# Chapter 8: Indigenous Biodiversity

## Draft Marlborough Regional Policy Statement Provisions

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# Introduction

New Zealand's biodiversity gives our country a unique character and is internationally important. A large proportion of species are endemic to New Zealand, occurring nowhere else in the world, so if they become extinct here, they are lost to the world. About 90% of New Zealand insects, 80% of trees, ferns and flowering plants, 25% of bird species, all 60 reptile species, four frog species and two species of bat, are endemic.

New Zealand's biodiversity has helped shape our national identity with our distinctive flora and fauna contributing to our sense of belonging. The koru and kiwi are internationally recognised. Biodiversity also provides social and economic benefits through, for example, recreational opportunities, tourism, research, education, provision of ecosystem services and natural resources for primary industry, and customary and medical uses.

The RMA requires the Council to recognise and provide for as a matter of national importance, the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna – Section 6(c). The protection of these values, whether on land or in freshwater or coastal environments, also helps to achieve other matters of national importance including landscape and natural character values and historic heritage. However, biodiversity values generally are also important components of amenity, kaitiakitanga, quality of the environment, and ecosystem values, which are matters that regard shall be had to in terms of Section 7 of the RMA. For this reason there are important links between the provisions of this chapter and others in the RPS/Resource Management Plan.

In addition there are specific roles and functions in relation to protecting significant natural areas and habitats and maintaining indigenous biological diversity. These functions enable the Council in giving effect to the purpose of the RMA to:

- establish, implement, and review objectives, policies, and methods for maintaining indigenous biological diversity [Section 30(1)(ga)]; and
- control any actual or potential effects of the use, development, or protection of land for the purpose of maintaining indigenous biological diversity [Section 31(1)(b)(iii)].

Marlborough's central location within New Zealand, its varied landforms and climate and rich human history, combine to make a very interesting and diverse area. The district has a range of important and unusual natural features, native plants and animals, a number of which are at their southern or northern limits of distribution. A part of south Marlborough has been identified as one of five areas of high biodiversity concentration within New Zealand.

Importantly Marlborough's tangata whenua iwi have a significant interest in the protection, management and restoration of indigenous biodiversity having developed relationships based on whakapapa, mahinga kai and kaitiakitanga developed over centuries of occupation, close interaction and use of natural resources. Whakapapa provides the links or connections between people and all things, including plants and animals. Mahinga kai is based on the sustainable gathering of food and resources, the places where they are gathered, the resources themselves and the passing on of knowledge about these resources. Kaitiakitanga is a responsibility to ensure that the mauri of natural resources is healthy and strong and the life supporting capacity of these ecosystems is preserved.

Like the rest of the country, Marlborough's natural environment has been highly modified from that which would have existed prior to human arrival. However, it is important to acknowledge that the remaining areas of indigenous biodiversity still contribute significantly to Marlborough's heritage values.

Although the focus of the RMA is on indigenous biodiversity, it is important to recognise that some parts of Marlborough have been modified as a result of a variety of land uses over many years. This has resulted in a range of non-indigenous species, which have in their own right made a significant contribution to amenity values in both urban and rural environments as well as to the character and

economy of Marlborough. This is recognised in other chapters of the RPS/Resource Management Plan.

## Issue 8A – A reduction in the extent and condition of indigenous biodiversity in Marlborough

Despite the original diversity and uniqueness of Marlborough's biodiversity and natural areas, human activities have been particularly severe on Marlborough's sensitive landscape and ecosystems, especially on the terrestrial and freshwater ecosystems of lowland south Marlborough. A continuation of past trends will result in further loss of or deterioration in the condition of Marlborough's indigenous biological heritage. For Marlborough's tangata whenua iwi this will impact on the mauri of natural resources.

### Terrestrial and freshwater environments

Centuries of fire have created the present pattern of small isolated remnants of natural vegetation. The dry climate and easy contours of most of this land meant that the fires were very effective in clearing vegetation. Very few original areas of native forest remain in south Marlborough – most are secondary vegetation that has regenerated after the earliest fires. Further intensive clearance of shrub and tussock subsequently removed most of the remaining vegetation.

North Marlborough has a moister climate and steeper terrain than south Marlborough and was less modified by human arrival. A significant amount of original forest cover remains and vigorous native regeneration is well underway on land that was cleared for pastoral farming from 1850 to 1940.

High populations of exotic wild animals and many introduced plants have become well established in Marlborough because of the favourable climate, terrain and land-use. These introduced species have added further pressure on natural habitats. As a result of habitat loss and competition and predation from introduced animals, the original indigenous animals have also largely disappeared. Only a few of these species can now be found in isolated remnant habitats. These habitats are often too small and too far from other sites in the locality, to support significant and sustainable populations of native species, including birds, invertebrates and lizards.

The ecology of ground water is a relatively new area of investigation. Aquifers are now known to provide a habitat that can support a subterranean ecosystem. Species of crustaceans have adapted and evolved to live and complete their entire lifecycle underground. It is possible that these species may have a role in maintaining underground water quality. To date little is known of the distribution of densities or even what species are present in our groundwater aquifers.

Many of the small streams and waterways on the Wairau Plain, including the largest river in Marlborough, the Wairau River, have been straightened, diverted and channelised over the last 150 years in order to control flooding and to enable increased agricultural production. Native riparian or riverside vegetation has been largely replaced by exotic willows and shrubs. These modifications have resulted in the loss of native fish species that rely on native invertebrates falling onto the water for food in many waterways.

With intensification of lowland land-use, particularly for viticulture, the demand for water for irrigation purposes has been significant. In the naturally dry landscape of these lowland areas, taking or diverting water from surface and groundwater sources can result in the loss of habitat, because the headwaters of spring fed streams recede or because waterways dry up altogether. The increasing use of dams to capture and store water also has the potential to have both negative (e.g. preventing fish passage) and positive effects (e.g. creation of new habitat) on natural areas and biodiversity.

### Wetlands

The term wetland covers habitats where the land is covered in, or wetted by, water for most (but not necessarily all) of the time. Wetlands occur in areas where surface water collects or where

groundwater seeps through to the surface. They include swamps, bogs, coastal wetlands, lakes and some river edges.

Wetlands are highly productive environments that can support a diverse range of plants and animals (birds, fish, insects and micro-organisms). They support processes that provide environmental services such as water storage and flood control, nutrient removal, erosion control and water table maintenance. Wetland areas have always been highly valued by Maori providing a rich source of traditional resources like food (fish and birds), flax and medicinal plants and are a very important part of Marlborough's natural heritage.

Most of New Zealand's wetlands were drained between 1920 and 1980 for pastoral land use. They have been reduced by about 85%, and many remaining wetland areas are still under pressure from land development. Of those that are left, many are small and their natural character and habitat quality are degraded by partial drainage, damage by farm animals and weed invasion. Lowland wetlands have been mostly affected and are still at risk in some cases.

The systematic draining of Marlborough's wetlands over the last 150 years has had a profound impact on aquatic ecosystems, especially in the lowland areas of the Wairau Plain. Less than one percent of the Wairau Plain wetlands that existed before Europeans arrived in New Zealand still exist. In addition, the taking of groundwater or surfacewater can affect the habitat and flow regimes of wetlands.

