

TIMARU



DISTRICT COUNCIL

Te Kaunihera ā-Rohe
o Te Tihi o Maru

Your Natural Heritage



SIGNIFICANT NATURAL AREAS

July 2022 Update

Native Copper Butterfly



YOUR PLAN OUR FUTURE

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HE WAKA EKE NOA

We are all in this together

Welcome to this update on Significant Natural Areas (SNAs) in the Timaru District.

The SNA programme has been in operation now within the Timaru District Council since 2005 and a considerable amount of work is being undertaken by landowners, volunteers, contractors, and Council to ensure the long-term protection of indigenous flora and habitat values within these areas.

We are often asked what the requirements are for making application for resource consent to undertake works in one way or another an existing SNA.

The information below will hopefully provide you with some background as to how the process is undertaken and may be of use to you should you be in this position.

Resource consent for SNA clearance

As explained in the previous issues, activities that may result in clearance of SNAs require a resource consent. You might be curious as to how resource consents are processed and how a decision on approving or refusing a resource consent for the clearance of SNA is made.

Each resource consent is different because the value of the vegetation and the land is different, and therefore they need to be assessed on their merits.

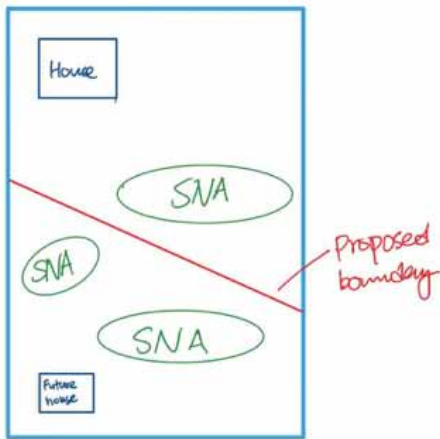
Assessment for a resource consent for SNA removal would be focused on the degree of impact on SNAs and on the ecosystem of the greater area. If adverse effects are considered minor or less than minor, the consent will be processed on a non-notified basis. If the adverse effects are determined to be more than minor, the consent will need to be publicly notified, followed up with submissions and hearing if any submitter or the applicant wants to be heard.

Where an activity will result in the removal of an SNA, an ecological assessment is likely required to identify how and to what degree the SNA and surrounding ecosystem will be affected because of the proposed activity. The ecological assessment will also include recommendations on how to reduce such impact. e.g. reposition the activity to avoid clearance of SNAs; only include SNA clearance on areas that support less ecological value while including an enhancement programme to improve another SNA with significant ecological value.

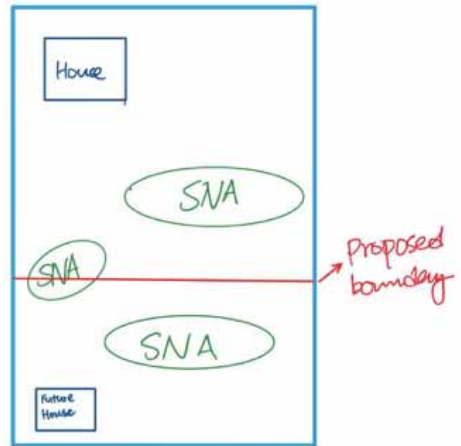
The processing Planner will then need to consider objectives and policies along with whether the application includes mitigation measures that could sufficiently alleviate the adverse effect. If adverse effects cannot be mitigated to an acceptable level, the resource consent could be refused.

For example, for a subdivision where there is/are SNAs on a property, a subdivision design that minimises the impact on SNAs will be more likely to pass the required tests – assuming the subdivision complies with all other requirements of the District Plan. In the example below, Scenario 1 will have minimum impact on the SNA as the new boundary would not cut through any SNA

meaning the erection of a future new fence is unlikely to result in the clearance of a SNA. In Scenario 2, the new boundary cuts through an SNA, which means that a new fence could be anticipated through the second SNA that may result in the removal of parts of the SNA. An ecological assessment might be required to fully consider the impacts of such a proposal.



