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New Zealand Alpine Garden Society

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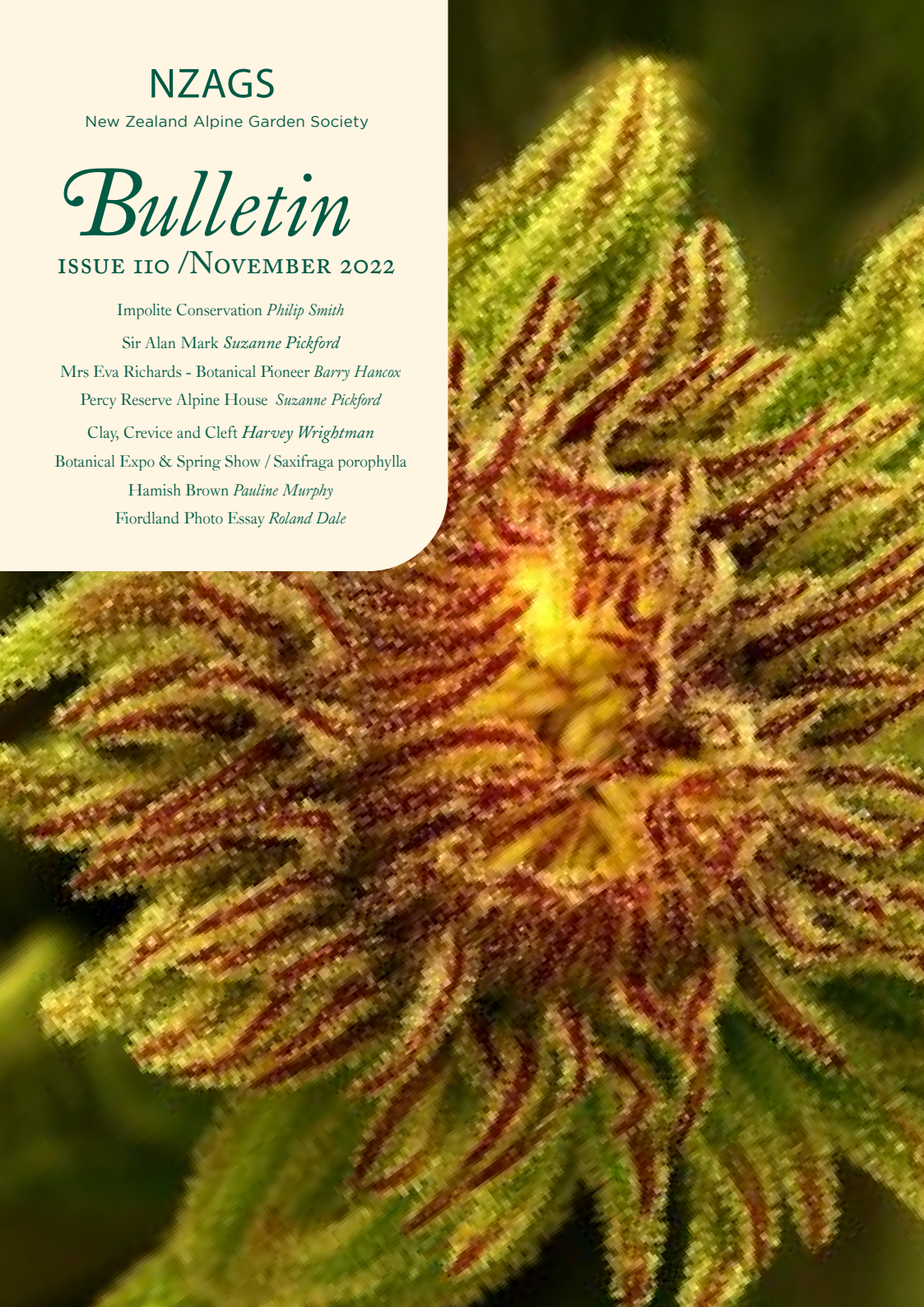

New Zealand Alpine Garden Society

Nau mai, haere mai

We promote the growing, preservation and the cultivation of both native endemic New Zealand and exotic plants. We love alpines, bulbs, succulents, rock garden and woodland plants. We are horticultural experts and friendly enthusiasts who always want to learn more.

Join us online at www.nzags.com, Facebook and Instagram

We meet monthly in Christchurch and meetings are available via zoom:

- A range of interesting and informative speakers
- The "Steve Newall Memorial Lecture Tour" - an overseas speaker
- "Southern Alpines Lecture"
- Spring Show at the Botanical Expo
- Fieldtrips, Garden Visits and Workshops
- Annual Seed List
- Rare Plant Sales
- Gift subscriptions available

The easiest way to join the Society is via the website
Feel free to contact us by writing:
PO Box 2984, Christchurch 8140 New Zealand
Advertising: Reasonable rates for clubs and businesses

Cover: *Celmisia coriacea* in Fiordland
Photograph: Roland Dale
Roland has been carrying his full camera kit, lenses, white umbrella and tripod over difficult and extremely challenging terrain to get his shots in Fiordland where it is usually very wet. See his photographic work within this bulletin. Nature's patterns, landscapes and birds are his passion but outside the scope of this publication.

CONTENTS

110

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Articles for inclusion are most welcome.

Publication Team:
Suzanne Pickford
Ai-Ling Chang

editor@nzags.com
PO Box 2984
Christchurch 8140
New Zealand

Impolite Conservation

Philip Smith

Far from being a glaring typo, this title describes a form of conservation that is of considerable importance, yet which rarely registers within general discourse about plants and nature within New Zealand – the conservation of exotic plants within this country.

Anyone with a passing knowledge of our landscape design practice, O_2, will be aware of the central role that conservation of our native flora (especially threatened species) plays within our work. However, we also hold a substantial interest in the preservation of the astonishing diversity of exotic plants that have become part of our horticultural traditions within New Zealand.

This is a somewhat selective interest, as weedy species or species that we consider to have considerable potential as weeds (of which *Dietes grandiflora* is at the top of the list) are excluded from our focus, as are examples of imbalanced approaches to plant breeding – such as many large-flowered daylilies or hybrid tea roses.

Amongst the many things that I (and many other horticulturists) have to thank Bev McConnell for, I am grateful to Bev for stimulating my interest in a particularly worthwhile group of exotic *Clematis*, whose potential for

gardens (especially in the north of the country) has remained largely unexplored within landscape design. Many of these varieties are partially derived from a Mediterranean species, *Clematis viticella*, such as the variety pictured to the left, 'Betty Corning' (of one of its wonderfully fragrant, pendent blooms) or 'Venosa Violacea' (pictured below).

If Bev piqued my interest in these varieties, Peer Sorensen kicked the door in on a veritable Pandora's Box, with his boundless enthusiasm and knowledge for the genus Clematis. For almost twenty years, I have continued to cultivate varieties of these relatively small-flowered *Clematis*, which are far better suited to warmer climes than the large-flowered cultivars that garden centres and nurseries normally favour.

That said, they have become increasingly difficult to acquire, in a similar pattern to many exotic species grown by specialist nurseries. As with the multitude of rare bulbs or perennials that are grown by nurseries of the calibre of Joy Plants, Hokonui Alpines or Marshwood Gardens, it is important that gardeners and landscape designers take some interest in this diversity. Otherwise, much of it disappears from this collective resource.

Left: *Clematis viticella* varieties, *C. viticella* 'Betty Corning'
Below: *C. viticella* 'Venosa Violacea'

6

In addition to the group known as Viticellas, several varieties descended from an American species, *Clematis texensis,* have been grown in New Zealand. The variety shown in both images opposite, 'Gravetye Beauty', is the only one that I have found to be reliably persistent; about which I am very pleased, given the blood red, tulip-shaped flowers that open out to a broader shape midway through their season.

Part of our interest in these varieties of *Clematis* lies in their indifference towards self-propagating. Exotic climbers are one of the worst categories of plants for furnishing New Zealand with new weeds – amongst which, another Mediterranean native, *Clematis vitalba,* is one of the worst offenders. Using exotic species should involve making educated decisions about the potential of a species or variety to become a problem. However, as proven by the widespread sale and use of *Dietes grandiflora* or queen palms, this kind of decision-making is not commonly undertaken.

Despite the fact that a tiny percentage of exotics become problematic (and should rightly be assessed for weed potential), a huge range of 'ten-pound weaklings' like the glorious *Nerine pudica*, *Narcissus cyclamineus* or *Fritillaria davisii* will never be environmental problems. There is a sound argument to be made for taking a particular interest in exotic species that require some effort to maintain their tenure within gardens, for the promotion of certain exotics that are capable of perpetuating their presence in the absence of intervention (*Agapanthus* is an apt example) is an ideal recipe for the advent of serious environmental weeds.

In recent years, I have come across certain wonderful species only once or twice, including *Anthericum liliago, Kniphofia typhoides* and *Enkianthus perulatus*. Without interest and dialogue about such plants, they fade from gardens and nurseries.

The same processes that lead to diminished interest in exotics (notably decreasing engagement with plants by landscape architects and the landscape industry, as well as commercial conservatism) also lead to diminished interest in native species. The two are linked. Accordingly, as the range of *Crocus* species available within NZ decreases, the likelihood of seeing rare natives like *Myosotis saxosa* or *Pseudowintera insperata* (or cultivars like *Clematis* 'Hokonui', pictured overleaf) within nurseries also decreases.

