



A winter trip
on shaky ground:

Banks Peninsula

Eduart Zimer

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ture and ultimately contributed to the diversification of areas of interest: plant naturalization (especially of succulent plants), vegetation successions and ecology of coastal habitats. He joined cactusi.com in 2004, and is also member of Cactus and Succulent Society of NZ since 2006 and of International Crassulaceae Network since 2008.

Some of other Eduart's articles

- *Disphyma australe* and its natural hybrids (2007) - Kaktusy i Inne 2:3 & 2:4 (2007)
- *Sarcocornia quinqueflora* ssp. *quinqueflora* (Bunge ex Ung.-Sternb.) A. J. Scott 1977 (2009) - Avonia 27:2 (2009)
- Some considerations about plant intelligence (2009) - in Romanian, on the former website cactusi.com
- Is *Horokaka* (*Disphyma australe* ssp. *australe*) more than a regional form of *Disphyma crassifolium*? (2012) - Xerophilia 2, September 2012.
- *Aeonium* 'Rangitoto' (2012) - Xerophilia 3, December 2012.
- New first records for New Zealand naturalized and casual succulent flora (2014) - Xerophilia 8, March 2014.
- The succulent flora of Rangitoto Island (2015) - Xerophilia Special 5, February 2015.

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Cover 1

Oblique view of Banks Peninsula,
taken from International Space Station



Cover 4

One unidentified plant,
present mostly at the eastern part of
Kaitorete Spit



Captain Cook's chart of the South Island showing Banks Island.

Introduction

Banks Peninsula is a roughly 1150 square kilometers land range situated just south of the metropolitan area of Christchurch in the South Island of New Zealand. It has a volcanic origin and appeared some 8 million years ago from the Pacific Ocean. Captain Cook discovered Banks Peninsula in 1770, during his first circumnavigation of New Zealand. However, he named it Banks Island, in honor of Endeavour's¹ botanist, Joseph Banks², as he did not realize that the monumental landmass, with considerable ranges up to 919 meters high in its highest point, at Mount Herbert, is connected to the mainland. This mistake was corrected when Captain Samuel Chase of the Pegasus tried to sail between Banks "Island" and the Canterbury mainland. But one million years ago he would have been right, as most of its existence it was an island indeed, being connected only in geologically recent times to the mainland. Christchurch, South Island's largest city, is placed just north of Banks Peninsula, and is a mosaic of flat and shallow alluvial gravels deposited during glacial periods placed on a rocky platform – "the otherwise unsurprising Canterbury Plain". Quite different. A good part of it used to be a swampland named Ōtautahi.

Banks Peninsula was colonized very early, in the 1830's being already a well-known European trading center. It was such an interesting place that the French would have bought it in 1840 directly from the Maori population, but when the French mission arrived (August 1840) the Maori chiefs already signed the Treaty of Waitangi and New Zealand's first British Governor, William Hobson, had declared British sovereignty over the whole of New Zealand. The little town Akaroa³ (where it is still maintained a strong French tradition) was the most important commercial and cultural center of the area, until it was outgrown by Lyttelton and later by Christchurch.

The isolation, the fertile volcanic soils, the decent amount of rainfall and the mild climate helped the development of endemic forms and species of flora and fauna. Most of them were placed in a serious risk of extinction as Banks Peninsula was converted in a very short time, in less than a couple of decades, in productive farmlands. It was all done in the best British tradition and very practical. Samuel Butler⁴, a well-known British novelist of the time, wrote in 1863: "A mountain here is only beautiful if it has good grass on it ... if it is good for sheep, it is beautiful, magnificent, and all the rest; if not, it is not worth looking at". You can't judge the people 150 years later, as it was all done in good faith and with the desire to survive in a less welcoming country. But they set the seed of disaster.

In time, a few plant and bird species became extinct indeed, and several decades later only 1% of the original bushland remained intact. Now, times have changed and currently more than 18% of the bush is protected and naturally re-growing. But this is just statistic – the hidden truth is much uglier. However, as in most of the oldest New Zealand settlements, there is a major problem: a true assault of naturalized plants (many of which are cacti and succulents) out of control.

1 - HMS Endeavour, also known as HM Bark Endeavour, was a British Royal Navy research vessel that Lieutenant James Cook commanded on his first voyage of discovery, to Australia and New Zealand, from 1769 to 1771. (Wikipedia)

2 - Sir Joseph Banks (1743 – 1820) was a British naturalist, botanist and patron of the natural sciences. He took part in Captain James Cook's first great voyage (1768–1771), visiting Brazil, Tahiti, and, after 6 months in New Zealand, Australia, returning to immediate fame. He held the position of President of the Royal Society for over 41 years. (Wikipedia)

3 - Akaroa is a small town on Banks Peninsula, situated within a harbour of the same name. The name Akaroa (originally spelled "Hakaroa") means "Long Harbour" in Kāi Tahu Māori, which would be spelled "Whangaroa" in standard Māori. It is set on sheltered harbour and is overlooked and surrounded by the remnants of a Miocene volcano. Akaroa is a popular resort town and in summer the temporary population can reach 15,000 (permanent population 624 in 2013). (Wikipedia)

4 - Samuel Butler (1835 – 1902) was an iconoclastic English author of a variety of works. Two of his most famous works are the Utopian satire *Erewhon* and the semi-autobiographical novel *The Way of All Flesh*, published posthumously. He immigrated to New Zealand in September 1859, but returned to England in 1864. (Wikipedia)



A dream within a dream

My visit to Banks Peninsula was an overdue dream that I had for many years. Not that I would not have what to see and study near Auckland (I was seventeen times on Rangitoto Island and there still are details I don't really understand and corners I haven't seen yet) but I always felt that Banks Peninsula is a must see for a freak succulent enthusiast like me, interested more in succulent plant naturalization than in keeping an impressive collection of shop windows plants. Reading, many years ago, Healy's 1959 article was a starting point. I thought the number of species mentioned in the paper, both succulent and non-succulent, was surprisingly high - even if it was reported the exotic vegetation on the South Island's eastern coast (warmer, sunnier and drier compared to the central region or the west coast). Yes, this paper was a definite call, even if 13 years ago my interest in New Zealand naturalized succulent flora was still in its early stages. I continued to read in time, of course, many other interesting articles and collect

information, but in the meantime, I became heavily involved in field studies in the North Island and, specifically, in Rangitoto Island. However, in 2014 we published in *Xerophilia* 10 Jennifer Pannel's paper "When succulents attack! (a peninsula under threat)", which was of definite relevance for me. It provided, first of all, information which prompted me to plan a five days travel to Banks Peninsula, the true "reservoir" of naturalized succulents in South Island becoming unfortunately completely out of control in some places. To that point it was somewhat like a dream within a dream. I was, on the one hand, working or planning at plenty of handy old projects, so to speak (the endless Rangitoto, Tongariro & Ruapehu, White Island - to name only a few), on the other hand five days was a very long time for me, hard to "snatch" out of my tangled life and travel far south, in the field. But in the end, I managed to plan a short trip to Banks Peninsula and squeeze it between the 20th and 24th September 2016, flanked by a short trip to Ozzie and moving house.



Rainbow over Diamond Harbour.

Planning while sitting in the couch

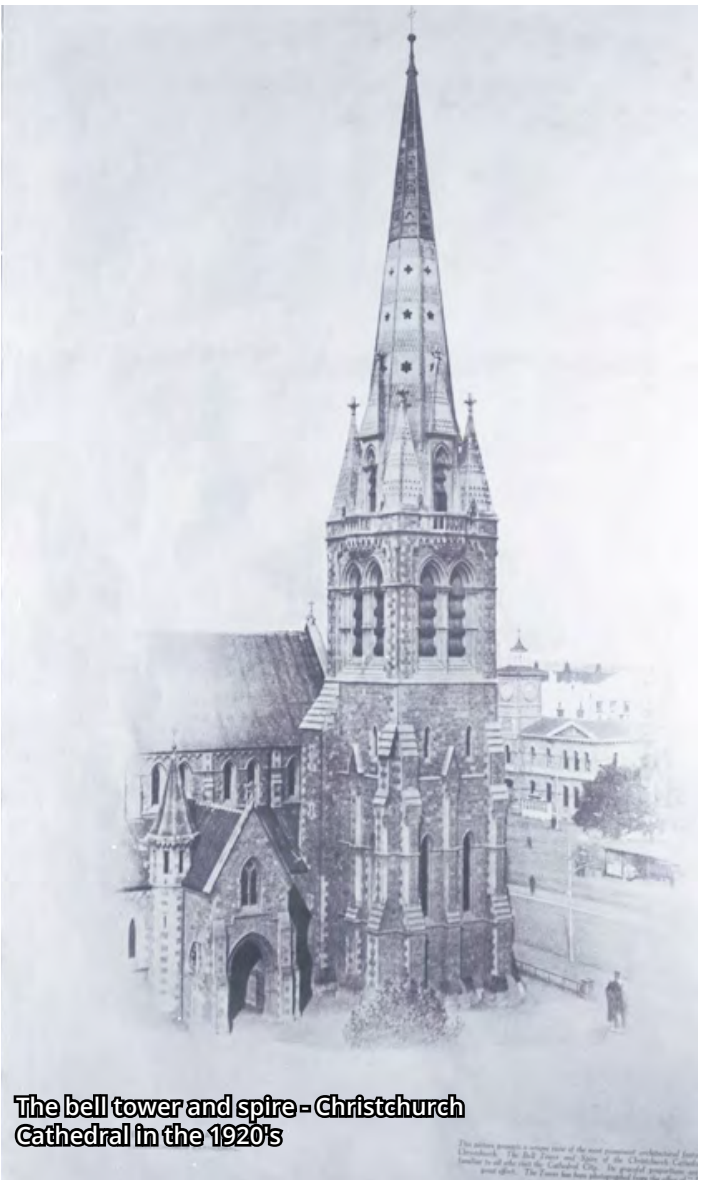
Sitting in the couch and planning does not get you too far, but I had to go through this phase. Better said, it was a lot of research done on computer. In early May 2016 I got from Jennifer Pannell quite a lot of documents and maps which helped me to outline a plan: three days and a half out in the field - mostly in Banks Peninsula but also in some locations near Christchurch (Sumner, Redcliffs, Goodley Head), while the first (or last) day was planned to meet Jennifer Pannell and (maybe) also visit the Christchurch Botanical Gardens. I knew exactly what I wanted to see, or at least that's what I was thinking. Judging by the mild winter of 2016 (the warmest

since meteorological measurements started in 1880) and a fairly good forecast for the spring I was quite confident that late September would be perfect... and so I booked the flight, the rental car and the accommodation in early July... what a mistake! In late August the weather turned crap, wet, windy and cold (even for that time of the year), and it continued like this the entire months of September and October – an uncommon late wintery spring. Two days before leaving for Christchurch it became very clear for me – the weather forecast was predicting only showers and cold temperatures; the entire expected spring celebration in Banks Peninsula seemed to be completely screwed.

Christchurch Cathedral in 2008.



Christchurch - The city tour tram crossing the shopping mall in 2008.



The bell tower and spire - Christchurch Cathedral in the 1920's

Christchurch, surviving its misfortune

20 September 2016 – I took an early flight to Christchurch which was rather enjoyable despite the poor weather. But once arrived I had a first surprise: the car rental company had no office in the airport. And I had no phone number where to call. Long story short, I got a phone number from a different company, and I managed to speak with them on the phone (luckily the only available person – and most of the day not in the office – answered the phone immediately) and I was picked up (quite late) from the airport. More, my online booking was incorrectly processed, my car wasn't there... and I had to wait again in line with other customers as the company's IT guru had something else, more important, to do. After two hours I finally got an upgrade car and felt somewhat bound to upgrade my insurance as well, for a much lower excess – which proved to be an excellent deal later in the afternoon. Once arrived at the motel – another disappointment: the cheap accommodation was in fact a small dark hollow, not very central, smelly and not too clean, run by a Chinese family.

But the real disappointment was the city itself, struggling to survive its earthquake misfortune. After seven years of destroying earthquakes (2010, 2011 and 2016) the city was studded with construction areas (not to speak of the depressing and still unattended small damages), closed roads and from place to place buildings that were consolidated and repainted. I instantly decided not to visit the central area or the Botanic Gardens – I wanted to keep in my mind, selfishly, the beauty I have seen back in 2008. And on purpose I didn't take any photo of the city, because I did not want to replace in my mind the beautiful images of the past.

