

Rare plants: Have we got it right?

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A recent editorial in *The Press*, Christchurch², featuring the late Lance McCaskill (1900–1985) and his efforts to save the Castle Hill buttercup, *Ranunculus paucifolius* (Fig. 1), prompted some interesting recollections. It also, perhaps inadvertently, raised important questions about the allocation of conservation values and the merits of using apparent rarity *per se* as a measure of the worth of particular animals and plants.



Fig. 1 The Castle Hill buttercup, *Ranunculus paucifolius*. Photo: Brian Molloy, 21 October 1975.

McCaskill was a great New Zealand scientist and teacher who introduced revolutionary ideas about soil conservation and rangeland management and practices. But in Canterbury, there are still people who remember him best for his single-minded campaigns to restore Riccarton Bush and to create the buttercup reserve at Castle Hill (Fig. 2).



Fig. 2 Castle Hill with the original reserve in the foreground and the extended reserve area in the background. Photo: Brian Molloy, 30 December 1980.

In the 1940s, he lobbied successfully for the creation of the reserve³, and for research that enabled a Lincoln botanist, the late Margaret Bulfin of the former Department of Scientific and Industrial Research (DSIR), to develop an understanding of the requirements of the buttercup's seed, previously regarded as nearly impossible to raise in cultivation. Margaret's work led to the development of a technique for propagating fresh planting stocks from which the Castle Hill buttercup population could be replenished.

McCaskill not only campaigned for the creation of a scientific reserve to protect and preserve the plant. He took home small seedlings which he grew in his garden near Riccarton Bush to a size that he felt would be better able to survive in the wild, at which stage he took them back and replanted them. This would not have been easy and would have required a great deal of patience and skill.

After the creation of the reserve, McCaskill also, I believe, led a group of volunteers and Lincoln University students who built a very secure fence, topped with barbed wire, to keep intruders, both animal and human, out of the reserve.

DOC was not even a twinkle in the eye of any budding politician back then, in the 1940s, and for many years the reserve was administered (and zealously protected) by the then Department of Lands and Survey.

Permits to visit the reserve were not handed out lightly. In 1986, when an alpine-plant conference was held in Christchurch, a noted horticulturist, Brian Halliwell, who had previously lectured at Lincoln University, was invited to return from England as a guest speaker. He was at the time in charge of maintaining the alpine and Arctic plant collections at the Royal Botanic Gardens, Kew, where a huge range of high-altitude and cold-climate species from around the world was maintained.

A small group of enthusiasts planned a field trip to include a Sunday visit to the reserve, thinking this would be a highlight of his visit. Margaret Bulfin, who led the group, had previously been given permission to enter the reserve to collect seeds for her research. However, her request for a permit (from the Department of Lands and Survey, in what was to be their last year) to take the distinguished visitor from Kew to the Castle Hill reserve met with a flat refusal. "You can walk around the perimeter fence and peer through it," they were told, "But that's all you can do."

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² See www.stuff.co.nz/environment/115829547/saving-the-critically-endangered-castle-hill-buttercup for an online version.

³ Lawrie Metcalf pointed out that the late Walter ("Wattie") Brockie (1897–1972) also took an active interest in the habitat and preservation of the Castle Hill buttercup (*New Zealand Garden Journal*, 2014, Vol. 17, No. 2, pp. 14–19).

The conference was held the year after Lance McCaskill died.

Like the Universe, knowledge expands, and when taxonomists looked again at the Castle Hill buttercup they concluded it was not a distinct entity, and reduced it from a species, *Ranunculus paucifolius*, to a mere subspecies of *Ranunculus crithmifolius*, a scree buttercup which is widely distributed throughout the South Island's eastern mountains. When Vol. 4 of the *Flora of New Zealand* was published in 1988, even this small recognition was removed and the Castle Hill buttercup was sunk within the species from which it had been distinguished only by a minor difference in leaflet shape and number, which was thought to be an adaptation to the extreme limestone habitat. However, things turned full circle in 2010, when the name *Ranunculus paucifolius* was effectively reinstated in the *Threatened plants of New Zealand* book, thus restoring the status of the Threatened – Nationally Critical Castle Hill buttercup.

Its close cousin, scree buttercup (*Ranunculus crithmifolius*; Fig. 3) is usually found in a mixture of fine and slightly coarser greywacke debris, but not in the larger rock debris commonly seen in the highest scree slopes. Until you get your eye in for both the plant and the right kind of scree it can be hard to spot when it is not in flower, because the foliage is pretty much the same colour as the scree. Age and infirmity have stopped me from clambering around mountainsides, but in the 1990s I could have led you to patches of several hectares beginning just a few steps away from the ski-field road on Mt Hutt. On a trip into the upper Rangitata mountains in the early 1980s there were so many scree buttercups growing on the old bulldozed track over the Bullock Bow Saddle in the Sinclair Range that it was impossible to avoid stepping on them.



