Plant in Focus, September 2024

Pachystegia insignis Marlborough Rock Daisy

***Pachystegia insignis* Marlborough Rock Daisy**.
Left: Adam Duchac, iNaturalist NZ, CC BY-NC.
Above: Maryla Lawler.

Introduction

Marlborough Rock Daisy is one of 3 formally recognised species: *Pachystegia insignis*, *Pachystegia minor* and *Pachystegia ruff* (Molloy, 1987). Within each of these recognised species there are distinct variants reflected by the shape and dimension of the leaves. *Pachystegia minor* and *Pachystegia rufa* (cinammon coated variety) are smaller plants found in restricted coastal and inland locations of the *Pachystegia* general distribution.

Distribution

Pachystegia insignis Marlborough Rock Daisy is found in the Marlborough district of the North-East part of Te Waipounami, the South Island of Aotearoa/New Zealand. There it is found from the Wairau River in the north to Canterbury in the south and inland as far as Molesworth Station. Owing to its geography, the Marlborough region is the hottest, driest part of New Zealand This tells us that this plant is adapted to a winter rainfall climate with hot summers and very frosty winters inland as well as milder coastal conditions.

It grows in rocky, free draining limestone soils and it tolerates more heat than many New Zealand plants. What the plant dislikes is heat and humidity at the same time. It also dislikes being hemmed in by taller plants and it resents still, close conditions. It likes the sun above its head and a good stiff breeze through it at all times.

In their natural state most plants are found growing on steep or rocky sites composed of sandstone gravels. These rock types have a high level of natural fertiliser, especially calcium bound phosphorus.

Near Kaikoura where it is most prolific, the Marlborough Daisy is perched all over the steep rock faces overlooking the ocean, fully exposed to sunshine and salt spray.

This information was prepared by Maryla Lawler,
Friends of Geelong Botanic Gardens

www.friendsgbg.org.au
Phone: 5222 6053
www.geelongaustralia.com.au/gbg/

Pachystegia insignis.
Left: Maryla Lawler.
Above: Typical habitat, Becky Kerr, iNaturalist.org CC BY-NC.

Description
The word “daisy” conjures images of something delicate but it could almost be termed a “succulent” in that it has hand sized leaves which are leathery and rubbery: dark green and glossy on top, covered in dense white felting on the underside: an adaptation to protect the plant against the heat reflected from the otherwise bare limestone rock surfaces it inhabits in its natural state. It never grown horizontally in its natural state, only ever on vertical surfaces, such as crags in the cliffs surrounding Kaikoura.

It is a low growing, robust, spreading shrub. The stiff branches spread about 2 metres and may reach a height of 2 metres. The thick branches are densely clothed with small white hairs (a totentum). Flower heads up to 7.5 cm in diameter are white with a yellow disc in the centre. Flowers appear in late spring to early summer. It comes to perfection on the longest day of the year when it is garnished with a constellation of crystalline, white, narrow petalled flowers, this being a trademark of all daisies.

Propagation
Propagation is difficult. Typically the plant bears little viable seed and looses viability quickly. Out of 1,000 seeds only 12 might germinate. Seedlings are tiny and very prone to dampening off. They are slow growers for the first few years. Cuttings are very difficult to root.

Uses
Geelong Botanic Gardens: There are Marlborough Daisy plants situated in the C21st Garden, on the outer north bed (left-had side path from the entrance gate). See the map on page 4.

Garden: It grows best in almost dry, well drained soil. Sometimes it is a good idea to build up the ground with a pile of rocks lifting it a little above the surrounding ground. It will also grow well on retaining walls. Cold wet winters can be a problem making it important to choose an open sunny site.

Coastal planting: The more wind the better with salt laden winds not being a problem.

Landscape/Designer planting: The unique form of this plant gives it a strong personality to hold its own in a design yet its sober green and white colour palette allows it to get on with quieter plants. It is considered an excellent textural plant (Michael McCoy) to use with other evergreen foliage, shrubs from the Mediterranean region, contrasting textural grasses and surrounded by mat forming plants.