Once settled, I went to a nearby supermarket to shop for my food. As I planned to be on the way most of the days, that was mostly bread, cans, snacks and drinks. It didn't take too much time and once arriving back at the motel with my shopping bags I had to decide what to do for the rest of the day. It was still early, 2 pm. After a long drizzly day finally the sky was cleared and the sun was really enjoyable, so I decided to spend few hours in Lyttelton, a neighboring port serving Christchurch, and maybe Godley Head if enough time.



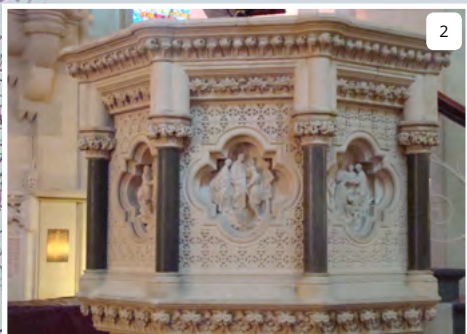
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1 - The crypt of the first bishop of Christchurch, within the Cathedral (2008).

2 - The pulpit of the Christchurch Cathedral (2008).

3 - The Christchurch Cathedral (2008).

4 - Queen Victoria (2008).



2

3



4





Lyttelton




Looking down to Lyttelton Harbour from the top of Bridle Path (Photo by Schwede).

Lyttelton Port.



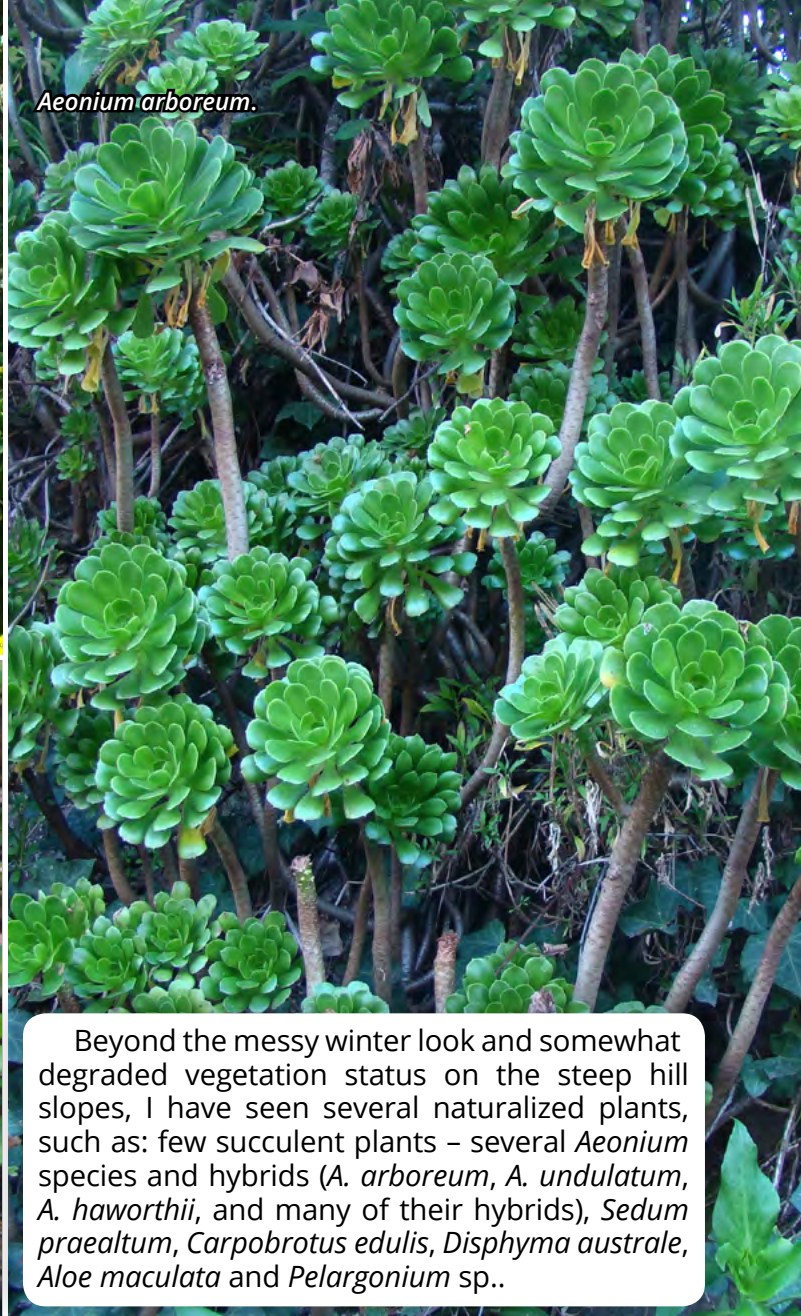
Lyttelton is a port town on Lyttelton Harhbour, at the north-west end of Banks Peninsula. Historically it used to be considered the “gateway to Canterbury” as it used to be the main access for colonial settlers. The town is placed on a rugged terrain, so contrasting with the Canterbury Plains, and is connected to Christchurch by two tunnels and other two roads crossing the lower slopes of Port Hills ranges. The Summit Road is one of these roads, I will come back to this.



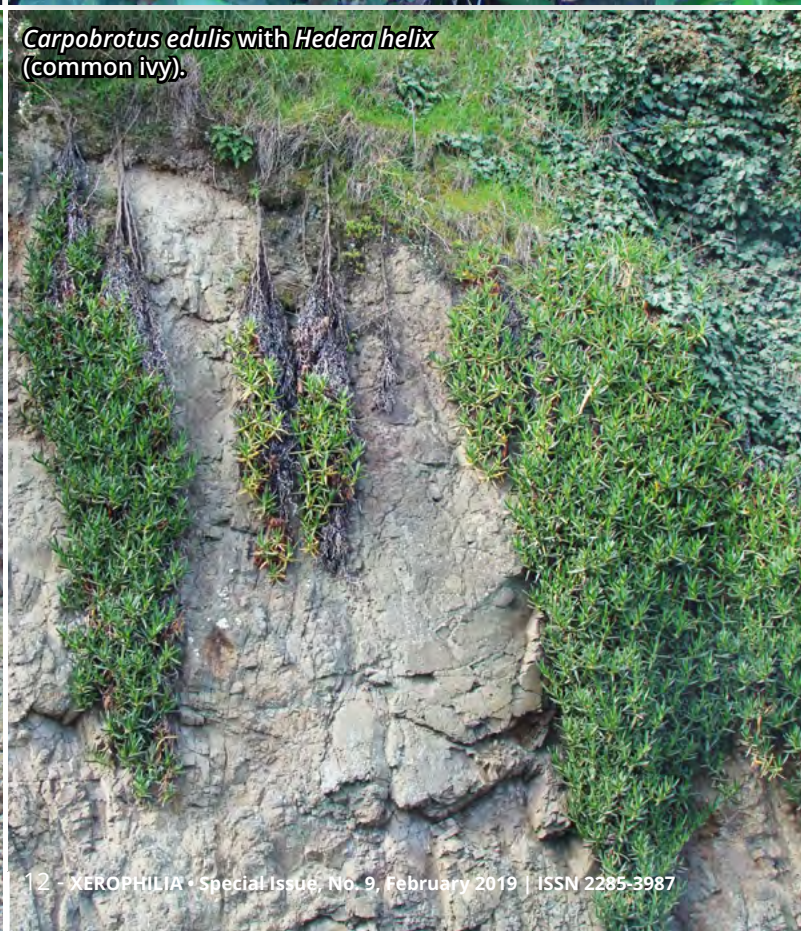
Carpobrotus edulis.

My initial intention was to estimate in the few daylight hours left the challenge on the field – you have a relatively large territory you have to spot check (of course, based on intelligent guesses and also on readings and maps), drive (or walk) to the selected place, see whatever is there, take notes and pictures and go to the next one. I checked out first the steep hills and ramps close to the port (Gladstone Quay, Cashin Quay) and expected to find few naturalized succulents as

houses were on a road running above parallel to the quays. This is the way it works: seeds, plant fragments or garden rubbish thrown down the slope are fixed somewhere and they regenerate and start a "new life" completely out of control. The biggest surprise was the vegetation state – it still seemed to be full winter (I had to remember that during the whole trip) not early spring. I got here about a month too early, but ... there was nothing I could do now.

Aeonium undulatum.*Aeonium arboreum*.

Beyond the messy winter look and somewhat degraded vegetation status on the steep hill slopes, I have seen several naturalized plants, such as: few succulent plants – several *Aeonium* species and hybrids (*A. arboreum*, *A. undulatum*, *A. haworthii*, and many of their hybrids), *Sedum praealtum*, *Carpobrotus edulis*, *Disphyma australe*, *Aloe maculata* and *Pelargonium* sp..

Aeonium haworthii.*Sedum praealtum*.*Carpobrotus edulis* with *Hedera helix* (common ivy).

Except the few mentioned succulents, I have found many of the most common herbal or garden plants - *Foeniculum vulgare* (fennel), *Bellis perennis* (the common European daisy), *Hedera helix* (common ivy), *Senecio bipinnatisectus* (Australian fireweed), *Centranthus ruber* (red valerian with form having dark purple, light purple and white flowers), *Rubus fruticosus* agg. (blackberries), *Ulex europaeus* (gorse) - probably the most invasive plant that generally affects native habitats, *Lithospermum purpureocaeruleum* (purple gromwell), *Echium candicans* (Pride of Madeira), a red flowered cultivar of *Nerium oleander* (oleander), *Vinca major* (periwinkle), *Oxalis latifolia* (fishtail, garden pink sorrel), to name just a few. Nothing surprising (or unexpected) in fact, maybe except for the oleander and the *Lithospermum*. But as for the succulent plants there was nothing spectacular.

Echium candicans
(Pride of Madeira).

Lithospermum purpureocaeruleum
(purple gromwell).



Senecio bipinnatisectus.



Not what you expected here...
fennel, *Foeniculum vulgare*



I also checked the shore near Naval Point Lyttelton and Corsair Bay, and later on the streets ending up the hills (especially Cornwall Road) but nothing special came up. I still had at least three hours of daylight so in my ignorance I thought I could try a short trip to Godley Head.

A red flowered cultivar of *Nerium oleander*.





Aeonium arboreum.

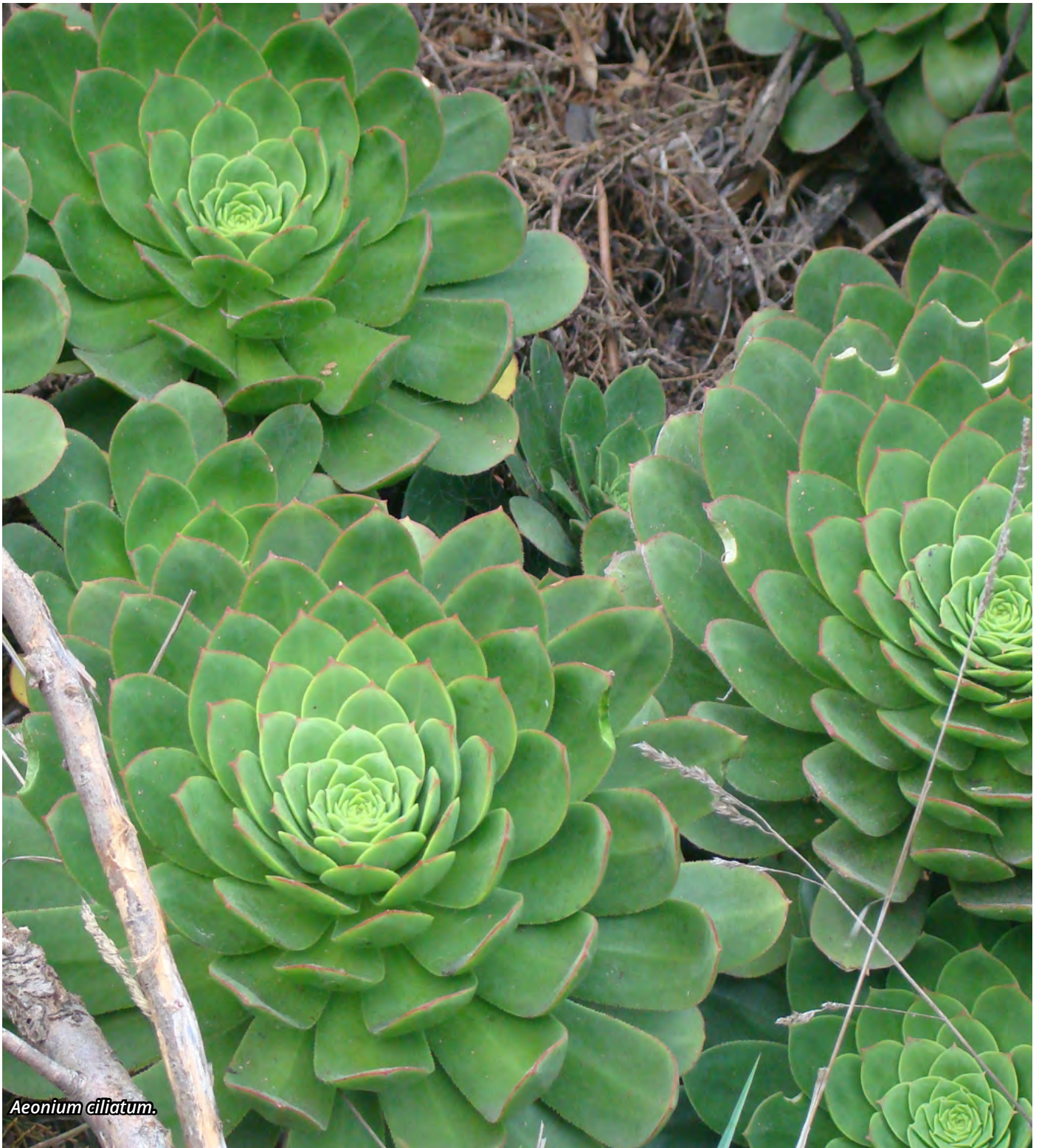
Cluttered roads ... becoming a little weird

