CNFN

Central North Field Naturalists

the **Natural News**

July-Aug

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Walks and Events

September 4&5 Weekend
Eddystone Point. Ron & Sarah have the use of the lighthouse cottage for a couple of months, and invite us to join them for a weekend. Bring sleeping mats and bags for sleeping on the cottage floor, or bring your tent to camp. Bring your own food etc. This is a great opportunity to spend time in this area. Contact Jim if you are going, and/or if you need to or would like to share transport.

September 11, (Saturday)
The Launceston Field Nats are going to the Lillydale area to look at burrowing crayfish with Jim Nelson. We hope to identify a species at Karoola. Car share at Windmill Hill Hall at 9am or in front of the General Store in Lillydale around 9.30. Contact Jim for any more information.

September 17-19 Federation Weekend at Orford
For bookings and more information contact Dr. David A. Ratkowsky at the University of Tasmania on 6226 7580, or D.Ratkowsky@utas.edu.au.
(Members: see attached program)

October 2-3 Weekend
A camping weekend at the Douglas Apsley. Yep, we're into the East coast with a vengeance this year! We are particularly interested in collecting a number of eastern plants for the herbarium this year.The arrangements for this one are still being planned, so give Jim a call if you are interested.

October 17, Meet near Port Sorell, at 9.30am
For those who can't make the East coast outing, we have planned a walk to Port Sorell area. Meet at the information centre going into Port Sorell. There is an interesting area across from this centre to investigate.

November 7, Frankford at 9.30am
Meet on the Frankford hwy. in Frankford for an inspection of a bush area at West Frankford where Sarah has been doing a bird and plant survey.

Fascination with Fasciation

by Jim Nelson

A number of times on our excursions we have come across trees and shrubs with abnormal growth, often in the form of 'witch's brooms'. This inevitably causes discussion, and on one particular occasion I remember our resident arborist, Bruce, saying this was called fasciation and disagreeing with a noted botanist about the cause. I can't quite remember what the botanist's position was, but later Bruce provided me with photocopied information on fasciation which has since sat in our plant info folder.

On our walk to the cataract gorge, the discussion of witch's brooms again came up when we saw several examples. Sue reckoned these growths might be caused by a virus similar to the way we get warts. This set me to hunting out Bruce's information to see what it says.

The term 'fasciation' is derived from Latin and means "a bundle of sticks". This refers to the appearance of the flattened stem which appears to have resulted in a number of stems fusing together. This is the common type of fasciation, and one which I have seen often in asparagus stems. But the abnormality is not confined to stems, but can occur on any part of the plant including the fruit. It is common in pineapples resulting in the production of multiple crowns.

Fasciations are classified roughly by their shape, and the common flattened type is known as a linear fasciation. When this linear fasciation is divided into two flattened branches it is known as a bifurcated fasciation. Multiple fasciations occur when tips are divided into short branches giving a witch's broom effect.

The exact causes of fasciation are not known, but it appears to be caused by changes in the growth area of the plant, and not by fusion of organs as was formerly thought. The majority of fasciations appear irregularly and unpredictably, although some plants seem to have an inherited potential.

Fasciations have been recorded from more than one-third of the known families of flowering plants, yet their nature is still not understood.

Linear faciation of *Melaleuca squamea* at Rod McQueen's

Sometimes they are produced by mechanical damage, or by stimulation by a substance such as a hormone weed-killer, but the vast majority appear apparently from spontaneous development for reasons unknown. It is not a pathogenic disease and does not spread from one plant to another.

Charismatic Microfauna

by John Hayward

Could I look after a "baby Pygmy Possum", found on a Golden Valley veranda? I heard my voice agree at the same time as my mind began to quail at the prospect of 2 a.m. feedings under a magnifying glass with a theoretical teat.

Mercifully, the baby turned out to be an adult Little Pygmy Possum *Cercartetus lepidus*. Although hulking compared to the smallest of the shrews (ca 2gm), it is at an average weight of 7 (6-9) grams the smallest of the possums and one of the smallest mammals on earth. The Eastern Pygmy Possum, *C. nanus*, the other pygmy in Tasmania, will weigh around 24 gm (15-43).

Fortunately, surgery was not necessary. The torpor that afflicted Benson (as she was called even after a reported naked-eye sighting of her gender), wore off after a few days and she resumed a normal, ant-like tempo.

A smorgasbord was laid out nightly, as the rather sparse information on these creatures suggests they are omnivorous, primarily insectivorous but with a taste for energy-rich sweets such as nectar and some fruits. Benson defied the pundits by showing a strong preference to dilute honey and grapes over insect meal. I have received reports that other captive *lepidus* have become grossly obese from a penchant for peanut butter with its high-octane fat.