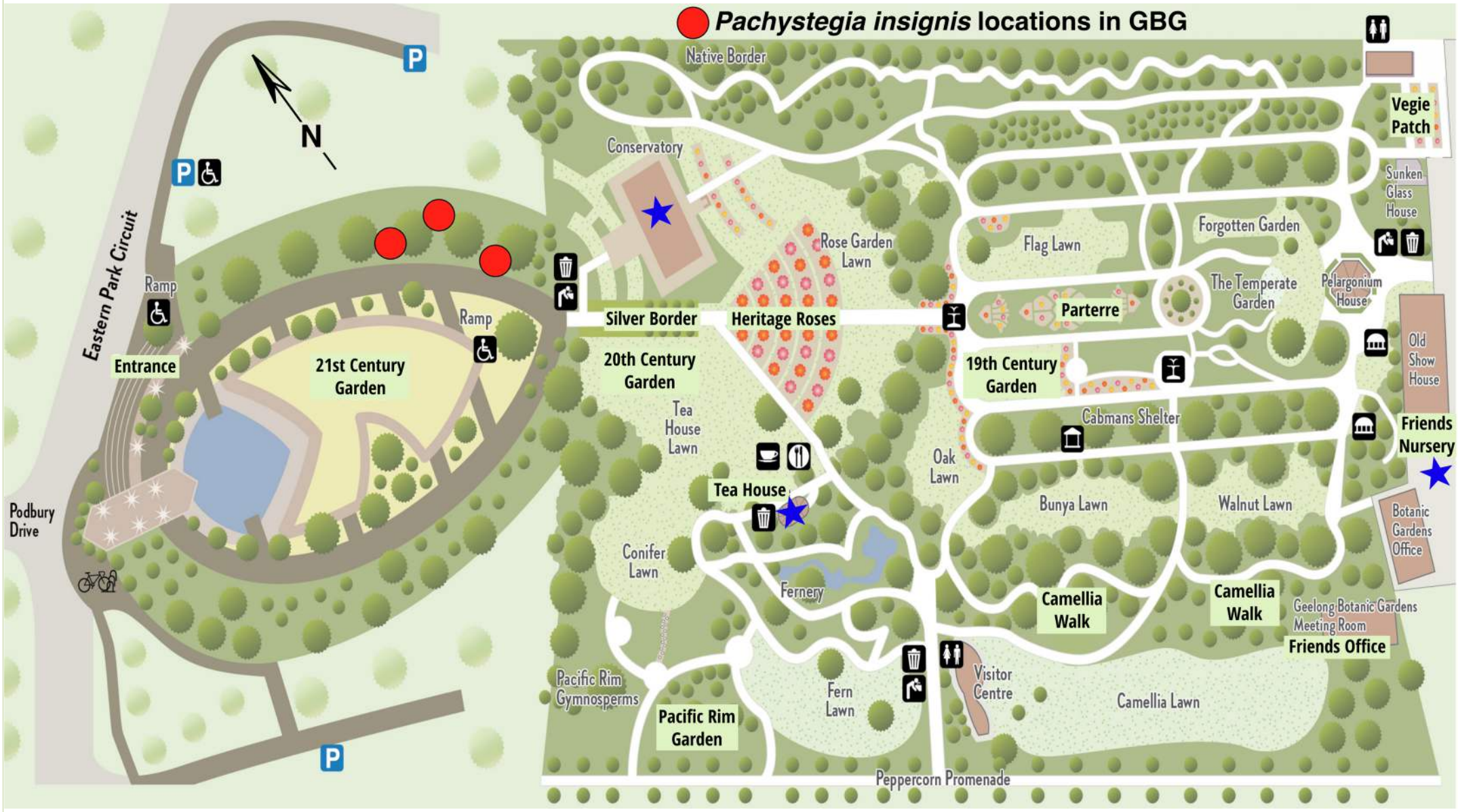
Pachystegia insignis.
Above: Seed head, Sid Mosdell, Flickr CC BY.
Left and below: Maryla Lawler.

Streetscape: Marlborough Rock Daisy plantings are evident within the town precinct of Kaikoura where locals are justifiably proud of this plant which is considered an iconic New Zealand native and rated among the top 10 desert island plants.

References:
Michael McCoy (The Gardenist : November, 2023)
Mangin, G; 2017 Flaxmere Garden: 50 years of extremes
Simon Rickard (Plant of the Week: March 31, 2020)
Molloy (1987)
Wikipedia

Comment from David Johnson on propagation:
There are several web references to vivipary in *Pachystegia insignis*. *Vivipary* is the term for live birth. In animals this is contrasted with being born from an egg. Humans are viviparous animals. In plants it refers to the seeds germinated very early, before leaving the plant or the fruit. Often, apples that have been a long time in cool storage, have sprouting seeds. In the attached reference there are photos of Marlborough Rock Daisy seed heads full of young plants. They even sprout from the seed heads of growing plants. Like many New Zealand plants, these daisies appear to lack the hormone that inhibits premature germination. An example of plants that are viviparous are *Agave* (growing in the Geelong Gardens). They often show a long flower spike with young plants growing along most of its length. Vivipary is vitally important for Mangroves, where there is no value in the seed being swept away by the outgoing tide. Instead, the young plantlets have a spear head, so that when they drop they stick into the silt, the right way up, beneath the parent plant.
Pachystegia insignis seed seem to have only a short period of viability after maturing. However, they germinate vigorously when a fresh seed head is watered frequently. I wonder whether this approach could lead to more success in the Friends Nursery.

Reference: Vivipary in the Marlborough rock daisy, *Pachystegia insignis* (Asteraceae), Anthony J. Conner & Jeanne M. E. Jacobs, New Zealand Natural Sciences (2023) 47. https://ir.canterbury.ac.nz/server/api/core/bitstreams/eda30c1d-0697-4a71-953b-607cf2800bda/content



Map of Geelong Botanic Gardens