North-Eastern Tasmanian Field Naturalists Club Inc.

The North Eastern Naturalist

Newsletter of the NE Tasmanian Field Naturalists Club

Number 210: September 2020

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MISSION STATEMENT: It is the mission of this club to encourage the study, appreciation and preservation of our natural and cultural environment, the animals, plants, geology and landforms, including those of the coastal and marine areas in the North East region of Tasmania.

From the Secretary: Please note that subscriptions are now due for the year 2020/21. At our recent AGM it was agreed that subs will remain at $20 for single membership, $30 for a family.

Payment may be made electronically to:

Name of Bank: Bendigo Bank

Account Name: North East Tasmania Field Naturalist Club

BSB: 633000

Account number: 128381860

Please record your name on the transaction so we know who has paid the sub.

Alternatives are to pay in cash at the next activity you attend, or to send a cheque to:

Sue Wilson (Treasurer, NE Field Nats)

246 Lalla Road

Lilydale TAS 7268

Images of Northern Tasmanian wildlife

Dacelo novaeguineae (Laughing Kookaburra) – Jay Wilson

Chionogentias diemensis (Tasmanian snow gentians) – Ross Coad

Colluricincla harmonica (grey shrike thrush) – Susan McClenaghan

Program for September – December 2020

The program for the remainder of the year is still under development. Here is the skeleton program. As we approach each outing, the finer details will be disseminated by email.

SEPTEMBER 12th: EXPLORING EDDYSTONE POINT

Meet at the Gladstone store at 10 am.

OCTOBER 10th: EXPLORATION AND OBSERVATION OF VEGETATION AND RIVER GEOMORPHOLOGY IN THE SCAMANDER AND AVENUE RIVER CATCHMENTS

This activity will be led by Liese and Paul Fearman.

NOVEMBER 14th: CLIMB MOUNT VICTORIA

This activity will depend on how many are interested in (and capable of) completing the difficult climb. if there is enough interest the climb will go ahead. Otherwise, we will botanise on the lower slopes.

DECEMBER 12th: CAPE PORTLAND

Explore the northern coastal section of the wind farm, watch for migratory shore birds; follow-up from last year's visit.

Cancellation Process: ***If there is unpredictable and severe weather, or for any other reason, it may occasionally be necessary to cancel with short notice. Here is the process for cancellation: an outing will be cancelled if the leader considers that the conditions are not safe. If an activity is cancelled, a global email will be sent by 0700 (i.e. 7.00 am) on the day of the outing. If members are uncertain, it is their responsibility to contact Ann, Lou or the activity leader. Note that phone reception is not always available, so you may have to try alternative numbers.***

