

9. Ecosystems

9.1 Introduction

The Wellington Region has many different types of ecosystems, including forests, mountain ecosystems, wetlands, fresh water ecosystems such as lakes and rivers, coastal ecosystems and marine ecosystems. Some regional ecosystems are relatively unmodified, but most have been modified by human activities, such as agriculture, urban development and the introduction of new species.

This chapter of the Regional Policy Statement is not the only section which is relevant to ecosystems. Policies aimed at avoiding adverse effects on ecosystems can be found throughout the document.

What is an Ecosystem?

One of the difficulties of developing policy for ecosystems is how to define an ecosystem. The following examples indicate the range of views which are held.

- A legal definition of an ecosystem, in the Environment Act 1986, is "any system of interacting terrestrial or aquatic organisms within their natural and physical environment".
- Scientists describe an ecosystem as a community of plants, animals and micro-organisms of different species interacting with each other and with their surrounding environment. Ecosystems are characterised by a constantly changing network of biological, chemical and physical interactions which sustain the community of plants and animals. Biological interactions include food webs and relationships between different species in the ecosystem. Chemical interactions include the cycling of nutrients and elements (such as the water cycle), and physical interactions include things such as the effect of the non-living parts of an ecosystem (e.g., sunlight, salinity) on the plants and animals.

See also chapters 5 (Fresh Water), 6 (Soil and Minerals), 7 (Coastal Environment) and 10 (Landscape and Heritage).

- The size of an ecosystem is arbitrary and is normally defined by what is being studied, for example, an ecosystem can be an entire forest or a single fallen log in a forest. Ecosystems are difficult to designate on maps because they are multi-dimensional and do not exist in isolation from the wider environment.
- To some people, "ecosystem" implies a relatively natural system with a diversity of species (e.g., a wetland) but does not include a cultivated field. Others say that any community of organisms and their environment is an ecosystem.

The challenge is to take these relatively abstract and uncertain definitions of ecosystems, and apply them in a meaningful way in the development of policy. To do this, it is necessary to limit the broad definitions of ecosystems given above.

In this Policy Statement, "ecosystem" does **not** include highly modified biological systems which are managed primarily for production (e.g., a cultivated field or a marine farm). In terms of size, an holistic approach is taken; an ecosystem is generally taken to be a forest or forest remnant rather than a single tree, or a rocky shore rather than a single rock pool. As a spatial tool for planning, the concept of "habitat" may be more useful to work with as a substitute for "ecosystem" when areas need to be clearly defined.

This chapter describes ecosystems in terms of the predominant character of the environment in which they are located (natural, rural or urban), and the type of species in the ecosystem. An **indigenous ecosystem** is one with a high proportion of indigenous species. Although all ecosystems are important, indigenous ecosystems are particularly valued in the Region.

The objectives and policies in this chapter recognise that:

- Ecosystems are **dynamic**. Policies for the protection of ecosystems have to allow for the fact that ecosystems are in a natural state of constant change. Protection is not the same thing as preservation;
- The **processes** which occur in an ecosystem are just as important as the species and other ecosystem components. Ensuring that ecosystem processes are maintained is

therefore an important aspect of ecosystem policy;

- Everything is **interconnected**. The species which make up an ecosystem, including humans, cannot exist in isolation from the other species and non-living parts of the ecosystem. An ecosystem itself does not exist in isolation from its wider environment and the activities which occur in that environment;
- **Human survival is reliant on the maintenance of healthy ecosystems**. Ecosystems sustain the vital life supporting processes of the natural environment, and are also valued for their productivity, their assimilative capacity and their aesthetic, cultural or spiritual values; and
- Ecosystems also have **intrinsic value**, that is, value independent of any values placed on them by humans.

9.2 Issues

Issue 1

The **number and total area** of certain types of indigenous ecosystems has declined dramatically in the Region. For example, 90 percent of the area of wetlands that existed in the Wellington Region as recently as 1840 no longer exist.¹⁶ There is also particular concern about the loss of areas of indigenous forest and sand dune communities.

Ecosystems Objective 3. See also Fresh Water Issue 7.