Pygmy Possums are sometimes called "dormouse possums" for both their shared fluffy toy appearances and their habit of dormancy. The Little

Pygmy has been reported as becoming dormant, with near ambient level body temperature, for as long as 6 days in cold weather. Benson, though never exposed to temperatures lower than those in the bedroom would sometimes be found curled up, stiff, cool, and seemingly dead, only to resurrect herself after a short spell in the hand. Like many tiny and/or cold climate

mammals (excluding the allegedly brilliant *H. sapiens) lepidus* is a marvel of energy efficiency.

Though it seemed impossible that such an exquisitely soft and delicate a creature could survive the buffeting of life, we eventually released Benson down by the riverside bush, hoping that the predominance of shrubs would be most agreeable to a tiny battler who probably would be fairly exposed to owls and frogmouths in the branches of trees. Their nests are typically found fairly close to the ground, and have even been found under upturned pieces of turf.

It would be interesting to know what "Cercartetus" means ("lepidus" means "scaly"). It would be even better to know more about their role in insect ecology and pollination. Under the proposed new guidelines, however, any research funding will be largely contingent on the likelihood of fairly snappy commercial returns from the subject of the study. The only market value I can see for the little pygmy is as the heart-throb in some Tasmanian sequel to Microcosmos (they are otherwise found only in an area straddling the border between NW Victoria and S.A.)

Volcanoes down home

by Ron Nagorcka

When I was about 9 or10 years old I remember drawing a volcano at school in Western Victoria. I can even recall how I had large multicoloured flames as high as the mountain itself bursting forth from a crater at its summit. Large rocks containing secret caches of crystals rolled through the sky. The teacher thought it "very imaginative"–which I took as a compliment, one of the undoubted high points of my career as a visual artist!

Western Victoria is relatively quiet geologically these days, but the landscape is dotted with volcanoes, whose eruptions were so recent that the local Gunditj Mara people were said to have stories of such things. Whenever you looked west from our house you could see the weather coming in over Mt Napier (pronounced Na-peer by locals)–a

mountain that has a classically volcano shape. (See photo). Unfortunately, I do not know what the Gunditj Mara called it. I think that what impressed me then - and now - is the fact that we live on a very thin veneer of solidity - not far below its a boiling hell. They say Mt. Napier's extinct, but you never know!

There are more clues around as to what happened 10-12,000 years ago. The district is strewn with "stony rises"–lava flows from recent volcanic activity. My father owned some land of this nature - legendary for its

populations of rabbits and snakes, and he recently described to me a snake "about 5'6" long and beige in colour" which he and his father once killed there. They later saw others like it, but only in the same small area. It was definitely different to the species usually encountered in Western Victoria (Tiger, Eastern Brown, and Copperhead) and I can only conjecture that it was an isolated population of King Browns (*Pseudechis australis*) which "shelters in disused animal burrows, in deep soil cracks, under fallen timber, under large rocks and in deep crevices and rock cavities on outcrops". (Ehmann - Encyclopedia of Australian Animals - Reptiles p 427). However it is "absent from the cool southern fringe" and it is well out of range on the distribution maps. I'm sending some information to my father to see what he thinks. Anybody got any other theories?

My parents have retired to a house in Warrnambool overlooking the mouth of the Hopkins River - beyond which you can occasionally see a Southern Right Whale in the breeding season. I saw one there again a few weeks ago - a mother had successfully bred two calves and she was lolling around quite close to the shore being gawked at by endless streams of tourists including me! It is always interesting to chat to my father about his childhood and youth. I discovered recently for instance, that my grandfather was a wheelwright - and soaked timber in the dam for a year to cure it. We have also discussed that nemesis of our Black Sugarloaf gardening–the native Swamp Rat (*Rattus lutreolus*) which he remembered invading the garden on occasion. Local folklore had it that their appearance was a sign of impending drought.

Earlier this year, Sarah and I visited my parents and then went on a "volcano crawl" heading out of Warrnambool to Tower Hill–a vast crater full of lakes that was actually cleared of its vegetation last century. Massive efforts at rehabilitation (based mainly on 19C paintings of the area) began in the 1960s and the impressive results show what can be achieved if the effort and will exist. For us the best moment was the sighting of a Black-winged Stilt.This elegant bird has a liking for inland saltmarshes and its numbers have increased in areas of salt affected farmland. (A few weeks later at Lake Mourpall near the Murray, we had a good look at a related bird - the Red-necked Avocet with its wonderful upturned bill, but that's another story...)