Subdivision Scenario 1



Subdivision Scenario 2

As such, to maximise the chances of a resource consent being granted, please consider the following questions before lodging a resource consent: Can vegetation clearance be avoided, and

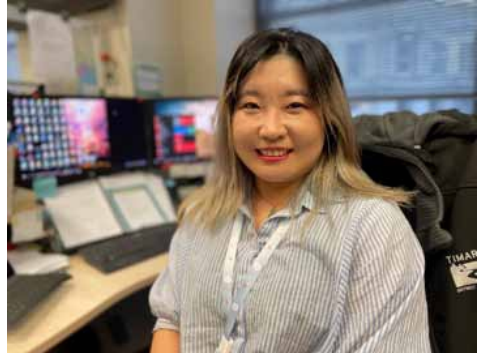
1. if not, how would the removal impact the SNA and ecosystem of the area? (This may need input from an ecologist).
2. How could the impact identified in point 1 be avoided mitigated or reduced? (Again, this may need input from an ecologist).

If you are contemplating the need to remove indigenous vegetation, please take the opportunity to get hold of us before lodging your consent application. This can often save both time and money, and our staff are there to assist.

Council Planning Unit



Hamish Barrell
District Planning Manager



Megan Geng
Team Leader Policy

Questions or queries

If you have any questions or queries relating to Significant Natural Areas, then do not hesitate to contact the Planning Unit at the Timaru District Council by calling 03 687 7200.

Gary Foster who is assisting the planning Unit on a part time independent basis may also be able to help and can be contacted on 0274 310 637.



Upper Rangitata Land Care Group

If you have had the pleasure of travelling in the Upper Rangitata Gorge then the view up the valley from the roadside on the Whiterock Hill look out is something that you will be familiar with, enjoyed, and which for many gives rise to a deep appreciation of this high country vista.

To be able to take in such a majestic scene without the sea of yellow produced by weeds like gorse and broom, and which are so familiar in almost every other riverbed situation we encounter is rare indeed, but not something that has happened by accident or good luck.

It's down almost entirely to the ongoing work of the Upper Rangitata Land Care Group. Instrumental in the formation of this group almost 30 years ago were local landowners Laurie Prouting of Mesopotamia Station and Rosemary



The Upper Rangitata River floodplain from the Whiterock Hill

Upper Rangitata Land Care Group

Acland of Mt Peel both of whom shared the concern that if something was not done to control and eradicate weeds and pests in the riverbed then the impacts on this braided river system and its unique ecology would be severe.

Braided rivers are a “naturally uncommon” ecosystem type both in New Zealand and the world and are classified as an ‘endangered’ ecotype in New Zealand (Holdaway et al. 2012).

Such areas typically provide home to over 80 wetland bird species and over 50 threatened native plant species.

The group comprises all adjacent runholders as well as representatives from the Dept of Conservation, LINZ, ECan and Fish and Game. The strength of this group, totalling around 26 in all, is that it brings all players together to participate in a coordinated manner overcoming the need for individuals and organisations to be working independently. This coordination ensures that priorities can be realistically set each year, everyone has a clear understanding of what is to happen, when and who will be doing it, and funding from various sources can be combined to best effect.

This mix of persons also provides positive peer pressure to group members and any areas where it is considered more could or should be done are regularly and effectively communicated.

The group’s focus is the crown land areas between the Rangitata River Gorge entrance upstream to Bush Stream on the true right bank of the river and the Potts River on the true left bank. This includes Forest Creek, the Bush Stream flats, and Boundary Creek.

Above this area the Havelock River, Clyde River etc is looked after by the relevant crown agencies and any work required here is coordinated by Pete Caldwell on behalf of LINZ, DOC and ECan.

Fish & Game also coordinate weed work around Deep Stream.

The total combined area is large and encompasses approx. 12000 hectares.

The Upper Rangitata river is a world-renowned braided river system and Sally Steven the treasurer of the land care group says that “It is our responsibility to ensure that it is looked after properly”.