At this point I regretted forgetting the printed map at home so I had to rely only on my GPS device. Of course, for my GPS device it was an easy task to get to Godley Head: just take the Sumner Road close to the port, take right on Summit Road... and you'll get there. But after just few hundred meters once leaving behind the town I was reminded that it is not good to rely on a two years old map in such a region, devastated by earthquakes, now... in full reconstruction. More, the fairly sunny weather has been replaced by a thick and annoying rain and low clouds began to cover the sky. I should have turned back, but no, in my mind I was on my way to Godley Head! The road was getting worse, quite uneven and covered with stones and even small boulders (and I missed two chances to ask for the road condition). At some stage, next to empty constructor's barracks, the road was simply closed. Walking yes, but no way to go through by car.

Anyway, at this stage, turning around was the only option. Heavy rain was falling now, it was

getting darkish, no one to ask about a diversion to Godley Head, I was also too nervous of course... and while turning on the narrow, side sloping, and devastated road I hit the rear bumper on the side wall, not once, but twice! Imagine my fury. The bumper's paint was quite ugly scratched (luckily the bumper was not dented) and one of the sensors was gone. I went all the way back and tried to take some other roads (Reserve Terrace, Foster Terrace), but I wasn't advised on any diversion road. The GPS device was stubborn and always leading me back to Sumner Road. The rain stopped now, but it was low cloud and getting dark. As I had no folding map I had no bloody idea if there was another road joining Sumner Road (or Summit Road) after some distance, so I decided to return to the motel.

I prepared a brief dinner, opened a bottle of red wine and reviewed the details for the trip tomorrow. And, unfortunately, made some changes to the master plan. I went to bed quite early as I had planned for next day a long journey accompanied by a very early wake up.

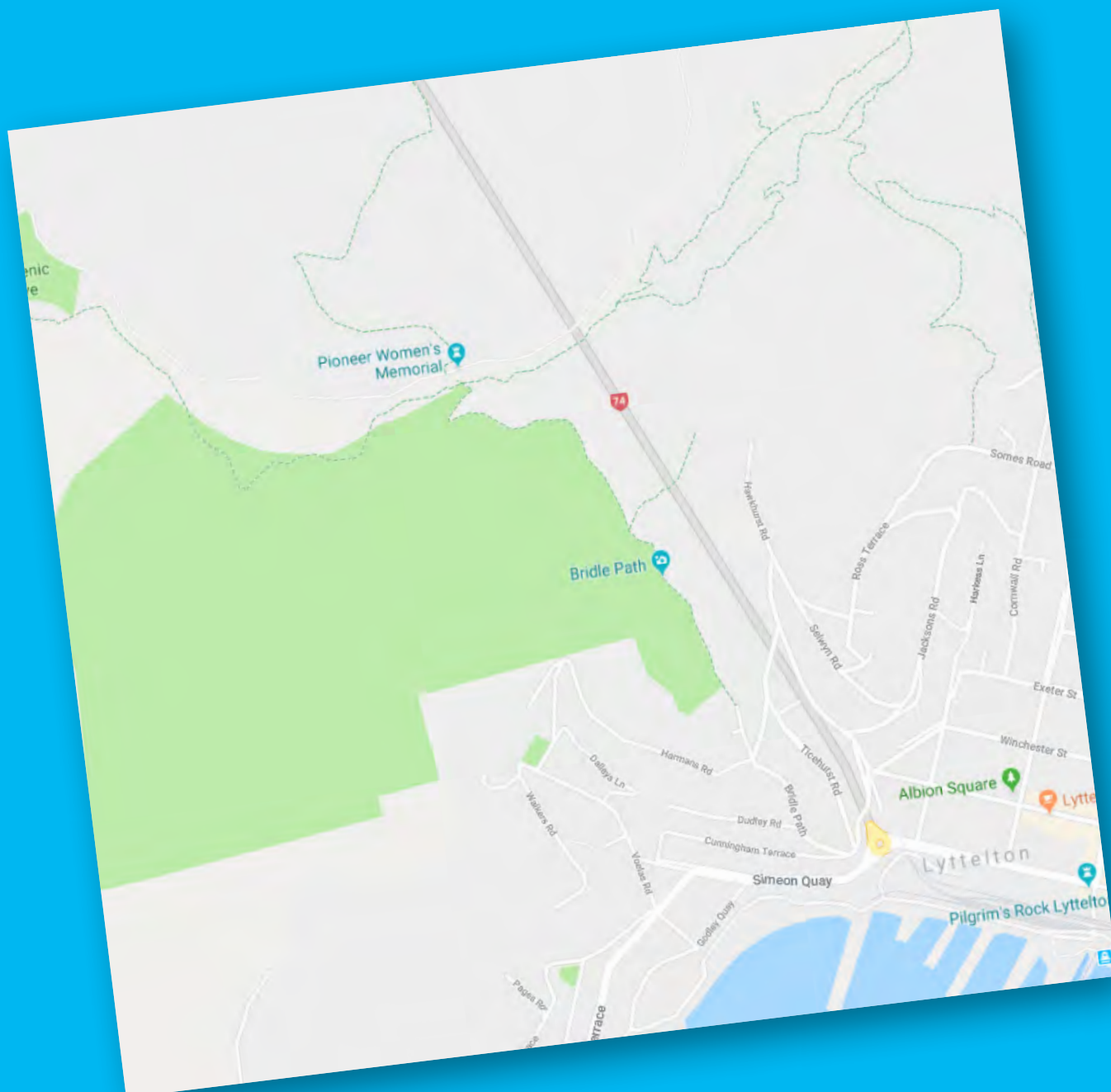


Aeonium ciliatum.

A new attempt to reach Godley Head

No need to say that going NOW to Godley Head was my first priority for the day. Partly because it was only a minor part of my Banks Peninsula itinerary and I wanted to tick it off the list, but also because the high infestation, especially with *Cotyledon orbiculata*, I was reading about (and told by Jennifer Pannel). I've got at some stage somewhat close to Summit Road, but shortly after the way was under construction and completely closed to traffic. Trying to find out details of an employee of the construction company I was told that there were several points where the road is closed (even

Summit Road was closed on a section) and the best way to get to Godley Head was driving to Sumner. That would have been too far north and messed up my entire planning. My entire trip wasn't right, I was on my way rambling for two hours and going nowhere. However, trying to return I managed to take Bridle Path northwards, on the western side of Mount Pleasant (Heathcote Valley). Few overgrown spots on the banks of Bridle Path Road and the parallel running Ferrymead Terrace (and the Heathcote River on the west) attracted my attention. An unplanned half an hour stop before returning south.



The Bridle Path



Cotyledon orbiculata, *Carpobrotus edulis*,
Aeonium haworthii.



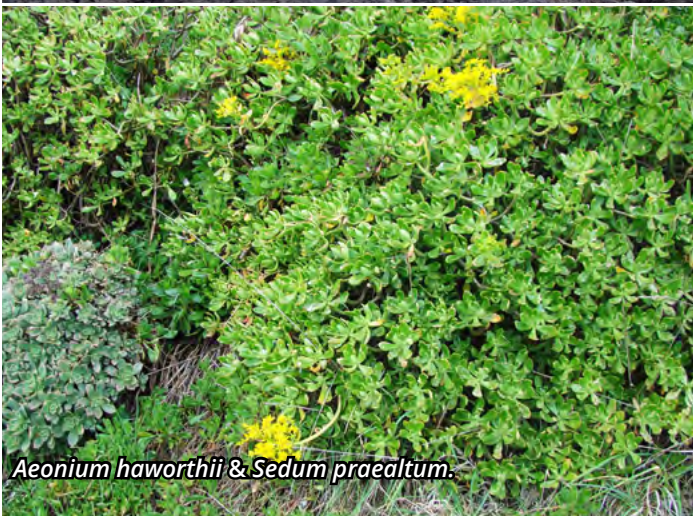
Furcraea foetida.



Aeonium undulatum.



Aeonium haworthii.



Aeonium haworthii & *Sedum praealtum*.



Aeonium ciliatum.

The northern end of Bridle Path⁵ is integrated, more or less, into the road network. It is actually a sealed road, with several homes scattered nearby. I mean, that is the crux of the problem: the man and his plants brought from remote corners of the world, plants that - once escaped in uncontrolled areas - chances are they're not just a plague, but are completely replacing the native ground cover vegetation. I parked the car on Cannon Hill Crescent and walked 300-350 meters north and up the Ferrymead Terrace few hundred meters and inspected the heavily vegetated steep slopes. Quite a surprise of what I could see here, only on few hundred meters - a good collection of succulent plants: *Cotyledon orbiculata*, *Aeonium arboreum*, *A. ciliatum*, *A. haworthii*, *A. undulatum*,

A. urbicum, *Sedum praealtum*, *Aloe arborescens*, *A. maculata*, *Senecio serpens*, *Echeveria* 'Imbricata', *Opuntia* sp. (possibly *O. ficus-indica*), *Agave americana* (incl. 'Variegata'), *Furcraea foetida*, *Euphorbia characias*, *Carpobrotus edulis*, *Drosanthemum floribundum*, and especially an *Aeonium simsii* hybrid, a found which that gave me the opportunity of a first documented record as adventive plant in New Zealand.

⁵ - The Bridle Path is a steep track on the northern rim of Lyttelton volcano connecting the south eastern Christchurch suburbs with the port of Lyttelton. It was constructed in 1850 as a bridle path for leading horses, and was used by the early European settlers as a route from the port to new settlements on the northern side of the Port Hills. Although very steep, it was the only means of traversing the hills until Summit Road was completed in 1857. (Wikipedia).



Agave americana 'Marginata'.



Euphorbia characia.



Flowering *Sedum praealtum*.



Senecio serpens.



Euphorbia characia.

Surprising for this stage of the trip is the immense amount of exotic flora spread everywhere and, especially, the almost insidious way in which it has spread, mutilating and replacing the native flora. Exactly like in many other places in the immediate vicinity of the oldest settlements inhabited by European co-lonizers and helped by rough terrain particularly difficult to control. If this problem is neglected for too long, the result is inevitably the one we are seeing, unfortunately, in this area. It's a delicate problem, hard to avoid after 150 years of "civilization".

Spot the natives (if you can)!

