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Plants of the herblands, Narawntapu National Park

Text and photographs by Philip Milner

The seasonally wet herblands and grasslands around the Springlawn Lagoon at Narawntapu National Park is a fascinating vegetation community comprising a diverse mosaic of small growing plants and herbs, a "garden" in miniature which is best explored on one's hands and knees.

Some species such the Australian Lileopsis *Lilaeopsis polyantha* are mainly restricted to the lagoon margin and their season develops as the water level recedes during summer. Other species extend along the drainage lines which lead in to the lagoon and in other seasonally wet soaks within the grasslands to the south of the lagoon. The more drought hardy species can be found growing as forbs well out into the extensive grasslands.

These grasslands are not the original vegetation. The area was cleared, grazed by domestic stock and used for potato crops for the Springlawn property from the late 1800s. However, numerous native species of ground layer plants and herbs have re-established and persist amongst the mainly exotic grasses. The lagoon itself was re-established after the declaration of the national park and the greatest diversity of native herbs are found in its vicinity.

Some of the more widespread and most easily observed plants include Prickfoot—or Prick-knee to photographers—*Eryngium vesiculosum*. It is a greyish, spiky-leafed ground cover with ovoid heads of flowers from late spring and summer in various shades of pale to mid blue. It can be observed across the herblands and grasslands, occasionally forming large patches. *Eryngium* is a member of the

Prickfoot *Eryngium vesiculosum* is a spiky but attractive plant in the herblands, sometimes forming large patches where the grasses are not too dominant.

In August 2016 Springlawn Lagoon was full and the surrounding herbland and grassland were saturated in a typical winter scene.

Fan-shaped flowers and shiny succulent leaves of Swamp Mat or Swamp Fanflower *Selliera radicans.*

Distinctive 3-lobed lower petals and dull green undulating leaves in the rosette of Swamp Mazus *Mazus pumilio*.

Apiaceae family which also includes the cultivated carrot, parsnip and parsley.

The Swamp Mat or Swamp Fanflower *Selliera radicans* is also widespread. It is a layering groundcover plant with succulent, shiny, spatulate-shaped leaves and distinctively fan-shaped flowers, cream to pinkish in colour over a long season. Interestingly, the stamens are located in a cluster on the opposite side of the flower from the fanned petals, maybe as a pollination strategy. *Selliera* can also form quite large patches in the absence of excessive competition from the grasses.

Patches of small interconnected rosettes will indicate the presence of the Swamp Mazus, *Mazus pumilio*, another herb which is widespread where moisture persists, and also along the drainage lines. It is a prostrate matting plant with dull green, obovate to spatulate leaves with undulating margins. The flowers are usually blueish/mauve, unequal in shape with a larger 3 lobed lower lip, typical of many species in the Scrophulariaceae family to which *Mazus* belongs.

The Swamp Goodenia or Swamp Native Primrose *Goodenia humilis*, although common, is difficult to observe when it is not in flower. It also forms small rosettes but with narrow, shiny dark green leaves which tend to blend in with the foliage of other plants. The flowers are bright yellow, distinctly unequal in shape, and easy to observe in season. It is a member

Unequal shaped flowers of Swamp Goodenia *Goodenia humilis.*

The 5 leaflets helps to identify the Mossy Pennywort *Hydrocotyle muscosa.*

of the Goodeniaceae family along with the *Selliera* previously discussed.

A key plant in the complex mosaic of the herblands is the Mossy Pennywort *Hydrocotyle muscosa*, a mat forming herb with 5 leaflets forming a roundish shaped leaf. The distinctive leaves can identify the species as the flowers are tiny and difficult to see without a hand lens.

Billy-button like flowers of the Water Buttons *Cotula coronopifolia*.

The unusual leaf form and habit of Australian Liliopsis *Lilaeopsis polyantha*, a plant restricted to the shoreline of the lagoon at Narawntapu NP.

Southern Mudmat *Limosella australis* is a tiny matting plant found around the lagoon shoreline and in other wet locations.

It is a widespread species of wet places and is quite common in the damper areas around and away from the lagoon. The Pennyworts are also members of the carrot family.

The bright yellow billy-button daisy-like flowers of the Water Buttons *Cotula coronopifolia* are unmistakable and although it is found across the herblands, it is not a dominant species. Its leaves are semi-fleshy and can be deeply lobed so it is quite distinct from most other plants in the area. There is discussion as to whether this species is a true native or if it was introduced in the early days of white settlement. Helen J Ashton in her 1977 book *Aquatic Plants of Australia* treats it as a native but cosmopolitan species with a wide natural distribution in southern Australia and New Zealand as well as the temperate zones of South Africa, South America and western Europe. She also treats it as an aquatic species although it does not appear to be so at Narawntapu.