**Marine Environments**

Marlborough supports a wide variety of marine habitats ranging from exposed rocky shores to sheltered sandy bays. The coast is affected by a wide variety of physical and biological processes including tidal currents, wave energy, water clarity, substratum and temperature. Marlborough's geographic location influences these processes and as a result, our marine environment is one of the most interesting of any coastal area in New Zealand and supports a high diversity of species.

As well as supporting resident marine species, Marlborough is an important part of the migratory route for several large marine mammals, including humpback and southern right whale. Other marine mammals live in Marlborough's marine environment, including the nationally endangered Hector's dolphin which resides in Cloudy-Clifford Bays and Queen Charlotte Sound. Species such as dusky dolphins and orca regularly visit the Marlborough Sounds, while bottlenose dolphin are found at most times of the year.

Marlborough's marine environment supports a significant diversity of sea birds, most of which rely on the marine environment for breeding, raising young or for feeding. Of particular note is the king shag, which is endemic to the Marlborough Sounds.

Tidal wetlands, although mostly small and widely spread throughout Marlborough, form an important network for mobile species of wetland bird. Larger estuaries do exist however, including those at Whangarae (Croisilles Harbour), Havelock, Kaiuma, and at Wairau Lagoons. These larger estuaries provide habitat and feeding areas for a wide variety of fish, invertebrates and birds.

The condition and state of marine biodiversity can be affected by land based or water based activities. Adverse impacts can arise from sedimentation, contamination, and habitat disturbance. Effects can be temporary, but in particular circumstances can result in permanent loss or damage. Long term or cumulative smaller scale localised effects from impacts such as contamination and physical disturbance can also have significant effects on the functioning of marine systems. There are many activities like recreational swimming that do not affect or have an impact on marine biodiversity, however, other activities such as shipping, especially large and or fast ships, reclamations or other coastal structures, marine farming and physical disturbance from certain fishing techniques can affect marine biodiversity.

There are also a variety of marine organisms that can be introduced by transport into our marine environment by ships (including the discharge of ballast water), oil rigs, barges etc. Regardless of whether or not these pest marine organisms are exotic, if allowed to get out of control, there is the

potential for displacement of native species and there could be a general impact on Marlborough's indigenous biodiversity.

Despite the extensive length and physical size of Marlborough's coastline many marine habitats and species are fragile and vulnerable to impact. The increasing use of the coastal environment for recreational, cultural and commercial activities leads to a corresponding increase in the potential for adverse effects on marine biodiversity. Unfortunately, it is difficult to determine all of the significant marine values due to the large size of the area and difficulties associated with surveying subtidal marine areas, although techniques for assessing marine biodiversity are constantly improving and evolving.

## Objective 8.1 – Marlborough's remaining indigenous biodiversity in terrestrial, freshwater, and coastal environments is protected.

As there has been considerable loss of indigenous biodiversity in Marlborough, it is important that the areas remaining are protected and their condition maintained and improved where opportunities arise. Protection in this context should be considered in a broad way and may include legal protection but may also include options such as fencing, active pest control, regulation and improved land management practices. The inclusion of this objective helps to achieve the NPS on Freshwater Management 2011, where for both water quality and water quality reasons the protection of the significant values of wetlands is required.

This objective also helps to protect indigenous biodiversity as an important component of Marlborough's natural heritage and also gives recognition to Central Government's 'statement of national priorities' for protecting rare and threatened indigenous biodiversity on private land (June 2007). These priorities are:

**National Priority 1:**
To protect indigenous vegetation associated with land environments that have 20% or less remaining in indigenous cover.

**National Priority 2:**
To protect indigenous vegetation associated with sand dunes and wetlands; ecosystem types that have become uncommon due to human activity.

**National Priority 3:**
To protect indigenous vegetation associated with 'originally rare' terrestrial ecosystem types not already covered by priorities 1 and 2.

**National Priority 4:**
To protect habitats of threatened and declining indigenous species.

Matters of national importance in Section 6(a) and 6(c) of the RMA require the Council to recognise and provide for the preservation of the natural character of the coastal environment, wetlands, lakes and rivers and their margins and the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna. These matters help to protect biodiversity as important components of Marlborough's natural heritage.

## Objective 8.2 – An increase in area/extent of Marlborough's indigenous biodiversity and restoration, or improvement in the condition, of areas that have been degraded.

While protection of remaining areas of indigenous biodiversity is important, so too is the restoration and re-establishment of some of what has been lost or degraded. Restoration means the active intervention and management of degraded biotic communities, landforms and landscapes in order to enhance biological character, ecological and physical processes. If restoration and re-establishment does not occur then indigenous biodiversity will remain seriously threatened and will be vulnerable to further decline, especially in lowland southern Marlborough.

Given the important roles that wetlands can play, and as many wetlands in Marlborough are in poor condition, it is important to improve their extent and condition. The creation of new wetlands will also help to increase the overall size and stock of wetland habitat in Marlborough.

It is acknowledged in some hill country areas that extensive natural regeneration has occurred and this has already helped to increase the extent of Marlborough's indigenous biodiversity. Although there is a natural ability of many species to regenerate given the right circumstances, some species simply cannot because they are too few in number, sometimes down to single individuals. In many cases the propagation and replanting of plants is needed to establish a centre from which natural regeneration is possible.

### Objective 8.3 – Minimise the further loss of ecosystems, habitats and areas in terrestrial, freshwater, and coastal environments that have indigenous biodiversity value.

Given the historic loss of areas with indigenous biodiversity value and the state of that which remains, Objective 8.3 seeks to minimise the further loss of ecosystems, habitats and areas with indigenous biodiversity value either on land, in fresh waterbodies, or in the coastal environment and whether these are significant or not in terms of the criteria in Policy 8.1.1.

In Marlborough's coastal environment, many of the uses and activities occurring contribute to the social, economic and cultural wellbeing of people and communities. However, they have the potential if inappropriately located, or of an inappropriate form, to result in adverse effects on marine biodiversity. These adverse effects, in isolation or combination, affect matters such as natural character, landscape values, amenity values and importantly the intrinsic values associated with the natural functioning of coastal ecosystems.

For terrestrial environments the information gathered through surveys for the Council's Significant Natural Areas' programme suggests that particularly for south Marlborough, some ecosystem types are very depleted. The little that does remain is often in poor condition and not formally protected in any way. Freshwater environments including rivers, lakes and wetlands have also seen the loss of areas with indigenous biodiversity value. Land use activities and introduced plant and animal threats have been identified as adversely affecting indigenous biodiversity, meaning many areas do not satisfy the criteria for significance.



## Identification of sites, areas, habitats with significant indigenous biodiversity value

**Policy 8.1.1 – When assessing whether wetlands, marine or terrestrial ecosystems, habitats and areas have significant indigenous biodiversity value, the following criteria will be used:**

- **(a) Representativeness;**
- **(b) Rarity;**
- **(c) Diversity and pattern;**
- **(d) Distinctiveness;**
- **(e) Size and shape;**
- **(f) Connectivity/ecological context;**
- **(g) Sustainability; and**
- **(h) Adjacent catchment modifications.**

**For a site to be considered significant, one of the first four criteria (representativeness, rarity, diversity and pattern or distinctiveness/special ecological characteristics) must rank medium or high.**

To be able to determine whether a site is significant or not for the purposes of Section 6(c) of the RMA, an assessment needs to be made by the Council or others against consistently applied criteria. The criteria identified in this policy, which are further explained in Appendix 8.1, have been used by the Council in programmes to identify and encourage opportunities for the conservation of natural features on private land in Marlborough and will enable assessments to be made in the future where none have occurred to date. The criteria have also been used in identifying wetlands of significance in Marlborough and in identifying areas in the coastal marine area with significant indigenous biodiversity value.