Upper left: *Clematis texensis* 'Gravetye Beauty'
Lower left: a single bloom of the same variety

Obsession with the wonder of the natural world is a large part of what drives us in our work, and the same healthy obsession surfaced in a more adventurous form with generations of plants-people like Os Blumhardt, Felix Jury, Terry Hatch, Glyn Church and Peter Cave – several of whom travelled to a range of lands (including Vietnam, Papua New Guinea, South Africa, Korea and China) to establish a remarkable collective resource of garden plants. Similarly, adventurous journeys in New Zealand's varied landscapes established the basis of New Zealand's native nurseries and garden traditions.

The world is a large and fascinating place, to which gardens can relate as a myriad of microcosms. In this context, we hope that enough people take an interest in conserving some of that resource, so that the wonder of imagined places is still alive in our gardens and urban plantings.

Philip Smith, the owner of the landscape design practice, O_2, in Auckland, will join our list of contributors. We look forward to his viewpoints and understanding of gardening in our warmer climes His regular writings in his O_2 digital journal are well worth reading .

Below: *Clematis* 'Hokonui'

Sir Alan Mark – His Life's Work and Tussocks

Suzanne Pickford

A Summary of Sir Alan's life's work

Sir Alan Mark is an inspiration, and his book "Standing My Ground" covers his life in his own words. The book starts with his early life, with a simple upbringing in Dunedin at Mosgiel District High School where he was the only sixth former and yet was able to study and go onto university. A Fulbright Travel Grant saw him travel to the US where he obtained his PhD at Duke University, and a happy accident that saw him studying the grasslands in the Southern Appalachian Mountains, including the Great Smoky Mountains. This and his love of hunting and the outdoors generally from an early age meant that he came back to New Zealand married to his Otago sweetheart to a research job with the Otago Catchment Board. However, he soon found that his job was not about saving or even managing our native grasslands with sensible use. His research on snow tussock upset some high country runholders. This article will look at some of his findings. Sir Alan's legacy in this field has been introduction of the first tussock land reserves, and our understanding and conservation can be attributed largely to him. We have so much to thank Sir Alan for. Perhaps his greatest success, with Dr John Moore and many others, was saving Lake Manapouri from a 27m proposed lake level rise, in return for a small amount of extra hydroelectric capacity for the proposed smelter. This mission, like others in his life, have developed from a sound scientific approach, in this case the study of lake edge ecology. His knowledge, as always, is integral to the passion and commitment for a just cause. With their leadership, the public were able to put up a determined voice which ensured their success in saving the lake.

Our Tussock Country

Mention these words and we think of the open plains, big skies, mountains behind, possibly with spaniards (*Aciphylla*) and stunted shrubs or matagouri and rippling grasses. From a distance these tussock lands in the rain shadow of the Southern Alps look uniform and possibly a little monotonous -

something to stride through on the way to the "proper alpine flora" we climb to see. Yet they can shelter a complex interrelationship of other plants including *Gentian, Aciphylla, Celmisia gracilenta, Ranunculus, Brachyscome* and small *Carmichaelia* species like *C. vexillata* and *Brachyglottis*. These tussock lands are the modest New Zealand equivalents of the other great temperate grasslands - the pampas of Patagonia, the high northern Andes and the prairies of North America.

Extent of grasslands

Our grasslands, especially those in the high country in subalpine and alpine areas, have often been overlooked as simply areas to be exploited. Commonly, they have been subjected to indiscriminate burning to generate a nutritious green flush for grazing, with the subsequent introduction of exotic grasses, top dressing and more. The extent of tussock grassland has varied over time in response to climate changes and the frequency and intensity of fire. Over the years they have formed a varied mosaic with Hall's totara, some beech and kanuka on the drier montane areas. The grazing by moa, takahe and insects maintained a stable system. Our tussocks have evolved without grazing mammals. Tussocks respond to fire better than woody plants; however, they cannot withstand repeated burning. So ironically although it was fire that helped create and maintain our grasslands especially in the eastern drier areas, fire and grazing combined has led to its rapid degradation. The greatest extent of grass land cover has been estimated at 31% or 83,700 square kilometres some time

Left: Red tussocks, *C. rubra cuprea*, Dunrobin, Southland. Photograph copyright by Jesse Bythell

after the first people reached our shores. Fires, both by accident and to assist in hunting and travel, helped create the extensive tussock lands experienced by the European colonialists.

Native tussocks

New Zealand has around 190 native grass species. Native tussocks belong to three genera: *Chionochloa, Poa* and *Festuca.* In lower altitudinal areas, the tussocks are short (less than 50cm tall) and are mostly *Poa* and *Festuca.* These types of grasslands are common in other temperate grasslands of Australasia. The genus *Chionochloa,* however is almost endemic to New Zealand, one species is found on Mt Kosciusko in Australia. Of the 24 species of *Chionochloa,* almost all have a tussock growth form and are found from about 500 metres above the treeline. The shorter and bushier *Chionochloa* species, *C. conspicua* and *C. cheesmanii* and *C. rubra* tend to be found at lower altitudes. Once there would have been extensive swathes of *C. rubra* or red tussock. In the 1840's an estimated 23% of the grass lands would have been this species but as it is usually in the wetter, flatter areas throughout New Zealand, they have been preferred for conversion to farmland. There are two varieties of *C. rubra* . In the central north island there are extensive reserves of *C. rubra rubra* on the newer volcanic lands as you cross the Desert Road, protected within Tongariro National Park. *C rubra cuprea* is the southern subspecies. One significant area of southern red tussock is at Gorge Hill, a 1500Ha reserve as you drive from Te Anau to Mossburn, near the dramatic Fiordland National Park. The takahe recovery as a breeding center was set up here in 1985. Eggs were brought form the Murchison Mountains. Here the tussock of Gorge Hill's Burwood unit was the birds' last stronghold. The tussock reserve provides similar conditions to the home of wild takahe in Fiordland holding similar food plants, including tussocks and sedges.

Snow Tussocks

Snow tussock is the name given to several alpine species of *Chionochloa.* They naturally dominate the alpine zone.

C. crassiuscula or curled snow tussock is widespread at higher altitudes south of Nelson. It often grows alongside megaherbs, with the much smaller snowpatch grass, *C. oreophila*, in nearby snowbanks. Carpet grass, *C. australis* is confined to the north-west of the South Island; four further species grow in the south-west including, *C. macra*. This and another slim snow tussock, *C. rigida*, are more common on the east and are the most common tussocks

on the pastoral grazing lands of the South Island high country. *C. rigida* occurs mostly below 1,250 metres, south of the Rakaia River. *C. macra* grows at higher altitudes where *C. rigida* is present, but is more widespread in the north of the South Island. In higher altitudinal areas we find the taller *Chionochloa* snow tussocks up to 1.5m tall. Where land is suitable for pastoral use at lower altitudes the taller species have been be replaced by the shorter *Poa* and *Festuca*. The balance of all species has changed over time with those that are less palatable gaining ground. An extreme example is introduced weeds like hawkweed which are not grazed. Becoming increasingly predominant in eastern areas, *Hieracium* is the hawkweed variety that favours dry, sunny areas, and grows well in sandy and less fertile soils. Hawkweed is highly invasive, and has become a serious weed in tussock grasslands. Once established, it is difficult and costly to remove from pasture let alone tussock lands.

The Ministry for the Environment report The State of New Zealand's Environment 1997 stated: "It now seems that, in spite of the apparent recovery, the long-term trend for the tussock grasslands is one of inexorable decline in both species diversity and production."

Water Catchment Studies and Tussock Land Conservation

Once quoted as the "Professor of Political Botany" and the doyen of tussock grassland ecology, Sir Alan Mark is credited with raising the public profile of non-forest ecosystems, in particular grasslands. His pioneering work and tireless campaigning, as mentioned at the beginning of this article have resulted in the conservation of much of the tussock land we now have in reserves.

Left: *Chionochloa macra*, Oteake Conservation Park. Photograph copyright John Barkla

Sir Alan's Research -Early years in the tussock lands

At the start of his career after university, Sir Alan was part of a two-person, Catchment Board team to research the tussock grasslands on the Old Man Range. They were keen to follow up their initial surveys with work to research the effects of burning, but their proposals were rejected as there was no appetite to change the status quo to allow for improved management practices. In fact, their title was changed from 'research' to 'survey'. Despite this they completed 15 surveys and made a few startling discoveries. Climate maps of the time showed a distribution of precipitation with very strong altitudinal gradients, 750-890mm rainfall was 'predicted' above 1220m, but it was measured between 693 – 2477mm. Similarly, the soil moisture was predicted to be low, and so it was found to be under the scabweed vegetation and generally deficient under short tussocks. However it was rarely found to be deficient under the tall tussocks. They found a very high incidence of fog on the upper slopes, (75% of the days in some months and no less than 38% of days in any month averaged over two years). Obviously, it is difficult to measure precipitation in these high-altitude areas as fog is hard to capture, the usually high winds cause issues, and a covering of snow cannot be measured in a rain gauge either.