We drove from Tower Hill to Mt. Eccles with its aptly named Lake Surprise, with its sheer cliffs evidence of an enormous eruption leaving behind not much mountain, and a very big hole. Here much of the vegetation has never been disturbed and the mountain is part of a large State Park. The place was as I remembered it–spectacular and full of people out for the day. We took in the view over lunch, but then decided to move on to the Byaduk caves which promised some seclusion."Flowing" north from Mt Napier is the result of its last erup-

tion–a long valley of "stony rises"–full of the dramatic forms of cooled lava. I can remember exploring this zone with my brother and cousins and finding the almost legendary Byaduk caves–which were then on private land and not open to the public. These days they are fortunately part of the Mt Napier State Park which is quite extensive, and they are if anything more spectacular than I remember. They were formed from huge bubbles in the lava out of which part of the roof has fallen in revealing 20-30 m cliffs, tunnels and arches. There is access only into one of them, but we scrambled out pretty quickly to

allow a local Barn Owl (*Tyto alba*) to live in peace after we disturbed its return to the cave. Its presence explained why the magpies were making such a fuss–although Barn Owls eat more mice than anything else it seems. By late afternoon, we found ourselves on a fascinating backtrack through the Mt Napier State park–an area well worth revisiting–and then on a walking track to the summit, which we reached not long before sunset. All around us spread the vast volcanic plains with their rich soils and swamps that once provided sustenance for the Gunditj Mara. At Lake Condah (now drained) the remains of their stone houses can be found in the lava flow that formed the banks. Here they set up elaborate traps to catch eels for large ceremonial occasions, during which they no doubt told wonderful Dreaming stories about the mountains and the rocks. On the farm where I was raised, their basalt axes would occasionally be unearthed by plowing and placed on display on the tankstand. How this farmland came to be "ours" and no longer "theirs" was always a bit unclear–a part of the dark secret of European invasion which was largely over by the time my ancestors arrived in the 1850s and purchased their land. The indigenous survivors of the early outright brutality were all herded onto the Lake Condah mission where disease claimed the lives of many more, but there are still many people in Heywood and Portland who proclaim their aboriginality. The history I learned on the other hand, was about how my hard-working German forebears escaped from religious oppression to Australia where they cleared the "scrub", drained the swamps, grew their sheep and crops and thanked their God for giving them refuge in such a bounteous land.

Sarah and I ended the day in my home town of Tarrington (until the

Great War known as Hochkirch). Here we stayed with and picked grapes for my cousins who are establishing "boutique" vineyards in the rich volcanic soil. At some stage during the consumption of a previous vintage the subject of *Rattus lutreolus* was again raised, and I was assured of their presence in the shelterbelt next to the vineyard. We also learned of the return of wallabies to the area in recent years, and the slow increase in numbers of the Eastern-barred Bandicoot whose total Mainland population was recently confined to the car bodies at the local tip! In the vineyard there were not many diversions from the careful use of secateurs, but we noticed burrows that may well be those of native mice. So, as we settled in for a beautiful autumn evening celebrating the products of the landscape and listened to the Magpies, Galahs and two species of frog calling in the garden, it seemed so peaceful down home. But there dominating the horizon was Mt. Napier, and you just never know....

15 Tasmanian Species of the Burrowing Crayfish *Engaeus*
by Jim Nelson

The freshwater crayfish of the genus *Engaeus* (pronounced *Engay'-us*) are specialists in burrowing, and are often called Burrowing Crayfish, or sometimes Land Crayfish. The genus is found only in south-eastern Australia, with 35 species currently described. There are similar genera in both south-western Western Australia (*Engaewa*) and Queensland (*Tenuibrachiurus*).

Engaeus species are all small, mostly under about 100 mm in total length, but occasionally somewhat larger. They live in a great many habitats, from seaside to mountainside, in swamps, bush or grasslands, along a variety of watercourses, but also in soaks and occasionally in relatively dry looking areas. Most of the species in the genus spend very little time in open water, and are mainly found down their burrows. Some species which burrow away from water are considered the most terrestrial of all crayfish.

All species of the genus construct burrows which are usually characterised by 'chimneys' of various sizes made from pellets of soil around the openings. Some burrows may be found in wet soaks, while others will travel down considerable distances to the water table. Sometimes the burrows will connect to a stream, or will use the saturation zone near a stream. However, some occupy drier niches that simply trap surface water into their burrow systems. The different species' burrows can range from simple vertical holes down to a small chamber in the water zone, to elaborate connecting horizontal tunnels with underground chambers and several openings to the surface. Depending on the time of year, a burrow system may be occupied by a breeding pair or a female with or without the family, or simply by individuals ranging from juveniles to adults.