**Policy 8.1.2 – Sites in the coastal marine area and wetlands that are natural wetlands, which have been assessed as having significant indigenous biodiversity value, will be specifically identified in the RPS/Resource Management Plan.**

The reason wetlands have been identified in the RPS/Resource Management Plan is because these small and fragmented wetlands are all that remain of the once significant areas of wetland that covered lowland Marlborough. Because of their small size and fragmented nature, it is important to ensure the values of the significant sites are protected. This helps to achieve the matter of national importance in Section 6(a) of the RMA. There may be areas that meet the RMA's definition of a wetland but they do not have significant values in terms of the criteria in Policy 8.1.1. These areas have not been identified in the RPS/Resource Management Plan and therefore are not subject to wetland rules.

Sites, which have been assessed as being significant in the coastal marine area, have been specifically identified in the RPS/Resource Management Plan as 'ecologically significant areas'. The reason for this is that the coastal marine area is comprised of resources in public ownership with the Council having a more direct role in being able to protect areas with significant biodiversity value in terms of Section 6(c) of the RMA. This will see the use of regulation and education as the main methods in protecting marine biodiversity.

**Policy 8.1.3 – Having adequate information on the state of biodiversity in terrestrial, freshwater and coastal environments in Marlborough to enable decision makers to assess the impact on biodiversity values from various activities and uses.**

Survey work on private land through the Council's and Department of Conservation's programmes has provided an overview of biodiversity in Marlborough. However, while many landowners have had their land surveyed as part of the Council's or Department of Conservation's programmes, not all land has been surveyed. Having adequate information about biodiversity values of waterbodies is equally important for decision makers when assessing the impacts of various activities and uses within waterbodies as well as activities and uses on adjoining land.

For the coastal marine area the Council has undertaken a review of published and unpublished reports to provide an overview of Marlborough's marine biodiversity. This information is available to the public but it is acknowledged that there are significant gaps in our knowledge. The Council plans to undertake surveys of areas where information is sparse in the coastal marine area to improve knowledge of biodiversity patterns and condition.

Continuing to add to the knowledge of the extent, condition and use of biodiversity in Marlborough from a variety of sources will be important in assisting decision making on resource consent or plan change applications as well as for general awareness of the state of Marlborough's environment. Where through resource consent processes, plan change processes or other means the Council becomes aware of a wetland or a site in the coastal marine area that does have significant biodiversity value in terms of the criteria in Policy 8.1.1, then these sites can be added to the RPS/Resource Management Plan through the First Schedule process of the RMA.

# Protecting and enhancing indigenous biodiversity

**Policy 8.2.1 – A variety of means will be used to assist in the protection and enhancement of areas and habitats with indigenous biodiversity value, including partnerships, support and liaison with landowners, regulation, pest management, legal protection, education and the provision of information and guidelines.**

A variety of methods are necessary to achieve the protection and enhancement of areas and habitats with indigenous biodiversity value. In some cases simple fencing of an area is the most effective means of protection and in this case the Council's role is one of supporting landowners (including financially). In other cases it may be appropriate that regulation is used. It is important to acknowledge however, that rules on their own do not protect important areas. The Council can also take an active role in enhancement activities, again through supporting landowners with education, the provision of information and guidelines and through working in partnerships.

**Policy 8.2.2 – Use a voluntary partnership approach with landowners as the primary means for achieving the protection of areas of significant indigenous biodiversity on private land, except for areas that are wetlands.**

Since 2000, the Council has undertaken a programme to identify and protect significant natural areas and indigenous biodiversity on private land in Marlborough. The Council has worked on the principle of a partnership approach with landowners to achieve improvements in the protection of remaining significant natural areas. The rate of participation in this programme highlights that most landowners want to protect unique ecosystems and species where they occur on their properties. The programme includes support through a landowner assistance programme operating alongside the field survey work. The programme is funded by the Council, central government's biodiversity fund and landowners. This approach has allowed for property based surveys to be carried out in cooperation with landowners. Landowners are provided with individual property reports summarising the ecological values found, including the identification and description of significant sites and management suggestions to ensure their long-term survival.

The exception for wetlands reflects that these significant sites will be subject to a regulatory regime. This helps give effect to the NPS for Freshwater Management 2011, where for both water quality and water quantity reasons the significant values of wetlands are to be protected [Objective A2(b) and Objective B4]. This approach also assists in recognising and providing for the preservation of natural character of wetlands as required by Section 6(a) of the RMA.

**Policy 8.2.3 – Priority will be given to the protection, maintenance and restoration of habitats, ecosystems and areas that have significant indigenous biodiversity values, particularly those that are legally protected.**

Those ecosystems, habitats and areas that have been assessed as having significant indigenous biodiversity value are to be given priority in terms of their protection, maintenance and restoration. This policy recognises that a targeted approach to indigenous biodiversity is appropriate given that resources to assist landowners are limited. If the Council has to make decisions about which sites should be supported financially for protection works, those sites that have been legally protected through mechanisms such as covenants for example, will be prioritised for funding support.

This policy also gives recognition to Central Government's 'statement of national priorities' for protecting rare and threatened indigenous biodiversity on private land as set out in Objective 8.1. These priorities will potentially have a significant influence on the Council's future policy and programmes. A significant area of lowland Marlborough (i.e. the Wairau and Awatere Plains) and coastal south Marlborough will fall under Priority 1. A number of specific areas will fall into Priorities 2 and 3, for instance wetlands, the stony beach ridges at Rarangi and coastal limestone cliffs. In terms of Priority 4 habitats, in Marlborough bird species such as New Zealand falcon, weka and rifleman, and plant species such as pingao, *Muehlenbeckia astonii* and native broom species, are either acutely or chronically threatened.

**Policy 8.2.4 – Priority will be given to the re-establishment of indigenous biodiversity in Marlborough's lowland environments.**

In Marlborough's lowland environments (the Wairau and Awatere Plains) some ecosystem types are very depleted and fragmented from their earlier extent. This means that fully functioning ecosystems are not common as many native bush birds and insects are in low numbers (for instance there are few tui in south Marlborough). Because of the lack of habitat, and therefore fauna, functions like seed dispersal and pollination do not take place, meaning that some sites are, or will become, unviable in the long term without active intervention by humans. Although there are challenges in natural regeneration and assisted revegetation, it is important that efforts are made to re-establish indigenous biodiversity in these areas, particularly as there is little public conservation land in south Marlborough. This policy will also help to address Central Government's national priorities for protecting indigenous vegetation on private land.

**Policy 8.2.5 – Encourage the legal protection of sites with significant indigenous biodiversity value through covenanting.**

An important aspect of covenanting is that it is voluntary. To assist with the implementation of Policy 8.2.2, the Council will actively work with landowners to register covenants over sites with significant indigenous biodiversity value. This means that these important sites are protected in perpetuity. Covenants, such as those available under the Queen Elizabeth 11 National Trust, mean that land ownership and management of land remains with the landowner, but ongoing advice and support can be received for the site covenanted.