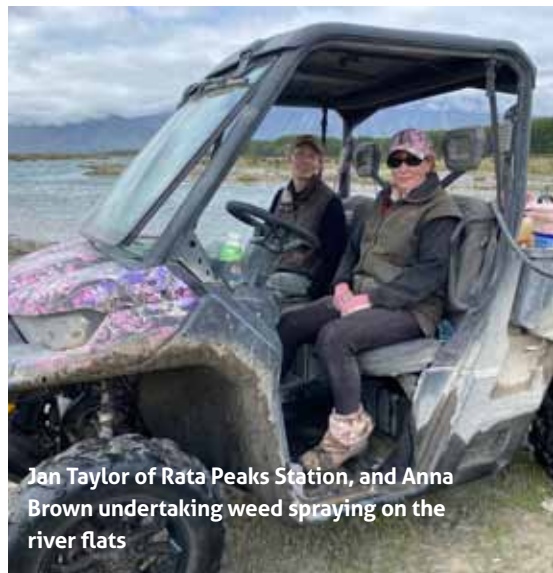
The goal of the Group she says is to progressively control and if possible, eradicate pest plants and animals from this area to protect what is an area of outstanding landscape and natural values.

The group meets formerly twice a year usually in October to plan the seasons work priorities and again at the end of the season to review the outcomes and discuss strategies for the next season. Throughout the season itself runholders and agency representatives meet as and when required to facilitate the programmes implementation.

An annual aerial survey occurs in early November in association with DOC. Ecan and LINZ. A weed control programme is then formulated, and the Upper Rangitata Landcare Group will take responsibility for weed control in designated areas of the riverbed and tributaries. Most control work happens during the flowering and growing season of the target plants which is normally between November and March annually.



Wayne and Denise Pawsey of Stew Point Station undertake some weed control



Jan Taylor of Rata Peaks Station, and Anna Brown undertaking weed spraying on the river flats

DOC, ECan and LINZ all provide their own funding for weed control in their areas and undertake responsibilities in conjunction with but separately to the Landcare Group.

In addition to the group engaging aerial and ground contractors, at least 2 community spray days are held annually in the riverbed and equipment and chemical for this is provided by the adjacent landowners including vehicles and jet boats to access some sites in the riverbed.

Runholders will also undertake collectively around 100 hours per year controlling the weeds on the river frontages of their properties. The volunteer weed control enables the group to use available grants on more inaccessible and harder to manage areas of the riverbed.

Over the course of a year individual members volunteer many hours either in administration, planning or carrying out weed control in the riverbed.

The main pest plant species targeted by the group are broom, gorse, false tamarisk, lupins, crack and grey willow, but other species are also controlled when encountered including wild thyme – mainly in the Forest creek catchment and weeds such as cotoneaster and hawthorn.

Animal pest species include mustelids, hedgehogs, rabbits, hares, wallaby, pigs, rats, Canada geese, and black backed gull. Some control programmes are in place for these primarily in areas outside of the group's areas of activity. The group is working with ECan to determine the extent of wallaby infestation and control options in the area.

Upper Rangitata Land Care Group

An eye is also kept out for potential new weed species that may arrive in the area and most involved in the programme have a good eye for spotting plants which do not belong.

An annual ongoing budget of around \$20000.00 is raised by the group and committed to the programme. This funding comes from Timaru and Ashburton District Councils, adjacent runholders, the Rangitata Diversion Race company, and other donations from interested people. Project funding is also provided by agencies such as DOC and LINZ for specific projects eg a fencing and replanting project that is currently underway via the "Jobs for Nature" on riparian margins of waterways feeding the Rangitata River.

Once the programme has been set at the early season meeting, the group chairman Laurie Prouting, along with Sally Stevens (group treasurer and formerly of Whiterock Station) and Pete Caldwell (LINZ – Boffa Miskell) maintain an overview to ensure a smooth implementation, that any issues which arise are dealt with quickly and effectively.

Annual funding is always an issue and Sally says more could be achieved if additional funding could be secured especially in the areas of animal pest control, fencing and revegetation plantings. Seasonally weather and river conditions dictate when and how work can be undertaken as well.

The group is aware of and makes good use of the many external expertise sources that are available to ensure that work undertaken fits the specific needs of the area and meets best practise guidelines.