The most distinctive thing about the appearance of many species of *Engaeus* is the reduced size of their

Engaeus yabbimunna

abdomen (tail), which in some species borders on the proportionally absurd. They also have a narrow but deep cephalothorax (fused head/trunk) usually referred to as the carapace that appears rather compressed from side to side, along with claws which are often comparatively large and held so that the moveable finger (dactyl) opens vertically. This vertical position of the claws immediately sorts the genus from our other three genera in Tasmania that hold their claws almost horizontally.

Dr Pierre Horwitz (1990) published a taxonomic revision of *Engaeus* which provides a key to all the known species – with the exception of the most recently discovered Burnie Burrowing Crayfish (*E. yabbimunna*), which he also described (Horwitz 1994). In addition to the key, his revision describes each species, and provides life history, ecology and distribution information. This is the essential work for identification and for anyone interested in the genus.

In Tasmania, there are currently 15 species described by Horwitz, and all but 2 of these are endemic. Most species are restricted in their range to geographical areas of the Northeast, the Northwest or the Central North.

***Engaeus* Distribution in Tas.**

The two species that occur in both Victoria and Tasmania (*E. cunicularius* and *E. laevis*), have only toeholds in Tasmania in pockets along the north coast, with *E. laevis* restricted to two coastal lowland areas in the Northeast, and *E. cunicularius* in pockets along the Central North coast and the Northeast coasts plus the Bass Strait islands. Horwitz proposes that these two species might have retreated in a radiating manner along water courses from the Bassian plain area ahead of the rising sea levels during post glacial periods.

Two of the Northwest species (*E. fossor* and *E. cisternarius*) are very widespread and extend into the Southwest. Suter & Richardson (1977) discuss how the two species often live close together but tend to occupy different microhabitats. *E. fossor* is usually confined to either areas with the direct influence of a creek, or else a good water table. *E. cisternarius* tends to occupy a drier habitat above either stream or water table influence, and constructs elaborate burrow systems containing cisterns to hold water from ground runoff. *E. cisternarius* also tends not to be found as close to the coast as *E. fossor*.

The most recently described species, *E. yabbimunna*, appears to occur from Burnie to Wynyard.

The other Northwest and western species is *E. lengana*, which has a known distribution from Rocky Cape to Hunter Island, then south to Birchs Inlet, but with a gap between the Franklin River to just north of Macquarie Harbour—which according to Horwitz may simply be an artefact due to lack of collections.

One other species that can occasionally be found in the Northwest and western part of Tasmania is the rather enigmatic *E. disjunctus*. This species gets its name from its disjoined distribution, as it has been found near Granville Harbour, at Renison Bell and around Burnie, but is also intermittently found in the central-northern area from Holwell Gorge to near Elizabeth Town.

In the Central North region, the stamping grounds of the CNFN, the most abundant and widespread species is *E. nulloporius*, which can be found in an area from St. Leonards to Elizabeth Town and from Brumbys Creek to Greens Beach. This species has been found in and along streams, in drainage ditches along roads, in the bush and in paddocks or even lawns. It is a vigorous species that can have large colonies and grow to a good size.

A much more restricted species in our region is *E. granulatus*, which so far has been found to occur in the area west of the Dazzler Range to just south of Railton. It gets its name from the pronounced small granulations on the claws. Because this species seems to occupy such a small geographical area, it would obviously be a good species to collect more information on. Perhaps a project for the CNFN?

The scant other pickings in our region is the species *E. mairener* which just manages to extend to Port Sorell, but is essentially a wide spread northeastern species extending to St. Helens. Similarly, *E. fossor* extends from

the Northwest into the eastern end of Gog Range (so far!). *E. cunicularius* can be found in pockets nearer the coast and at Northdown, and then there is always the chance of turning up *E. disjunctus*. There are a few other 'mystery' spots around where there are crayfish that need identifying to either extend distributions, or to perhaps even find something new.

Most of the Northeast species are more localised although often abundant within their distributions. Two species are considered to be quite localised: *E. spinicaudatus* (Scottsdale area), *E. orramakunna* (Mt. Arthur area), and along with *E. yabbimunna* (Burnie-Wynyard area), are currently listed as vulnerable in the Tasmanian Threatened Species Act. These 3 species have recently been the subject of investigations that have extended their ranges thus helping ensure their security.

E. mairener spreads East from the Central North and overlaps two strictly Northeast species, *E. tayatea* and *E. leptorhynchus* These latter two according to Horwitz (1996) have an interesting northeast to southwest parapatric boundary (non-overlap).

