

Lockdown botany – keeping it local!

Paul Cashmore

As I write this article in mid-May 2020, New Zealand is just starting to emerge from seven or so weeks of 'Lockdown' – otherwise known as Level 4 and 3 enforced self-isolation from the outside world, as required of every citizen of New Zealand and much of the rest of the world as well. An unprecedented change to almost everyone's life not witnessed before in our lifetimes.

For most of us botanists, like many of our fellow nature lovers and outdoor enthusiasts, this has perhaps been a bigger change than for some of the population whose hobbies, for example gardening, usually revolve around the home anyway. Many of us love to 'go into the field' whether it be as part of our work or a day out of town during the weekend to attend a botanical society trip or a private mission to somewhere special, to walk and to look at plants.

Well, on 25 March 2020 all that changed!!! Its hard to believe that just six months ago none of us would have believed that simple pleasures like attending a botanical society trip or going into the backcountry whether to tramp or 'go botanising' in some special habitats would essentially become 'banned activities.' If caught engaging in these activities over the Lockdown period you could face at worst a fine or a warning from the police, or at least a public shaming from your friends or colleagues!

In the first few days of Lockdown there seemed to be a bit of confusion about the rules around the outdoors. Certainly part of the outdoors community (some botanists included) thought that, with the strict self-isolation rules imposed, the outdoors, particularly the remoter backcountry, was the perfect place to 'hunker down' and self-isolate for a long period of time away from the masses. Literally to follow the saying 'go bush'. However, before too many people had a chance to grab a map to suss out their favourite backcountry hut or place in the wilderness to hunt or botanise, that plan was quashed by the government. It was quickly clarified that the outdoors meant 'stay local' and 'within walking distance from home'. The 'real' backcountry was off limits just as oceans were off limits for boating. Unfortunately, for nearly all of us who live in suburbia or on the outskirts of suburbia and are not lucky enough to have a National Park on our backdoor step, that meant visiting nearby local council urban reserves, beaches or lake edges, and walking the streets and walkways of our local neighbourhoods.

I must admit the thought of being isolated at home for that length of time with those constraints and limited outdoor options was a bit of a shock and did take a bit of getting used to at first. Even my initial thoughts of spending quality time exploring Whakarewarewa Forest over Lockdown seemed to be stretching the rules a bit for where I lived, and were soon abandoned in favour of “keep it very local”.

Like many of my colleagues, Lockdown meant a whole lot of time working at home and some serious DIY jobs undertaken that had been put off many times in the past in favour of a trip to the bush, to go exploring or botanising, instead. The outdoors, whether to walk or bike, became the local council parks, the reserves along the Utuhina Stream and a few golf courses thrown in for good measure. It became a chance to look more closely at the local reserves, many of which are heavily modified with little indigenous vegetation remaining and mown grass and weed species in abundance. I must admit I have never given most of these places a passing glance in the past, as I race past on the way to get out of town to visit somewhere more botanically exciting.

During Lockdown I made many trips up and down sections of the Utuhina Stream to many spots I never knew existed, all within 20 minutes of my house. I was shocked and horrified, as I expected to be, by the plethora of weed species invading the riparian habitat through the urban areas. This included the huge gunnera (*Gunnera tinctoria*) plants that dot the stream banks here and there, the seemingly endless bamboo and wandering willie (*Tradescantia fluminensis*) infestations and the never-ending ivy (*Hedera helix*) populations strangling large old trees with their vines. But I also discovered small patches of indigenous vegetation hanging on in areas around the stream here and there, which I hadn't known about. Examples included areas of *Carex geminata* sedgeland, mānuka (*Leptospermum scoparium*), fivefinger (*Pseudopanax arboreus*) and kamahi (*Weinmannia racemosa*) and *Blechnum lanceolatum* on the banks above the stream itself, to name a few that come to mind.

What surprised and pleased me the most was the stream itself. Far from being a sediment-laden discoloured urban waterway like those in so many cities around New Zealand, the Utuhina is far from it. Upstream of Old Taupo Road at least it is a spring-fed clear running stream where you can see the bare pumice and lagarosiphon beds along with trout moving through it at every twist and turn. Possibly that is something that some of us take for granted every day, but it is a sharp contrast to many streams, particularly those flowing through some of our intensive pasturelands.

However, I have to say that for me the botanical highlights from Lockdown were our two local golf courses in Rotorua – Springfield and Arikapakapa, both a stone's throw from one another. These are not typical places for a botanical expedition, but with the limited botanical options available outside the home garden you really couldn't be too choosy. It must also be remembered that golf courses are not generally welcoming places for botanists or general walkers. They are there for golfers to play golf and botanists and walkers strolling randomly around on the greens can be considered highly annoying to those focusing on the game of golf. Well, here the Lockdown presented another unique, perhaps once-in-a-lifetime, opportunity. Playing golf, like pretty much all other group sports, was banned during the Lockdown period. For once, courses were empty, leaving botanists and walkers (including dogs) to outnumber golfers by a minimum of 4:1. Free to botanise and explore to your heart's content, the greens, the rough and the fairways of both of these courses, unimpeded by the fear of getting hit by the little white projectile objects usually hit around these courses. So for me, this resulted in several trips to Springfield and to Arikapakapa to see if there was more to these courses than just sand bunkers and botanical deserts of manicured and watered grass.