Work on private properties adjoining the groups areas is not undertaken by the group but is undertaken and paid for by the landowners. Liaison however is maintained between landowners and the group so and that control work is carried out within the same timeframes, and to ensure that resources can be used to best advantage. Eg a landowner may want to make use of the helicopter while it is in the area.

The focus of the weed control programme Sally says changes overtime. Ideally, the whole catchment will be covered each season and while this is currently our goal, some thought is going into looking at options for two yearly spraying intervals at some locations where weed incidence has reduced. Work will remain ongoing into animal pest control especially with pest such as wallaby.

Within the Landcare Groups area are some Council assessed and designated Significant Natural Areas. These SNAs comprise the flood plain of the Upper Rangitata River above the Rangitata Gorge. They lie predominantly on Unallocated Crown Land however small parts of the floodplain lie within adjacent privately owned or leasehold land parcels.

The key value of these SNAs is the habitat that the riverbed provides for indigenous birds, including threatened species. Also, stable parts of the river floodplain support indigenous plant communities including several at risk species.

Gravel field, stonefield, herb field, grassland, shrubland and sedgeland – rushland (wetland) plant communities are present.

Threatened or at-risk bird species recorded on the floodplain in recent years include banded dotterel, black-billed gull, black-fronted tern, black shag, Caspian tern, grey duck, little shag, NZ pipit, pied stilt, South Island pied oystercatcher and wrybill.



“This is an area of outstanding landscape values and the group wants to maintain the visual harmony and varied biodiversity that a weed free braided river ecosystem displays.”

Sally Stevens. Treasurer at Turn Again Point by Rata Peaks Station

Upper Rangitata Land Care Group

Uncommon or declining indigenous plant species recorded include *Anthosachne falcis*, *Carmichaelia appressa*, *Craspedia* "Havelock River", *Luzula celata*, *Meuhlenbeckia ephedroides* and *Roulia monroi*.

Sally reiterates "This is an area of outstanding landscape values and the group wants to maintain the visual harmony and varied biodiversity that a weed free braided river ecosystem displays. Should the weed control programme ever cease this spectacular area of natural beauty would very quickly revert to a sea of yellow gorse and broom, harbouring pests and clogging up the natural braids of the river considerably compromising the environmental and habitat values".

Sally says it is anticipated that regular annual control programmes will be needed for many years to come as many of the weed species being targeted have seeds which can remain viable for over 50 years or longer. The group she says is aware of the long-term nature of the undertaking and will continue to do what needs to be done to maintain the gains made so far.



Scattered gorse plants which are a focus of weed control work in this area.

Ecosystems and Biodiversity Steering Group

Continuing from the Spring 2021 SNA Update we look at a further two representatives from the Timaru District Council Ecosystems and Biodiversity Steering Group. In this edition we introduce QEII National Trust representative Rob Smith, and Forest and Bird representative Joy Sagar.

Rob Smith

Rob is the South Canterbury representative for the QEII National Trust and services this area from his home base in Waimate.

A keen trumper, fisherman and advocate for our environment, Rob has been with the steering group since its inception and has been working for the QEII Trust as their South Canterbury field representative for 15 years. He was keen to represent the Trust on the steering group and has an intense appreciation of bush remnants and biodiversity generally. There are he says some lovely peaceful spots that even though modified due to land use over the years still have enough "native" feel to them to make you appreciate what was once much more common throughout New Zealand. It is very satisfying to know that the work being done by the QEII National Trust, and the Timaru District Council through the biodiversity steering group, enables these special places, that people (usually farmers) treasure, to be recognised and protected forever.

Rob says that he sees his role being to listen to landowners about their concerns in both running their businesses and wanting to do the right thing to look after their bush, / wetlands, then via QEII and the steering group perhaps being part of a solution that enables both the best outcomes for the

farm and the remnants. He believes the SNA process undertaken by Council has often been the first step in an awareness of just how special these remaining remnants are for landowners and the wider community. The value of knowing what you have got and how best to look after it he says provides a lot of satisfaction for owners who are the current caretakers of the land.

