Friends of Pallister's Reserve Inc.

Pallister's Reserve is a 254 ha wetland reserve on Masons Road, Orford, owned by Trust for Nature, & managed by the Friends of Pallister's Reserve Inc. Established January 1990

Dec 2025

TRUST FOR NATURE

Next Meeting: Sunday, January 18, 2026

10am: Working Bee *Noon: Lunch* *12:30pm: General meeting*

January Meeting Objectives

- Advance planning for AGM in February:
  - — Committee?
  - — 2026 Management priorities?
  - — Training?
  - — Fees?
  - — Meeting schedule?
  - — Open days?
  - — …?
- Track clearing after recent high-wind events.
- Weeding: thistles, coastal wattle, fleabane, weed orchid, …
- Mowing

Bogong Moths Near You

Migration / Navigation

The long-distance annual migrations of the Bogong Moth (Agrotis infusa) are legendary. Every spring, across a broad region of south-eastern Australia moths complete their growth through six instar stages and emerge as adults, ready to begin their thousand-kilometre migrations to summer refuge caves high in the Australian Alps. The routes for their nocturnal journeys – and their precise ultimate destinations – are not something the moths have learned from the elders – all now long-dead. It is locked in their inherited DNA.

How the moths navigate these journeys has been the subject of much study. Like Monarch butterflies, in part they use their sensitivity to the earth's magnetic field. But, as demonstrated in the recently-published findings of a multi-national research group, they also navigate using the stars.

In the experiments of this group migrating moths were tethered inside a study chamber surrounded by coils energized to nullify the earth's magnetic field. An image of the Australian night-sky was projected onto an overhead screen and the subsequent flight directions of the moths recorded. With the night sky correctly projected, moths were observed to follow their inherited migratory directions. When the image was rotated 180° moths immediately turned to fly according to the rotated direction. If a fictionalized, randomly-scattered sky of stars was shown, the moths were unable to orient themselves.

In a final experiment, the study chamber was moved outside and the coils used to cancel the earth's magnetic field removed. Even in heavy overcast conditions with no stars visible, the moths correctly oriented their flights, proving that they exploit dual systems for navigating, one based on the stellar sky and the other on the earth's magnetic field.

Not bad for a creature with a brain volume amounting to one-tenth the size of a grain of rice!

While some night-migratory birds are known to be able to navigate using the stars, the Bogong moth is the only invertebrate known to have this ability.

The *aestivation* – the hot/dry weather counterpart to winter hibernatiion – of Bogong moths in alpine caves, as well as their use as a traditional food by First Nations peoples have been extensively reviewed.

Likely spring migratory routes of Bogong moths to alpine regions of NSW, ACT and Victoria. The migration is reversed in autumn. North-westerly winds waft some moths from western Victoria across Bass Straight to Tasmania. It is doubtful that few of these moths find their way back to Victoria.

Non-migratory moths near you

Less-well publicized are the Bogong moth populations that **do not** migrate, and may not even aestivate. Traps set almost 70 years ago disclosed the existence of such populations in diverse coastal environments of Victoria and South Australia.

Friends of Pallister's Membership

New Friends are always welcome! By registering as a member you contribute to the ongoing volunteer conservation work of the Friends of the Reserve.

Annual membership costs $20 per person, and is due at the start of each calendar year. Included is an electronic copy of the monthly newsletter.

Click here for further information.

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.

Observations of these non-migrating moths, nowadays regularly posted on internet sites such as Bogong Watch on *iNaturalist* or Zoo Victoria's MothTracker, prove that these moths are not confined to coastal regions, but are also established inland, including a isolated population south of Perth, in WA.

There could very well be Bogong moths presently tucked away on your porch or in your garage! For confident identification,, look for a dark stripe behind the prominent wing-spots.

Bogong Moth (*Agrotis infusa*) compared to two other Agrotis species that have been observed in the South-West.

Threats

At the time of colonization Bogong moths likely numbered in the countless billions and would have been one of the most profuse lepidoptera on the planet. The floors of some aestivation caves contain metre-thick accumulations of moth debris, testifying that this abundance extended over tens of thousands of years.