Snow Tussock Research

Sir Alan left the Catchment Board, taking up a position as fellow of the newly established Hellaby Indigenous Grasslands Research Trust with an associated lecturing at the University of Otago. In this role he felt the most pressing need was snow tussock research, the dominant species on the Crown Pastoral Leasehold land of the South Island High Country. It was here he found not one but two species of large leaved snow tussock. *C. rigida* at low to mid altitude sites and *C. macra* on the higher ones.

Masting habits - the trigger for irregular flowering

Both species were well attuned to their specific environments, specifically differences in temperature and length of the growing season which varies from eight to five months, so the temperature proved to be the main cause of the noted intermittent flowering or masting. Reciprocal transplanting experiments were carried out with the two snow-tussocks. Results showed that tussock pieces originating from lower areas flowered for more and longer periods. They flowered more when the conditions were relatively warm in Dunedin, indicating a genetically imposed mid-winter

dormancy. Subsequent experiments showed that irregular flowering is triggered by above average temperatures during the long days of summer in the season prior to flowering. This was found to be why the snow tussocks all flowered so profusely the year after burning.

Burning

Concentrated grazing on small burnt patches can kill snow tussocks in just one season. This probably explains their absence in some areas where they would be expected to grow. Burning causes the naturally bushy, largely dead outer parts of the tussocks to be removed and therefore the inner growing shoots are exposed to the warmth of summer, even if it is relatively cool one. There is substantial increased leaf growth and tiller production, so, unsurprisingly, heavy grazing when the tussock is giving its all following a fire is especially detrimental. If left to its own, the tussocks will take 14-15 years to regain their original pre-fire vigour. They are more like a long-term forest rotation than pasture short-term one. They are much easier to destroy than rebuild. Other ecologists have suggested that tussocks go through a standard life cycle - seedlings, juveniles to adults - Sir Alan disagrees, never having seen a dead tussock from natural causes, instead new tillers replace old, potentially, over a very extended period. (There can be up to 500 tillers each with 4 or 5 green leaves). A plant is potentially immortal.

Otago water catchments – measuring tussocks water yields

On his study leave in the Scottish Highlands, a water collection system suitable for tussock lands was conceived to investigate the water yield from a tussock. Lysimeters made from 44-gallon drums were installed with mature tussocks planted in them. Tubes at the bottom collected excess water and took it to a reserve tank. The results taken over a six year period showed startling differences in water yield. Snow tussocks created the largest water surplus - 63% of the measured precipitation. The blue tussock control yielded only 49% and bare soil 56%. They had predicted that the biggest plants would lose the most water from transpiration as they have the most foliage, but this was not the case. Subsequent studies showed that the long fine foliage that is a v-shaped curl in cross section was very efficient at harvesting water droplets from fog. They calculated that these droplets then run down the leaves and are accumulated at a rate of up to half a liter per hour per tussock. Because snow tussock areas also have very low water losses through evaporation or transpiration a tussock grassland retains water and releases it

gradually maintaining the flow of streams and reducing the chance of flash floods downstream.

Whole catchments and changing farming practices

There was some disquiet among some about the findings, yet adverse effects of pastoral farming were obvious. Concern was raised about the combined effects of burning, grazing by introduced mammals, and the spread of aggressive weeds as early as 1860's by botanist-artist John Buchanan, agricultural scientist Alfred Cockayne in 1910 and ecologist-botanist Leonard Cockayne in 1919 and by Sir Alan Mark.

Whole catchment surveys were preferred by many to Sir Alan's lysimeter research. A catchment research of tussock water yield was compared to that of a forest in further studies. Once again, a consistent result of 64% of water was yielded from the tussock lands. The water yield from the pine forest began to decline and continued to do so as the forest matured. Some run holders were unhappy with the results that showcased snow tussocks to be useful plants for water catchments. An alternative study in the Porters Pass area was subsequently carried out and it concluded that plant cover had little effect on water catchments. This, unfortunately, gave the media and some members of the community the fodder to decry the scientific veracity of Sir Alan's work. His further studies, whilst published overseas, were held back in New Zealand. Politics had come into play.

Fighting for Conservation

Sir Alan was deeply involved in the conservation of tussock land, especially in Otago where most of his research was carried out. He proposed a reserve on Maungatua, west of the Taieri Plain, and eventually a Scientific Reserve

Right: Photograph copyright Stella McQueen who studied Galaxids in the Lammerlaw Ranges. Many species are reliant on tussock grasslands. Catchments like the Nardoo are important watersheds, and the source of many of the tributaries in the Taieri and lower Clutha River systems.

Top: The Lower Nardoo Catchment as it was when it's protection was first sought in April 1982.
Above: The development that was carried out as the process was under consideration.

was created, not a scenic one, as the Lands and Survey Department could see no reason why the public would want to go there. He also fought and put forth cases, often against all odds, for places and areas he saw as suitable to be conserved as reserves.

A Protected Natural Area Programme was developed, but the Crown was both the high-country landlord and supposedly the conservation specialist. Wracked by internal policy and administrative conflicts combined with a lack of funds, conservation gains were quite nearly impossible.

Nardoo catchment Reserve

The high country of inland Otago has been the theatre for a conservation drama between pastoralism and nature conservation. This was highlighted by the failure to protect the Nardoo Catchment in the Lammerlaw Range. In 1974 the Waipori Station was bought by the Lands and Survey Department and as a part of this an environmental impact report was required. Scientists, including Sir Alan, submitted that the whole catchment be preserved. The Department wanted to farm the lower Nardoo (400Ha). Over the next 13 years various concerted attempts were made to ensure it was saved yet during this time, the area was top-dressed then and finally ploughed just as the conservationists were making headway. Because much of the land was now considered degraded, only 100Ha was eventually included with the upper area in 1987.

Both the process and the outcome of the decision, which included the ombudsman for the first time in a conservation issue, had serious implications for the Forest Service and Lands and Survey Department, with their dual responsibilities for conservation and land development, which almost always erred towards land development. It bought to the public's attention the parlous state of the tussock grasslands and how difficult conservation was to achieve. Eventually the conservationists had their say with the establishment of two replacement government agencies or SOE's, Forestcorp and Landcorp, with their green portions becoming the new Department of Conservation. And so finally the Nardoo reserve was incorporated into Te Papanui Conservation Park in 2003, which Sir Alan was also deeply involved in promoting.

The campaigning and concerted efforts of Sir Alan and others have ensured conservation of many of our grasslands and other important ecosystems. We would be the poorer without his tireless work on our behalf.

Mrs Eva Richards
A New Zealand Botanical Pioneer

Barry Hancox.

The relatively little known Eva Carlisle Richards (nee Izard) 1877-1961, was an early twentieth century pioneer of the collection, distribution and sale of the seeds of New Zealand native plants of the Canterbury region and a successful exponent of ordinary vernacular descriptions of those plants in her later guide book to native flowers and plants. During the 1920s she published at least three extensive, botanically accurate, catalogues of native plants despite having no formal scientific education. At the time of the publication of these catalogues she was resident, with her husband Reginald, at Round Top Station, Windwhistle, South Canterbury, where they farmed and brought up their three children. (1). Eva had married at the then relatively late age of 30 in 1907 and came late to farm life. Living in the back country near the Rakaia Gorge and Mount Hutt gave her ample opportunity and plenty of scope to botanise and collect the seeds of hundreds of South Island native plants including many alpine species.

NATIVE SEEDS OF NEW ZEALAND 3

H. A. novae-zealandiae.—This is a larger purple-red species. Spring. 2000ft.

ACIPHYLLA COLENSOI.

H. ACIPHYLLA Colensoi.—A plant of sharp spines often orange in colour. Flower stalks from 2-8ft., orange bracts and small white flowers. Handsome. "Spaniard." 1000-2000ft. Early summer.

A. Lyallii.—Orange stems 2ft. high; leaflets 5-9 inches long; inflorescence long and narrow, stout and rigid; bracts consist of spiny leaflets which almost conceal the white flowers. 3500-5500ft. Summer.

H. A. Monroi.—The gem of the race. Foliage like a tiny branched palm, and a tiny stem with tiny bracts clothing it; foliage 3in., flower 8-10. Likes dry, rocky places. Up to 6,500ft. Summer.

H. A. similis.—Larger than A. Monroi; rocky situations, to 5,000ft. or more. Summer.

H. A. squarrosa.—The plant is rather like a clump of sharp-pointed grey knitting needles. Flower and bracts grey, too. "Spear-grass." 1000-3000ft. Early summer.

H. ANGELICA montana.—A rock plant 2ft. high; fleshy shining leaves, white flowers; to 4000ft. Late spring, early summer.

Eva Izard had been born into a wealthy family, her father William Izard, was Cambridge educated and a successful Christchurch barrister and Law lecturer. He had

interests in rural land, was a keen angler, and an active member of the North Canterbury Acclimatisation Society. As a girl at home in Christchurch she would have met many interesting people, amongst them the naturalists and farmers John and Charles Enys of Castle Hill Station, Canterbury, friends of her father. It was also at her family home that E.R. Chudleigh of the Chatham Islands and his wife Mabel (daughter of the naturalist Thomas Potts of Ohinetahi) would stay, on their visits to Christchurch. Travelling to the Chatham Islands with Mrs Chudleigh in 1896, Eva met Edward Chudleigh for the first time when he greeted them at the Waitangi jetty and took them home to his island property Wharekauri. It was here that she would later stay on months long holiday visits to the remote and botanically interesting islands, at intervals between then and 1907. Eva Izard had also travelled to the United States, spending time at the Colorado River cattle ranch of an uncle and, probably on the way home, she visited Japan. (2). She commenced a higher education at Canterbury College however, although she passed her first section BA examination in 1906, she did not graduate.