In his role with QEII Trust Rob says that the SNA assessment process undertaken by Council with landowners had been a success with good liaison between both parties. The contractors engaged in the work have shown a sensitivity to the fact that they are operating on private land and via the subsequent assessment reports provided have been able to communicate well with the landowners about the the values observed and recorded. He believes that the overall process has done much to raise the general awareness of the local natural environment and the values remaining.

With so much debate across the country at the present time around Significant Natural Areas Rob says that from talking to other QEII reps around NZ he has received very positive feedback around the work the Timaru District Council has undertaken. This is seen as one of the best examples nationally and has placed us in a good position locally to really make a difference in protecting these valuable natural assets.



Rob says that he sees his role being to listen to landowners about their concerns in both running their businesses and wanting to do the right thing to look after their bush,

The potential for owners of SNAs to help and support each other because of this process has been made so much easier.

Asked if we could or should be doing more Rob thinks that there is an opportunity for both the rural and urban communities to be more involved. We often talk about the urban / rural divide and SNAs on farms are an example of the rural community doing their bit for the whole community. There is an opportunity here he says for both sides of the divide to come together and help with weed and pest control for these special places.

Rob works with the landowner of the SNA to protect the values of the land usually through a fence around the area to exclude stock browsing. QEII subsidises this fence and Rob also liaises with other statutory authorities who also can help financially

sometimes. This results in the landowner having a stock proof fence that makes their management of the property a bit easier when it comes to mustering and prevents the SNA from gradually declining or dying out through stock grazing pressure.

While SNAs are often something property owners are concerned about they are he says also cause for celebration. We have lost so much biodiversity in our region over the years that these areas are now increasingly rare in the farming landscape.

Rob is very happy to listen to landowner's thoughts and concerns about their SNAs.

(For an insight into what QEII covenants are and how to find out more visit qeiiinternationaltrust.org.nz, see the Spring 2020 edition of the SNA Update newsletter, or contact Rob Smith at rsmith@qeii.org.nz)

Joy Sagar

Joy is the South Canterbury Branch representative for Forest and Bird (F&B) on the steering group and has been a member of F&B for over 30 years, although only actively involved since shifting back to South Canterbury in late 2014.

Joy comes from a working background as a scientist with the Wool Research Organisation and then AgResearch, researching the cell biology of fibre growth and structure for 37 years. She has always had a keen interest in NZ's native fauna and flora and, along with her husband Paul, is actively involved in bird surveys in South Canterbury and further afield.

Nominated by the local branch and the regional manager, Joy joined the biodiversity steering group at its inception in 2017 and enjoys her participation in it.

Her role she says is to represent F&B's stance on biodiversity and to advocate on behalf of nature – a role she very much enjoys. By being part of the steering group, she has learnt so much about South Canterbury's biodiversity, the threats to remaining areas of natural habitat,

and especially about the legislative requirements of Council and the whole Planning process.

F&B, she says, sees the whole SNA process as essential for the protection and restoration of the relatively small remnants of natural ecosystems that remain in South Canterbury. It believes it is critical that these are conserved and protected for the health and resilience of the land, and for people, now and in the future.

F&B holds Timaru District Council's proactive approach and progress in identifying SNAs in very high regard and Joy says other councils are apparently watching the work here as an example of how to go about this process. Key to the success of this has been the choice of ecologist to undertake the work, and the initial liaison with landowners regarding assessments, resulting in a high proportion of landowners coming on board.

That said, F&B also believes that the Council could or should be doing more to reinforce the awesome work undertaken to date, and to further ensure that landowners appreciate that their SNAs are important, that they are aware of their responsibilities, and that SNAs need to be maintained as just that – areas of significance because of their natural biota. Additionally, they need to be aware of what assistance can be provided to them to help with their management of these areas.

The appointment of a full-time biodiversity officer by Council is seen as a critically important need in this regard – to advise, monitor and ensure compliance and, when necessary, enforce compliance. A proactive approach Joy says is what F&B believe will be more effective than a reactive one.