**Policy 8.2.6 – Where areas of significant indigenous biodiversity value are known to exist in riparian margins of rivers, lakes and wetlands, consideration will be given to acquiring or setting aside these areas to help protect their values.**

Land along the margins of rivers, lakes and wetlands may have significant natural values and serve as important habitats. There is strong emphasis given to the enhancement of these areas under Section 6 of the RMA. Esplanade reserves or esplanade strips can be taken for the purposes set out in Section 229 of the RMA, including where this will contribute to the protection of conservation values. The reason for this policy therefore is to signal that where areas of significant indigenous biodiversity value are in riparian margins, then land may be taken or set aside upon subdivision, or as a financial contribution on activities not requiring subdivision consent. The Council may also negotiate with landowners outside of these more formal processes if the values are significant enough to warrant protection.

**Policy 8.2.7 – A strategic approach to the containment/eradication of undesirable animals and plants that impact on indigenous biodiversity values will be developed and maintained.**

The wide range of pest species present in Marlborough, their location, characteristics and spread, means a range of responses to deal with them to protect indigenous biodiversity is necessary. This includes through rules in the Council's regional pest management strategy, national pest management strategies, provision of information and advice to landowners, consent holders and the public, biological and physical control, monitoring and surveillance and at times direct funding to landowners to help protect significant sites from pests. An important aspect in this is acknowledging that landowners (including statutory organisations) have a significant responsibility for controlling and managing pest animals and plants.

Often there are not the resources, either in terms of technology or finance to effectively manage pests with physical control methods across the entire district. The most effective and efficient approach will be to target pests at sites of high ecological value where they can be realistically managed to protect particular values or areas. This approach will rely on strong partnerships with landowners.

To date the Council has had limited involvement or experience in dealing with pests in the coastal marine area. This has been has focussed on managing pests for economic reasons, especially for the marine farming industry in the Marlborough Sounds. Part of the Council's strategic approach for the coastal marine area has seen the establishment of a collaborative partnership to help build capability and put in place a framework to manage future biosecurity threats.

**Policy 8.2.8 – Where monitoring of ecosystems, habitats and areas with significant indigenous biodiversity value shows that there is a loss of or deterioration in condition of these sites then the Council will review the approach to protection.**

Ongoing monitoring of the condition of sites with significant indigenous biodiversity value will be necessary to determine if the methods in the RPS/Resource Management Plan are helping to improve the overall condition of significant indigenous biodiversity in Marlborough. This policy provides an early signal that where state of the environment monitoring shows a loss of or deterioration in the condition of significant sites as a result of the voluntary approach to protection, then the Council will review the voluntary approach to determine whether increased use of regulation should be pursued. Any changes to the RPS/Resource Management Plan provisions as a result of this review would only occur through the First Schedule process of the RMA.

**Policy 8.2.9 – Maintain, enhance or restore ecosystems, habitats and areas of indigenous biodiversity even where these are not identified as significant in terms of the criteria in Policy 8.1.1, but are important for:**

**(a) The continued functioning of ecological processes;**

**(b) In providing connections within, or corridors between habitats of indigenous flora and fauna;**

**(c) Cultural purposes;**

**(d) Providing buffers or filters between land uses and wetlands, lakes or rivers and the coastal marine area;**

**(e) Botanical, wildlife, fishery and amenity values;**

**(f) Biological and genetic diversity; and**

**(g) Water quality, water levels and flows.**

This policy identifies a range of factors that are important for the overall functioning of ecological processes. However, it is important to recognise that not all areas with indigenous biodiversity value will be considered significant. Nonetheless, these areas still add to the overall sustainable management purpose of the RMA, particularly when having regard to the following Section 7 matters of the RMA:

*(c) The maintenance and enhancement of amenity values.*
*(d) Intrinsic values of ecosystems.*
*(f) Maintenance and enhancement of the quality of the environment.*
*(g) Any finite characteristics of natural and physical resources.*

**Policy 8.2.10 – Promote to the general public and to landowners of the importance of protecting and maintaining indigenous biodiversity because of its intrinsic, conservation, social, economic, scientific, cultural, heritage and educational worth, and for its contribution to natural character.**

Increasing awareness about the unique and diverse biodiversity of Marlborough is important. The policy recognises contributions towards protecting and maintaining biodiversity will see the Council continuing to work closely with the community. This approach has been fundamental to improving biodiversity to date, because to protect biodiversity on private land, the Council relies heavily on voluntary participation and proactive protection activity from landowners. Within the coastal environment this role is particularly important as the resources comprised in the coastal marine area are in public ownership. Coupled with imperatives in the RMA requiring the preservation of the natural character of the coastal environment, wetlands, lakes and rivers the Council sees that informing the public about Marlborough's biodiversity is essential in protecting the values identified in the policy.

**Policy 8.2.11 – Promote corridors of indigenous vegetation along waterbodies, to allow the establishment of native ecosystems and to provide wildlife habitat and linkages to other fragmented bush or wetland remnants.**

Riparian areas are the interface between land and water resources providing habitat for unique flora and fauna, including swamp nettle and whitebait spawning sites. Vegetation within the riparian area also contributes to freshwater habitat through the provision of refuge and the input of food and shade. For example, many native fish species are dependent on native terrestrial insects as a food source and these insects are often only found in indigenous riparian vegetation. Promoting ecological corridors therefore plays an important part in protecting ecosystems and maintaining and enhancing the quality and diversity of remaining natural areas.

The opportunity already exists on Council-owned land along a number of waterways on the Wairau Plain as well as alongside rivers in other catchments (e.g. Wakamarina, Rai, Onamalutu, Pelorus) to improve biodiversity in Marlborough. This is despite these riparian areas being maintained for flood hazard mitigation. Presently these river margins may not have particular value for biodiversity but could become so with enhancement work such as the removal of plant pests and planting with native species. The Council will continue to protect or enhance these river environments as opportunities arise. In doing so, it is also important to maintain existing public access to and along the rivers.

**Policy 8.2.12 – Encourage and support private landowners, community groups and others in their efforts to protect, restore or re-establish areas of indigenous biodiversity.**

Not all of the responses to protecting, restoring or re-establishing indigenous biodiversity need to be achieved through the RMA or by regulation. For example, voluntary agreements can be put in place by various groups to protect species or habitats. There are also provisions in other statutes that can be used by various agencies to protect particular values and these may extend to also protecting important biodiversity values e.g. the Marine Reserves Act 1971. The Council has also established programmes to assist landowners and community groups to protect and restore natural areas and ecosystems. This includes financial assistance to landowners willing to protect ecologically important areas on their properties.

**Policy 8.2.13 – When re-establishment or restoration of indigenous vegetation and habitat is carried out, preference should be given to the use of native species of local genetic stock.**

Plants within the same species can adapt to local conditions to become genetically separate (and sometimes physically distinctive). These local plants are therefore well adapted and are best used for propagation as they provide the best chance of survival and good growth. These plants also protect genetic diversity within local populations, and protect the character of local ecosystems from being swamped by imported varieties from other areas. Therefore where feasible, seed should be collected from within a catchment or ecological district as close as possible to the specific site of a planting project and having regard to the range of habitats.