Members' photos of colourful fungi from North-Eastern Tasmania

Genus *Hypholoma* – photo by Chris Forbes-Ewan

Marismius elegans – photo by Susan McClenaghan

Cortinarius archerii – photo by Jay Wilson

JULY 2020: LIVING STUMPS AT MYRTLE GROVE

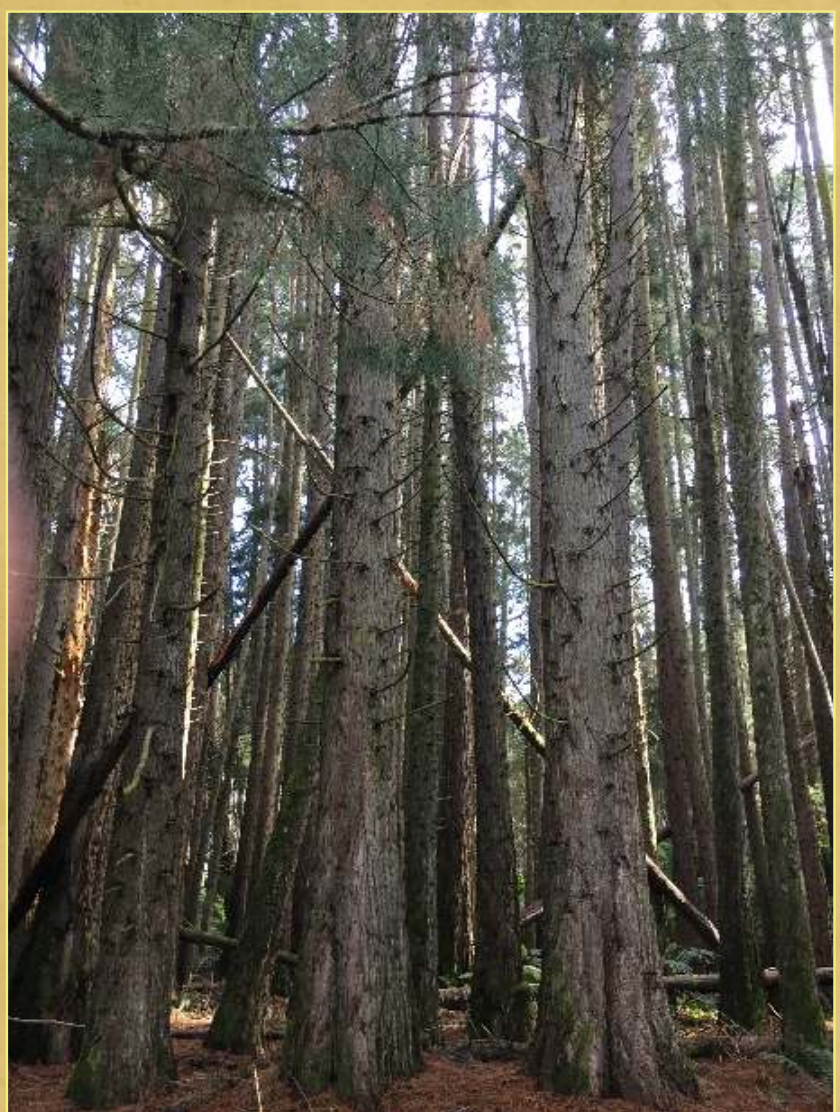
Text by Chris Forbes-Ewan

Photos by Chris Forbes-Ewan (CFE), Jay Wilson (JW) and Susan McClenaghan (SM)

The July activity of the NE Field Nats Club—our first post-lockdown outing—was an investigation of a natural phenomenon that may be of international scientific significance.

Perhaps indicating how eager our members were to take part in field activities after a hiatus of four months, a near-record total of 28 members and guests attended the activity, which was led by Jay Wilson and took place in the Myrtle Grove Forest Reserve at South Springfield.

This reserve is the site of an arboretum that was established shortly after the end of World War II. Stands of several species of native North American trees, including the giant redwood (*Sequoiadendron giganteum*—the world's largest plant), Douglas fir (*Pseudotsuga menziesii*) and Monterey pine (*Pinus radiata*), were planted here to determine which, if any, were promising candidates for commercial forestry.



Giant redwoods (*Sequoiadendron giganteum*) at Myrtle Grove – CFE

Thinning of the stands took place about forty years ago, leaving many stumps in the forest.

When a tree is cut down, the stump will usually either send up regrowth or die (because without leaves it cannot photosynthesise).

However, there are papers in the scientific literature about 'living stumps', including a paper published in 2019 about a living kauri pine stump in New Zealand.

The paper's authors hypothesised that the roots under the stump may have been connected to the roots of neighbouring trees, so water and nutrients were made available to the stump through this interconnection.

About 30 years ago, during an earlier field naturalists walk at Myrtle Grove, Jay noticed what appeared to be living stumps of Douglas fir in this area. This was later confirmed, but in the intervening thirty years no follow-up work had been done on these stumps.

Therefore, under Jay's guidance, the main aim of our visit was to count the number of living Douglas fir stumps, measure their diameter, and photograph each one.

To do this we split into about half a dozen groups and, armed with a tape measure and camera, each

group tackled a different part of the forest.