Consumed in vast numbers by bats and birds, Bogong moths are a keystone species in the food chain. Mountain pygmy possums depend heavily upon the moths following their winter hibernation. Bogong moths transport energy and nutrients resources crucial for the health of alpine ecosystems.

Surveys indicate that Bogong moth populations were stable until the 1980s, but then began to decline before crashing in 2017–2019 after an extended drought. Since this crisis, numbers may have recovered somewhat, but the moth remains on the Red List of Threatened Species of the International Union for Conservation of Nature.

In addition to drought, other factors have been suggested for the decline in moth numbers:

- Reduced availability of feed plants due to the agricultural application of herbicides for controlling the broad-leafed weeds preferred by moth larvae.
- At times the larvae may also damage crops such as wheat, barley, linseed, lucerne, peas, potatoes, cabbages, cauliflower and silver beet. When this occurs they are often eradicated by direct attack using "cutworm" pesticides.
- Introduced pest animals deprive the moths of their food sources. For example, European rabbits eat down ground vegetation that sustains moth larvae in their breeding grounds and introduced honey bees consume nectar that adult moths rely upon during their migration phases.
- Increasing global temperatures render aestivation sites unusable.
- Proliferating artificial lighting misdirects the stellar navigation of the moths, causing them to spiral around street-lights until they expire from exhaustion. It has been suggested that the replacement of high-pressure sodium streetlights by wide-spectrum LEDs may exacerbate the risk.
- Bushfires, such as the current ongoing events, incinerate millions – perhaps billions – of moths.

Conservation

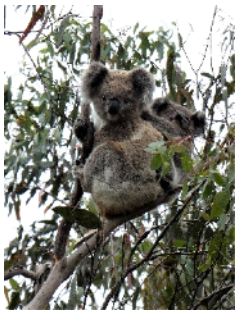
For several decades, research into the ecology of Bogong moths have been an active topic, yet much remains to be done. For example, the understanding of egg-laying and the requirements of larvae in the breeding grounds is paltry. Even in their alpine aestivation sites, there exist no well-established monitoring protocols.

Much data is needed, and citizen scientists can help. By reporting observations on the MothTracker site, you add to the expanding data base on moth distribution.

…ross hicks

Koala Counts

August 2025



Numbers of koalas seen in August's koala count climbed back towards the higher numbers seen at the start of the year with 6 koalas seen, 5 in 4.5 ha of bushland on the Pallister's block and 1 in 3.0 ha of the adjacent Hocking block. Again, no joeys were seen. Taking into account the sample areas, this leads to an estimated 72 animals in Pallister's bush (about 1.1 per hectare) and just 20 in the Hocking bush (about 0.3 per hectare). Overall, there could be 90 – 100 koalas in the total bush area (about 0.8 per hectare). This compared with 133 in February and 80 in May.

Several koalas were seen outside the survey areas, including near the woolshed.

November 2025

Numbers of koalas seen in our final November count dropped to the lowest seen in the 4 counts this year. Just 3 koalas were seen in the 7.5 ha of Pallister bush and none in the 3.0 ha of Hocking bush surveyed. This month, again, there were no joeys seen, although a female with a joey was seen in the trees just south of the woolshed.

This gave an estimate of 44 animals in Pallisters bush (about 0.7 per hectare) and 0 in the Hocking bush. Overall, these counts indicate just 50 koalas in the total bush area (or about 0.4 per hectare). This compared with estimated numbers of 133 in February, 80 in May and 100 in August. Again, several koalas were seen outside the survey areas.

Finally, Peter's November koala count during his bird surveys has climbed back to between 8 and 12 since a very low count of 1 in August. Nearly half of the koalas he saw are in the single survey area along the western boundary, which only covers one fifth of his total area. For comparison with the koala survey, the estimated number of koalas in the total Pallisters and Hocking bush is 63 using just Peter's 4 sites in those areas.

Click here for further information on these and prior surveys.

…trevor kennedy