Her 32 page catalogues were titled *Native Seeds of New Zealand* and the author's name appears as Mrs R.T. Richards. Neither of the copies I have is dated, though they must be later than 1923, probably c.1926-8. The Alexander Turnbull Library has a copy of only 24 pages, this I have not seen. Eva Richards adopted a non-academic, amateur naturalist's and gardener's way of classifying her seed collection. She would later describe her rationale for this in one of her books (see below). Her categories were five, namely; Ferns, Herbaceous and Rock Garden plants, Orchids, Climbers and Shrubs. There were only a very few photographs in the catalogues and so good, concise non-scientific descriptions of the plants were provided. For each species listed she gave the binomial name followed by details of leaves and flowers,

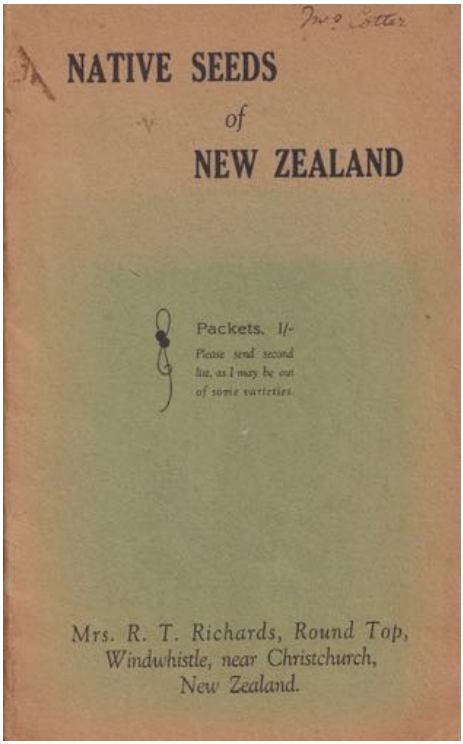

NATIVE SEEDS OF NEW ZEALAND 31

H. S. cassinioides.—A small green-grey shrub with many heads of yellow daisies. 2,000-4,000ft. Summer.

SENECIO COMPACTUS.

S. compactus.—A round shrub 2-3ft. high. Branches, underleaves and stalks covered with thick, pure white wool. Yellow flowers. To 500ft. Summer.

S. elaeagnifolius.—4-10ft. All but upper surface of leaves and flowers covered with thick buff wool. Small yellow flowers. 2,000ft-4,000ft. Summer.



including their colour, and altitude range and a flowering time. The following example demonstrates her descriptive method. "Ranunculus Leyalli. Mount Cook Lily. A buttercup 4ft. high. Leaves cup shaped, thick and glossy, sometimes 15 inches wide. Flowers numerous, pure white, many golden stamens, 2-3 inches across. The loveliest plant we have. 2,000-5,000 feet. Late spring, early summer." For nearly all of her species identification she relied on the established New Zealand botanical authority of Thomas Kirk and Thomas Cheeseman. It is also possible that she consulted the Christchurch botanist Arnold Wall.

If we consider the unsighted 24 page Alexander Turnbull Library copy of Mrs Richards catalogue to be an earlier first edition, I propose that my 32 page copies, different from each other, be referred to as the second and the third. The second edition has 11 photographs and describes a total of 408 plants, seeds of which were available in 1/- packets whilst the third edition has 9 photographs and describes a total of 442 plants, seeds of which were available in 1/- packets or at 25 cents for the American market she had begun to develop. A total of 442 different plants listed and described is a quite astonishing achievement, especially when one remembers that Richards was collecting only in Canterbury. Many of the plants listed in the catalogues were prefaced with 'H' to indicate "Hardy anywhere in England." Whilst Eva Richards did the collecting of seeds in the mountains and gorges around her home, she would forward what she had gathered to her invalid sister in Christchurch who cleaned them, put them in packets and sent them to friends and customers overseas. The seed collecting and the overseas trade continued for the best part of two decades until the death of her sister, and later, the onset of the Second World War in

1939, brought it to an end. (3).

It is clear that there was a sustained demand for the seeds of New Zealand plants, especially alpines, from passionate enthusiasts and collectors overseas. It should be remembered that virtually all the plants in the catalogues were endemic, therefore mostly unknown or 'new' in Europe and the USA, one compelling reason for the demand. The second edition of the Richards catalogue includes a photograph of Gentiana corymbifera captioned, "this photograph is of a plant grown in England by Mr Cooke, Kilbride, Corbridge-on-Tyne, from seed sent from New Zealand." Interest in America may have been stimulated to some extent by the publication of Cockayne's *New Zealand Plants Suitable for American Gardens,* a 35 page booklet printed in Wellington for the Panama Pacific International Exposition held in San Francisco in 1915. Despite seeds being easiest to send overseas Cockayne suggests that small live plants wrapped in moss could be sent by post and larger ones shipped in glazed cases.

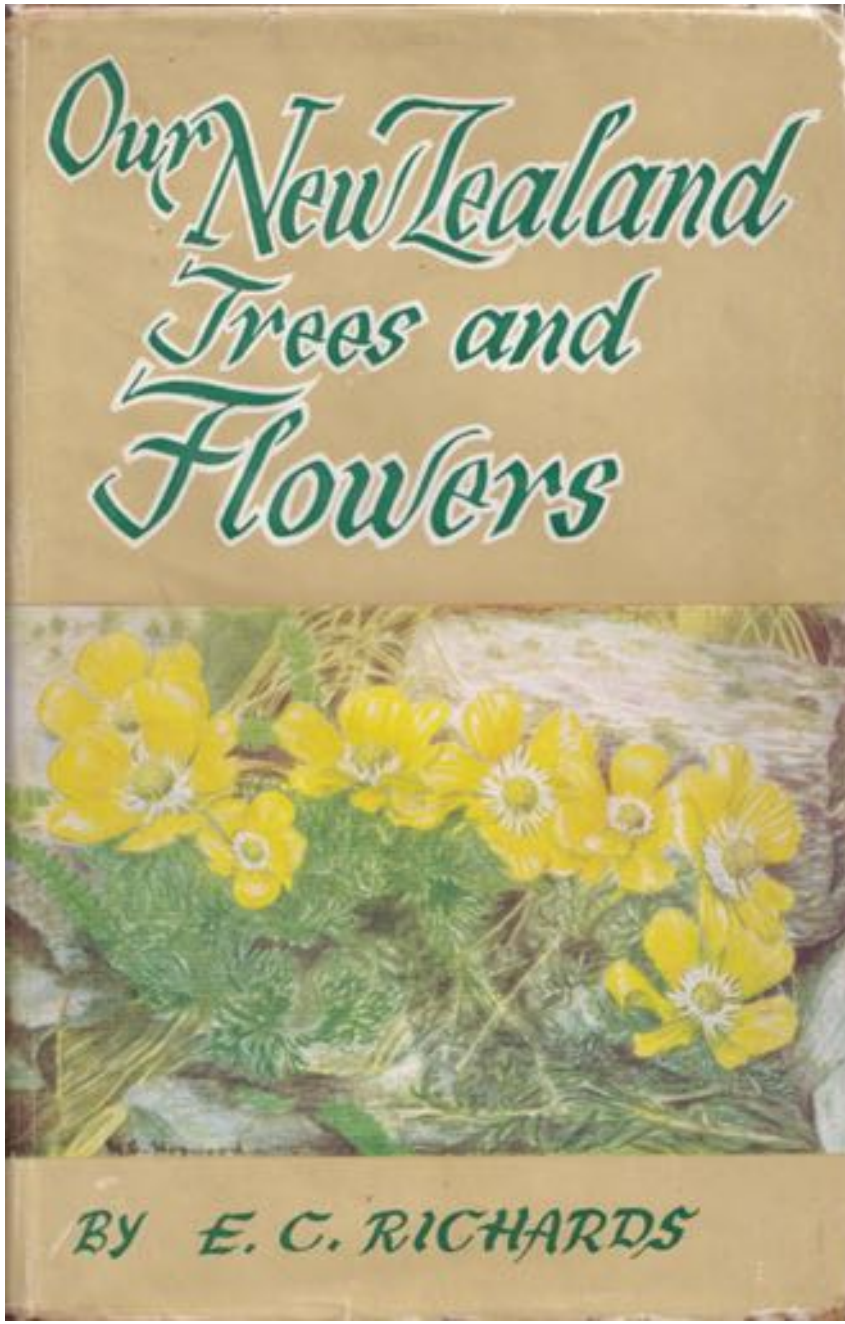
The background to this demand for New Zealand seeds was the international garden fashion for rock gardens and alpine plants, especially apparent in the years following the end of World War One. As is reasonably well known, this fashion had much to do with the garden writing of British gardener, nurseryman and plant hunter Reginald Farrer. His pioneering books *My Rock Garden, 1907* and *Alpines and Bog Plants, 1908,* had established him as the foremost authority on the new gardening fashion in the popular imagination. After the First World War his monumental two-volume work, *The English Rock Garden, 1919,* was extremely popular. Prepared in 1913 publication was delayed by war, however four impressions would follow. His first book, *My Rock Garden* was to remain in print for over forty years.