Fig. 3 Scree buttercup, *Ranunculus crithmifolius*. Photo: © Alice Shanks (CC-BY-NC), <https://inaturalist.nz/observations/968538>.

This raises the question of whether it is worthwhile or wasteful to direct scarce conservation resources to efforts to save presumed “rare” animal or plant species (and indeed, how conservation efforts are influenced by taxonomic reappraisals). Should efforts and funds be redirected to ensuring that more robust communities that are doing well will continue to do well?

Species regarded as rare are not always necessarily rare. Sometimes they are “lost” for reasons no more complex than that no-one has looked for them in the right places. Examples are not difficult to find.

Kirk's climbing broom (*Carmichaelia kirkii*; Fig. 4A–B), a slender liane with attractive flowers, is one with which I have hands-on experience.



Fig. 4 Kirk's climbing broom, *Carmichaelia kirkii*. **A**, cultivated plant in flower. Photo: © John Barkla (CC-BY), <https://inaturalist.nz/observations/977545>. **B**, plant from Te Moana Gorge, showing the spotted seeds and distinctive beaked pods. Photo: Derrick Rooney.

This unusual plant, perhaps the world's only climbing broom, once common in Travis Wetland, Christchurch, disappeared from there about a century ago (allegedly through over-collection by visiting botanists, although I've never seen any direct evidence to support this assertion), and was until relatively recently thought to survive as a small remnant population on a block of Māori land near Oxford after its main southern population was drowned when Lake Pukaki was raised for power generation. An herbarium specimen exists from a population on Great Island, in the Rakaia River, but it has not been seen there for 50 or more years.

In 1998, when exploring the possibility of a QEII Trust covenant on part of a block of land my wife and I then owned in Te Moana Gorge, near Geraldine, I found this unique climbing native broom growing in regenerating bush on our own property. Subsequent ecological surveys confirmed that the climbing broom is widely distributed throughout Te Moana Gorge. This and other recent discoveries have resulted in a lowering of its conservation status from Threatened – Nationally Endangered (2004) to Threatened – Nationally Vulnerable (2012). Perhaps not so rare after all.

As for that need to have an iconic Waimakariri plant, a superb example already exists at Castle Hill: *Hebe armstrongii* (Fig. 5), discovered by, and named after, the 19th century “father” of the Christchurch Botanic Gardens, Joseph Armstrong. Originally named *Veronica armstrongii*, all *Hebe* have been relegated back to *Veronica* in another case of taxonomic reinstatement; most New Zealand botanists now accept this change.



Fig. 5 A whipcord hebe, *Veronica armstrongii*. Photo: Derrick Rooney.

Veronica armstrongii was a popular garden plant from the 1930s to about the 1970s, mainly in a golden form introduced by a Christchurch nursery in the 1930s. It was still available from many garden centres in the 1990s. It is not known whether this was a mutation that arose in the nursery or was collected as cuttings from a wild plant.

Armstrong’s hebe belongs in a cryptic group of hebes known as whipcords, which have small, scale-like leaves that mimic the appearance (and sometimes even the smell) of conifers. For many years it was thought to be extinct in the wild, but in the 1974 an alert botanist (Dr Peter Wardle) collecting herbarium specimens in the Enys bog-pine reserve at Castle Hill spotted pale blue flowers on one of the plants there. Back at the DSIR herbarium at Lincoln (now called the Allan Herbarium) the flowering specimen was confirmed as the “long-lost” *Veronica armstrongii*, a superb example of a cryptic plant that hides from its predators (in this case, moa or other flightless native birds in the distant past) by mimicry. For many years, six adult plants were thought to be the only wild survivors of the species⁴, but decades later, when land at Poulter Hill and the Esk River was added to Arthurs Pass National Park, a thriving population was found in this area. So the lone survivors turned out not to be so lonely after all; again, just a matter of someone’s looking in the right place.

All of this raises the question whether in the long term, it may be both cost effective and ecologically desirable to have a conservation policy that allows struggling species to disappear through natural attrition. Evolution will take care of the consequences. And many of them won’t disappear at all. They will just go into hiding. I don’t know what the prolonged campaign to save the black stilt in the Mackenzie Basin cost, but it was a lot. Some genuine conservationists (not to be confused with preservationists) have questioned whether this money would have been better allocated elsewhere than to a single species that they believe is inevitably doomed to extinction, not as a result of human activities but through the natural process of hybridisation with its close relative, the pied stilt.

⁴ See ‘Back From the brink?’: www.moasark.co.nz/2016/03/14/back-from-the-brink/