The steep slope was covered with a multitude of exotic species, many of them succulents, coming obviously from the gardens above. It is a typical way of spreading into nature of those plants. Even though city outskirts, the northern end of Bridle Path is still an urban habitat. Unfortunately, the terrain is so rugged, with walls having a slope of 30-60 degrees and is extremely difficult to keep clean ... and more importantly,

who will do this unpleasant task? The people who live there won't do and the city council has probably some other things to take care of. It is actually a standard for most beleaguered urban and suburban habitats in rough terrain areas of Banks Peninsula. I noticed in this type of areas usually only very few species native vegetation, absolutely suffocated by all kind of adventive vegetation.

Finding few specimens of *Echeveria* 'Imbricata' was quite a surprise, or unexpected at least. Although intensively cultivated in New Zealand gardens it is extremely uncommon in natural environments. It was mentioned in Wai-kumete Cemetery, Auckland, in Motunau, Canterbury and in Anderson's Bay, Dunedin (Webb & al., 1988). 1988 is a huge 30 years back, but I couldn't find any newer references. The few plants I have seen here were on a 45 degrees relative empty rocky slope growing together only with small *Aeonium* bushes. It is relatively easy to propagate in cultivation from leaves and stem fragments but I expect to have an extremely low dynamic if unassisted. The very few plants seen were virtually quite old and no younger plants have been otherwise noticed. I suspect they originate from garden waste.



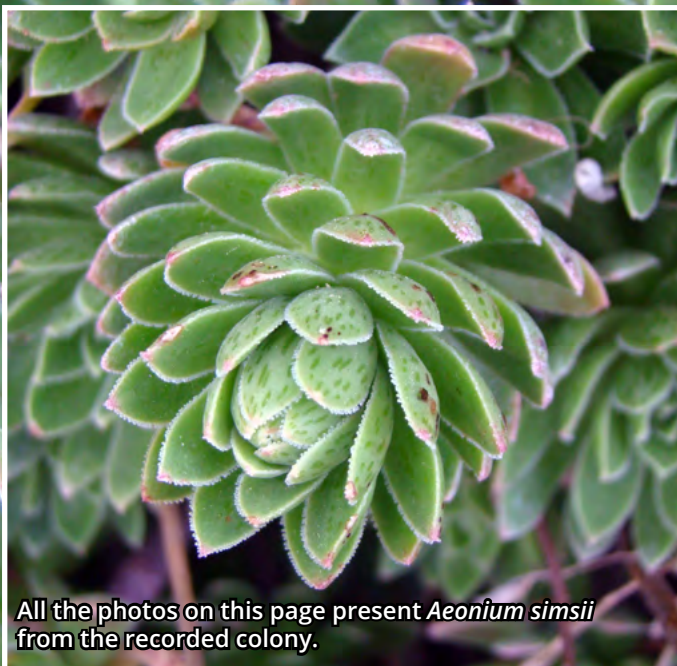
Echeveria 'Imbricata'.

Aeonium haworthii & *Echeveria* 'Imbricata'.

Also surprisingly was the massive ground covering *Drosanthemum floribundum*, large masses absolutely choking all vegetation growing beneath. I will come back to this species, as this was only a small test before finding some impressive populations.



Drosanthemum floribundum.



All the photos on this page present *Aeonium simsii* from the recorded colony.

New Zealand first record of naturalized plant *Aeonium simsii*

The thicket plant in Bridle Path provided me the opportunity to record one succulent plant species documented for the first time in nature or in areas of uncontrolled vegetation.

Aeonium simsii (Sweet) Stearn 1951 (very probably a hybrid of)

Location: Bridle Path Road, Ferrymead, Christchurch, (-43.559, 172.709), on a very steep slope.

Date: September 2016

Category: Casual (possibly garden discard).

Origin: The true species comes from Gran Canaria (Canary Islands), where it grows at high elevation. Most plants in cultivation seem to be a hybrid (garden origin).

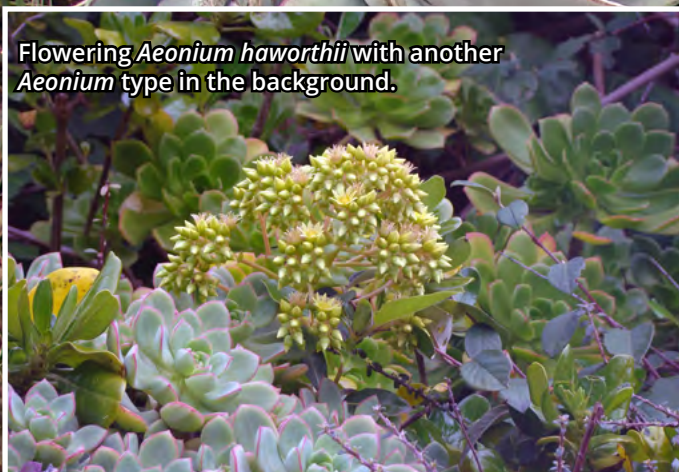
Comments: *Aeonium simsii* is quite different from other *Aeonium* species by having small and highly denticulate leafs but especially by the lateral flowering and not from the centre of the rosette. The plants offset profusely and form low mounds. The rosettes do not die after flowering (Schulz, 2007) which is another exception in the genus *Aeonium*. Most plants in cultivation seem to be hybrids, and the plants seen on Bridle Path are highly probably hybrids as well. I couldn't match the plant with plants photographed in habitat (including internet and Schulz's book) but is a very good match with pictures of *A. simsii* hybrids seen on the internet. They also seemed to grow more robust and taller than the true species.

However, many characteristics of the true species were still present: summer flowerer, lateral flowerer, and the dotted marks on the outer leaves. The plants were growing here on a very steep slope (45-60 degrees) forming dense mounds and not really mixing with other species.





Aotea Terrace

Cotyledon orbiculata.*Crassula tetragona*.*Zantedeschia aethiopica*.Flowering *Aeonium haworthii* with another *Aeonium* type in the background.*Sedum praecaltum*.*Aloe arborescens*.*Aloe maculata*.Three uncertain hybrids of *Aeonium*.

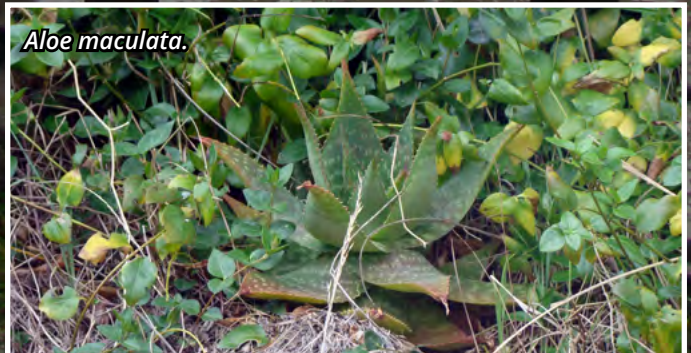
Trying to find my way south to Lyttelton area, I crossed Aotea Terrace – a suburban road in Hunsbury, Christchurch – with a similar setup (steep banks) as Bridle Path. I stopped again for 10-15 minutes in different parts of the road to inspect the adventive succulent flora: *Carpobrotus edulis*, *Aeonium haworthii* (and some uncertain hybrid *Aeoniums*), *Cotyledon orbiculata* and – seen for the first time here – *Crassula tetragona* ssp. *robusta*. I continued my way on Dyers Pass Road and later on Main Road to Governors Bay.



Governors Bay



Once arrived in Governors Bay, some half an hour later, I left the Main Road and parked at the end of Jetty Road. I was told there's little to see here but I still stopped as it was in looking OK and on my way, very handy. I walked on the shore few good hundred meters up to the area where Sage Arboretum begins, but apart from few garden plants I could notice only *Aloe maculata*. It started raining a bit so I didn't make it too long.





Charteris Bay



The Charteris Bay Yacht Club with heavily infested banks.

Dense mats of adventive succulents:
Disphyma, *Cotyledon*, *Aeonium*...



Adventive succulents covering the slopes.



The sky cleared a bit while driving to Charteris Bay on the coastal road. Once arriving in the small town I was able to understand the profound and terrible and disturbing infestation with exotic plants – both succulent and non-succulent... I drove for several kilometers and stopped maybe 20 times to have a look at the (in some spots) really overgrown road bank and to take some pictures of course. Lots of plants: *Sedum praealtum*, a real mix of species and hybrids of *Aeonium* including *A. arboreum* and *A. arboreum* 'Atropurpureum', *Crassula tetragona* ssp. *robusta*, *Crassula multicava* in few sheltered

corners (but quite stressed and damaged by frost), several forms of *Cotyledon orbiculata*, *Aloe maculata*, *Aloe arborescens*, *Opuntia monacantha*, *Carpobrotus edulis*, the most extensive *Drosanthemum floribundum* ground cover patches I have ever seen, and a first time encounter for me – *Aptenia cordifolia*. However, the most interesting plant seen was a long and narrow leaved form of *Cotyledon orbiculata* – quite distinctive among the already seen form, with green leaves covered by a silver bloom, more or less intense also depending on the particular sun exposure of each of the plants.



Drosanthemum floribundum.



Drosanthemum floribundum.

More *Drosanthemum floribundum* with *Aeonium* and *Pelargonium*

The vegetation in Charteris Bay is almost a nightmare - if you look closely, nothing is what it was 100 or 150 years ago. As in most regions inhabited almost immediately after 1840, the effect seems to be irreversible ...

Opuntia monacantha.

Aloe arborescens with *Aeonium arboreum* 'Atropurpureum' in the forefront.

Aloe maculata.

Aptenia cordifolia.

After a while I drove back to the Charteris Bay Yacht Club and took a narrow alley leading to the club premises and inspected for few hundred meters coming down to the water level. Same plants again, in a more or less depressing view, overcrowded and choking almost all ground cover vegetation... Most of the plants produce only local infestations, but there are a few – and *Cotyledon orbiculata* is the most striking offender – in which dispersing is not only local, but affects large areas of land beyond the limit at which they could be controlled.



Aeonium haworthii hybrid (similar to *Aeonium* 'Rangitoto').



Aeonium, *Cotyledon*, *Aloe*... (first two in two different forms).



Aeonium arboreum & *Crassula tetragona*.



A beautiful *Aeonium arboreum* 'Atropurpureum'.



Don't miss the *Cotyledon* hiding behind.

It is particularly difficult to identify, as accurately as possible, the multitude of *Aeonium* forms found here. Sometimes I feel like I'm almost correct in identification, sometimes I feel totally despaired by examining (or looking for) specific traits. *Aeonium* plants coming from different sources have been crossed unhindered for many decades, if not more... Yet these forms - nonexistent in the native environment of the *Aeonium* - should be studied and the rings between them - may - be propagated to be grown in ordinary gardens, not embodying nature.



Aeonium hybrid.



Aeonium arboreum.



Carpobrotus edulis.



Carpobrotus aequilaterus & Cotyledon orbiculata

Cotyledon orbiculata with elongated leaves,
with *Crassula multicava*.



Cotyledon orbiculata with elongated leaves,
with *Crassula multicava*.



Crassula multicava fighting with the
morning frost.



Flowering *Crassula multicava*.

Charteris Bay would be worth definitely some more attention, in fact a whole day to have a somewhat clearer picture if not to uncover some of the plants mentioned by Sykes (2004). I also didn't have the time to visit Orton Bradley Park, which I understand it needs a bit more attention. If I will return to Banks Peninsula, then there will be a full day reserved only for Charteris Bay. But I had too many places to see in a very limited time.



Diamond Harbour



Tetragonia tetragonioides.



Aeonium arboreum.



Cotyledon orbiculata.



Aloe arborescens.

I continued my way driving on Marine Drive only for few minutes and arrived in Diamond Harbour⁶. I crossed the town (noticing that succulent plants – especially *Aeonium* – are still widely grown in pots and gardens) and turned on Waipapa Avenue. I parked my car next to the Diamond Harbour Country Store and continued my walk on Waipapa Avenue, continued left at the Stoddart Point intersection and left the road for a trail through the bush. The ground vegetation was dominated by adventive and native succulent flora – the New Zealand spinach *Tetragonia tetragonioides*⁷ (not a true spinach as it belongs to *Aizoaceae* family but comparable with spinach when cooked), *Cotyledon orbiculata*, *Aloe arborescens* and, although not succulent, a very interesting trailing plant with marked leaves. After few hundred meters I reached the shore line. A fairly sharp wind began to blow and large drops of rain started to fall abundantly, passing easily through the canopy and after 10 minutes I decided to return to the car.