Jay mentioned that he had been unable to identify any other area in the world that had more than 30 or 40 living stumps. At Myrtle Grove we counted more than 120 living Douglas fir stumps in the one small area!

Living stumps of Douglas fir (*Pseudotsuga menziesii*) – JW

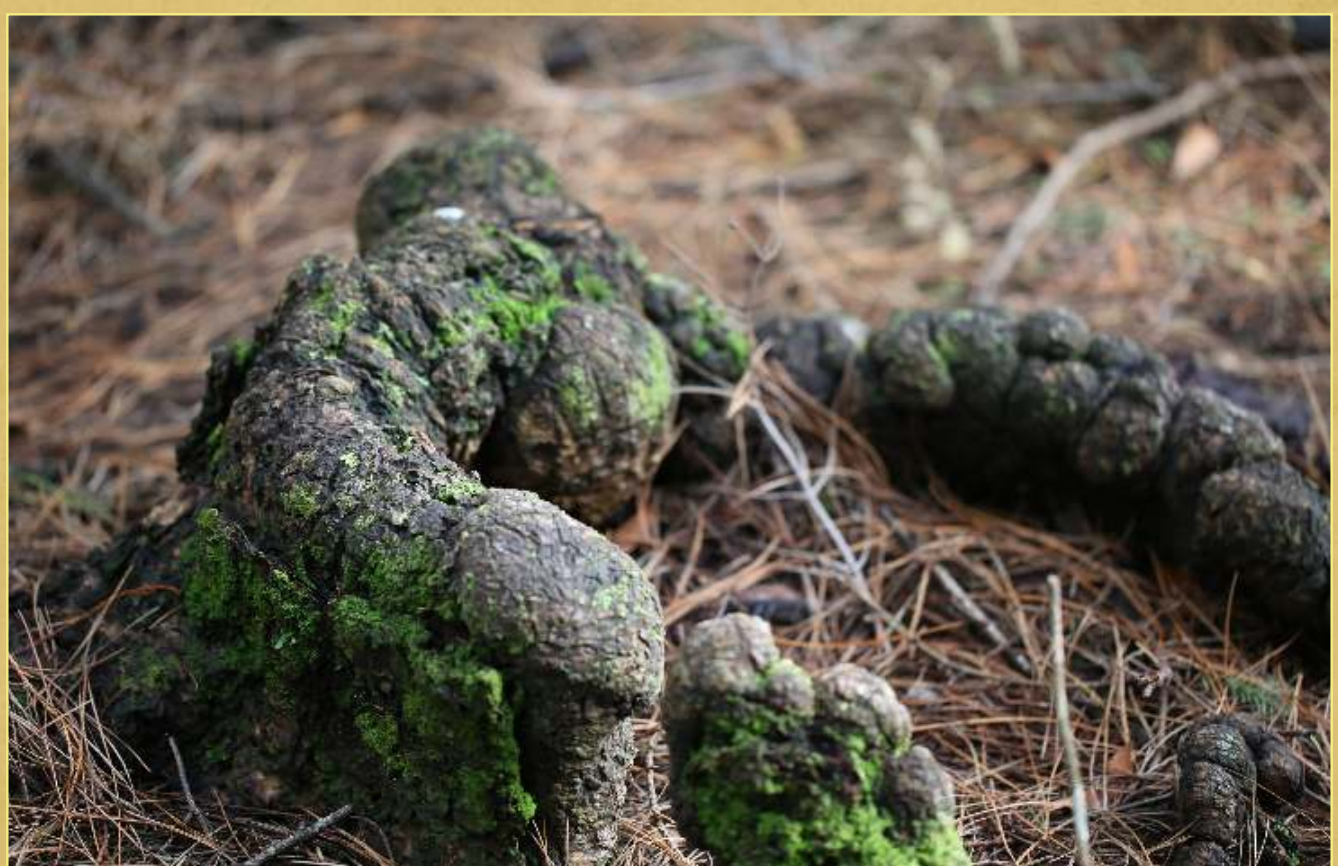
The data we obtained is potentially of considerable scientific interest and was sent to the authors of the paper on the New Zealand kauri pine stump.