## Managing effects of subdivision, use and development on indigenous biodiversity

**Policy 8.3.1 – Manage the effects of subdivision, use or development in the coastal environment by:**

**(a) Avoiding adverse effects where the areas, habitats or ecosystems are those set out in Policy 11(a) of the New Zealand Coastal Policy Statement;**

**(b) Avoiding adverse effects where the areas, habitats or ecosystems are mapped as ecologically significant in the RPS/Resource Management Plan; or**

**(c) Avoiding significant adverse effects and avoiding, remedying or mitigating other adverse effects where the areas, habitats or ecosystems are those set out in Policy 11(b) of the New Zealand Coastal Policy Statement or are not identified as significant in terms of Policy 8.1.1.**

Policy 11 of the NZCPS sets out a range of priorities in order that indigenous biodiversity in the coastal environment is protected. For those habitats, species at risk, threatened or rare ecosystems etc. identified in 11(a) any adverse effects are to be avoided. Policy 11(b) lists a range of other habitats, species, areas or ecosystems where significant adverse effects are to be avoided and other adverse effects are to be avoided, remedied or mitigated. In some situations the avoidance of effects will be achieved through the setting of prohibited activity rules. The Council has also identified areas habitats or ecosystems with significant biodiversity value in which adverse effects from use or development activities are to be avoided. These have been mapped in the RPS/Resource Management Plan.

**Policy 8.3.2 – Where subdivision, use or development requires resource consent, the adverse effects on areas, habitats or ecosystems with indigenous biodiversity value shall be:**

**(a) Avoided where it is a significant site in the context of Policy 8.1.1; and**

**(b) Avoided, remedied or mitigated where indigenous biodiversity values have not been assessed as being significant in terms of Policy 8.1.1.**

This policy sets up a hierarchy for decision makers when assessing the effects of subdivision, use or development activities on areas, habitats or ecosystems with indigenous biodiversity value. For those sites identified as being significant in terms of Policy 8.1.1, it is important that adverse effects are avoided. This is in recognition that there are limited significant sites on private land, especially in southern Marlborough. Where sites have not been identified as significant through Policy 8.1.1, decision makers can also consider remediation or mitigation options to address adverse effects.

**Policy 8.3.3 – Take a precautionary approach where activities or development may have significant adverse effects on areas with indigenous biodiversity value or where the indigenous biodiversity values are unknown.**

Where significant adverse effects on areas with indigenous biodiversity value may potentially arise through subdivision, use, or development activities it is necessary that a precautionary approach be taken to reduce the risk of significant environmental damage. This approach may be needed where there is inadequate information or understanding, particularly where this is due to lack of scientific or technical knowledge. In these circumstances the following are appropriate options:

(a) Limiting the duration of consent;

(b) The use of adaptive management techniques such as staged development;

(c) Consent holders undertaking monitoring of the effects of their activities on the environment, as conditions of resource consents;

(d) Monitoring and research by the Council to provide additional information and understanding;

(e) Requiring a review(s) during the period of the consent so that the results of monitoring can be considered; or

(f) Refusing consent.

A precautionary approach can also be taken when determining the status of activities in rivers, lakes, wetlands and the coastal environment through plan development processes.

**Policy 8.3.4 – Control vegetation clearance activities in order to retain ecosystems, habitats and areas with indigenous biodiversity value.**

Although the Council has adopted an approach in the form of a voluntary partnership with private landowners to identify and protect areas of significant indigenous biodiversity, it is important there is a "backstop" measure in place to control activities that involve the removal of indigenous vegetation. The difference in approach recognises that rules in themselves will not improve the overall condition of significant natural areas. Only by working with landowners can that occur. However, control through both permitted activity rules (with conditions) and discretionary activity rules for vegetation clearance is also necessary to assist in minimising the loss of ecosystems, habitats and areas with indigenous

biodiversity value. It is important to note that there may be some circumstances where the clearance of indigenous vegetation will be excluded from rules such as that which occurs under plantation forestry or on existing roads. The policy will also contribute to achieving outcomes for the protection of outstanding natural features and landscapes and the maintenance of visual amenity areas (see Chapter 7).

**Policy 8.3.5 – Improve the management of drainage channel maintenance activities to mitigate the adverse effects from these activities on the habitats of indigenous freshwater species.**

The Council operates and maintains a historic network of drainage channels on the Wairau Plain. This network reduces groundwater levels and improves the productive potential of the rural land resource. Some of the drainage channels are modified rivers while others are artificial watercourses. The drainage channels often provide habitat to indigenous freshwater fauna, including eel (tuna), other freshwater fish and koura. These species are a source of mahinga kai to Marlborough's tangata whenua iwi and contribute to Marlborough's overall biodiversity.

The maintenance of the drainage network involves the control and/or removal of aquatic plants, wetland plants and accumulated sediment from the bed of the channels that would otherwise reduce the efficiency of water flow and increase water levels. Such maintenance can adversely affect aquatic animals within the channel through either direct removal or through a reduction of habitat. While it is difficult to completely avoid the adverse effects of drainage channel maintenance on aquatic biodiversity, it is possible using good environmental practice guidelines to mitigate the nature and degree of effect from maintenance activities.

**Policy 8.3.6 – In the context of Policy 8.3.1 and Policy 8.3.2, adverse effects to be avoided or otherwise remedied or mitigated, may include:**

**(a) Fragmentation of, or a reduction in the size and extent of, indigenous ecosystems and habitats;**

**(b) Fragmentation or disruption of connections or buffer zones between and around ecosystems or habitats;**

**(c) Changes which result in increased threats from pests both plant and animal on indigenous biodiversity and ecosystems;**

**(d) The loss of a rare or threatened species or its habitat;**

**(e) Loss or degradation of wetlands, dune systems, or coastal forests;**

**(f) Loss of mauri or taonga species;**

**(g) Impacts on habitats important as a breeding, nursery or feeding area, including for birds ;**

**(h) Impacts on habitats for fish spawning or the obstruction of the migration of fish species;**

**(i) Impacts on any marine mammal sanctuary or a marine mammal migration route, or a breeding, feeding or haul out area;**

**(j) A reduction in the abundance or natural diversity of indigenous vegetation and habitats of indigenous fauna;**

**(k) Loss of ecosystem services;**

**(l) Effects which contribute to a cumulative loss or degradation of habitats and ecosystems;**

**(m) Loss of, or damage to, ecological mosaics, sequences, processes, or integrity;**

**(n) Effects on the functioning of estuaries, coastal wetlands, and their margins;**

**(o) Downstream effects on wetlands, rivers, streams, and lakes from hydrological changes further up the catchment;**

**(p) Natural flows altered to such an extent that affects the life supporting capacity of waterbodies;**

**(q) Flooding on neighbouring properties;**

**(r) A modification of the viability or value of indigenous vegetation and habitats of indigenous fauna as a result of the use or development of other land, freshwater, or coastal resources;**

**(s) A reduction in the value of the historical, cultural, and spiritual association with significant indigenous biodiversity held by Marlborough's tangata whenua iwi;**

**(t) A reduction in the value of the historical, cultural, and spiritual association with significant indigenous biodiversity held by the wider community;**

**(u) The destruction of, or significant reduction in, educational, scientific, amenity, historical, cultural, landscape, or natural character values.**

The policy identifies a range of adverse effects that may result from subdivision, use and development, and which may need to be avoided in order to protect indigenous biodiversity values. The effects in some cases can occur in terrestrial, freshwater or coastal environments whereas in other cases the effects are specific to one environment. Therefore in determining whether or not these adverse effects may occur and potentially affect indigenous biodiversity values a case by case assessment will need to take place. Dependent on the environment within which the subdivision, use or development is to take place, the particular values associated with the site and degree of effect likely to result from the proposed subdivision, use or development activity, a determination can be made as to whether the effects should be avoided in terms of Policies 8.3.1 and 8.3.2 or can otherwise be remedied or mitigated.