Farrer had placed the emphasis of the new garden style firmly on the plants themselves and he declared that many of them, far from being difficult, were easy to grow. *The English Rock Garden* is really a comprehensive description of all the then known and available rock garden plants, including many New Zealand species. In the Introduction Farrer acknowledges his debt to Cheeseman for some of his information. European and American rock garden and alpine plant enthusiasts could read of the characteristics and cultivation requirements of the plants available before turning to the Richards catalogue or similar, such as the first native plant catalogue of Duncan and Davies Ltd., of New Plymouth, published in 1918, to obtain seeds of New Zealand species.

If this 'rage for rock gardening' provided some of the background for Eva Richards' collecting activity there was also another increasingly important aspect, namely the simple pleasure that she and other New Zealanders took in the bush and alpine meadows for their own sake. The railway to Arthurs Pass had enabled many more people to travel and enjoy the plants of the Sothern Alps. In addition there was the burgeoning discovery of the native flora by ordinary, mostly urban, New Zealand gardeners. The first page of the Richards catalogues is given over to abridged extracts from Cockayne's *The Cultivation of New Zealand Plants* 1923, under the heading "Plants for Decorating the Home." This was a listing of suitable plants for cut flowers, foliage and berries as well as species that could be "easily grown" and that were recommended for indoor pot culture and the alpine glass house. Although the Second World War ended Eva Richards' seed trade it was not to be the end of her botanical activities.

In the years immediately after the war Eva Richards wrote four books. The first of these, *Our New Zealand Trees and Flowers,* was a substantial 291 page, well-illustrated book, published by Simpson & Williams Ltd., Christchurch, in 1947. There were two subsequent editions published in 1949 and 1956. This book might be thought of an expanded and more developed version of her catalogues, however it included plants from the whole of New Zealand, not just Canterbury. Each native species is much more comprehensively and interestingly described than earlier, there are also many photographs and delicate line drawings. The following description of the Mount Cook Daisy demonstrates the significant difference from the earlier catalogue description of the same plant quoted above.

"An exceedingly handsome plant, 3-4 ft. high, whose leaves, on long strong stalks each attached to the centre of the leaf, rise from the rootstock. The leaf is 12-15 in. across, kidney shaped at first, later it becomes like a shield, hollow, smooth, leathery and toothed. The thick, round, hairy, flower-stalks form spray-like branching stems upon which open the numerous white flowers, 3-5 in. in diameter, and rather resembling Japanese anemones. The 5 sepals are broad and hairy, the 20-60 petals incurve at the tips. Short, golden stamens crowd in 4 ranks round the oblong disc which is a short hairy tube, later to become the head for the attachment of the swollen, hairy seed-cases that narrow into long curved


Our New Zealand Trees and Flowers
BY E. C. RICHARDS

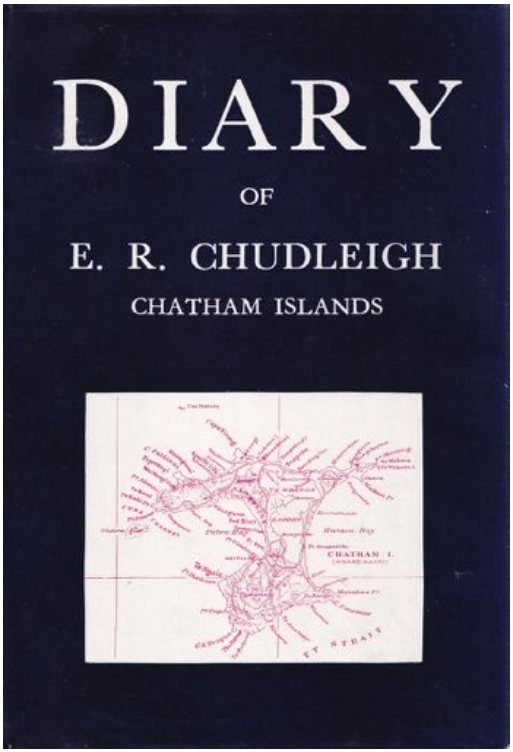
tails. Found from the centre of the Southern Alps to Stewart Island on the wet side 2000-5000 ft., it was discovered by Dr. Lyall in the Sounds about 1850 when in leaf, and by Drs. Haast and Sinclair in flower in the Rangitata Basin in Canterbury in 1861, a short time before Dr. Sinclair met his death by drowning in that river. It is a very hardy but difficult plant to grow as it needs intense heat in summer and equal cold in winter, perfect drainage, good soil and plenty of moisture; young plants or seeds (slow to germinate) might make it succeed for a season or two. Cheeseman says, "It is a magnificent plant, by far the finest of its genus." Abundant in wet parts of the Alps, water often collects in the cup-shaped leaves, and as there are deep grooves above the veins it is possible that the latter absorb the water for their own use. Flowers November-January, seeds ripe from January."

In the Preface of *New Zealand Trees and Flowers* she expresses the rational for her organisational method, also evident in her earlier catalogues. "When I began taking an interest in native flowers, I knew nothing of botany, and could find no clear, unscientific descriptions to help me, nor could I get used to the haphazard way scientific books mixed trees, shrubs and flowers together anyhow. Therefore for the benefit of other "know-noughts" I have tried to turn botanical words into ordinary language, and have arranged the plants in a convenient but unscientific order." She goes on to acknowledge her debt to Kirk's *Student's Flora of New Zealand* 1899, and to Cheesman's *Manual of the NZ Flora*, 1906. Hints on how to grow the plants were from Cockayne's *The Cultivation of New Zealand Plants,* 1923. Then she states "The months in which the seeds ripen is almost the only addition of my own and applies mostly to seeds gathered in Canterbury. For a long time, my hobby has been seed collecting and the place where and time when they were collected noted down."

Then, after describing the principles and methodology of the binomial classification system she proceeds to give a brief thumbnail sketch of the history of New Zealand botanical exploration. She mentions Banks and Solander, the Forsters, Cunningham, Colenso, Lyall and Sinclair, Julius Haast and the Frenchman, Raoul. Her reason for doing this was that all of these names are liberally spread in New Zealand botanical nomenclature. The Preface concludes with the following, "I have placed the trees all together and still in the order Cheesman had them; then follow shrubs (plants of all sizes from low-growing ground or stone-coverers to tall bushes whose branches are woody but which have no trunk) and lastly the flowers, still following in the

same order. Thus 'Our New Zealand Trees and Flowers' begins with the kauri as one would suppose, and ends in the correct way with a dandelion and a thistle; the labour of research is reduced by one-third and the time spent with a dictionary by many hours." Lastly there was an index of botanical names and a separate one of Maori and common names.

Three more books followed in quick succession, in each case they were related to Eva Richards' experiences as a young woman, referred to earlier. Her friends, the Chudleighs, had left the Chatham Islands for good in 1907 and moved to their other property, Orongomairoa near Te Aroha in the North Island. After the death of Edward, in 1922, his widow Mable moved back to Christchurch and frequently visited Eva. Mabel Chudleigh died in 1932. No doubt because of Eva's long friendship with the Chudleighs and knowledge gained from her earlier visits to the Chatham Islands, she was asked to transcribe and edit E.C. Chudleigh's diary, discovered after his death and which he had kept for 60 years. Richards' 474 page edited and abridged *Diary of E.R. Chudleigh Chatham Islands* was published by Simpson & Williams Ltd., Christchurch, 1950. A considerable portion of the Preface is devoted to Eva's memories of visiting the Chudleighs as a young woman when Edward was one of the principal inhabitants of the Islands and the resident magistrate.



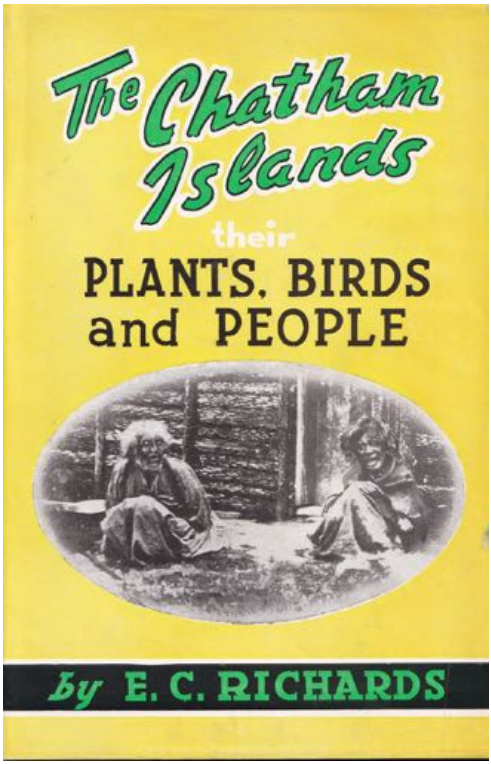
Another diary was next, that of John Enys of Castle Hill Station, Canterbury. J. Enys and his brother Charles had bought the run in 1864 and the diary covers the period from 1861, when John Enys had left England, until 1888, just before he returned to England for good in 1890. In addition to the Enys diary itself, this 58 page book, *Castle Hill*

published by Simpson & Williams Ltd., Christchurch, 1951, contained a brief biographical memoir of its compiler. Eva's father William Izard had been a friend of John Enys and often visited him at his house called Trelissick at Castle Hill. At some point Enys had presented Izard with a deed to some 20 acres of his property. Just after the First World War this was swapped with the new owners of Castle Hill for title to the former site of Trelissick by then demolished and abandoned. Here the Izard family built a batch which they named Enys. Eva Richards recounts how her husband Reginald did much of the building work whilst she and her three children helped. Eva and her family enjoyed spending time here with their many friends until the batch was sold in 1950. Eva's love of native plants is very evident in the book which includes photographs of alpine plants and an essay by Arnold Wall on the "Flora of the Trelissick Basin." Wall was a constant visitor to Enys. There is also a short account by W. Brockie of *Ranunculus paucifolius*, the famous and unique Castle Hill Buttercup.