Issue 2

The **quality of the Region's ecosystems** is also deteriorating as a result of the impacts of pollution, human activities and introduced species. For example, many ecosystems near cities are severely degraded by pollution (e.g., Moa Point) and forest ecosystems have been badly damaged by introduced animals. There are probably no completely unmodified ecosystems in the Region.

Ecosystems Objective 1. See also Coastal Environment Issue 1 and Landscape and Heritage Issue 4.

Issue 3

Partly as a result of the loss of area and quality of indigenous ecosystems, the **diversity of indigenous species** is declining and there is a growing list of plants and animals that are becoming rare or endangered in the Region. For example, many breeding populations of sea birds are now restricted to island ecosystems in the Region.

Ecosystems Objectives 3 and 4.

Issue 4

Modified urban and rural ecosystems, such as town belts,

Ecosystems Objective 2.

urban estuaries and bush remnants on farms, have not in the past

See also
Built
Environment
Issue 11.

16. Wellington Regional Council, 1993, Wetlands in the Wellington Region, op. cit.

been accorded a high priority in terms of restoration and protection. Yet these are the ecosystems which most of the Region's population experience every day. The Hutt River estuary is an example of a degraded urban ecosystem which, if restored, could sustain many of its existing uses and also be a valuable ecological asset for the Region.

Issue 5

Some **special ecosystems and species** in the Region are not protected at all. Others are not accorded an appropriate level of protection, or once protected, are not properly managed to protect or enhance their ecosystem values. For example, some protected areas are too small to be viable and others have been badly damaged by introduced plants or animals. In some cases reserve boundaries no longer encompass the location of the population of the species to be protected (e.g., the Cook Strait Weevil Reserve near Long Gully Stream mouth).

Ecosystems
Objective 5.
See
also Fresh
Water
Issue 8.

Issue 6

The protection and management of **remnant ecosystems on private land** can be difficult to implement, especially in agricultural areas. This is of particular concern in relation to indigenous forest, wetlands and shrublands. For example, farmers whose land includes significant remnant ecosystems may not recognise that benefits may result from retirement of the land which may offset its loss as a grazing area.

Ecosystems
Objective 5.

Issue 7

There is concern that if we manage only protected areas, rather than the **wider environment surrounding special ecosystems**, the health of both the special ecosystems and the surrounding environment will be threatened. As many remnant indigenous ecosystems are small and dispersed, their viability, and the viability of the species within them, is endangered. Inappropriate developments have been allowed to further fragment and isolate ecosystems. For example, the Waikanae River estuary is threatened by development right up to its borders.

Ecosystems
Objective 1.

Issue 8

A number of **introduced plants and animals** in the Region are environmentally damaging. The main problems include Old Man's Beard, (*Clematis vitalba*), deer, goats, rabbits, feral cats, rodents, mustelids, hedgehogs and possums. The latter are of particular concern. Possums have caused, and continue to cause, major damage to native forests and most other terrestrial

Ecosystems
Objective 1.

indigenous ecosystems in the Region (e.g., Tararua Ranges, Kaitoke, Orongorongo Catchment). They have caused local and widespread extinction of species such as mistletoe and northern rata. In addition to their effects on ecosystems, possums carry bovine tuberculosis, a disease which can affect cattle and venison herds and which is found in much of the Region.

Issue 9

There is a relative **lack of information** about the dynamics of the Region's ecosystems and in many cases there is insufficient information to determine the biophysical limits of a system and to set "environmental bottom lines". This is particularly so for marine ecosystems in the Region.

Ecosystems Policy 1. See also Coastal Environment Issue 5.

Issue 10

Individuals and organisations do not in general act with a high **level of awareness** of ecological processes and environmental issues. People often neglect to consider the effects of their actions on ecosystems and forget that humans are part of the ecosystems which surround them and upon which they are dependent for their well-being.

Ecosystems Policy 2.

9.3 Objectives

The ecosystems objectives are derived from asking the question "what condition do we want our Region's ecosystems to be in for future generations?" Objectives 1 and 2 apply to all ecosystems in the Region, whereas Objectives 3, 4 and 5 apply specifically to indigenous ecosystems.

Objective 1

The overall quality of ecosystems in the Region is increased.

Ecosystems Policies 1-10.