The reply from one of the authors, Sebastian Leuzinger, Professor of Ecology at Auckland University of Technology, included: 'Yes this is rather astonishing! I have visited a number of very similar looking Douglas fir stumps in Oregon last year, and I conducted the same sap flow measurements as we did on the kauri stump here.'

Professor Leuzinger also mentioned that he would like to visit Myrtle Grove, 'once the Covid drama is over'.

This is yet another example of the importance of the work conducted by citizen scientists in furthering scientific knowledge.

Following our successful mission at Myrtle Grove, we adjourned to North-East Park (in Scottsdale) for a very enjoyable barbecue.



Although it is now hollow in the middle, this stump is still alive about forty years after the tree was felled – SM

AUGUST 2020: THE TRUTH ABOUT BRYOPHYTES—WORTS AND ALL

Text by Chris Forbes-Ewan; photos provided by Dr Perpetua Turner, by Lou Brooker, and obtained from Wikimedia Commons (with attribution)

As the guest speaker following our 2020 Annual General Meeting, Dr Perpetua (Pep) Turner from UTAS presented on a type of flora that is of considerable ecological significance, but is not in the forefront of most people's minds—the bryophytes.

Bryophytes constitute an informal group of non-vascular land plants—the liverworts, hornworts and mosses. (*Non-vascular* implies that they do not have conducting tissue, i.e. xylem and phloem.) Being among the first plants to evolve, bryophytes are primitive compared to the later-evolving vascular plants, and lack roots, flowers, seeds, woody tissues and fleshy fruits. They are widely distributed, existing on every continent (including Antarctica), and are typically found in moist bush, but they can also be found on alpine rocks, in lawns, in swamps, on buildings and on pathways.

Ceratodon purpureus, a moss that grows on all continents (including Antarctica) – Credit Wikimedia Commons and Hermann Schachner

Although they do not have a vascular system, bryophytes do have a simple system that allows them to conduct water and nutrients against gravity, but only a matter of centimetres rather than the tens of metres some vascular plants can manage. Consequently, nearly all bryophytes are small and they cannot grow in direct sunlight, which dries them out rapidly.

Depending on the type, bryophytes may have nerves, aka midribs or costas; leaves, which are single-celled apart from the nerves; stems; and rhizoids, which carry out the same functions as roots, but are much simpler, often being only one cell thick.

Some bryophytes bear a strong resemblance to ferns, including *Cyathophorum bulbosum* (see image at right), commonly known as the false fern moss, which is found in Tasmania, the other eastern states of Australia and several other regions of Oceania.

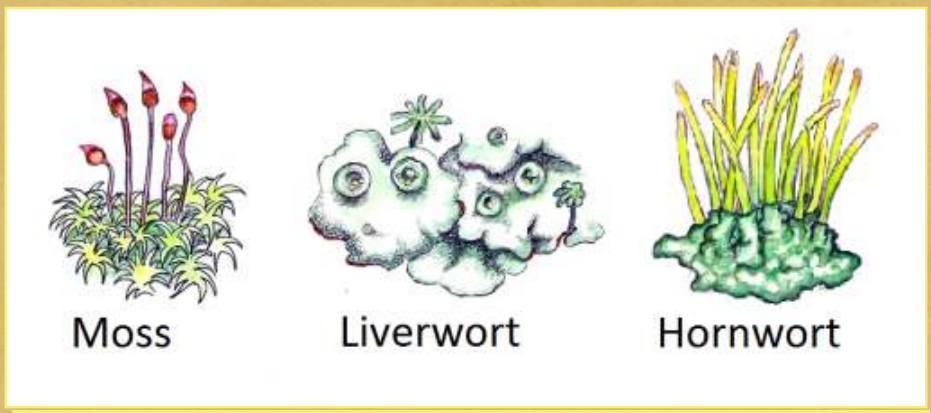
Cyathophorum bulbosum – a moss that looks like a fern © JP Frahm; image provided by Dr Perpertua Turner

Similar to many fungi, it is often necessary to turn bryophytes upside down to identify them. As also applies to fungi, bryophytes reproduce using spores rather than seeds, but unlike fungi (or plants that have seeds) their life cycle involves two distinct stages (effectively two plants).