At Springfield I found rows and rows of fine specimen trees of predominantly Douglas-fir (*Pseudotsuga menziesii*) and Lawson cypress (*Chamaecyparis lawsoniana*) lining the fairways. More surprisingly, a few trees of mature lodgepole pine (*Pinus contorta*) were also present at the eastern end of the course. There is also a small wetland – modified by excavation but still with a range of indigenous vegetation, including various *Carex* and *Juncus* species and a drain full of watercress (*Nasturtium officinale*). But the highlight of Springfield is an area I have been shown before that John Hobbs had previously discovered. Off the end of Douglas Street is a small ephemeral wetland at NZTM N1882835 E5771778, which is essentially a low-lying area in the fairway. From a distance it doesn't look particularly exciting, as it is part of the mown fairway, so doesn't have any sedges, rushes or shrubs around it which would be typical of ephemeral wetlands in a natural environment. While a neighbouring low-lying area has a drain installed, this adjoining area does not, and water ponds here for much of the wetter parts of the year (John Hobbs *pers. comm.*).



Figure 1: 'Brown' area showing wetland site on Springfield golf course



Figure 2: *Centipeda aotearoana* population at Springfield Golf Course

The result of this is as an area approximately 300 m² consisting of a range of turf species including *Ludwigia palustris*, *Persicaria* sp., *Prunella vulgaris*, *Hydrocotyle dissecta*, *Paspalum dilatatum* and *Soliva sessilis*. The most significant species here is a population of the indigenous herb *Centipeda aotearoana*, previously listed on the New Zealand Threat Classification List as 'At Risk – Naturally Uncommon' but now considered 'Not Threatened' (de Lange *et. al.* 2018). The population covers at least 5% of this site and has survived largely due to the mowing and intermittent flooding that maintains the turf community. It was a somewhat surprising find in an otherwise manicured golf course.

At Arikapapaka the absence of golfers provided time to explore the variable range of significant geothermal features around the course, ranging from heated ground, fumeroles and mud volcanos to warm lakes. A golf course where the 'rough' is somewhat different to virtually all other courses in New Zealand. An abundance of prostrate kānuka (*Kunzea tenuicaulis*) ranked 'Threatened-Nationally Endangered' (de Lange *et. al.* 2018) occurs around the geothermal features along with mānuka. This always provides a tempting search for the elusive dwarf mistletoe (*Korthalsella salicornioides*), ranked 'Threatened-Nationally Endangered' (de Lange *et. al.* 2018), that is common on the mānuka and prostrate kānuka hosts just across the road in Whakarewarewa geothermal area. While there is a lot of suitable habitat on the golf course, no mistletoe was seen or has ever been recorded from Arikapapaka in the past.

Other indigenous species naturally common around the course include kamahi, with species such as water fern (*Histiopteris incisa*), mingimingi (*Leucopogon fasciculatus*), bracken (*Pteridium esculentum*) and blueberry (*Dianella nigra*) abundant as well. It was good to see some progress being made on persistent plant pest issues around the course, with African feather grass (*Pennisetum macrourum*) not seen when visited. There is less silver wattle (*Acacia dealbata*) present although there are still some adult trees and saplings. Broom (*Cytisus scoparius*) is still locally common and those ever-present cherries (*Prunus serrulata*) are scattered through the features. So while no significant new discoveries were made at Arikapapaka, Lockdown has provided a rare opportunity to have a more detailed investigation of the vegetation of this and the other nearby golf course and Utuhina Stream.

Another seldom visited area I briefly investigated for the first time over the Lockdown was the small geothermal area at Puarenga Park (or Soccer Park as it's also known) (see Figure 3 below). The features here consist of a large bubbling black-

coloured geothermally-influenced pool and associated sinter. These are immediately NW of the Te Ngae Road – Sala Street intersection, hidden behind the road edge kahikatea shelterbelt and surrounded by the sports fields and a newly-constructed access road to the north.



Figure 3: Geothermal feature at Puarenga Park

Vegetation was very similar to many of the other geothermal areas in Rotorua city – dominated mainly by mānuka, with prostrate kānuka and mingimingi also present as would be expected for this type of geothermal habitat. The features here were probably more interesting than the vegetation itself and provided a stark contrast to the busy highway next door and the manicured sports field adjoining.

To the north of the soccer and rugby fields is further mānuka shrubland surrounding several drains with a strong geothermal influence and the presence of more geothermal sinter in places. An occasional prostrate kānuka was noted here. This area leads through to the eucalypt-dominated stands between the sewage treatment plant and the Puarenga Stream. This is an area that in recent years has had relatively frequent light fires, which have burnt through the understorey. Under the eucalypt stand is a mix of exotic and native vegetation with a few inappropriate native plantings thrown in for good measure.

So what did I learn from my Lockdown experience? The Lockdown forced me to look more closely at the places that I have always driven past in pursuit of sites further afield. For this I am grateful – it was an opportunity to explore my ‘backyard’ in more detail, which has shed a new light on these areas for me. It reinforces what many local botanists have known for a long time, that Rotorua has some unique and special ecosystems and features, in particular its geothermal habitats, right in the heart of the city. Something we take for granted too often!

REFERENCE

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