Looking back retrospectively I should have spent some time at Stoddart Point Reserve (dubiously praised in management plans of Christchurch City Council, 2013), Stoddart Cottage (the oldest standing building in Diamond Harbour area) and perhaps Purau (a small settlement on Lyttelton Harbour, opposite to Lyttelton, with long history of Māori settlement) - where I could have seen minor populations of wild growing *Aeonium* sp. and *Cotyledon orbiculata* (I noticed a few while crossing Purau), but it was well past noon and I still had a long way planned for the day.

6 - Diamond Harbour is a small settlement on the Banks Peninsula's southern shores of Lyttelton Harbour, and is administratively part of the city of Christchurch. The area was named by Mark Stoddart, who bought 500 acres (200 ha) of land in the area in 1856. The name is applied not only to Diamond Harbour proper but to the nearby settlements of Church Bay, Charteris Bay, and Purau. (Wikipedia).

7 - *Tetragonia tetragonioides* (Pallos) Kuntze is a species of the coastal strand zone often growing along beaches amongst driftwood, and sea weed but also in sand dunes, on boulder and cobble beaches, on cliff faces and rock ledges. Partly because it has been cultivated as a vegetable this species often appears in landfills or as a casual weed of urban areas. Indeed some wild occurrences near urban coastal settlements may stem from discarded plants or seed in garden waste.



Port Levy



Carpobrotus edulis & *Cotyledon orbiculata*.



Tetragonia tetragonioides.

I took this picture shortly after 1pm, but still wintery dark.

<http://xerophilia.ro/wp-content/uploads/2019/02/DSC09947-I-took-this-picture-shortly-after-1pm-but-still-wintery-dark-mod.jpg>



Fennel (*Foeniculum vulgare*) growing wild.



Shortly after 1 pm I arrived in Port Levy⁸ and drove few kilometres on the roads close to the shore (Wharf Road, Fernlea Point Road) but except for isolated *Carpobrotus edulis* and more numerous *Cotyledon orbiculata* in two different forms there was nothing too exciting. And, once again, large patches of native *Tetragonia tetragonioides* from place to place.

⁸ - Port Levy is a long, sheltered bay and settlement, named after Solomon Levey, an Australian merchant and ship owner who sent a number of trading vessels to the Banks Peninsula area during the 1820's. The current population is under 100, but in the mid-19th century it was the largest Māori settlement in Canterbury with a population of about 400 people. (Wikipedia).



Cotyledon orbiculata.



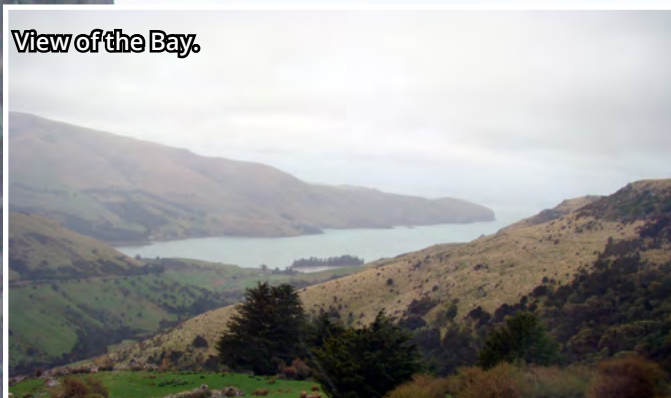
Pigeon Bay

Next stop was Pigeon Bay⁹, after a land cross via Port Levy Pigeon Bay Road. Not a very inspiring road name, but it's suggestive: it takes you from A to B and nowhere else. After driving on few stretches of poor dirt road in Point Levy this road was fairly good again (unsealed – I was advised not to attempt the road from Port Levy to Pigeon Bay especially with a rental car), crossing endless farmlands over rolling hills. Quite rare and isolated, here and there were few patches of native bush reminiscent of the image the first colonial settlers would have seen less than two hundred years ago ... Around the Pigeon Bay there were significant road banks of exposed clayish soil partly overgrown by many *Cotyledon orbiculata* ... the locality was actually an involuntary confirmation of the uncontrolled dispersal capacity of this species. It was already 2:15 pm and only hunger managed to stop me a little from my travel. I had lunch near a monument, centrally located but so secluded, dedicated to the participants and all those fallen in the Boer War (1899 - 1902) and First World War. Strangely enough, but going through the list of names and ignoring my car parked next to the road, I felt like moved in time 100 years ago ... this place was so quiet and so gloomy at the same time, and, exactly like in Port Levy, with only few old houses but not a single man to speak to.

9 - Pigeon Bay is an old settlement from the 1840's, even before Christchurch was founded. It was named so by the whalers because the bay forest was alive with keruru (wood pigeons). The village at its head survives as a cluster of houses and holiday homes. [New Zealand History](#).

The War memorial at Pigeon Bay.

View of the Bay.



Cotyledon orbiculata.





Little Akaloa



Tetragonia implexicoma.



Zantedeschia aethiopica in a cover of *Vinca major*.

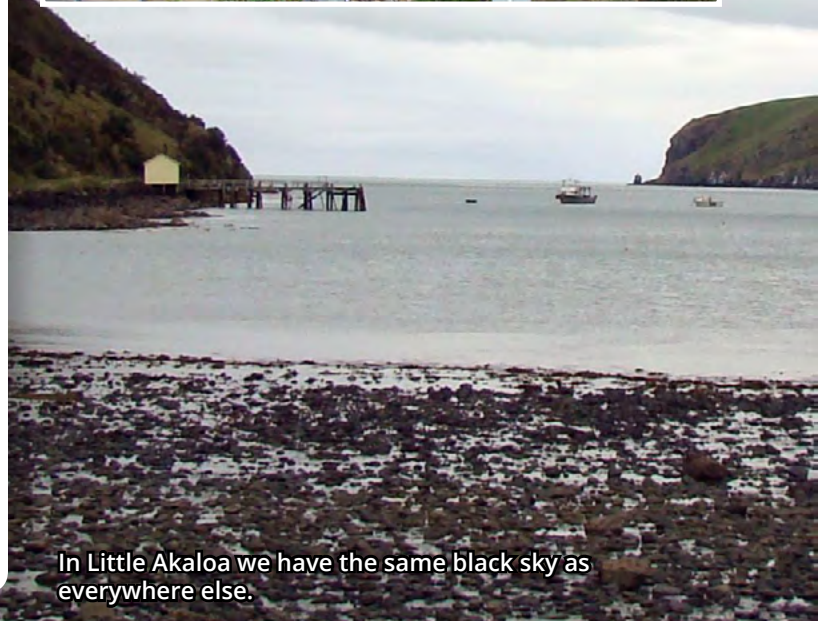
Back on the road to Little Akaloa¹⁰ – via Pigeon Bay Road and Little Akaloa Road, which was probably the shortest kilometer wise, but quite an adventure... not the best for a rental car anyway. Half an hour later I was there wondering about the lost time... there were only a few exotic species interesting to see (vegetation wise) - *Echium candicans* (Pride of Madeira), *Kniphofia uvaria* (Torch Lily or Red Hot Poker), *Vinca major* (periwinkle), and of course the omnipresent *Carpobrotus edulis*. And few nasty bushes of *Ulex europaeus*... remnants of old farm lands. However, instead a large and unexpected palette of *Tetragonia* species: *Tetragonia tetragonoides*, *T. trygina* and *T. implexicoma*.

But weather was getting worse, low clouds and few short but heavy showers every now and then. Not a good time to scramble through the bush.

Twenty minutes was enough here so I left on a different way trying to get to the State Highway 75 and home. I chose View Hill Road - a narrow dirt road crossing the desolate hills, for hundreds of meters the road was wide enough only for a single car – and then Summit Road, in a south western direction.

¹⁰ - Little Akaloa. The name should of course be Little Akaroa but reflects the southern Maori pronunciation of 'r'. The settlement, 25 km north of Akaroa, was designated 'little' to distinguish it from Akaroa. It was spelt Hakaroa until 1864. Farming settlement and bay providing shelter for small boats. (<https://nzhistory.govt.nz/>)

Not a bad place to live here...



In Little Akaloa we have the same black sky as everywhere else.



Tetragonia trygina.



Echium candicans (Pride of Madeira).



Davauchelle & Cooptown

A drizzly day near Davauchelle.

Agave americana in Cooptown.



Agave americana 'Marginata' & *Opuntia robusta* in Cooptown.



Once on SH 75 I was able to get a decent pace. However, I had a short stop at Duvauchelle, shortly after 3:30 pm, only to take few pictures of low clouds covering Akaroa Harbour... yes, it was getting cold, windy, another couple of showers just to annoy yourself – this was the only tourist stuff in the offer ... Once more and unexpected stopped in Cooptown (between Puaha and Little River). Remnants of large garden plants scattered near the road – *Agave americana*, *A. americana* 'Variegata', and especially a beautiful and isolated specimen of *Opuntia robusta*. A little nice place, quiet, and just good for the end of a busy day. I left Cooptown close to 5 pm and drove straight to the motel. I took only a rushed dinner, an after this, enjoying a glass of red wine, I reviewed the planning for the next day.

Opuntia robusta in Cooptown.





Kaitorete Spit (Te Waihora)



Road banks 6 km to Birdlings Flat.

*Carpobrotus edulis.**Carpobrotus edulis.**Carpobrotus edulis.*

Sweet & Sauer

Next day I left very early again, hoping to spend most of the day at Kaitorete Spit. It wasn't a very good weather, cloudy and rather gusty most of the time, but luckily – apart from few isolated and superficial showers – not rainy. (Well, except for the heavy rain when driving back home). On the way I stopped only for few minutes at a road cut on SH75, five or six kilometers before the point I had to leave the highway to reach Birdlings Flat. I was really surprised to see masses of *Carpobrotus edulis* hanging from the ramp cliffs, in a place that my mind would have never accommodated this plant in. Quite curious, and worth having a short look. The grand plan of the day was to drive the gravel road that went along the Kaitorete Spit

close to the beach – maybe 30 or 40 kilometers return, and on the way back to briefly inspect Birdlings Flat and the shores and banks of Lake Forsyth. If time enough, then a quick drive to Akaroa to have maybe a look around (I wasn't expecting too much vegetation wise) and an early dinner before returning at the motel. But, luckily, the intended drive on Kaitorete Spit went south and, in the end, I was forced to walk maybe six or seven kilometers westwards... It was probably much better than looking for plants and driving a car on shady roads. This walk gave me a very good image – and an overwhelming sweet and sour feeling – of this unique habitat very exposed not only to climatic extremes, but exposed to a factual decay caused directly by humans or by their indifference.



My car in the parking lot at the eastern part of Kaitorete Spit



At some stage the conservation area begins... but the landscape is desolated as ever.



A memory spot.



Charadrius bicinctus (banded dotterel).

Kaitorete Spit¹¹ (Te Waihora)

The Kaitorete Spit is a really unique place, and potentially one of the last vestiges of wild New Zealand – if you consider the number of local forms and native plant species. The peninsula – in fact a massive natural dam of sand, gravel and chippings – is not very old at all. Most authors (Partridge 1992; Peace, 1975; Armon, 1970; Suggate, 1958) consider that Kaitorete Spit is only 6 - 7000 years old and formed by the gravel deposited downstream by the swollen Rakaia River (now flowing 20 km to the west of the western tip of the peninsula) and pushed into place by the Pacific Ocean.

In fact, it is not a colossal natural monument, but just a large barrier of alluvial material, some 28 km long and otherwise impressive landform. Peace (1975): "The Spit is basically a gravel ridge, with a general height from 4 - 6m above m.s.l. On the seaward side the gravel is covered by sand dunes, ranging from small mounds in the east to a height of 16m in the west". "It's the largest remaining area in New Zealand of native sand binder/pingao, a bright-orange plant prized for weaving. Kaitorete is also home to other threatened plants

and animals, some of which are unique to this location, such as woolly head *Crapspedia* 'Kaitorete', and a flightless moth! It's a fantastic place to spot katipo spiders and lizards too.

"Kaitorete Spit has considerable cultural value to Ngāi Tahu (a resilient, entrepreneurial Maori iwi (tribe) who made our home in Te Waipounamu (South Island) over 800 years ago) because of the ancestral associations with the area. Its ancestral name, Kā Poupou a Te Rakihouia (The Successful Support) denotes the function of the spit – which is similar to that of an eel weir; guiding eels into the mouth of the hinaki (eel trap). In this case, the eels are guided to the Taumutu area where the kōumu (eel channels) are constructed to catch migrating eels." (Te Waihora.org).