Also unlike most vascular plants, many bryophytes don't have common names, and some of the scientific

names constitute tongue-twisters. (Try saying *Ptychomnion aciculare* ten times quickly!)

It can be difficult to tell the various types of bryophyte apart, but each form has clearly defining characteristics, as illustrated below.



Differences between mosses, liverworts and hornworts – see text for details
Source: https://tentativeplantscientist.wordpress.com/tag/liverworts/

Mosses are soft and leafy, with many tiny leaves. The leaves may or may not have nerves, and are radially symmetrical. The sporophytes (which release the reproductive spores) are small capsules on the ends of long, thin setae (small supporting stalks). Mosses can be divided into two types: Acrocarp (upright) and Pleurocarp (creeping). About 500 species of moss have been described in Tasmania.

Marchantia berteroana – liverwort; photo by Lou Brooker

Liverworts, on the other hand, have slightly larger, flat, rubbery leaves, usually growing much closer to the ground. The shape of one liverwort leaf bears a passing resemblance to the human liver, hence their name. Liverwort leaves are without nerves and are bilaterally symmetrical. Their sporophytes are either like rubbery green flowers, or globes on a stem. Liverworts can be divided into two kinds: Thallose and Leafy.

Thallose liverworts have relatively large, rubbery leaves and flower-like sporophytes. Thallose means the tissue is undifferentiated. Leafy liverworts have smaller leaves (in the order of millimetres) arranged along a short stem, and small globular capsules. Most liverworts are of the leafy variety.

The hornwort division is much smaller and is not readily divisible into different types. Hornworts are most easily distinguished from mosses and liverworts by their tapering, horn-like or needle-like sporophytes which develop from a flattish, green sheet. There are six genera of hornworts and 100–150 species.

Hornwort – Credit Wikimedia Commons and Jason Hollinger

In Tasmania there are more species of liverworts than mosses in old-growth wet eucalypt forests.

About one-third of the total bryophyte flora of Tasmania exists in stands of eucalypts that date back a

century or more. Bryophytes even outnumber vascular plants in such forests; for example, in one old-growth wet eucalypt forest in Tasmania there were 110 species of bryophyte and only 22 species of vascular plants. Bryophytes are more abundant and diverse in wet forests than in dry forests.

One common species of bryophyte in Tasmania is *Weymouthia mollis* (old man's beard), a moss that hangs down from trees, giving the tree the appearance of having a wispy beard.

Weymouthia mollis (old man's beard) – Credit Wikimedia Commons and John Steel

Leptotheca gaudichaudii is another moss that is commonly found in Tasmania, usually attached to *Dicksonia antarctica* (commonly known as the soft tree fern on the mainland, and as man fern in Tasmania).

It appears that tourism may be having an effect on the distribution of at least one species of moss. *Calomnion complanatum*, which is commonly found on tree ferns in NSW, has recently been observed in Tasmania, but apparently only near popular waterfalls, including Halls Falls near Pyengana. It has been suggested that mainland tourists are inadvertently bringing in spores of *C. complanatum*, which are then deposited in areas where people gather, such as waterfalls.

Although bryophytes are nearly all very small compared to vascular plants, there is one notable exception. As a quirk of evolution (known as convergent evolution) the species *Dawsonia superba* has managed to develop a conduction system that is analogous (but not identical) to the xylem and phloem used by vascular plants. As a result, some individual plants of *Dawsonia superba* grow up to one metre in height, making them veritable skyscrapers compared to other bryophytes.