Eva Richards' final book was *The Chatham Islands their Plants, Birds and People* published by Simpson & Williams Ltd., Christchurch, 1952. Once more the author's keen interest in botany is evident and very nearly half of the 177 page book is devoted to Chatham Islands plants. Most of this was edited and expanded from that published earlier in *Our New Zealand Trees and Flowers.* The section on the history of the islands indicates considerable scholarship and her intimate knowledge of the Chudleigh diary is evident. In the Introduction she states "As there seems to be no plain, complete account of the Chatham Islands, its plants,

birds and people, I have put together what I have been able to find out about the islands and illustrated my facts with drawings and photographs from many sources." The book concludes with a most interesting collection of short biographies of some of the very diverse islanders, including Moriori and Maori.

In 1950 Eva Richards retired from farm life and moved to Sumner. (4). After 1952 there was to be no new publishing. However, she had already made an interesting and significant, if now somewhat over-looked, contribution to popular vernacular botany and also to the new fashion for gardening with alpine plants. Her seeds found their way to alpine garden enthusiasts worldwide. I would argue that the success of her botanical endeavours, especially the seed collecting, was a least partly due to her intimate acquaintance with her subject. She knew the plants well and collected her seed in wild, quite remote, and not easily visited parts of the Canterbury back country. In addition to this was her determination to describe the plants in an accessible, non-scientific, vernacular style. She made it clear that the plants she loved could be identified and described in a way that people without botanical education could understand. The fact that she sold seeds worldwide and that there were three editions *Our New Zealand Trees and Flowers* over a decade, strongly suggests that the public found this style to their liking and that it helped to engender enthusiasm for New Zealand native plants.



(1). E.J Godley. Biographical notes in *Newsletter of the New Zealand Botanical Society.* Number 98, December 2009.
(2). Obituary, The Press, No. 29544, 20 June 1961.
(3). The Press, No. 27940, 11 April 1956.
(4). Obituary. op. cit.

Percy Reserve
Our Best Native Alpine Collection

Suzanne Pickford

Situated in Lower Hutt, amid the roar of the motorway, is a patch of largely native reserve and a fabulous alpine collection. Joseph Percy and his family have built a mill. Records in 1847 show the family processing wheat for the local community and beyond. Their site here at Korokoro Stream, Lower Hutt, was in developed in the boom period. Local bush clearing had caused a brief boom in production until the 1850's, but as the initial fertility was exhausted fortunes changed. Survey fieldwork in the 1872 showed a family home that was purportedly beautifully kept with a notable big walnut and an oak tree. Two large glasshouses were built in 1914 - they were made from rimu, with matai rusticated boards on the exterior to a height of two feet. Joseph Percy's sons created a beautiful garden with a large excavated lake, held by a dam. They had paths and tracks and planted both exotic and native plants. They experimented with mistletoes and other epiphytes and sourced plant material from all over New Zealand. It was described as a "veritable plant museum" as the brothers were concerned about the rate at New Zealand's native plants were going extinct. From the1890's the curator Tony Silbery, gave the preservation of native plants renewed focus. Extra facilities were developed to propagate these rare coastal and alpine species. Since then it has housed the inherited collection of Anthony Peter Druce, New Zealand's pre-eminent twentieth century field botanist. Through his lifetime he was devoted to native plants and through his work with the DSIR (Department of Scientific and Industrial Research) and his love of tramping he created a huge resource of both herbaria material and living plants. These were donated to Otari-Wilton and Percy Reserve as appropriate. As a result, Percy Reserve houses one of the most comprehensive collections of alpines in the country.

The purpose of this discourse is to look briefly at their alpine houses, especially the recently completed, specially-designed cool houses. Plants from higher altitudes deal with quite a different set of environmental conditions than those they experience in our lowland temperate cities.

Alpines, for example the extensive *Celmisia* collection housed here, require good light, airflow and cooler conditions. As always, it's the worst days of the year that cause all the problems. High humidity causes problems with diseases and excessive heat can snuff out plants easily despite excellent water supply to the roots.

It is interesting to see the range of temperatures experienced in our various centres in February, the hottest month of the year. The temperature, however, is only part of the story. Comfortable relative humidity for both us and our alpine plants in pots affects how effective our (and their) cooling systems will be. At 20°C and 50% relative humidity, (the air is half saturated) it is still easy to dry things out and cool yourself down by sweating and if plants have adequate moisture in their pots, they too can transpire to cool themselves.

Typically, the effects of high temperature can be reduced by spraying a fine mist of water. Assuming low ambient humidity this water evaporates and cools the air. (Evaporation requires heat energy, so every drop dried, cools the air a proportionate amount). This is not often an effective option for alpine plants, as humidity can promote fungal attack and should the temperature still be too hot, high humidity also reduces the plants' ability to cool itself. It is pertinent to remember that an average is only that, the plants must cope with the extremes, or we face losses every few years when extremes occur. We need to plan for these extremes (see over for city comparisons).

Below: Cliff Keilty in the older house with some of the *Celmisia* collection on the island bench, other collections can be seen round the edges

	Average low temperature in February °C	Average high temperature in February °C	Hottest temperature recorded °C	General humidity on a hot day in February
Lower Hutt	14	22.6	31 (1994)	low-medium
Auckland	17.5	22.6	32.4 (2009)	high
Christchurch	17	22	42.4 (1973)	low
Dunedin	11	19	35 (2018)	low

Table: Major cities compared

Cliff Keilty and John Van Den Hoeven are the current curators of this collection and showed members round their houses recently.

They have a mesh-sided glass house vented with fans, with some additional shading provided by a layer of shade cloth to the north. Wooden staging supports some of the *Celmisia* collection as well as *Astelia, Raoulia* and *Helichrysum* to name a few of the genera housed within.

Each plant is in terracotta, but some are double potted, a plastic pot is set within the terracotta outer pot with sand between the two. The mealy bug with its white fluffy looking larval stage is a problem and it becomes resistant to sprays.

There is an older glass house of wooden construction, home to ferns, grasses, orchids and more including *Gunnera* and the sub-Antarctic *Leptinella lantana* and *Peperomia urvilleana* (no photograph)

Another more modern concrete block and wooden framed house on the upper right, again with open, meshed sides, plus an additional internal layer of continuous shade cloth on the inner roof, serves to house the plants ready to plant out in the reserve and elsewhere. This also houses the seed and propagation area.

The newest houses show a seriousness of purpose. Interestingly Cliff has noticed that his plants often sulk initially, as if they were pining for their previous conditions, but as it warms, they are really doing well, and the first, most vulnerable members of the collection have been just been moved there. These are the more difficult specimens: some of the *Celmisia*, prostrate *Dracophyllum,* cushion plants and the like, including the *Myosotis* collection. Inside are imported Italian glass house benches made of aluminum sid-

Left: Note additional cooling provided by shade-cloth. Reducing solar load is best done outside the house, before the sun has come through the glass. But exterior mounted cloth in summer is problematic, hard to do and prone to blowing away.

Above: Propagation house
Right: Shallow coarse washed sand trays without heat or mist are used for the cuttings. The same trays are used for seed, they are usually sown on the surface between bamboo markers. We noted *Aciphylla, Asteraceae, Dracophyllum, Ourisia* and grass seed which all require light and/or are fine seed which had a merest scattering of sharp fine gravel.

ings with stiff galvanized mesh plant supports.

It is certainly very soundly built - possibly somewhat over-engineered, as the foundations were rumored to have cost as much as those of an actual house. Note the small vents in the roof (in comparison to the ventilation required in normal, not cooled, alpine houses which need large roof vents and ventilated sides). This level of

insulation is necessary as the house has forced cold air delivered by plastic pipes above the staging at plant level. Cool air sinks and the warmest air is drawn out through the roof vents, creating quite a draft. The 1-2°C air is delivered onto the plants directly. The refrigeration engineers were bought in once the houses were constructed and they believe that instead of mesh tables an insulated tray to hold the plants would hold the cooler air for longer. When the ambient

Above: The plants are being cooled in what is effectively an insulated tray 1.2m high, in that the bottom of the house is very well insulated aluminum clad panels within solid aluminum framing. The polycarbonate clear sheeting is double skinned and so offers more insulation than glass would.
Right: Refrigeration gear is used as air conditioning cannot deliver sufficiently cooled air. The coolest ambient air is drawn from above the stream behind the fence in the bush and cooled in two stages, first by a heat pump and then by a refrigeration unit for each house.

temperature is high and solar gain is at its most intense the fans operate automatically to draw the hottest air through. The Davies Alpine House at Kew was looked at but it was too late in the design process to replicate a similar under ground concrete labyrinth where air is cooled and recirculated around the perimeter. The Percy Reserve house does have good air movement as it is so essential for healthy plants. This has certainly been a life saver for some of the *Myosotis* collection. The annual members are seeding happily on the gravel floor, but the temperamental ones like, *M. foresteri* and *M. lytteltonensis* are making good growth. The lovely cushion *Veronica pulvinaris* was flowering.