Joy Sagar, South Canterbury branch representative for Forest and Bird

Joy says there is room for increased collaboration / communication between TDC, QEII Trust, F&B and other agencies re SNAs and their management / restoration. The biodiversity steering group she says is a good move in this direction.

F&B also believes there is a need for advocacy and education on the importance of SNAs both in rural and urban situations. SNAs need to be seen as treasures, not as liabilities. "It is not possible to replicate what nature created in the first place, so protection and restoration of remaining natural habitats is critical with respect to retaining native biodiversity. Revegetating modified landscapes, while valuable, is expensive and unlikely to ever replicate completely what was lost".

Joy says that F&B appreciates and understands landowners being wary of being told what to do with land that belongs to them, however education on the importance of conserving and restoring areas of natural biota is the key. The need to protect the land's natural carbon sinks, especially in the view of increasing climate disruption, is an important message. It is important, Joy believes, that the farming community promotes the ideal that a thriving biodiversity on-farm fits with the increasing awareness and demand for "naturally grown in NZ" food.

Joy says that she would be happy to talk to farmers or landowners to help with any queries or concerns that they may have.

Hermann Frank – A profile

Hermann Frank is a well-known figure amongst environmental and conservation circles in South Canterbury.

German by birth, Hermann's interest in the natural environment was encouraged by his father when he was young. While attending teachers' college he took extra papers in biology and with encouragement from a motivated environmental tutor became involved with conservation. His early efforts at that time revolved mainly around the conservation of native owls. Then interests grew to include invertebrates – dragonflies, and later bats.

Hermann brought his family to New Zealand in 1992, initially to Auckland, then to Timaru in 1996.

He has been a Forest and Bird member for many years and through his membership of this group took part in field trips and working bees around the South Canterbury area from which his particular interest in limestone scarps was piqued.

It was during an early visit to limestone scarp at Albury when he observed a basking lizard that started his interest in finding out more about these animals in our local environment.

Knowledge of limestone systems and their fauna and flora values in South Canterbury were not well known or documented at that time and in some cases, little was known about the occurrence of particular species or the overall distribution of these.

In 2007 he applied for and was successful in obtaining a Teacher Fellowship with the Royal Society and proposed a research project on lizards on limestone country in South Canterbury which was accepted. The SC museum was his primary host for this, and he also received co-hosting from Landcare Research in Dunedin. Hermann vividly recalls a field trip with Dunedin staff to Macraes Flat in Otago to observe the recording and documenting of lizard species and populations there prior to starting his South Canterbury survey.

During the 12-month period of his fellowship he visited most properties in the region that had limestone scarps and recorded three native lizard species – McCann's skink, Southern grass skink, and Southern Alps gecko. Outside of these areas he also found some isolated populations of the highly attractive native jewelled gecko.

Since that time, he has also identified the only known South Canterbury population of the Canterbury spotted skink which he says was a real highlight.

His survey findings, and the subsequent museum exhibition has done much to raise awareness of lizards in our area and to contribute to our overall knowledge of lizards in South Canterbury.

He still remains involved with lizards providing advocacy around management of these, and through his implementation of hands-on projects such as trapping of pests that prey upon these, weed control to retain native plants in the areas that the lizards live, and surveys to monitor numbers.



Hermann Frank – A profile

It was during his lizard survey work that Hermann began to notice and observe the small native plants that the limestone provided particular habitat for. Known as “limestone obligate” plants because they are only found in association with high calcium environments, Hermann has gone onto survey and record many of these across our region as well. Working with Landcare Research / DOC he has identified and documented many of these, some very rare and found only in South Canterbury.

Since around 2015 his endeavours have largely revolved around the survey, documentation, and conservation of these generally small herbs. Almost all limestone is on private property in South Canterbury, so this involves liaising with landowners for access and information about their properties, the majority of whom support his efforts.

Again, the collective knowledge of limestone flora in our region has been greatly improved due to his work. Manahune buttercup, Manahune and Taikogentian, *Cardamine sp*, *Gingidia*, *Geranium sp*, *Craspedia sp*, *Colobanthus sp*, spider orchid, are but some of the species he has observed.