¹¹ - Kaitorete Spit is a long finger of land which extends along the coast, west from Banks Peninsula, for 25 kilometers, and separates the shallow Lake Ellesmere from the Pacific Ocean. It is actually a barrier as it reaches landfall on either side (at Birdlings Flat and Taumutu), though at its western end it tapers to a point less than 100 meters in width which is occasionally breached at high tide. The spit is noted for its isolation and for its pebbly beaches. The barrier is of considerable ecological significance and is home to the majority of the surviving specimens of *Muehlenbeckia astonii* - a nationally endangered endemic plant. (Wikipedia)



Carpobrotus aequilaterus.



Carpobrotus edulis.



Crassula sieberiana.



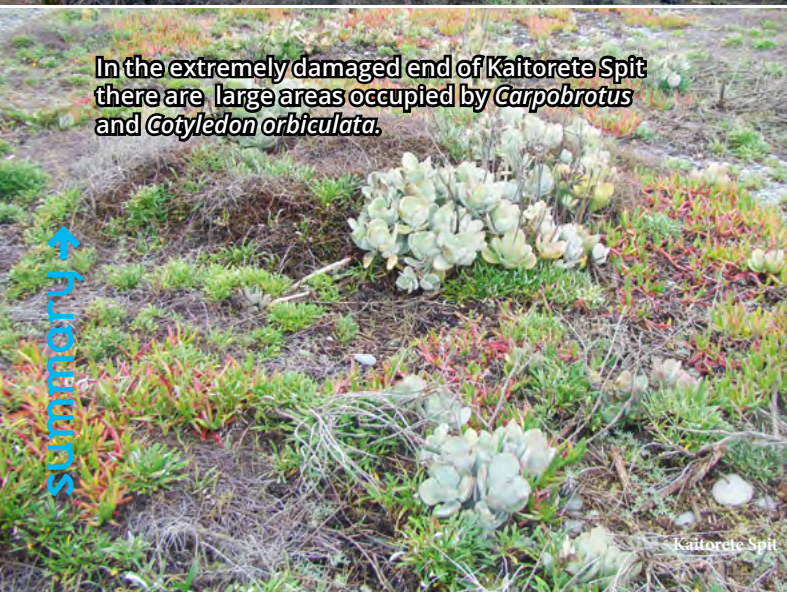
A rather damaged specimen of
Aeonium haworthii hybrid



Raoulia tenuicaulis.



Ficinia spiralis.



In the extremely damaged end of Kaitorete Spit
there are large areas occupied by *Carpobrotus*
and *Cotyledon orbiculata*.

Kaitorete Spit

This barrier used to have two connections with the Pacific Ocean – one of them at the eastern end, near Birdlings Flat, where until the 1930-1940's there was a shallow connection with Lake Forsyth, which could be used by kayak at high tide. The other one still exists at high tide at the western end. Unfortunately over the last 150 years farming has destroyed most of the natural habitat – except for the Pacific pebbled shoreline. However, this remote and lonesome barrier of pebbles I would like to visit again, that's for sure, not only for the adventive succulent flora, but also to study its rare native flora.

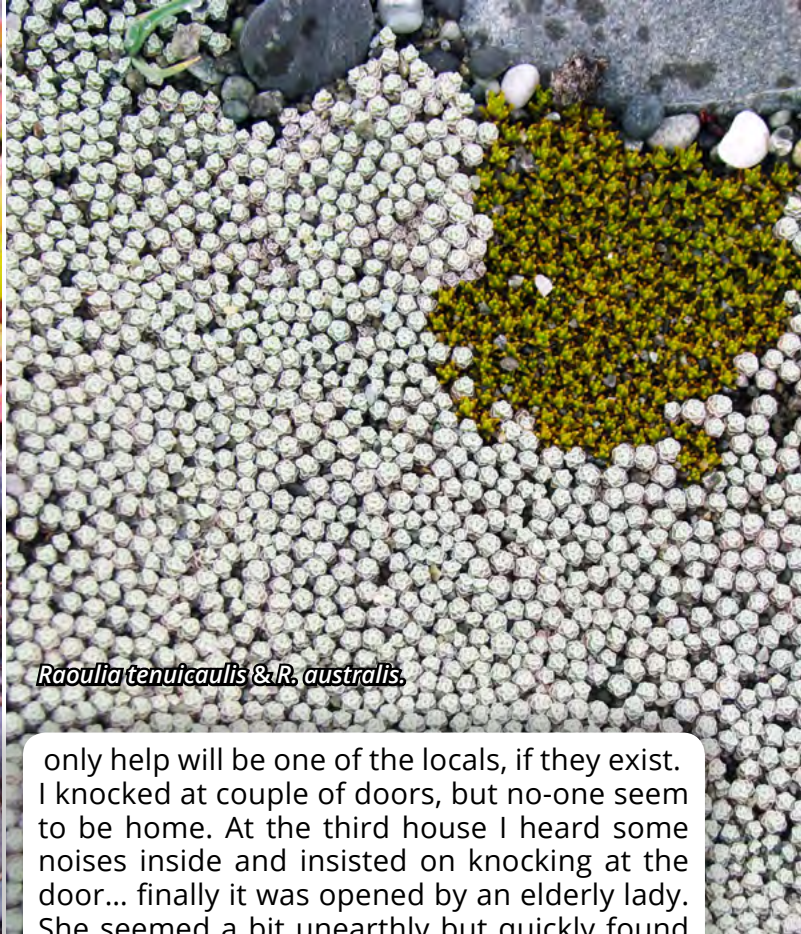


Cotyledon orbiculata.

Stuck in the pebbles

My time on Kaitorete Spit started with a long drive from SH75 on Poranui Beach Road, crossing the desolated Birdlings Flat (seemed completely empty, with no people living here!). At the end of the road there was only a small pebbled parking... and the start of the long barrier. After parking, first error: I looked out to pick the best of the tracks starting (running somewhat parallel) from near the parking platform. I choose what I thought it's the most excellent and tried it with my car. After 150 meters I thought there is a better track nearby and simply moved to cross the untouched pebble strip... and got completely stuck. The more I tried to get out, the deeper I was getting buried. Of course, I was told NEVER drive on Kaitorete Spit, unless I had a solid four wheel drive - a high-powered jeep with high ground clearance!

My mobile was out of range, so I hoped my



Raoulia tenuicaulis & *R. australis*.

only help will be one of the locals, if they exist. I knocked at couple of doors, but no-one seem to be home. At the third house I heard some noises inside and insisted on knocking at the door... finally it was opened by an elderly lady. She seemed a bit unearthly but quickly found the solution - to call AA (from her porch, otherwise there's no connection for my mobile) and request support. Thanks Ma'am, I thought, this will be a first time to get here help. However, my luck changed quickly as a new car stopped in the parking place. The man driving it was out for a run on the beach and didn't mind to helping me. It took us some 15 minutes to move the car out of the pebbles... and once out I drove straight to the parking lot. The God sent man was tired enough after all this pulling and pushing, and left the scene. I had to change my plan and simply walk the Kaitorete Spit as much as I could.

It's easy to get stuck in the pebbles.

A red rock carrying the gray gravel...



Disphyma australe with *Carpobrotus edulis* - no hybrid has been seen...

Disphyma australe.

Aloe maculata.

The long walk on Kaitorete Spit

It was still cloudy and drizzling a bit every now and then, so I didn't think I would walk too much on the pebble barrier. But as monotonous it seemed at first, the continuous variations and the almost imperceptible transformation of the habitat kept me in the "socket" as it is said and I walked about 6-7 kilometers (... and then all the way back ...). Actually (apart from the long time spent here) it was much better to walk by foot and see all the spots and corners where and when I wanted, instead of driving on a more or less insecure track.

Lampranthus aureus.

Cotyledon orbiculata.

Aloe macrocarpa & *Agave americana* 'Marginata'.

Sedum album.

Like many other beaches in New Zealand Kaitorete Spit leave you a first impression of a half-dying beach, sad and stuffed with a lot of exotic plants.

Capobrotus edulis (and also *C. aequilaterus*, but less extended) is everywhere, stretching on extended surfaces, while originally wide-spread plants – such as pingao (*Ficinia spiralis*), the golden sand sedge which is a New Zealand endemic – have suffered from competition with introduced plants such as mar-

ramgrass (*Ammophila* sp.) and animal grazing have degraded most of the populations.

Walking some six or seven kilometers along the strip you can see the landscape changing: less exotic intruders and more clumps of *Ficinia spiralis*, and also patches of rarer plants – *Muehlenbeckia complexa*, *Raoulia australis*, *Raoulia tenuicaulis*, *Pimelea urvilleana*, *Epilobium macropus*, and many others... unfortunately I wasn't focusing on this kind of plants.



Cotyledon orbiculata.



Aeonium haworthii hybrid.



Cotyledon orbiculata, two forms growing next to each other..



Aloe macrocarpa with two different forms of *Cotyledon orbiculata*.



Cotyledon orbiculata, a form with elongated leaves..



Petroselinum crispum, parsley.

From the many adventives succulent plants seen (especially at the eastern end near Birdlings Flat) I can mention: *Carpobrotus edulis* (probably the most widespread), *C. aequilaterus*, various *Aeonium haworthii* (mostly hybrids), various forms of *Cotyledon orbiculata* (including two different forms with elongated leaves), *Aloe maculata*, *A. macrocarpa* (obviously extending from abandoned lots), *Agave americana*, *A. americana* 'Marginata', *Sedum album*, *Crassula sieberiana*, *C. maculata*, *Tetragonia*

tetragonioides, and very surprisingly *Lampranthus aureus* extending from adjacent from one of the lots. I saw only one lot where this plant formed an extremely abundant population, but on the beach groups were extending up to 150 metres from the initial infestation point.

I left Kaitorete Spit after more than four hours ... but definitely I would like to come back. It was just a taste so to speak... and definitely more to see – especially the indigenous and endemic flora.

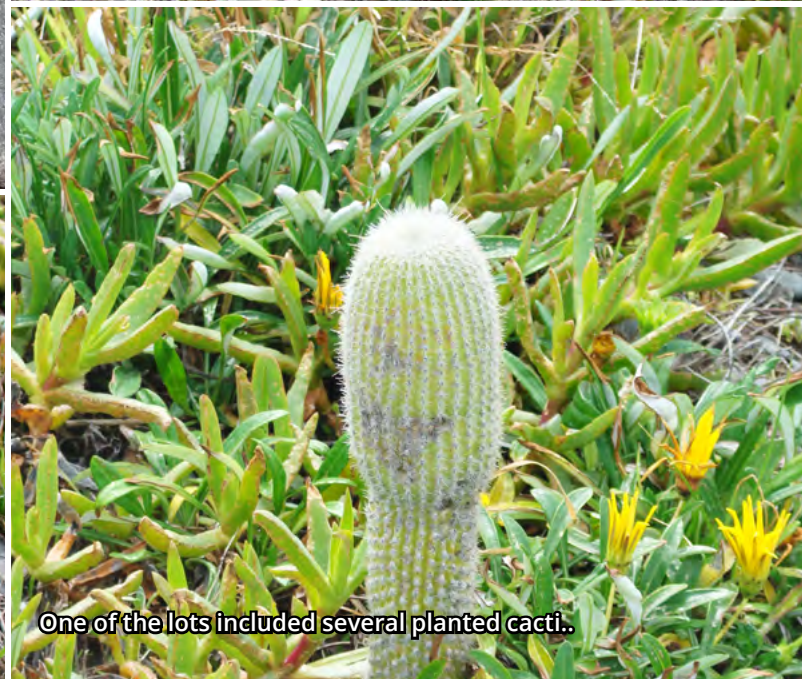
A different more compact form of *Cotyledon orbiculata* with elongated leaves.



One of the lots included several planted cacti...



One of the lots included several planted cacti..