Two of the less common species which are mainly restricted to the permanently wet lagoon margin and water's edge are the Australian Lileopsis *Lilaeopsis polyantha* and the Southern Mudwort *Limosella australis*.

L. polyantha is an unusual looking plant with hollow, elongated octopus-like leaves with occasional forks in an open rosette with a tight centre. The leaves often have a reddish hue. Simply shaped, small dusky pink flowers grow from the centre of the rosette. It is another plant from the Apiaceae family.

Limosella australis has similar shaped leaves to *L. polyantha* but they are much smaller, linear and green. It is more of a matting plant with less obvious rosettes. The very small flowers are usually pale blue—sometimes almost white—with darker coloured but well displayed stamens.

Orchids are not frequent in the area but it is known for a localized population of the beautiful Spiral Orchid *Spiranthes australis* and associated occurrences of the more widespread Onion Orchid *Microtis* sp.

S. australis can be observed in a small area of seasonally wet grassland a little south of the

White Sebaea, *Sebaea albidiflora* is an upright annual found in season around the lagoon.

Yellowstar *Hypoxis hygrometrica* has 3 petals, 3 sepals and prominent stamens (anthers).

lagoon. It has grass-like leaves which make it difficult to spot when not in flower. It is important to search for this orchid in late January and February when the spirally arranged flower spikes open to reveal the fresh pink flowers with the white apron-like labellum.

Annual plants are not particularly common in this vegetation community, but patches of the upright-growing White Sebaea *Sebaea albidiflora* are regularly encountered in season. It has an unusual leaf arrangement with pairs of stem-clasping ovate leaves. Small, open, white four-petaled flowers in compact cymes are terminal on the stems.

There is a second yellow flowered species *Sebaea ovata* which can also be found occasionally in damp habitats to the south-west of the lagoon.

Spiranthes is a cosmopolitan orchid genus of about 25 species which occur in the temperate zones of each continent. There is a localized population of Spiral Orchid *Spiranthes australis* found in the winter wet grasslands near the lagoon.

As well as a number of both native and introduced grasses there are numerous graminoids, i.e. grass-like plants such as sedges, rushes and lilies.

One small lily is the Yellowstar or Weatherglass *Hypoxis hygrometrica* which occurs in a few winter wet soaks to the south-west of the lagoon. Although small the bright yellow flowers with 3 petals, 3 sepals and prominent stamens are difficult to overlook.

There are large patches of the Greater Water Ribbons *Triglochin procerum* with their relatively broad strappy emergent leaves prominent in the middle of the lagoon as a true aquatic, but there are smaller growing species of *Triglochin* of wet herblands and sedgelands

One of the small graminoids (grass-like plants) is Streaked Arrowgrass *Triglochin striata.*

Tufted Bristlewort *Centrolepis fascicularis* is often observed in patches of small evenly-spaced clumps.

including the Streaked Arrowgrass *Triglochin striata* which is also found in the park. It can be very difficult to spot as it blends so well with the other vegetation, but it is usually evident by the presence of a single spent flower spike about 50 mm in height with round evenly spaced fruiting capsules.

There are two species of Bristlewort in the Narawtapu herblands. The more common species is the Pointed Bristlewort *Centrolepis strigosa* which CNFN members identified during the recent outing to the park. The other is the Tufted Bristlewort *C. fascicularis* which, as the name suggests, develops a distinctive clumping habit of small plants about 50 to 75 mm high. It is often observed in patches of evenly-spaced plants giving a rather ordered appearance. The foliage is usually a deep reddish brown colour.

The demise of Wombats *Vombatus ursinus* at Narawntapu NP as a result of a severe outbreak of sarcoptic mange is likely to have ecological consequences for the diversity in these herb-rich grasslands. Many of the herbs grow in the spaces between tussocks and patches of the more vigorous grasses and they require localized disturbances to persist and thrive.

While the seasonal rise and fall of the water levels creates annual disturbance adjacent to the shoreline of the lagoon, the grass dominated vegetation away from the lagoon relied on the patches of cultivated ground created by Wombats digging for tasty roots and succulent tubers to provide localized ground disturbances. Such cultivated patches—often 3 or 4 metres or more across—were regularly observed when Wombats were prevalent. The population of Wombats in the park appeared to be healthy and free of mange up to at least 2011 although the DPIPWE website states that mange was becoming an issue from 2006.