Woollyhead – *Craspedia sp*

The level of knowledge property owners have of these special plants is not particularly high, and many are easily overlooked in the priorities of day to day property management.

Limestone habitats have various threats – competition from introduced grasses and weeds such as clovers and hawkweed, and especially from stonecrop, an introduced plant that establishes quickly. The application of fertilisers which encourage exotic plant growth contribute to placing further pressure on remaining native plant populations. Additional threats come from grazing by farm stock and animal pests such as goats, possums and rabbits.

Already very much reduced from the original land cover, remnants are under constant pressure and while many are just holding their own, sadly others continue to decline.

No one, Hermann says, has the total answer of how to prevent this decline, but he believes a valid approach revolves around identifying specific responses that are tailored to the needs and peculiarities of individual sites. There is, he says, also a case to be made for establishing more woody native vegetation cover at limestone sites to provide greater diversity and habitats for the many invertebrates and birds that are necessary and contribute to the survival of these species.

Through the Significant Natural Areas process the importance of the limestone ecosystems has been recognised. In recent years, funding to undertake targeted weed control to protect these has been allocated and control programmes implemented. Hermann is very supportive of these and

his intimate knowledge of limestone scarps on these properties has been instrumental in being able to coordinate effective work programmes. Other agencies he says are also contributing to conservation work of limestone species.

In 2018 and in conjunction with an exhibition at the SC Museum on limestone, the SC museum launched the publication of his book "South Canterbury Limestone – Landscape of Dreams - Nature's Treasure Chest" which showcases limestone country throughout South Canterbury and looks at detail into the native flora, fauna values and the threats to these. The book which is full of photos is still in print and can be purchased from the SC museum in Timaru.

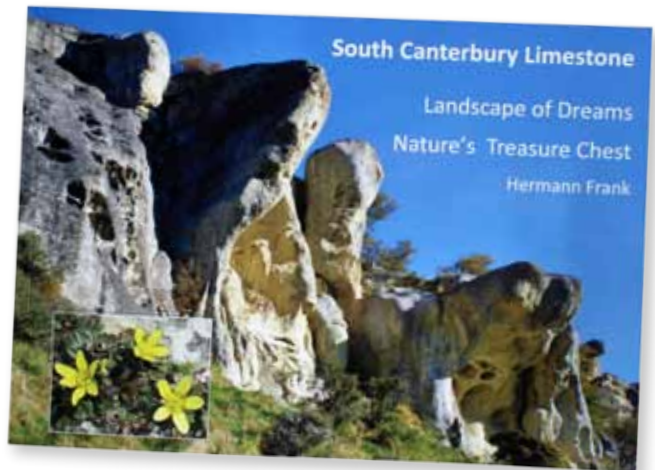
Another area that is special to Hermann is the Orari River Gorge. Hermann recalls a guided walk led by Fraser Ross being undertaken here in 1997 and from that point on he has held the area in high regard. It is he says a biodiversity hotspot in South Canterbury with a wealth of native fauna, flora and outstanding landscape values.

He recalls the day of the field trip seeing a native blue duck while the group lunched on the riverbank, and he believes that was the last confirmed sighting of that bird in the Orari Gorge.

Over the past 10 years Hermann has been involved with weed control operations in the gorge both as a volunteer and managing work for which grants had been obtained by the Orari River Protection Group which was formed in 2003.

All Hermann's work is voluntary and the cost for travel etc are mostly met out of his own pocket.

Hermann's contribution to biodiversity and conservation in South Canterbury is immeasurable, and when asked about the future he says while there is still much to do which he is enthusiastic about, the energy levels are not what they used to be and he will have to consider slowing down at some point.



Darwins Barberry

Once commonly grown as a garden ornamental Darwins barberry – *Berberis darwinii* has now become an invasive weed that can be found in several habitats including indigenous forests and shrublands, tussock lands, stream sides, plantations and open ground where it displaces and competes with native plants.

Native to South America – Chile and Argentina, it forms an evergreen bushy shrub to three or more meters high and wide with tough woody stems and leathery prickly leaves. It produces deep orange yellow flowers from late winter to mid-summer which are followed by oval purple – black berries with a bluish white surface patina.