**Policy 8.3.7 – Where taking or diversion of water from waterbodies is proposed (including from spring fed streams), water levels and flows shall remain at levels that protect the natural functioning of those waterbodies.**

This policy sets an environmental bottom line to protect biodiversity values in waterbodies (including in streams that are spring fed) where the taking of water is proposed. Regard will be had to the policy in establishing sustainable flow regimes and when considering resource consent applications where no such regime has been established. The significance of this policy is that it recognises all waterbodies are important and protecting the natural functioning of these environments means that biodiversity values will at least be maintained.

**Policy 8.3.8 – Within an area identified as an 'Ecologically Significant Area' in the coastal marine area fishing activities using techniques that disturb the seabed shall be avoided.**

Some fishing activities use techniques in the fishing operation which result in disturbance of the seabed. Depending where this occurs, there is the potential for adverse effects on marine biodiversity. Therefore the policy seeks to specifically avoid the use of these techniques to ensure areas identified as having significant biodiversity value in the coastal marine area are protected. This policy will help to give effect to Policy 11 of the NZCPS.

**Policy 8.3.9 – With the exception of areas with significant indigenous biodiversity value, where indigenous biodiversity values will be adversely affected through land use or other activities, a biodiversity offset can be considered to mitigate residual adverse effects. Where a biodiversity offset is proposed, the following criteria will apply:**

**(a) The offset will only compensate for residual adverse effects that cannot otherwise be avoided, remedied or mitigated;**

**(b) The residual adverse effects on biodiversity are capable of being offset and will be fully compensated by the offset to ensure no net loss of biodiversity;**

**(c) Where the area to be offset is identified as a national priority for protection under Objective 8.1, the offset must deliver a net gain for biodiversity;**

**(d) There is a strong likelihood that the offsets will be achieved in perpetuity; and**

**(e) Where the offset involves the ongoing protection of a separate site, it will deliver no net loss, and preferably a net gain for indigenous biodiversity protection.**

**(f) Offsets should re-establish or protect the same type of ecosystem or habitat that is adversely affected, unless an alternative ecosystem or habitat will provide a net gain for indigenous biodiversity.**

Biodiversity offsets are the final step in a hierarchical process in which adverse effects on indigenous biodiversity are first avoided, then remedied, and finally mitigated. Only after these approaches have been exhausted is it appropriate to consider biodiversity offsets to deal with residual unavoidable adverse effects. Policy 8.3.9 makes it clear therefore that biodiversity offsets should not be considered in areas which have been assessed as having significant biodiversity value and where adverse effects on these values are to be avoided.

The goal of a biodiversity offset is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure and ecosystem function. It is therefore important that offsets are appropriate compensation. There is a preference for the re-establishment or protection of the same type of ecosystem or habitat to avoid the difficulty of assessing relative values of different ecosystems or habitats of different species. Trade-offs involving different species will not always adequately compensate for the loss of the originally threatened species. However, the policy does recognise that where significant indigenous biodiversity benefits can be achieved, the protection of other habitats may be appropriate.

There will be cases where the indigenous biodiversity at risk is so significant that it should not be significantly modified or destroyed under any circumstances (other than when necessary for avoiding risks to human condition and safety). There are also situations where residual effects cannot be fully compensated because the biodiversity is highly vulnerable or irreplaceable, for example where the vegetation or habitat is so rare or reduced that there are few or no opportunities to deliver an offset. In such cases offsetting cannot be considered as a means of environmental compensation for adverse effects.

There also needs to be certainty that the proposed offsets will occur. Some offset measures such as indigenous planting will take a long time to establish and become useful in a biodiversity role. There should be an overall improvement in indigenous biodiversity as a result of the project and its biodiversity offsets.

## Methods of Implementation

The methods listed below are to be implemented by the Council unless otherwise specified.

### 8.M.1 Regional Rules

*Resource consent will be required to modify waterbodies and for any activity that would result in the draining or modification of a wetland (excluding artificially created ponds). The term*

*modification applies in the context of a physical change to the waterbody or in terms of alteration to flow (including the taking of water). Regard will be required to be had to the values of waterbodies identified in Schedule x.*

*Permitted activity rules will enable some activities to be carried out in wetlands and rivers where there is no more than minor adverse effect. These rules will specify certain standards that have to be met for the activity to remain as permitted.*

*Regional rules will enable, where appropriate, pest management activity for biodiversity outcomes.*

*Fishing activities using techniques or methods that disturb the seabed in the areas identified as having ecological significance will be a prohibited activity. Resource consent will be required for other uses or activities within the coastal marine area that will occur within areas identified the resource management plan as having significant marine indigenous biodiversity value.*

### 8.M.2 District Rules

*Resource consent will be required for land disturbance or vegetation clearance activities where certain species or habitats with indigenous biodiversity value are to be modified.*

### 8.M.3 Identifying Marlborough's Significant Natural Areas

*The Council's Marlborough Significant Natural Areas' programme involves the collection of information about natural ecosystems on private land, with the aim of working with landowners to help protect significant sites. An ecological survey is undertaken with property reports prepared that summarise the ecological values found and suggest management options to ensure their long term survival.*

*The Department of Conservation has also identified significant sites on private land through its Protected Natural Areas' survey programme. The Council's and Department's programmes have seen different areas of Marlborough surveyed so there is no duplication in effort.*

*Although a good proportion of private land in Marlborough has been surveyed, some landowners have not allowed the Council onto their property. Because of this the programme of identifying sites is incomplete and therefore ongoing. If a landowner changes their mind, or a property changes ownership and a new landowner wishes to have their property surveyed, then the Council will undertake the survey work.*

*Identification of the values of various water bodies within Marlborough is included in Schedule x. The natural and human use values include ecological, habitat, recreational and natural character values.*

*The Council has also identified in the resource management plan those wetlands and areas of the coastal marine area that are known to have significant ecological value.*

### 8.M.4 Monitoring

*The Council has gathered a significant amount of information about indigenous biodiversity in Marlborough through the Significant Natural Areas' programme. The Council has established a monitoring programme, which will be ongoing to determine if support programmes are assisting to improve the overall condition of indigenous biodiversity in Marlborough.*

*The Council will be establishing baseline monitoring programmes that provide a benchmark for determining the ongoing condition of habitats, ecosystems and areas that have significant indigenous biodiversity values. Where appropriate, the Council will also require resource consent holders to monitor the effects of their activity on marine biodiversity.*

*The Council is aware that its knowledge on areas with biodiversity value is incomplete. The Council is therefore committed to carrying out and supporting research and undertaking state of the environment monitoring to gain a better understanding of Marlborough's biodiversity generally.*

### 8.M.5 Support

*The Council will support, including financially, the protection and or restoration of areas with biodiversity value in the following ways.*

- *Through the established landowner assistance programme that provides both practical and financial help with work such as pest and weed control and fencing.*
- *By the waiving of resource consent application fees for activities that would assist in the protection of significant areas.*
- *Through the annual planning process, consideration of granting reductions in rating for properties where sites are protected through conservation covenants.*
- *From funding made available by Central Government for the protection of areas of significant indigenous vegetation and habitats of indigenous fauna.*
- *By prioritising available funds for significant sites where sites are subject to protective covenants.*
- *Through appropriate investigations that will improve our understanding of the nature and state of indigenous biodiversity in Marlborough.*
- *Through supporting initiatives developed by community groups and industry groups to promote protection and restoration of indigenous biodiversity.*