It is likely that many of the herbs found in the wider grasslands of the park will decline and possibly disappear due to competition from the more vigorous grasses in the absence of these Wombat-induced disturbances. There is a good case for the re-introduction and release of Wombats back into the Springlawn area of the park in order to restore some level of ecological balance.

Forester Kangaroo *Macropus giganteus* were translocated into the park soon after its declaration in order to replace the domestic stock which had grazed the Springlawn property for 100 years or so. The precedent has been set.

Front cover photo: A healthy Wombat *Vombatus ursinus* with a full winter coat was observed on the Narawntapu NP grasslands in June 2011.

Summary of the fire forum at Campbelltown, August 2018

Sue Gebicki

Riparian specialist Peter Stronach introduction this forum organised by the Northeast Bioregional Network. He summarized current threats to our natural environment, including climate change, fire, loss of biodiversity, introduced species, clearing and plant diseases.

Todd Dudley, the first speaker, has 30 years experience in bush restoration, site-specific biodiversity conservation and fire management in the Break-o-Day municipality. He covered the problems inherent in current fire practices and fuel reduction burns, which he summarised as being a misunderstanding of the history of fire in Australia, and poor planning and implementation.

He used a successful hot burn in a cleared radiata pine forest as an example of the successful regeneration of a native forest from seed which had survived in the ground for the 40 years of pine plantations. He talked about the importance of correct intervals, fire intensity and scale for the maintenance of native vegetation. Unfortunately in Tasmania there is a conflict between risk reduction, which involves frequent burns, and biodiversity.

Todd mentioned Jamie Kirkpatrick's conclusion in *'A Continent Transformed: human impact on the natural vegetation of Australia*' (1999), that infrequent hot burns in some vegetation types are necessary for regeneration from seed of some bush peas and wattles, which are the main nitrogen fixers in Australian soils. The current practice of frequent cool burning leads to a loss of native plant health and diversity, particularly in heathlands and dry woodlands and forests with a diverse understorey. (see "Soil temperatures during Autumn prescribed burning: implication for the germination of fire responsive species?" Penman 2008)

According to Todd, there has been more research into the effect of Aboriginal fire regimes. Professor Mike Crisp has found evidence of epicormic resprouting tissue in eucalypts from 60 million years ago, indicating that Australia has experienced fires at least that long ago. Contrary to previous claims that the whole landscape is a construct of indigenous activities, surveys conducted by a large number of scientists led by Dr Scott Mooney from the University of New South Wales have found no evidence of an increase in fire activity with aboriginal arrival.

Other problems include insufficient knowl-

Left: Infrequently burnt *E. amygdalina* forest with diverse understorey at Mt Pearson. Right: Bracken fern dominates the understorey of *E. amygdalina* forest at Humbug Point (near Binalong Bay) which has been subject to repeated burning. Photos: Todd Dudley

edge of natural processes and the spread of weeds and disease through excessive burning and firebreaks. Contemporary ecological principles and context are ignored, and fire planning is conducted using desk-top instead of on-ground surveys. There is a need for referral to the Commonwealth for burning in areas with Environmental Protection Biodiversity Conservation listed species, and representation from environmental experts on fire committees. Many native forest areas are subject to hazard reduction burns to protect pine and eucalypt plantation "assets". In addition, some prescribed burns cover huge areas. E.g. a 8,500ha burn is proposed for the Mount Pearson State Reserve and surrounds near the aptly named Bay of Fires.

Dr Peter McQuillan, the second speaker, gave an ecologist's view of the issues, which can only be summarized as complex. He has found that research into fire has concentrated on native and non-native mammals, not biodiversity. He gave examples of dubious monitoring, species that have not been studied, and species that have not co-evolved with fire.

He explained equilibrium in native landscapes, which occurs when the deposition rates of litter equals the decomposition rates. In graphs of different habitats after fire, all eventually reached equilibrium, ranging from 5 years in dry sclerophyll regrowth to 30 years in karri old growth. An exception was the buttongrass, in which fuel kept accumulating. Furthermore, dead wood that is currently seen as fuel, is habitat for numerous species.

According to Schedule 3 of the Threatened Species Act in NSW, 'High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition' is a key threatening process. There is pressure to increase the use of fuel reduction burns as human assets are still being built in dangerous fire zones. Climate change is increasing episodes of dry lightning and shifting equilibrium points, and fire-stick farming doesn't allow for these changes.

Dr McQuillan reiterated Todd's point about desk-top models rather than on-ground surveys being used for planning. He gave the example of El Grande, Australia's largest tree, which was killed in a bungled burning operation.