Dawsonia superba – the world's largest bryophyte. Credit Wikimedia Commons and Doug Beckers and Jon Sullivan

Bryophytes play an important ecological role, providing habitat for many species of invertebrates. They are especially valuable in the early stages of ecological successions. They also provide habitat for flowering plants, help to decay dead wood, stabilise soils, and are important indicators of climate change.

Of special note are the various species of *Sphagnum,* a genus of moss. *Sphagnum* peatland covers about 1% of the world's land area (equivalent to half the area of the United States). *Sphagnum* species are particularly important ecologically because of their ability to retain water. There are six species of *Sphagnum* in Tasmania.

In summary, bryophytes constitute an important, but sometimes overlooked form of plant life. NE Field

Nats is very grateful to Dr Perpetua Turner for giving us such a comprehensive review of these little-known, but fascinating plants.

POSTSCRIPT (Text and Photos by Lou Brooker)

The day after the AGM and Perpetua's presentation, nineteen members and guests (including Perpetua) visited Paradise Plains, which is a 'bryophyte hotspot'.

Because of its ecological importance, NE Field Nats had previously visited this area several times, with our most recent previous visit being in October 2015. (An article about that visit is in the December 2015 issue of the North Eastern Naturalist, and an article about the *Sphagnum* peatlands at Paradise Plains is in the supplement to that issue).

Before lunch, the mosses on the banks of Newitt's Creek were examined, and Perpetua explained some of the differences between mosses and liverworts.

After lunch we moved a few kilometres to a nearby forest. Here we noted more than 30 species of bryophytes, including spear moss and pipe cleaner moss.

By departure time, most people could tell the difference between a moss, a liverwort and a lichen. (And there were plenty of lichens!)

Polytrichastrum sp. at Paradise Plains

A lichen at Paradise Plains

Appendix

With Perpetua as the guide, many species of mosses and liverworts were identified in the peatland and forest environments of Paradise Plains, as shown below:

Peatland Mosses

Sphagnum australe or *S. cristatum*
Grimmia sp.
Breutelia affinis
Campylopus clavatus
Polytrichum juniperinum
Rhacocarpus purpurascens

Forest Mosses

Hypnum cupressiforme or *Rhaphidorrhynchium amoenum*
Leptostomum inclinans

Forest Mosses cont'd

Dicranoloma billardieri or *Dicranoloma robustum*
Rosulabryum billardieri
Cyathophorum bulbosum
Macromitrium sp.
Polytrichum juniperinum
Ptychomnion aciculare
Wijkia extenuate
Thuidiopsis furfurosa or *Thuidiopsis sparsa*

Liverworts (Leafy)

Lepidozia ulothrix
Frullania sp.
Chiloscyphus semiteres
Kurzia or *Teleranea sp.*
Gackstroemia weindorferi

Liverworts (Thallose)

Riccardia sp.

WHERE? WHERE? WEDGIE!

Text and photo by Lou Brooker

You may have noticed some local identities recently parked on the side of the road with binoculars up to their eyes, and wondered what they were looking at. Chances are they were members of our Field Nats Club taking part in the citizen science project called Where? Where? Wedgie!

The project, which attracts nearly 70 teams from all over Tasmania, has been running for three years and aims to give researchers solid data about not only wedge-tailed eagles, but the white-bellied sea eagle and the other ten Tasmanian raptors. Participants choose a 4-square-kilometre grid from an on-line map and download an app on which they record their observations. Six ten-minute observations are carried out on each of three days.

For those who want to expand their knowledge and get the most out of the project, there are chats with professional ecologists and conservationists in the week leading up to the surveys, and a chance to see where eagles have been recorded in the following weeks. There is also an Expedition Class which targets children in the classroom and gives teachers the opportunity to use free resources aligned to the curriculum.