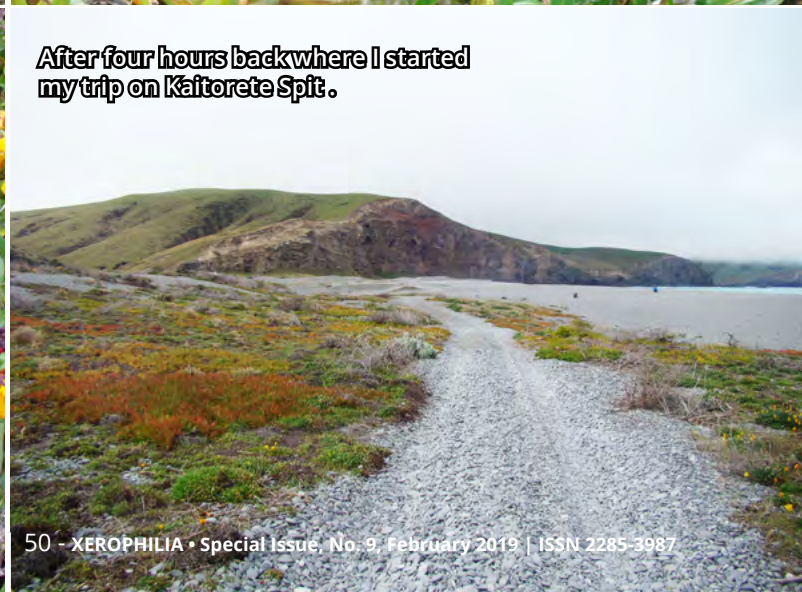


One of the lots included several planted cacti..

Aloe maculata.



After four hours back where I started my trip on Kaitorete Spit.





Birdlings Flat

Birdlings Flat is a very rugged outpost; you can see this immediately when you turn from the SH75 on the 2 kilometers road leading to the town. Quite a funny place, rather different from everything I have seen in Banks Peninsula. Even after leaving Kaitorete Spit, this was hard to consider a return to the civilized world. Two of the streets running parallel to the beach (Coates Road and Hill View Road) are a very strange and bizarre world. From place to place adventive succulents were running

amok: *Aloe arborescens*, *Agave americana*, *Agave americana* 'Variegata', *Carpobrotus edulis*, *Cotyledon orbiculata*, various *Aeonium* hybrids, to name only a few of the plants seen.

12 - Birdlings Flat (or Birdling's Flat), originally named Te Mata Hapuku (Fat Eye), is a settlement close to the shore of Lake Ellesmere/Te Waihora (The Capture). It is also a name commonly referred to the nearby pebble beach that is part of Kaitorete Spit. Birdlings Flat is named for the Birdling family, who were the first European settlers to farm the area. (Wikipedia)

A flowering *Aeonium*.



A flowering *Sedum praealtum*.

Volcanic rocks.



An agglomeration of strange and dilapidated houses (apparently a heaven for illegal ramshackle constructions), tilted on straight roads, with seemingly abandoned lots of land intertwined from place to place. Pretty much these abandoned lots of land were hosting a rampant agglomeration of exotic species, mostly banal species abundantly found in culture (well, or largely growing on private land). Of course, *Cotyledon orbiculata* was the most widespread species, accompanied by various

Aeonium hybrids, and with *Euphorbia characias* and *Centranthus ruber* being also very common. I also checked few spots on the shore of Lake Forsyth, but with no real finds. I had to cross few times obviously degraded settlements to reach the shores... it was quite funny and lugubrious at the same time that during the hour or so spent drifting through Birdlings Flat I met no people whatsoever, only two or three passing dirty and rusty cars. Bizarre place indeed.

There was no real challenge to find specimens of the rather low number of species mentioned, but – contrary to the extraordinary experience encountered on Kaitorete Spit – it was becoming pretty much boring. In addition to this, weather improved significantly, sun went out from the clouds again, and I have decided to abandon this search in a quasi-urban environment (dodgy, crooked, dubious, but still crossing an urban area) and drive to Akaroa.

Sedum praealtum & *Cotyledon orbiculata*.

Cotyledon orbiculata & *Euphorbia characias*.

Low clouds over Lake Forsyth.



Akaroa



Low clouds over Akaroa.

But the good weather and the few spring proclaiming rays of sunshine were just a moment's delusion. The sky covered back quickly with low clouds. A short stop again near Duvauchelle, just to take few photos... it was still early in the day so I decided to continue my drive to Akaroa¹³. When I arrived in the city at 2:30 pm I had again the luck of a good patch of sun... and for goodness sake, I was feeling a bit like in early spring. Except few *Aeonium* plants with large rosettes, *Vinca major* and *Centranthus ruber*, there was nothing interesting else to see... so I just spent a couple of hours drifting around through the town.

Akaroa is a popular resort town. Although

having barely over permanent 600 inhabitants (a third of senior age) there are a large number of tourists and visitors during the season. It was a bit early now, but walking the streets I couldn't stop admiring some of the original houses built in the late 1800's, still well-maintained and cared for, as the narrow streets as well.

¹³ - Akaroa is a small town on Banks Peninsula, situated within a harbour of the same name. The name Akaroa (originally spelled "Hakaroa") means "Long Harbour" in Kāi Tahu Māori, which would be spelled "Whangaroa" in standard Māori. It is set on sheltered harbour and is overlooked and surrounded by the remnants of a Miocene volcano. Akaroa is a popular resort town and in summer the temporary population can reach 15,000 (permanent population 624 in 2013).

(Wikipedia)

Akaroa.

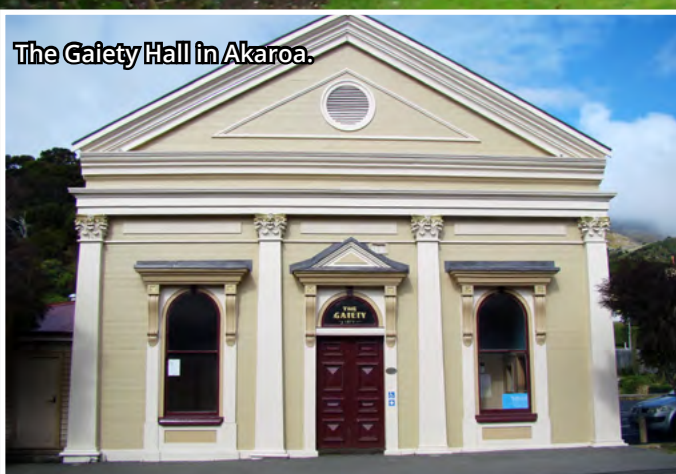


The French influence is still present – many businesses bear French or French sounding names – as the territory was disputed by France as well. In 1838 Captain Jean François Langlois, a French whaler and colonizer, made a provisional purchase of land. Returned to France he impelled settlers to come to the new territories (there were 63 in total)... only to find out in 1840, when he returned to Banks Peninsula, that Banks Peninsula has been already claimed by the British. He and his settlers remained... and became, willy or nilly, New Zealanders. However, almost 180 years later, there still was a sign of strong and deep rooted French tradition...

I didn't eat during the day, so at 3:15 pm I stopped at a seafood restaurant (Bully Hayes – the best there is in Banks Peninsula!) to have a late lunch or early dinner (call it how you like) – the most excellent seafood chowder I had in years, toasted with a superb glass of Merlot! Before I left I enjoyed for few minutes the music and humor of The Travelling Pianist, playing his portable piano at the waterfront.



War memorial in Akaroa.



The Gaiety Hall in Akaroa.



The old shipping office in Akaroa.



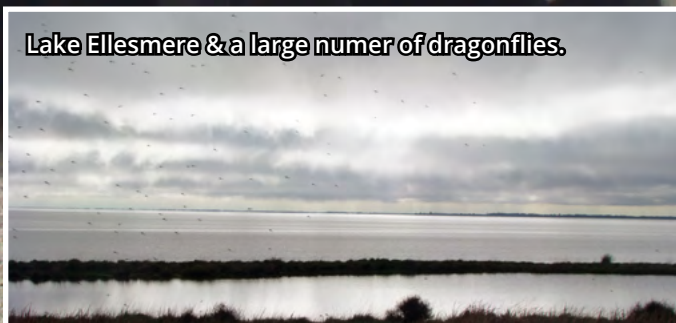
<http://xerophilia.ro/wp-content/uploads/2019/02/DSC00199-planted-Aeonium-in-Akaroa-mod.jpg>



The travelling pianist.

After some time, the weather turned crap again, and it started to rain again. I started my final drive to the motel in Christchurch (on very heavy rainfall at times) stopping only once to take few very interesting pictures of an enormous flock of dragon flies, dancing in the moist air of the evening... over Lake Ellesmere. It was raining heavy after this stop, and the way back to Christchurch wasn't funny at all.

Lake Ellesmere & a large number of dragonflies.





Redcliffs




Drosanthemum floribundum.


Next day - early wake up and a frugal breakfast... and went quick on the road again. Still very cold (not raining) and low winter clouds. After a couple of unsuccessful attempts to reach Godley Head (blocked roads, of course!) I decided to focus on localities nearly merged to Christchurch – Redcliffs¹ and Sumner².

14 - Redcliffs is an outer coastal suburb of Christchurch. The suburb is most directly accessed from the city centre by a causeway that crosses the Avon Heathcote Estuary and is the suburb immediately before Sumner. Redcliffs is characterized by rocky, hilly geography and has many natural caves in its sides. The domineering cliffs of Redcliffs are a snapshot of the region's volcanic origins. The cliffs are tinged with veins of red tephra, and composed of 'A' lava flows; the suburb draws its name from this the most notable of its physical features. (Wikipedia)

15 - Sumner is a coastal seaside suburb of Christchurch, New Zealand and was surveyed and named in 1849 in honor of John Bird Sumner, the then newly appointed Archbishop of Canterbury and president of the Canterbury Association. Originally a separate borough, it was amalgamated with the city of Christchurch as communications improved and the economies of scale made small town boroughs uneconomic to operate. Sumner is nestled in a coastal valley separated from the adjacent city suburbs by rugged volcanic hill ridges that end in cliffs that descend to the sea shore in places. Because of its ocean exposure, high surf can form in some swell conditions. The beach is gently sloping, with fine grey sand. It is a popular surf beach for these reasons.



Aeonium haworthii.



Aloe arborescens.

Once arrived in Redcliff (easy drive from Christchurch) I parked on Glenstrae Road, where the McCormacks Bay Reserve track begins and started the way up... for a while I thought, maybe 20 or 30 minutes, but what a spectacular mixture of exotic vegetation! Plenty of species and forms of *Aeonium* (especially *A. haworthii*, *A. arboreum*, *A. undulatum*), *Drosanthemum floribundum*, large silvery *Cotyledon orbiculata*, *Aloe arborescens*, *Crassula multicava*, *Carpobrotus edulis*, surprisingly again *Aloe macrocarpa* (often confused by amateurs and botanists alike with *Aloe maculata*), *Sedum praealtum* ssp. *praealtum*, *Agave americana*, *Euphorbia characias*, *Pelargonium* sp., but also an immense amount of non-succulent flora, such as *Passiflora mollissima*, *Centranthus ruber*, *Echium candicans*, several *Senecio* bushes, *Hedera helix*, large patches of *Foeniculum vulgare* (fennel), *Rubus fruticosus* agg. (Blackberries), *Watsonia meriana* var. *bulbillifera*, *Fumaria muralis* (Scrambling fumitory), and many more! Honestly, the McCormacks Bay track is an environmental disaster so to speak. Most of the vegetation spreading through the valley is exotic, replacing without mercy everything that could have been indigenous. Quite sad!



Agave americana.

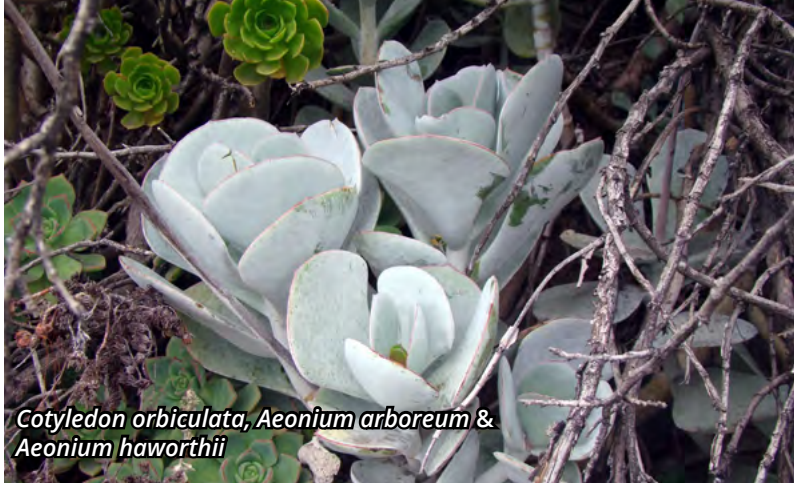
Aeonium arboreum & *Cotyledon orbiculata*.