Finally, former forester Bill Manning covered fire management governance issues and the continuing failure of self-regulation and regulatory authorities in Australia. He used his own experience on the East Coast fighting bureaucracy, poor planning and action as an example.

My own reading has found more alarming information. Mr Skelly, who has 24 years experience as a fire fighter, and 14 years in aviation, was operating a water-bombing aircraft at the 2013 Dunally wildfire. He said this was the toughest fire he had ever faced, 'fires were behaving in a way that I didn't think they could', and after the fire jumped the Arthur Highway 'it started burning in what looked like a paddock with no vegetation, essentially a dust bowl and we couldn't contain it'.

Long term research into the impacts of wildfire and logging on forest soils has found evident at least eight decades after disturbance. Soils have significantly lower values of a range of ecologically important measures at multiple depths and sites when subject to numerous fires, clearcut or salvage logging.

References:

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Tubifera species at Black Sugarloaf

Sarah Lloyd

Tubifera ferruginosa is one of the most recognisable slime moulds because of its large size and the bright red colour of the immature fruiting bodies, called pseudoaethalia. Like other slime moulds it gradually changes colour as it matures.

Since beginning my study at Birralee, I have found *Tubifera* species that are bright red when immature and some that are not bright red. They do not match the descriptions in any of the texts and it wasn't until I read a paper about the revision of *Tubifera ferruginosa* complex (Leontyev et al. 2015) that I attempted to name my collections.

Tubifera species can be tricky to identify, especially if the colour of the early stage is not observed. In the paper the authors describe long-term observations that indicate that the colour of the immature pseudoaethalia is distinctive: e.g. salmon to scarlet in *T. ferruginosa* subsp. *ferruginosa*; coral red in *T. dudkae*; and dirty salmon to flesh pink in *T. applanata.*

Based on these descriptions, I named my collections, wrote a 'post' on my website and sent the link to Dr Leontyev. He doubted my determinations and after receiving samples, informed me that based on DNA and SEM photography the Tasmanian *Tubifera* spp. are not related to their northern hemisphere 'twins' and one is definitely a 'new' species. This brings the number of holotypes from Black Sugarloaf (i.e. the specimen upon which the description and name of a new species is based) to three and there are likely to be others.

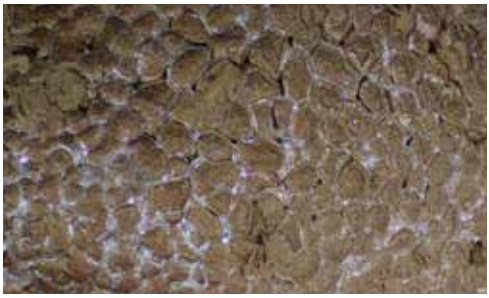
https://www.researchgate.net/publication/280693010_A_critical_revision_of_the_Tubifera_Ferruginosa_complex

Dmitry Leontyev personal communication 21 March 2019.

Tubifera 'cor' sp. nov. is creamy-white in the early stage and the tubules are rounded at the apex giving the pseudoaethalia a distinctive appearance. These fruiting bodies matured between 30 August and 6 September 2017.
All *Tubifera* spp. at Black Sugarloaf are strongly associated with large decaying stumps and logs.




Above: *Tubifera* 'dud' sp. nov. has a bright orange plasmodium. These fruiting bodies matured between 18 and 22 December 2018. Rain and invertebrates adversely affected the final stage.

Left: Immature *Tubifera* 'app' sp. nov. are pinkish brown. Right: The tips of the tubules are flat to slightly convex and form a smooth surface of the pseudoaethalia.

An extremely cute Pygmy possum at Black Sugarloaf.

Vale Rob Alliston

Memories of field naturalist member Rob Alliston and his beloved Three Hummock Island

Rob was 4 years old when he and his family arrived at Three Hummock Island in 1951. After an absence of some years, Rob returned to the Island to run a tourist venture in the 1990s. He took visitors on walks and drives while sharing his knowledge about the Island's natural history. He spoke on ABC radio in the early 2000s with Annie Warburton about the Island's natural habitats and on another occasion about the maritime stories and history behind some of the coastal ship-wrecks.

Rob was vehemently against old growth logging. He attended many protests in southern Tasmania at the Styx and Weld Valleys and The Florentine. In November 2009 Rob was one of 57 people arrested on the steps of Parliament House while protesting the Tamar Valley Pulp Mill.