This year, four teams from our club took part in the survey over two weekends in May and June. The grid I've been observing for two years is in the Blackman's Lagoon/Big Waterhouse Lake area.

It's the haunt of wedge-tails and sea eagles, and there's always a brown falcon or two to be seen too.

The following incident happened as my team—Ruth Cuff, Jill van den Bosch and I—were setting up the lunch table at Big Waterhouse Lake. Scanning the horizon, we noticed a white head poking up at the top of a row of pine trees across the lake from us. This piqued our interest… what could it be?

Tasmania's largest raptor, the majestic wedge-tailed eagle

I prepared to take a photo, but as I put the camera on the tripod we heard a sudden squawking and saw a brown bird quickly approaching the tree. My first thought was that it might have been a swamp harrier on the attack, but it seemed to disappear behind the pine tree.

After a brief interval, the brown bird settled at the top of the tree and the white bird (definitely an adult sea eagle) was in the sky, flying above and around the north-western edge of the lake. Curious!

Then we wondered if the brown bird could be a juvenile sea eagle, because we know that the juvenile plumage can cause a sea eagle to be confused with a wedge-tailed eagle.

We concentrated on lunch for a bit, but then we spotted a sea eagle sitting in a tree above the lake further to the west; then

another one doing crazy figures-of-eight nearby, dipping its talons into the water, trying to catch something. It made about six attempts to catch its intended prey, each time turning sharply back for another attempt. We know there's a large population of eels here and that eels are a favourite food, so perhaps eels were its prey. This was exciting!

Later, I was to learn from Nic Mooney, Tasmania's raptor specialist, that this figure-of-eight swooping is about being in the best position in relation to wind and sun to grab the prey. 'A classic observation', he says. 'Eagles are huffing and puffing now (June) and *weagles* routinely monster *seagles*. I reckon the brown bird is a brown falcon. The squawk is a good description of their aggressive call. They well might nest habitually in such a pine. I bet it's all a daily ritual'.

Well, even if it was a daily occurrence, we had never seen anything like it before.

But before we could train the binoculars on this bird to see what it caught, someone in the team gasped as they spotted three wedge-tailed eagles soaring high above the whole scene. The excitement level was now at fever pitch—five eagles in the space of an hour!

Strictly speaking, because we were not actually in our observation grid, these five eagles were not to be included in the official survey.

For more on Where? Where? Wedgie! see the video at: https://www.youtube.com/watch?v=RY6xjs8Vyvk

SUGGESTED FURTHER READING

Members may be interested in reading some of the following articles, available in the open literature

The longest-living vertebrate:

https://www.newyorker.com/tech/annals-of-technology/the-strange-and-gruesome-story-of-the-greenland-shark-the-longest-living-vertebrate-on-earth

Sleeping microbes wake up after 100 million years buried under the seafloor:

https://www.livescience.com/ancient-microbes-wake-up.html

Ruthless Australian 'assassin flies' named for Thor, Loki — and Stan Lee:

https://www.livescience.com/australian-assassin-flies-marvel-hero-names.html

Earth's Oldest Living Things Immortalized in Stunning Photos:

https://www.livescience.com/44655-earths-oldest-living-things-photos.html

Photos of Earth's Most Ancient Organisms:

https://www.livescience.com/44657-photos-earths-most-ancient-organisms.html

How a scientific spat over the naming of species turned into a big plus for nature:

https://theconversation.com/how-a-scientific-spat-over-how-to-name-species-turned-into-a-big-plus-for-nature-13

Looking for peacock spiders in Australia:

https://theconversation.com/i-travelled-australia-looking-for-peacock-spiders-and-collected-7-new-species-and-named-one-after-the-starry-night-sky-135201

Finally, although not an article, you may enjoy watching the following Facebook video. Some scenes look as though they could be from Alfred Hitchcock's scary movie *The Birds*. I recommend listening to the soundtrack through headphones, with the volume turned up:

https://www.facebook.com/watch/?v=736274290495414