Drosanthemum floribundum.



Aeonium haworthii.



Cotyledon orbiculata, Aeonium arboreum & Aeonium haworthii

Once again, it is daunting to observe the lack of interest - starting with many of the inhabitants of the area and ending with local authorities - which surrounds such a valley that could be transformed into an oasis for native vegetation. It is, however, an area in the heart of the small town and would deserve more than this devastation. But unfortunately, politics - including the green one - is also being practiced in New Zealand paying attention to the funds received and encouraging the most incredible bureaucracy.



Carpobrotus edulis & Aeonium arboreum.



Cotyledon orbiculata.



Sedum praealtum.



Aloe arborescens.



Watsonia meriana var. bulbillifera.



Aeonium undulatum.



Sedum praealtum & Aeonium.



Crassula sieberiana.

However, the biggest surprise was seeing, in several places, significant colonies of the native *Crassula sieberiana* - varying from tall and green plants (in more shaded positions) to bronze coloured specimens (in sunny spots)... anyway, large plants comparing to the miniature plants and seedlings seen on Kaitorete Spit the day before. It was growing between relatively well grassed patches, but on the exposed loam on several banks. For me the number of plants was a surprise – I have never seen that many in a single place!



Passiflora mollissima.



Crassula sieberiana.



Euphorbia characias.



Aloe macrocarpa & Aeonium.



Aloe macrocarpa & *Aeonium*.

I went almost completely up the valley, actually amazed by the chaotic vegetation patterns. My planned 20-30 minutes' walk has lasted about two hours in the end, but it was worth seeing everything. Returned to the car, I decided to drive up the hill. I stopped there and admired and walked the streets of a very exquisite and I guess quite expensive area.

New built residences accompanied by careful plantings as well – *Aloe polyphylla*, *Aloe plicatilis*, *Aloe barberae* (syn. *Aloe bainesii*), *Agave americana* were dominating – in a really good spot for growing succulents outdoors. After admiring the newly built area for 20 minutes I went back to the car ... and rushed on the way to Sumner.



Sumner

Once arrived in Sumner, shortly after half past ten, I went to the shore... but the weather wasn't that great and there was actually nothing out of the extraordinary to see. The sky was still covered, quite windy and the ocean was grey. No view at all. Of course, there are plenty of *Carpobrotus edulis* and few other non-succulent adventives – especially *Echium candicans* (Pride of Madeira), forming large stands, and few *Senecio elegans*, but nothing else I didn't see yet. I was quite bewildered... the city looked relatively well developed and I was a bit out of my reach. But haply I noticed a sign leading to Gethsemane Gardens (2 km away) and followed the street climbing uphill. I never reached the Gethsemane Gardens, but luckily there were plenty of escaped adventives to see.



Sumner.



Carpobrotus edulis & *Echium candicans*
(Pride of Madeira).



Carpobrotus edulis & *Aeonium haworthii*.

*Echeveria secunda* var. *glauca*.*Crassula multicava*.*Echeveria secunda* var. *glauca*.

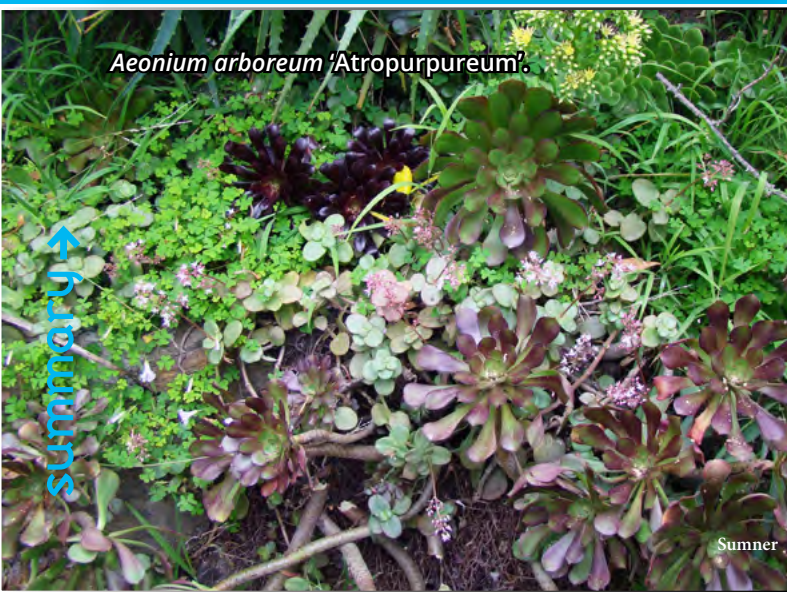
First of all – *Echeveria secunda* var. *glauca* was extended on quite a large surface, growing especially on a ramp consisting of small boulders. The entire area was actually quite infested with adventive succulents: different forms and hybrids of *Aeonium* (especially a large number of *A. haworthii* and spots infested with *A. arborescens* 'Atropurpureum'), *Crassula multicava*, *Euphorbia characias*, few different *Pelargonium* sp., *Tetragonia tetragonioides*, *Aloe arborescens*, *Agave americana* 'Marginata', several (non-succulent) *Senecio* species, and of course the omnipresent *Cotyledon orbiculata*.

*Tetragonia trygina*.*Aloe arborescens*.*Agave americana* 'Marginata' & *Aloe arborescens*.*Aeonium arboreum*.

*Aeonium arboreum.**Aeonium arboreum.**Aeonium haworthii.**Aeonium arboreum.*

One very interesting aspect – possibly after the 2011 Christchurch earthquake several consolidation works have been done on ramps considered dangerous for potentially future land slips. On large surfaces the slopes have been cleaned of every bit of rock that might get loose and covered with a metallic mesh net. Interestingly, this area was already covered almost exquisitely, only five years after the earthquake, with a large number of *Aeonium* plants.

It was already noon, and after a short lunch break I tried to leave Sumner not knowing exactly what to do for the rest of the day. But luck has played quite a big role during this travel – I took a road leading out and I noticed a sign to Scarborough Reserve... and I considered this could be a reasonable spot to spend the rest of the day.

*Aeonium arboreum.**Aeonium arboreum 'Atropurpureum'.**Aeonium haworthii.*



Scarborough Reserve

No matter what others say about Scarborough Reserve, for me it was a clear illustration of the infestation with succulent plants. I stopped several times on the road, but other than numerous *Cotyledon orbiculata* plants (plus few thistles), there was nothing else interesting to see. And by many, I mean hundreds of plants... scattered and flowering on the grassy slopes. I only wonder how these grassy slopes will look like in few hundred years... it was actually terrifying to think about. The truth is that this road crossing Scarborough Reserve finally opened to me the way to... Godley Head! When I saw the sign I thought I was just dreaming. I finally got my way, by pure chance, to Godley Head.



Cotyledon orbiculata.



Cotyledon orbiculata.



Cotyledon orbiculata.

Sumner seen from the Summit Road (Scarborough Reserve).



From Godley Head to Taylors Mistake



I parked the car in the dedicated park space shortly after 1 pm and went for the track crossing the slope near the shore line. Apart from the beautiful scenery (to be presumed in sunny days), the track revealed in full extent the actual infestation with adventive succulents (especially *Cotyledon orbiculata*) of the coast (cape) east of Lyttelton Harbour.

Two different *Cotyledon orbiculata* forms.



Two different *Cotyledon orbiculata* forms.



Never in my life seen so many *Cotyledon orbiculata* in one place...

I really have no idea how *C. orbiculata* may have been established here... but it is quite disturbing to see the extent of habitat alteration. Instead of native bushes we only have large grass lands reminding us of the deforestation occurred some 130 years ago... when the potential farmlands were put above everything else... In fact, you cannot blame randomly anyone ... except for ecologic organizations that do not understand that the ghastly result (the extended elimination of native vegetation) cannot be removed except through very concrete and harsh methods of environmental conservation. Of course, this costs a huge amount of money... and this is another topic so to speak.

...and more *Cotyledon orbiculata*!



Taylor Battery.

WW2 bunkers (Godley Battery).

The Battery Plotting rooms built in 1939.

Sheep are everywhere on Godleys Head !

It is dark and freezing, but only 2pm.

The shoreline, separated by Lyttelton Harbour from the Banks Peninsula, hosts the remains of some casemates, artillery points and structures built during the Second World War. This might have influenced to a certain degree the structure of naturalized plants (e.g. Parsley - *Petroselinum crispum* - naturalized close to former military barracks).



Ulex europaeus (gorse).



Still alive - I suspect this is *xCarpophyma mutabilis*.



Aeonium haworthii.

However, the entire coastline is dominated by many thousands of *Cotyledon orbiculata* (actually several forms) growing, flowering and self-propagating live. Apart from this *Silybum marianum* (*Carduus marianus*), *Oxalis articulata* (Pink-sorrel), *Carpobrotus edulis*, *Disphyma australe* – and very surprising an isolated *xCarpophyma mutabilis* (the hybrid of the two) which was from some points of view the highlight of the day. In places, especially at the start of the track, and not surprisingly quite large infestations of *Ulex europaeus* (gorse), while various *Aeonium* plants were scattered along the second half of the track.



Sheep near Tylors Mistake.

Tylors Mistake .



Shortly after 3 pm I finally reached Tylors Mistake, but didn't go down to the village, it would have been too late (the carpark was closing at 6 pm). I returned on the same track and shortly after 5 pm I arrived back in the parking lot... thanks God that it wasn't raining during the three hours of delightful coastal walk.

It still was a long way to home, and after drifting a bit on unknown roads I arrived back at the motel, shortly after 7 pm.



Conclusion



Maori Art.

Last day

The final day here in Christchurch... As I choose not to visit the (red zoned) central city, or the Botanical Gardens, I slept in a bit longer and had an extended breakfast while browsing through the pictures I took during the previous days. The only thing I actually had to do was to wash the car as it was terribly dirty and it was clear that we traveled through places not really acceptable for the car rental company. I packed my things in 10 minutes and left the shabby motel. But by this time it got too late to bother about cleaning the car, as I had a single meeting planned for the day – with Jennifer Pannel. We met at a very rustic café (unfortunately I can't remember its name) at 11 am. We spent one and a half hours chatting on succulent plants and whatever else I have seen in Banks Peninsula and we shared the eerie feeling we both had while visiting Birdlings Flat... Jennifer also confirmed the lack of interest of the authorities (I realized this seeing the alien plant infestation in some areas) in certain areas (e.g. Godley Head, Charteris Bay and, quite impossible to understand, such a unique place like Kaitorete Spit), sacrificed because of insurmountable costs, concentrating on “easy success” lots. Quite true and very sad at the same time. We didn't realize how fast the time was passing... and it was already time to say goodbye.

The day was still gray and drizzling, so I went straight to the car rental company to return the car. Once again I had a bit of luck – the only staff member (who wasn't in the office for couple of hours) was trying to keep happy a couple of new customers in the parking lot in the front of the building, so I had it very easy – handed the keys,

he didn't even look at the car... all done in 15 seconds. It wasn't very pleasant to carry by bags for some 500 meters to the airport, but there was no taxi around. I still had five or six hours until my flight to Auckland, but for some reason you may understand I preferred to spend in the small and busy airport. The weather became a bit turbulent in the meantime, but the night flight home was better than ever.

After all, it was a good trip - with all the obvious misfortunes - in which (I read later) there were no less than 7 light earthquakes ... so light that I did not even feel them. Unfortunately, in less than two months, the devastating earthquake of 7.8 degrees occurred in Kaikoura...

Coming back?

At this stage, the answer to this question is a definitely yes! Five days wasn't enough and most of the time I was somewhat superficial and rushed, because I had so many places to see. There are few areas where I would like to spend more time and be a bit more practical. There is at least one – the strange Birdlings Flat community and the adjoining Kaitorete Spit (extremely interesting also for the rare native species and form – some unique to the area), where I think to spend at least two days and finally walk this mass of outlandish terrain. And Charteris Bay – the most infested place I have seen here. As it stands now it will happen (sadly) in winter 2019, when I will have the opportunity to spend few days in Christchurch. This short trip was very interesting and somewhat upsetting if considering the amplitude of this man-made ecological debacle in the beautiful and so welcoming country of New Zealand.



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