It is a very adaptable plant and can grow in a range of conditions from full sun to substantial shade, damp to dry conditions, a range of soil types, salt, high winds and moderate to cold temperatures.

It is a long lived, and free seeding plant and the berries are carried far and wide by birds and possums but can also be spread by soil and water.

Best control options are to physically remove the plants by grubbing or other means, cut and stump swab larger specimens, or spray with a brush weed herbicide. Ongoing vigilance is needed as treated plants may require retreatment, and seedlings will continue to appear for some time.



Planting Native Plants for Invertebrates

Often an unnoticed and under appreciated component of our native habitats, invertebrates encompass a myriad of insect, butterfly and moth species that live in association with our native plants. They are crucial components of food webs especially for other invertebrates, birds and lizards and fulfil many ecosystems services, such as pollination, decomposition, nutrient release.

When undertaking revegetation plantings some thought should be given to including native plant genera and species that are known hosts for many of these invertebrates. Doing so will add another layer of biodiversity to your plantings that will enrich local native flora and fauna.

The following table is reproduced with permission of Brian Patrick an internationally acknowledged NZ entomologist. Recently retired Brian has been studying our native invertebrates since childhood, especially butterflies and moths, and his works provide a nationally recognised scientific base for much of what we know about these species, their distribution, feeding, and breeding preferences.

This table below, produced by Brian in 2019, lists the 15 top New Zealand plant genera that host native butterflies and moths (Lepidoptera) and is a concise and easily understood compilation from a lifetime of studies. The plant genera listed also in many instances host a range of other invertebrate families outside of moths and butterflies.

New Zealand's Top Fifteen

| Indigenous Plant Genus | LEPIDOPTERA FAMILIES | SPECIES |
|---|----------------------|---------|
| Pōhuehue: Muehlenbeckia | 9 | 84 |
| Small and thin- leaved deciduous Olearia | 10 | 49 |
| Hebe: Hebe | 5 | 28 |
| Daphne: Pimelea | 3 | 23 |
| Mountain daphne: Kelleraia | 2 | 18 |
| Snowgrass: Chionochloa | 6 | 17 |
| Mountain daisy: Celmisia | 3 | 16 |
| Large, thick-leaved Olearia | 4 | 15 |
| Nettle: Urtica | 5 | 14 |
| Tussock grass: Poa | 2 | 10 |
| Five- & three-finger & lancewood: Pseudopanax | 2 | 8 |
| Leather-leaved fern: Pyrrosia | 4 | 7 |
| Mahoe & porcupine shrub: Melicytus | 3 | 6 |
| Coprosma: Coprosma | 3 | 6 |
| Kowhai: Sophora | 5 | 6 |

Planting Native Plants for Invertebrates

Your local supplier of native revegetation plants will be able to assist with species selection to improve the overall invertebrate and fauna values of your plantings.

Significantly more information on Brian and his work with invertebrates can be sourced online, and he is also the author and co-author of several books readily available in bookstores throughout New Zealand.

Highlighting three of New Zealand's endemic butterflies, right: Maui's copper (*Lycaena edna*), bottom right: red admiral (*Vanessa gonerilla*), and below: Janita's tussock butterfly (*Argyrophenax janitae*).



Draft National Policy Statement for Indigenous Biodiversity – Exposure draft

Many of our plants, birds and animals are unique to our country. Some of these, along with their ecosystems, are under threat of extinction.

From November 2019 to March 2020, government sought public feedback on the introduction of a National Policy Statement for Indigenous Biodiversity (NPSIB) to help protect precious flora and fauna. Over 7000 submissions were received. The majority supported the intent of the NPSIB.

Further feedback has been sought from practitioners, iwi / Maori, stakeholders and those familiar with the NPSIB on the exposure draft to ensure its provisions are workable.

Submissions for this closed on 21 July 2022.



TIMARU



DISTRICT COUNCIL

Te Kaunihera ā-Rohe
o Te Tihi o Maru



YOUR PLAN OUR FUTURE
TIMARU DISTRICT PLAN REVIEW

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