The final species is *E. martigener* which is endemic to islands in the Furneaux Group. Several years ago I saw their burrows high up Mt. Strzelecki on Flinders Island where crayfish were the last thing I expected. But of course when I checked, Horwitz already knew about them! The distribution has since been extended to Cape Barron Island's Mt Munro. Even though this species is within Strzelecki National Park, its rare occurrence makes it of conservation concern.

Horwitz's paper (1996) to the *Biogeography of the Northeast* conference highlighted that "*a 'hotspot' of diversity occurs in the Mt Horror area, demonstrated by the genus Engaeus: one species is locally restricted to just west of Mt Horror and another five species can be found within a 20 km radius of it.*" Horwitz goes on to point out that with *Astacopsis gouldi* also occurring nearby, this may represent the most diverse local area for freshwater crayfish in Australia.

Life history information for the various species of *Engaeus* is sketchy, and there is considerable distribution work to be done. These little burrowers offer the amateur naturalist an interesting and intriguing study.

15 *Engaeus* species with apparently limited distributions in Tasmania (Approximate locations)

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A Short Trip to Culinary Mycology

by Tony Aliano

Due to very mild and wet conditions this autumn and winter, we have been lucky to have been rewarded with an exceptional year for fungi. Even though we have learned a great deal, quite a number of fungi remain unidentified despite the availability of several books and keys. We have come to realise that either we lack the relevant references–a small problem which can be rectified–or else much work remains to be done on fungi in this state. We were able to identify several fungi to the genus, but were unable to determine the species.

Next year we are planning to make a serious attempt to identify fungi, and hopefully organize key trips at the appropriate times, since several members seem to be very keen to join in this study. Also, we have plans to keep a record of specimens by scanning fresh samples, and recording relevant information such as spore prints and gill attachments. The scanning has been tried by Jim Nelson with excellent results obtained on the shape and colour of several fungi.

Fungi are very captivating in their incredible array of shapes such, as star puff-balls and coral fungi, but also in their display of colors such as occur in the genus *Cortinarius* with intense red, yellow, green and purple species. Then there are the very vivid almost luminescent colors of the more delicate species of *Hygrocybe* and *Mycena*. Not to overlook the eerie phosphorescence at night of *Pleurotus nidiformis* often occurring in huge clusters.

Apart from scientific curiosity, there appears to be an enormous gastronomical interest in fungi. This article is not designed to be a culinary guide to edible mushrooms, but some reference will be provided to the edibility of some mushrooms as tried by fool-hardy field naturalists. *Agaricus arvensis* (the horse mushroom) and *Argaricus campestris* (the field mushroom) are the traditionally gathered mushrooms and are found to be better tasting than their close relative *Agaricus bisporus* which is the cultivated mushroom found in shops. The field mushroom can be cooked in a variety of ways, whereas the horse mushroom being stronger in flavour is better fried or grilled, and is

at its best before it opens fully. *Coprinus comatus* (the inkcap mushroom) is widely consumed and has a more delicate and tasty flavour. This one is definitely to be collected before it opens and starts to auto digest turning to a black, inky mess. By far the most delectable mushroom remains *Macrolepiota konradii*, (the parasol mushroom). *Lactarius deliciosus* is quite edible, but not greatly tasty, and collecting it can be off putting since it exudes an orange latex and stains green quickly. However, its virtue is that its flesh remains quite firm, and therefore is the classic mushroom used in dishes like beef stroganoff. A variety of puff balls have been sampled, collected when the flesh is pure white, and before any yellowing which is the beginning of spore formation. The giant puff-ball, *Clavatia gigantea*, has the typical puff-ball texture of a marshmallow, and has the texture of a soft cheese on cooking. (Ed. Note: Bee Bradshaw has used this species to create a great culinary delight by dipping strips in egg and breadcrumb and deep frying in a wok. It is also good used raw in salads.) This species can grow huge, and there are reports of them being mistaken for a sheep!

A small quantity of *Cantharellus cibarius* var. *australiensis* was found to be quite delectable. It's a different variety of the much sought after Cantharellus in Europe, but it appears to have the same apricot color and taste, but is not as abundant.

Finally *Hidnum crocidens* was also sampled and the cap is delicious, but the stem is a little bitter. Hidnum is very distinctive in having spines instead of gill or pores.

Bee with large puff-ball

Plant lovers may forgive this momentary escapade into the wonderful world of fungi, but rest assured (especially since it appears that we are experiencing an unusually early flowering) that the search for 'little treasures' (flowering plants) will resume in earnest–beginning with vacuum cleaning the Northeast at the beginning of September. At last, a touch of sanity!