reports that the giant bolete – *Phlebopus marginatus* – mushrooms are up. These monsters can weigh close to 30 kg and are considered to be Australia's largest terrestrial mushrooms. Wikipedia tells us that they can be eaten, but have a bland taste and are inclined to be maggot-ridden. Yum.



Phlebopus marginatus (Alan Smith – ABC News 20/5/2023)

Drosera peltata
Pale Sundew



Flora Survey Proposal

Pallisters member John Miller proposes to conduct a wildflower identification and survey course at the Reserve.

This course is included in the U3A Port Fairy listings for February to June 2024. Because it lies close to Port Fairy and has a range of contrasting vegetation types, John considers Pallisters Reserve to be an venue for the course, the objective of which is to undertake a series of botanical surveys of vascular plants found in local bushland areas. A retired botanist with ongoing engagements, John has the permits required to collect specimens which can be identified and preserved. Site collections will be sent to the National Herbarium of Victoria for inclusion in the national plant collection.

One of the outcomes of the course would be a compilation of vascular plants at Pallisters which could be compared with our historical records.

Several Friends of Pallisters are intending to enrol. John will attend the January 21 meeting for a discussion of his proposal.

Letter to the Editor

Further to the info on honeyeaters, I take the opportunity to beat my drum about what honey I buy, which is macadamia, being the only named source that's not a food for honeyeaters; it's plantation grown trees. Commercial bees should not be allowed in Box, Redgum, Leatherwood and other precious native forest areas. Also, all honey should specify source so us purists have a wider choice, say of clover or bluegum plantation etc.

...Shirley Duffield

Pallisters Reserve lies in the traditional Country of the Gunditjmara and Eastern Maar peoples, who never ceded their sovereignty of the Land. We are indebted for their past and ongoing custodianship.

Meetings are held at the Reserve; usually every fourth Sunday except July and December.

Co-leaders: Julia Schlapp 0427 778 265 & Anthony Leddin 0408 333 046 Sec./Treasurer: Trevor Kennedy 5565 8692;

Minute Sec.: Nick Glover; Newsletter Editor: Ross Hicks (pallisters_newsletter@proton.me).

nc No. A0033814P ABN 360 787 792 <http://www.apswarnambool.org.au/pallisters/> <http://www.facebook.com/pallisters>

Kangaroo Grass: An Invasive Non-Native?

Kangaroo grass – *Themeda triandra* – is usually described as a native grass. Is it? Despite being the most widespread plant in Australia, phylogenetic evidence shows that *T. triandra* originated in South-East Asia and India about 3.5 Ma (3.5 Million years ago), *i.e.*, recently on the evolutionary timescale of grasses. *T. triandra* subsequently diverged into numerous races, some of which colonized Australia about 1.3 Ma. Later it extended its range to the Middle-East, Africa, Madagascar, New Zealand and the Pacific.

Just how it spread so successfully is unknown, however *T. triandra* is such an aggressive colonizer that just a few seeds – transported somehow – would be required for its dispersal.

In Australia and Africa (where it is known as “red” or “red oat” grass) *T. triandra* quickly became the dominant species of grasslands and savannas to the extent that is now the most widespread C₄ plant (see box) in the world. For sub-Saharan Africa, *T. triandra* has been called “the staff of life to the grazing animal”: herbivores find it nutritious and irresistibly palatable, as do some seed-eating birds. In Australia, kangaroos – and livestock – graze on *T. triandra*. Presumably, megafauna also did.

In part, the success of *T. triandra* relies upon its response to the interplay of herbivore grazing patterns with the seasonal grassfires that blaze across tropical grasslands: grazing spreads the seeds and *T. triandra* rapidly re-sprouts following fire. In addition, the C₄ photosynthesis chemistry of *T. triandra* means that in stressful conditions it can fix carbon more efficiently than most other plants.

A clumping perennial grass, *T. triandra* is one of Australia’s most identifiable native grass species, growing not only in open grasslands, but also in dry sclerophyll forests and coastal and inland shrub- and heath-lands. In our South-West region it is often seen beside roads in situations which have been burnt or mechanically disturbed.

First Nations Peoples in arid regions of Australia consumed ground *T. triandra* grain as bush tucker, and also used the leaves and stems for making string fishing nets.

In collaboration with researchers from La Trobe University, the Dja Dja Wurrung Aboriginal Clans Corporation of central Victoria is currently investigating if kangaroo grass can be grown as a commercially-viable food crop. *T. triandra* has advantages compared to other grain crops: it can grow on degraded land – in the process restoring the land while it grows. It is very drought-resistant and tolerates extreme changes in temperature. *T. triandra* is a perennial grass, meaning that it does not have to be re-seeded every year.

Owing to its low-maintenance requirements and attractive foliage and seed heads, *T. triandra* is cultivated as an ornamental in domestic gardens.



Sources

- Luke T. Dunning *et al.*, The recent and rapid spread of *Themeda triandra*. *Botany Letters*, 164, 327-337 (2017).
- Luke T. Dunning *et al.*, Hybridisation and chloroplast capture between distinct *Themeda triandra* lineages in Australia. *Molecular Ecology*, 31, 5846–5860 (2022)
- H.A. Snyman *et al.*, *Themeda triandra*: a keystone grass species. *African Journal of Range and Forage Science*, 30, 99-125 (2013)
- Wikipedia: *Themeda triandra*

Photosynthesis Variants

Photosynthesis is the process by which plants combine CO₂ with water to produce energy-containing carbohydrates, at the same time discharging O₂ gas back into the atmosphere. As “*photosynthesis*” implies, this process is driven by light energy, usually from the sun.

In practice, photosynthesis proceeds by a complex chain of over 100 inter-connected chemical reactions, a detailed understanding of which is still lacking.

Several variants of the photosynthetic process exist. The majority of plants use the C₃ variant, so-named because of a 3-carbon compound produced in the process. About 85% of plants are C₃, including almost all trees and most of the grain crops we eat: wheat, rice, and soybeans.

Plants that rely on the C₄ variant form an intermediate 4-carbon compound. The C₄ pathway is utilized by just 3% of vascular plants, yet these plants account for 23% of carbon fixation. Maize, sugarcane and sorghum are C₄ plants.

Compared to C₄ plants, C₃ plants are disadvantaged when water- and heat-stressed. Under such conditions, their leaf pores – stomata – close and the plants process O₂ rather than CO₂, reducing their photosynthetic efficiency. With climate change – and because plants form the basis of our food chain – there is much motivation for incorporating C₄ properties into C₃ crop plants.

CAM is a third photosynthesis variant. During daylight hours CAM plants absorb sunlight energy, storing it until the night to fix CO₂. Cacti and other desert plants rely upon CAM. Also pineapples and orchids.