### 8.M.6 Information

*Increasing landowners' and the public's knowledge and understanding of the occurrence of significant areas of ecological value, not only leads to greater appreciation of those values, but can motivate voluntary action to maintain and enhance indigenous biodiversity. The type of information already available or to be provided includes:*

- *Information to individual landowners through the Marlborough Significant Natural Areas' programme and the Department of Conservation Protected Natural Areas survey programme on sites of significant indigenous biodiversity on private land, on the issues affecting the sites and suggestions for future management of the sites.*
- *Based on knowledge through the survey programmes, a summary overview of significant natural areas in south and north Marlborough.*
- *Newsletters for the public about the achievements being made on private land to protect and or enhance biodiversity in Marlborough.*
- *Web-based information on Marlborough's indigenous biodiversity, the various programmes of support available and guidelines on various issues.*
- *On specific issues affecting indigenous biodiversity through groups such as the Sounds Advisory Group.*
- *Through maintenance of a database that records studies of marine areas undertaken by a variety of science providers. (This database is available on the Council's website.) The studies undertaken include those for resource consent applications or for other scientific investigation e.g. those undertaken on dusky dolphins in Admiralty Bay.*

- *Encouraging the implementation of regimes such as voluntary retirement of land from farming, Queen Elizabeth II National Trust and other covenants, the establishment of reserves and voluntary restoration to achieve the protection of areas of significance.*

- *State of the environment reporting on the extent and condition of Marlborough's biodiversity.*

- *Fact sheets on effective methods to control undesirable plants and animals and on opportunities for private land to be covenanted.*

### 8.M.7 Guidelines

*Guidelines have already been developed by the Council and other agencies for a range of aspects concerning biodiversity including those listed below.*

- *To help interested landowners identify and clarify both production and ecological values on private property, and develop practical and specific management strategies to balance these.*

- *Which species are suitable for planting in south Marlborough, including for different areas and ecosystems. The guide provides advice and information for small and larger scale plantings and restoration projects. (This guide has been produced in conjunction with the Department of Conservation.)*

- *Approaching marine mammals from land, sea and air and on minimising acoustic disturbance to mammals from seismic survey operations (both produced by the Department of Conservation).*

- *The benefits of, and how to, eco-source plants for restoration projects.*

- *For the restoration/creation of wetlands.*

*The Council will prepare guidelines to assist experts carrying out ecological assessments on private property on matters that should be covered in assessments.*

*The Council will prepare guidelines to assist developers on options available for enhancing indigenous biodiversity.*

*The Council will investigate and document best practice guidelines to assist the Council when planning for and undertaking drainage channel maintenance activities. The practices will vary from drainage channel to drainage channel depending on the circumstances. Marlborough's tangata whenua iwi and others with an interest in aquatic biodiversity will be provided the opportunity to assist in the development of the guidelines.*

*As the need arises the Council will develop further guidelines in an endeavour to enhance overall biodiversity in Marlborough.*

### 8.M.8 Regional Pest Management Strategy for Marlborough

*The Regional Pest Management Strategy for Marlborough (prepared under the Biosecurity Act 1993) classifies a range of plant and animal species as pests, because they cause or have the potential to cause significant adverse effects on Marlborough's economy and/or environment. Individual pests are placed in one of three categories. The management regime, which includes rules for each pest, applies mostly to terrestrial environments but does include aquatic plant and animal pests. The strategy also lists plant and animal species that are potential threats to ecological values in Marlborough. These species do not have a specific regime for control because they do not pass the required cost benefit tests set out in the Biosecurity Act. However, control of these pests will likely be based on a 'site led' approach, targeted to sites*

*with significant ecological value where the reduction of a range of pests would be effective in protecting those values.*

### 8.M.9 Works

*The Council will undertake planting of riparian margins on land owned or administered by the Council with indigenous species where appropriate. The Council's Asset Management Plan for Rivers and Land Drainage sets a target of 20 hectares to be planted in ecological plantings.*

### 8.M.10 Partnership/Liaison

*The Council works closely with the Queen Elizabeth II National Trust, which is an independent organisation that assists landowners who want to formally protect their land through a covenant on the property title. The Council also works closely with the Department of Conservation in providing information for landowners and the public generally, and in on-the-ground work to assist in enhancing biodiversity in Marlborough.*

*Focussed projects to enhance indigenous biodiversity are supported and promoted by the Council. This can include projects such as landcare groups set up to restore areas like the Grovetown Lagoon and Rarangi foreshore, working with nurseries to ensure there is locally sourced native plants for restoration projects, establishing the Tui to Town project to entice native birds across the Wairau Plain from the Northbank forests or working with residents groups on local projects.*

*Through its role in biosecurity the Council also acts in a liaison capacity with the Ministry for Primary Industries (MPI) Biosecurity New Zealand in the management of a range of undesirable animals and plants. Equally important in the control and management of pest animals and plants is the partnership role between the Council and private landowners, and the Council and Department of Conservation/Land Information New Zealand with respect to Crown land.*

*The Council has a partnership role with the Minister of Conservation in managing Marlborough's coastal marine area. The Minister is responsible for approving regional coastal plans and also administers the New Zealand Coastal Policy Statement. Therefore maintaining a strong partnership with the Department of Conservation through its area and local offices will be very important in looking after Marlborough's marine biodiversity.*

*The Council has entered a collaborative partnership with Top of the South councils (Tasman, Marlborough and Nelson), MPI Biosecurity New Zealand, marine farming industries and iwi to help build capability and put in place a framework to manage future marine biosecurity threats. The Department of Conservation will also be involved in the consideration of biosecurity threats where these may affect marine biodiversity.*

*Many residents, resident groups, or other community based groups have an interest in how Marlborough's coastal marine areas are to be managed into the future. Maintaining a strong relationship with these individuals and groups will help to achieve the outcomes sought for maintaining marine biodiversity. This will extend to supporting community initiatives and advocating to government departments to set up marine protected areas as well as working with industry groups to promote sustainable use of marine resources.*

### 8.M.11 Acquisition of Land

*The Council may consider acquiring sites with outstanding ecological values where land purchase is the only means available for protection of the values and is available for purchase. The Council will also encourage other agencies to do this.*

### Anticipated Environmental Results and Monitoring Effectiveness

The following table identifies the anticipated environmental results of the indigenous biodiversity provisions of the RPS/Resource Management Plan. The anticipated environmental results are 10 year

targets, unless otherwise specified. For each anticipated environmental result, there are a series of indicators that will be used to monitor the effectiveness of the indigenous biodiversity provisions.