We are fortunate to have this level of expertise and the A.P. Druce collection, which is both maintained and added to here at the Percy Reserve. The work is paid for by Downers, and the site was gifted to the government and is administered by the Hutt City Council. Both Cliff and John obtained permits from DOC to collect seed and cutting material from the various sites in New Zealand.

Right: *Myosotis matthewsii*

Clay, Crevice and Cleft

Harvey Wrightman, Editor Suzanne Pickford (italics)

The Wrightman Nursery is based in New Brunswick, Canada and is run by Esther Wrightman. Sadly Harvey passed away in 2016, but his legacy lives on in his wonderful postings on the Wrightman Alpine website which we have been graciously allowed to access. I wanted to share with you this wonderful method to give our chasmophytic plants the best chance despite the hot or wet conditions we often experience.

I have always admired the vertical, cleft formations that are so often seen in Czech trough and alpine gardens and imagined that they must be painstakingly constructed and slow to mature. Regardless, I was interested in knowing the process, and having Josef Halda, *a Czech Botanist and enthusiast crevice gardener visiting the nursery,* provided an excellent opportunity to learn.

As it turned out, the whole affair was far easier than I imagined, and the results accrue very quickly. Once I had seen the process, I wondered why I had never been able to figure it out. It was that simple. When I explained to Josef what I wanted to see, he went to the tufa yard and chose quite ordinary-looking stones that could be split along the sedimentation lines. Tufa is readily available in other parts of the world, *it is a soft, porous, often water deposited mix of minerals containing mostly calcium carbonate and a much smaller percentage of other minerals Water saturated with calcium chloride oozes out of hillsides or vents, the material precipitates forming a type of special limestone that has layers that can easily be split. The best for rock gardening is quite open with many air spaces. In New Zealand we can try our limestone but it tends to form more amorphous layers of considerable depth. It too can be easily worked with simple hand-tools like an old saw, drills and chisels and a hammer. -Ed*

Our tufa was from a denser, layered formation that splits on its rift lines quite predictably; and, Josef indicated that it is very similar to the stone they have in the Czech Republic. The breaks are clean and angular making it easy to bring pieces closely together. For a trough, one piece can be split into 2 or 3

Facing page: A series of photographs showing the preparation of seedlings, smearing the clay and squeezing the rocks together.
Bottom Left: finished crevices Photographs copyright Wrightman Nurseries
Bottom right: Editor's copied technique








pieces. These pieces are book matches and will then form the basic crevice(s).

To glue the slabs together a paste of clay is made with some sand added. We used Spanish River Carbonatite as its grain size was acceptable and it would provide added nutrition. In New Zealand we could add pumice or limestone fines, the later will provide some nutrition and would be good for calciotrophs. While one could dig clay from the backyard, it is easier to buy bagged clay from a hobby store. Measure out 3 parts clay to 1 part course material and mix the 2 together thoroughly as dry materials. If these are not available you can use more elbow grease and mix in to wet clay, slowly mix in enough water until a sticky paste is formed. Using a flat spatula, the clay paste is applied to one or both side(s) of the crevice to ~10mm thickness.

Now the daring part, for us Josef did this outside during a week when it froze solid every night, and all the plant material was from the heated greenhouse! The plants were bare-rooted whether they be cutting, seedling or potted plant. The roots were splayed out on the smeared clay, the crown set just above the crevice. The matching piece is then gently brought into contact, and the 2 were pressed/tapped together to eliminate any voids.

Why does it work? This is a process that closely mimics actual crevice conditions in nature. Heavier, clay/silt materials will accumulate in such formations because the particles stick together and do not wash away, as sand on gravel would. Provided a crevice is elevated and does not sit in water, it will not collect excess moisture. Neither will it dry out as quickly. In effect, the moisture level remains within a range suitable to plant growth. Clays have far more surface area for cationic activity and will provide better nutrition. Although the use of clay seems counter to most published advice regarding "drainage", elevating the piece will ensure that over saturation never occurs.

Watching Josef choose plants and where he placed them was also very instructive, as he has a huge amount of actual field experience. Many of his choices were new seedlings from the winter's sowing, including some *Eritrichum aretioides*, *Gentiana* spp. and *Androsace* spp. from West China. He was very happy to see them and have the use of them. All were lined up in the crevices - both vertically and horizontally, adding dimension to the planting. Useful too, are small mat/cushion plants such as *Arenaria* spp., *Silene acaulis*, *Gypsophila aretioides* and *Salix* spp. In these mats, *Gentiana* spp., *Primula* spp., and others will grow comfortably, again replicating what will happen in nature.

The great thing about this method is it intuitively directs you to place things. To make the verticals work, you need small mat-formers such as *Androsace villosa*, *Draba bryoides*, *Silene acaulis*, *Gypsophila aretioides*, *Asperula* spp. and the ultimate plugger *Sempervivum* cultivars of the tiny sort. These plants spread quickly enough to stop erosion. They are small enough that other, showier plants can grow through the mats. Semp's which are so easy to establish are especially good. Once they outgrow their usefulness, they can be removed with little disruption. The mats provide a good foil to set off the choicer plants.

This is a great improvement in cultural conditions and our control over them. As a bonus, lots of sensitive species can be grown this way. Perhaps even more importantly, the stylistic side of culture is greatly enhanced. The use of vertical plantings produces drama, and even quite ordinary plants become riveting when displayed this way.

The method used does take a little nerve and daring, just think, the Czechs were doing this so many years ago.

Below left: I love building mini crevice gardens in troughs using light weight hypertufa rocks which can be made very thin. This method has been revolutionary in terms of success for plants, where once small pieces were artfully compacted in gaps to hold mix, which would then proceed to leak out with even gentle watering. Note the crevice on right compared to that on the left . The clay-bound crevices allow the full length of the crevice to be planted and effectively increases the depth of the trough, as opposed to plants being rooted near the bottom of the crevice only. With this method the plants grow, seemingly without check, straight away and with vigor.

Below right: The clay-planted crevices in the trough 3 months on. I look forward to trying the technique on a larger scale with concrete waste or "urbanite".

Photographs Suzanne Pickford

Spring Show at the Botanical Expo September 2022

Kathy Chamberlain

The Botanical Expo is becoming an established event on the Selwyn Calender. Combined with the National Daffodil Society and Floral Art Group we were able to put together an appealing successful event without any of our previous covid restrictions. The Lincoln Events Centre is a very easy venue. It is spacious, the parking is excellent the facilities superb. We were treated to stunning entries in NZAGS show, entrancing and entertaining floral art, and as has become the norm "a host of golden daffodils". The sellers did a great job and provided us with plenty of reason for retail therapy. We are very fortunate to have such wonderful talented growers within the Society. The Workshops and Speakers were all interesting, so much to be learned from these people who generously gave their time and efforts. Suzanne once again was the driving force behind the event and congratulations should go to her for her single minded pursuit of making this event a success. With the current climatic/environmental challenges we now face, our horticultural passion becomes so important as we move forward and tackle some of these issues. Knowledge will be our strength and events like the Expo foster and encourage communities to learn and use resources to improve our world.

NZAGS acknowledges and greatly appreciated the support of Selwyn District Council who generously provided funding for the Expo.

NZAGS Show Trophy Winners

AGS Trophy	*Saxifraga porophylla*	Hamish & Mika Brown
Byllee and John Hannan Memorial Trophy		Ann & Joe Cartman
Otago Alpine Garden Group NZAGS 25th Anniversary Salver		
	Saxifraga porophylla	Hamish & Mika Brown
Gala Plants Trophy	*Trillium rivale*	Ann & Joe Cartman
NZAGS Christchurch Earthquake Memorial Trophy		
	Saxifraga porophylla	Hamish & Mika Brown
Tweedy Trophy	*Cassiope* 'Beatrice Lilley'	Ann & Joe Cartman
Cora Ault Memorial Trophy		
	Aciphylla pinnatifida	Ann & Joe Cartman
Arthur Dixon Memorial Prize		Hamish & Mika Brown
Dorothy Billcliff Trophy	*Trillum ovatum*	Ann & Joe Cartman
NZAGS Trophy	*Asarum maximum*	Joy Stack
Ina Mumberson Trophy	*Viburnum carlesii* 'Aurora'	Helen & Brian Coker
Edna Parkyn Award	*Muscari armeniacum* 'Siberian Tiger'	Tina Bunce
Saxton Memorial	*Narcissus cyclamineus*	Ann & Joe Cartman
Marion Saxton Trophy	Arrangement	Kathy Chamberlain
M Saxton Award	*"A Natural Environment"*	Wendy Wallace
Harwood Trophy		Joy Stack & Nancy Ridder

Plant Profile – Saxifraga porophylla

Hamish Brown

Pictured here two weeks prior to its appearance at the NZAGS spring show, the champion plant is an almost unbelievable combination of dull silver leaves packed tightly into a cushion of rosettes each exuding a stem of bright crimson flower buds flanked by crimson and green bracts.