Several trips were made over the years to Three Hummock Island by various members of the field nats. When I was there several years ago Rob gave us a guided tour of the island, pointing out various places of interest, from the swamps to the beaches and the tops of the hills. Rob's love for the island was infectious, and we enjoyed his stories and adventures from his life growing up there. Rob eventually left his island behind, but it was never far from his mind.

Recently, Rob passed away, and we will miss our friend. He connected a number of us to his island, and we are grateful for our experiences with him there. Rob shared his island, and we came away with at least some idea of what his life must have been like growing up there.

It is always sad when someone's life seems to end too soon. But Rob never complained of his declining health, and my memory of him is that he remained brave and enthusiastic to the end. I thank him for sharing some of his interesting life, and I will hold his memory in my heart, as I am sure will be the case for many others. So long my friend. ~ Jim Nelson

Very, very occasionally in life we have the fortune of meeting and getting to know someone who lets us into their heart. I was privileged to have this experience with my good friend Rob.

We know only glimpses of each other's lives, and the Rob I knew was a man with Parkinson Disease. It is an easy mistake to identify someone with their "condition" and not see the person behind the mask. Over the years Rob and I have been close friends, sharing many common interests and views. We introduced each other to concepts and mysteries that had influenced and intrigued us in our lives, and by doing so we helped expand each other's way of seeing things.

Rob never *suffered* from Parkinsons. He chose to live the best life he could under the circumstances of the hand he had been dealt. He would be positive in situations where lesser mortals might experience despair. He spent little time resenting his past mistakes or his future declining prospects. He understood that "to live in the NOW" was the only sane way to deal with his life situation, and this he did in spades.

I will miss my friend; miss those opportunities to talk about things that interested us and to view his life through his eyes. I will miss those moments such as having lunch together, as he got stuck into his fish and chips. I will miss his stories and tales of adventure during his life growing up and living on Three Hummock Island. Memories only are left, but they are rich and provide some comfort knowing Rob's life was lived well with few regrets. ~ Ralph Bradshaw

Walks and other events

Bring food, clothes for all weather, hand lens, binoculars, note book and curiosity.

Sunday 7 April Meander Falls Track. Meet at 10.00 am at the Meander Memorial Hall, 100 metres past the bridge over the Meander River. Joint Leaders Philip Milner (0417 052605) and Ian Ferris (0401 434 080).

Sunday 5 May Notley Fern Gorge. Meet at 10.00 am at the parking area at the end of Notley Gorge Road. From Launceston: go to Legana, turn left onto C732, then right onto C731. Via Frankford Road: at Glengarry turn right onto C731. From the Bass Highway, turn off to Hagley. Turn left onto C732, left onto C731 – note that there are a few junctions, ensure you stay on C732. Leader Sue Gebicki (0400 860651)

10-12 & 24-26 May Where? Where? Wedgie! https://naturetrackers.com.au/

Sunday 2 June Westmorland Falls 2 hour return, rough and muddy near the end. The track has been repaired after suffering damage in the last two floods, which have revealed fossils. Meet at the Mole Creek IGA, 44 Pioneer Drive, at 10.00 am. Leader Rod McQueen (0407 931768)

Friday to Sunday 5-7 July Paton Park Scout Camp. Paton Park has 140 hectares of bush on the Leven River, approximately 15 km south of Ulverstone. There are 4 rooms with bunks, wood heaters, kitchen, toilets & showers, mess hall and meeting room. The timetable of activities will be published in the enews. The cost is $16 per person per night. Please pay in advance, either by cheque or cash to Martha McQueen, or direct deposit to our account: Central North Field Naturalists Inc., BSB 633-000, Account number 151729407, Bendigo Bank. Include the name 'McQueen Paton Park'. For more information see www.patonparktasmania.com.au.

Sunday 4 August AGM Arboretum at Eugenana at 10.00 am. 46 Old Tramway Road, Eugenana, approximately 10 km south of Devonport on the C146.

President: Patricia Ellison / 6428 2062 / pellison@iinet.net.au
Secretary: Peter Lawrence / 0400457039 / disjunctnaturalists@gmail.com
Treasurer: Martha Mcqueen / 63932121 / martha.mcqueen@iinet.net.au
Walks Coordinator: Sue Gebicki / 0400860651 / suegebicki@yahoo.com.au
The Natural News editor: Sarah Lloyd / 63961380 / sarahlloyd@iprimus.com.au
E-news editor: Rod McQueen
Patrons: Dr Peter McQuillan and Jim Nelson

The receding shoreline of Springlawn Lagoon over the summer months allows the moisture dependent herbs to emerge and establish. Photo: Philip Milner