| Anticipated Environmental Result | Monitoring Effectiveness |
|---|---|
| 8.AER.1<br><br>An increase in the number and extent of ecosystems, habitats and areas with indigenous biodiversity value, and which are formally protected or covenanted (where practicable). | There is an increase in the area of land covered in indigenous vegetation (including in riparian margins) in those parts of Marlborough defined as Acutely or Chronically Threatened in the Threatened Environment Classification (National Priority One in "Statement of National Priorities for Protecting Rare and Threatened Biodiversity on Private Land).<br><br>The number of sites with significant indigenous biodiversity value under formal protection by either a landowner agreement with the Council or a Queen Elizabeth II National Trust covenant or similar, has increased.<br><br>There is an increase in the number of marine protected areas. |
| 8.AER.2<br><br>Maintenance and enhancement of the condition of ecosystems, habitats and areas with indigenous biodiversity value. | Monitoring of sites identified through the Significant Natural Areas programme shows an improvement in the values of those sites.<br><br>Baseline monitoring programmes established in 2010 for a representative sample of terrestrial, river, wetland and in 2014/15 for coastal marine sites with high indigenous biodiversity values shows no loss of those values over the life of the RPS/Resource Management Plan.<br><br>A measured decline of known populations of Total Control Pests (declared for ecological reasons) in the Regional Pest Management Strategy for Marlborough.<br><br>There is no increase in the extent or distribution of known aquatic species pests identified as declared pests in the Regional Pest Management Strategy for Marlborough. |
| 8.AER.3<br><br>There is no loss in area of wetlands. | Measured against a baseline monitoring programme established for wetlands in 2010, there is no loss in the overall area of wetlands in Marlborough. |
| 8.AER.4<br><br>Widespread community involvement in looking after Marlborough's indigenous biodiversity. | Continuation of community involvement in projects and initiatives such as 'Tui to Town', Grovetown Lagoon restoration, landcare groups, planting of riparian areas etc.<br><br>The number of landowners protecting private land with indigenous biodiversity values (through formal protection or active management) increases.<br><br>A voluntary partnership approach with landowners continues to be the primary means of protecting terrestrial areas of significant indigenous biodiversity. |
| 8.AER.5<br><br>An increase in knowledge of Marlborough's | Use of scheduled criteria to identify ecosystems, habitats or areas present with significant indigenous biodiversity |

| | |
|---|---|
| indigenous biodiversity. | value through resource consent applications or where future survey work may be undertaken.<br><br>The number of private properties over which ecological assessments to determine if there are ecosystems, habitats or areas present with significant indigenous biodiversity value, increases, albeit at a low level as the active SNA survey has been completed. Any increase in properties surveyed is most likely to arise through resource consent processes.<br><br>Knowledge and understanding of indigenous biodiversity in Marlborough's coastal marine area is enhanced through maintenance of the marine database of information and from supporting research in areas where little is known about marine biodiversity. |

# Appendix 8.1 - Ecological Significance Criteria for terrestrial, wetland and coastal environments

The following provides explanations or guidelines for the application of ecological significance criteria in the assessment of sites.

Rankings within each criterion are: **H** = High; **M** = Medium; **L** = Low. They collectively contribute to an overall ranking, indicating the degree of significance. For a site to be considered significant, one of the first four criteria (representativeness, rarity, diversity and pattern or distinctiveness) must rank **M** or **H.**

## Representativeness

1. Indigenous vegetation or habitat of indigenous fauna that is representative, typical or characteristic of the natural diversity of the relevant ecological district. This can include degraded examples where they are some of the best remaining examples of their type, or represent all that remains of indigenous biodiversity in some areas.

2. Indigenous vegetation or habitat of indigenous fauna that is a relatively large example of its type within the relevant ecological district.

3. Additionally for the coastal marine area the site is significant if it contains biological features (habitat, species, community) that represent a good example within the biogeographic area.

**H:** The site contains one of the best examples of the characteristic ecosystem types in the region or ecological district or biogeographic area for sites within the coastal marine area.

**M:** The site contains one of the better examples, but not the best, of the characteristic ecosystem types in the region or ecological district or biogeographic area for sites within the coastal marine area.

**L:** The site contains an example, but not one of the better or best, of the characteristic ecosystem types in the region or ecological district or biogeographic area for sites within the coastal marine area.



## Rarity

4. Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent in Marlborough, or relevant land environment, ecological district, or freshwater environment.

5. Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is threatened, at risk, or uncommon, nationally or within the relevant ecological district or biogeographic area for sites within the coastal marine area.

6. The site contains indigenous vegetation or an indigenous species that is endemic to Marlborough or that are at distributional limits within Marlborough.

**H:** The site contains nationally threatened or rare flora, fauna or communities; or the site contains several examples of regionally or locally threatened or rare flora, fauna or communities.

**M:** The site contains one or a few regionally or locally (but not nationally) threatened or rare flora, fauna or communities.

**L:** The site is not known to contain flora, fauna or communities that are threatened or rare in the ecological district or biogeographic area, regionally or nationally.

## Diversity and pattern

7. Indigenous vegetation or habitat of indigenous fauna that contains a high diversity of indigenous ecosystem or habitat types, indigenous taxa, or has changes in species composition reflecting the existence of diverse natural features or ecological gradients.

**H:** The site contains an unusually high diversity of species and ecosystem types.

**M:** The site contains a moderate diversity of species and ecosystem types.

**L:** The site contains a relatively low diversity of species and ecosystem types.

## Distinctiveness

8. Indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, occurs within an originally rare ecosystem, or has developed as a result of an unusual environmental factor or combinations of factors.

**H:** The site contains any ecological feature that is unique nationally, in the region or in the ecological district; or it contains several such features that are outstanding regionally or in the ecological district or biogeographic area.

**M:** The site contains ecological features that are notable or unusual but not outstanding or unique nationally, in the region or in the ecological district or biogeographic area.

**L:** The site contains no ecological features that are outstanding or unique nationally, in the region or in the ecological district or biogeographic area; i.e. the ecological features are typical rather than distinctive or special.

## Size and shape

9. The site is significant if it is moderate to large in size and is physically compact or cohesive.

**H:** The site is large in size for the region or ecological district and is compact in shape.

**M:** The site is moderate in size for the region or ecological district and is compact in shape; or the site is relatively large but not very compact or cohesive.

**L:** The site is small in size for the region or ecological district, or the site is moderate in size but not at all compact or cohesive.

## Connectivity/ecological context

10. Vegetation or habitat of indigenous fauna that provides or contributes to an important ecological linkage or network, or provides an important buffering function.

11. A wetland which plays an important hydrological, biological or ecological role in the natural functioning of a river or coastal system.

12. Indigenous vegetation or habitat of indigenous fauna that provides important habitat (including refuges from predation, or key habitat for feeding, breeding, or resting) for indigenous species, either seasonally or permanently.

**H:** The site is close or well connected to a large natural area or several other natural areas.

**M:** The site is in the vicinity of other natural areas but only partially connected to them or at an appreciable distance.

**L:** The site is very isolated from other natural areas.

## Sustainability

13. The site is significant if it is ecologically resilient, i.e. its natural ecological integrity and processes (functioning) are largely self-sustaining.

**H:** The site can maintain its ecological integrity and processes with minimal human assistance.

**M:** The site requires some but not much human assistance to maintain its ecological integrity and processes.

**L:** The site requires much human assistance to maintain its ecological integrity and processes.

## Adjacent catchment modification in respect of significant sites within the coastal marine area

14. Catchments that drain large tracts of land can lead to high sediment loading into adjacent marine areas. A site in the coastal marine area is significant if the adjacent catchment is >400 ha and clad in relatively mature native vegetative cover resulting in a long term stable environment with markedly reduced sediment and contaminant run-off compared to developed or modified catchments.

**H:** The site is dominated by an adjacent land catchment area with stable and relatively mature native vegetation (>400ha) that is legally protected.

**M:** The site is dominated by an adjacent land catchment area with stable and relatively mature native vegetation (>400ha) with partial or no legal protection.

**L:** The site is surrounded by an adjacent land catchment area (>400ha) that is farmed, highly modified or has limited relatively mature vegetative cover.