Hamish and Mika grew this plant from seed provided by Scottish friend, Ian Christie. After poor success with early attempts to raise saxifrages from seed, the discovery that they required light to germinate has now resulted in a good many plants adorning their garden benches with this particular plant being at its best for the show.

The Browns grow all their saxifrages in a customised potting mix of 2 parts coir, 2 parts coarse grit (3-5mm), 4 parts coarse pumice (5-10mm) and 1 part ground lime stone. The resulting mix has a tendency to set like soft concrete but it suits saxifrages nicely. With happy roots the plants seem to be tolerant of most other conditions, being grown outside year round with full sun and overhead irrigation every second day to keep the roots moist. The frequent wetting of the foliage does not seem to bother the plants which are growing well and show no sign of disease.

Hamish Brown

Pauline Murphy

Hamish Brown ... past president of NZ Alpine Garden Society, event fundraiser and organiser of Steve Newall Memorial Lecture tour, third generation member of AGS ... Dr Brown, following completion of his PhD titled – "Understanding yield and water use of dry-land forage crops in New Zealand" in 2003 and generous sharer of his vast knowledge of alpine plants and in particular his love of New Zealand native alpine plants ...

Hamish grew up in Central Otago, mustering the vast Pisa Range with his father and grandfather, while on holiday from boarding school in Dunedin. Family picnics are remembered at Lake McKay with his grandmother, who Hamish describes as a plant nut, (as many would describe Hamish), encouraging him to search for the small alpines that grew in their natural environment.

Hamish has taken an academic route for his career - but underlying it all is a love of small treasures and in particular NZ alpine plants. He met Mika, his plant soul mate and partner, through mutual friends. Their love of hiking and botanising has taken the pair far afield – into many corners of NZ and the hills of Japan.

Hamish attributes his deepening love of small treasures to a special trip into Mt Angelus, where he and Mika met a lady in the hut who introduced them to botanising and understanding special growing conditions, and his search for more knowledge led him to joining the NZAGS. This unknown lady will forever be associated with the plant *Haastia pulvinaris* – and the same plant they enthused over is still growing on the rocky track today – albeit with a bald patch – where everyone touches it as they pass by. This early introduction to NZ alpine treasures has lead to other influential people in Hamish's life – one special lady was Peg Tocher – who bowled up to Hamish at his first AGS meeting and shared her special plants and knowledge so generously. Hamish still has dinner each week with Peg's widower and sells plants propagated from treasures that Peg shared with him, 10 years after that special encounter.

Stuart Murray, an NZAGS member, introduced Hamish to the "academic"

side of growing and shared ideas on propagation and potting mixes, being exact and keeping hygiene to the fore when handling plants. Hamish thinks his success rate with seed is 50% and about 20% of the plants he grows he shares – with the Society or through fundraising for the Steve Newall Memorial Trust.

His real partner in crime was the late Steve Newall ... explorer, mischief maker and Hamish attributes Steve with getting him out into the hills, exploring and plant hunting, seed collecting and the odd spot of whisky tasting! Steve emphasised to Hamish the importance of connections in the international plant community ... and from that has grown the Steve Newall Lecture Tour. Hamish has taken on the mantel of organising the Steve Newall Memorial Lecture Series – fundraising for and hosting overseas speakers in NZ, a highlight on many plant lover's annual calendar...this year's overseas guest was to have been Oron Peri – a Mediterranean bulb specialist from Seeds of Peace but unfortunately this had to be canceled at the last minute which was so disappointing after such a lot of work.

Hamish's love of alpines extends to all genera. He enjoys the lively communication with people who are "crazy" about plants. He loves the small and difficult to grow plants and has willingly shared his seed propagation methods. He laments the demise of specialist alpine nurseries, with Hokonui Alpines, one of the last, closing in early 2023 and Biosecurity concerns with limitations on imported seed, as many alpines are not on the BSI list. Hamish trolls through the NZAGS and the Scottish Rock Garden Society list – and values the chance to expand his range as well as to contribute his collected seed to promote our alpines world wide. He relishes the chance to reap the rewards of being a 'good' donor, getting first or second pick on the SRG list. Every year he finds at least 100 species he wants. Some people, he admits, may think alpines are 'tricky' but as he points out, alpine plants are ideal for small gardens, with many being grown in troughs and needing little attention.

Right: Hamish selling plants to raise funds. Photograph Dennis Chang

Generous, supportive and not least of all passionate - that is Hamish Brown.

Fiordland Photo Essay

Roland Dale and Hamish Brown

For over 30 years, Roland Dale and a small group of elite explorers have been making annual trips to Fiordland to challenge themselves against one of the world's most traitorous and beautiful areas. Heaved upward by tectonic forces and heavily glaciated in past ice ages, the landscape of Fiordland is comprised of valley after valley with inaccessible vertical crags on either side, dropping for hundreds of meters from tussock tops into densely vegetated valleys. In the path of the Tasman oceans relentless north-westerly weather pattern, the area is buffeted by torrential rain and gale force winds. This making the mere act of survival an exercise requiring perfect planning, specialist equipment and an super natural tolerance for discomfort. For our good fortune Roland and his companions possess all of these and Roland was kind to share his experiences with us. What we present here is a photo essay from the experiences of a world class expedition mountaineer who has covered more of Fordland's remote expanses than any other man. It is our

Below: Although low in altitude (the highest peak in Fiordland, is 2723 m Mt Tutoko, not shown), the high precipitation creates permanent snow and substantial glaciers which in turn create share faces to slow the advance of the intrepid. Roland's party climbed up through the crack to the left of the snow field

good fortune that Roland is also an accomplished photographer with a deep curiosity for both the macroscopic landscapes of Fiordland but also its unique flora and fauna. From the Tasman ocean to Fiordland's countless mountain peaks, this area enthrals passers-by from a distance and entices the hardy to its interior for bitter sweet excursions among its testing weather and terrain.

Top: The lake on Staircase Creek near the head of the Sutherland Falls.
Above: Its not hele botanising! The helicopter is the only mode of transport here. Essential for laying food caches, getting parties to their start points, extracting the odd ill fated adventure and retrieving weary groups and whisking them back to civilisation. It may look celeb but don't be deceived. The photos shared herein are the result of immense skill, effort and bravery!

So why would one choose to spend their own money on a helicopter to be deposited for weeks at a time it some of the inhospitable country in the world? Imagine climbing for a morning up step valley sides to emerge from to scrub to a field on *Bulbinella gibbisii* in full bloom. A phenomenon that rewards only the most adventurous.

Above: *Bulbinella gibbsii* is a plant of cold exposed herb fields of Fiordland. A member of the Asphodelaceae family, its broad raceme of bright yellow flowers put on a dazzling display among the tussocks and alpine shrubs.

Top: *Celmisia coriacea* in full bloom, the bud of which is featured on the cover. Its bright yellow disc appears rough in texture and is perfectly contrasted by the multitude of fine, soft, pure white petals.
Above: *Pimelea gnidia* in bright pink, found only in Dusky Sound and its common name is the Dusky Sound Daphne, Roland has been in Fiordland for over 30 years and he has only seen it in flower once.

Top: *Haastia* is a curious genus with a number of allied species all currently loosely lumped within *Haastia sinclarii.* All growing in high places among stable boulders, this particular specimen is striking with its bright yellow ray florets juxtaposing the silvery sheen of its woolly leaves.
Above: It might seem odd that sun orchid would be seen in the wettest part of New Zealand. However, *Thelymitra* can be seen opening their equisitely blue veined flowers to the warming light and inviting pollinators.

Top: *Pentacondra pumila* is common throughout the southern alps but shown here as typical for Fiordland, glistening with a dressing of recent rain. While its berries appear juicy, they are in fact papery and hollow.
Above: *Ranunculus crithmifolius* is a scree plant of the dry interior of the southern alps from Canterbury and North Otago. Never officially collected in Fiordland, Roland and his party have encountered this and many other botanical novelties on their travels. (See next image)

Top: *Ranunculus dalei?* This is believed to be an undescribed species. Roland took the image to the Botany Department at the University of Otago, but they wanted Roland to pay for the helicopter in order for them to collect material together. Had he coughed up it would have been named in his honour, hence the name very loosely applied here.
Above: *Earina mucronata* bamboo orchid or peka-a-waka. While not uncommon this epiphyte which is also found on rocks and banks with up to 1m long wiry cane-like stems is beautifully captured.

Above: Roland Dale getting results
Left: Roland's reflection was captured in each sticky droplet on the leaves of the fly catching *Drosera spatulata,* a prize winning shot.

Issue 108 2022

A Tour Around Michael Midgely's Garden

Jennie Riach

Hypertufa Kiwi Style

Rosulate Viola Propagation

Steve Newall Forever Friend

Lake Monk

A Word from Hamish Brown

Out and About with Steve Newall

Marion Saxton

Issue 109 2022

Mt Pisa & Cardrona

Dionysias

New Beginnings - Utrecht University Botanic Gardens

Great Dixter Gardens

Steve Newall Memorial Lecture

Pat Stuart Remembered

Coming! In future Issue(s)

Oncocyclus Iris Cutivation

Dennis Hughes - A Blue Mountain Legend

From Scotland to Auckland in Bulbs

Germinating Seed in Bags

Shade houses

Plant Profile

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