Objective 1 refers to the quality or health of **all** ecosystems in the Region, indigenous and modified. A healthy, high quality ecosystem will have all or some of the following characteristics:

- (1) The links between various ecosystem components, and between the ecosystem and the surrounding systems, will be intact and functioning;
- (2) Ecosystem processes, such as regeneration or succession, the cycling of nutrients and the flow of energy through the ecosystem, will be functioning properly;
- (3) The non-living components of the ecosystem (e.g., decaying plant and animal remains, soil, water and air) will retain their natural characteristics (e.g., contain appropriate

minerals, maintain their natural processes); and

- (4) The ecosystem will have a high species diversity appropriate to the type of ecosystem, recognising that some ecosystems have a naturally low level of diversity and that diversity may change through time as a result of natural processes; and
- (5) The ecosystem will be resilient, or able to adapt to change, within limits, in response to environmental stress.

This objective reflects the emphasis which the Act places on the quality of ecosystems and the environment generally. The purpose of the Act (s. 5(2)) includes:

- Safeguarding the life supporting capacity of ecosystems; and
- Avoiding, remedying or mitigating any adverse effects of activities on the environment.

The intrinsic values of ecosystems and the maintenance and enhancement of the quality of the environment are both matters to which regard must be given in s. 7(d).

Objective 2

Healthy, functioning ecosystems are distributed throughout the Region, including the rural and urban environments.

Ecosystems
Policies 1-10.

Whereas **Objective 1** concentrated on the **quality** of the Region's ecosystems, the focus of **Objective 2** is on the **location** of healthy ecosystems. Location is an important factor for ecosystems in the Region because 94 percent of the Region's population live in urban areas, and therefore urban ecosystems, such as town belts or urban streams, are often the only contact that many people have with plants, animals and their habitats. Rural ecosystems such as roadside strips, shrubland and remnant forests are similarly undervalued.

This objective therefore acknowledges that it is not just "natural" ecosystems in relatively remote locations which are worthy of our attention. Healthy ecosystems of all types should be valued, regardless of their degree of modification and regardless of whether they are in predominantly natural, urban or rural locations. Even relatively modified ecosystems can serve as habitats for indigenous species, and can act as buffers and

corridors for more significant ecosystems.

Objective 3

The area and quality of indigenous ecosystems in the Region is increased.

Ecosystems
Policies 1-10.

Objective 3 refers specifically to ecosystems with a high component of indigenous species.

Area and quality are two important criteria for monitoring the state of the Region's indigenous ecosystems. Criteria for quality are given under **Objective 1**. For indigenous ecosystems, the degree of modification (e.g., by introduced species, diseases, pollution or physical fragmentation) is also a measure of ecosystem quality.

The size of an ecosystem has a large impact on its ability to function and the health of its component species. An increase in the area of indigenous ecosystems in the Region will maintain indigenous biodiversity and have positive spin-offs for the protection of rare species, as well as for soil and water conservation values.

Objective 4

The Region has a diversity of healthy ecosystems which represent the full range of regional flora, fauna and habitats.

Ecosystems
Policies 1-5,
7,
9 and 10.

Objective 4 acknowledges the unique qualities and intrinsic values of the Region's ecosystems. It encompasses the concept of biodiversity and the need to maintain and enhance the diversity of indigenous species and habitats in the Region. Protecting and enhancing species which are unique to New Zealand makes the greatest contribution to the preservation of global biodiversity.

Objective 5

Special ecosystems in the Region are actively protected and appropriately managed.

Ecosystems
Policies 4, 5
and
7-9.

The Act requires that "the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna" be recognised and provided for as a matter of national importance (s. 6(c)). This requirement is reflected in **Objective 5**. Active protection of ecosystems refers to the deliberate maintenance and protection, through appropriate management, of the species, structure and processes of a particular ecosystem.

See also
Fresh Water
Objective 3
and
Coastal
Environment
Objective 1.

There are two elements to this objective. It requires first, that

special ecosystems are identified and secondly, that they are protected through appropriate management. Criteria for the identification of special ecosystems with a high priority for protection are given in Ecosystems **Policy 5** below. Although this objective refers mainly to indigenous ecosystems, some modified ecosystems may meet the criteria for special ecosystems for reasons of historic or cultural significance. Active protection of special ecosystems can be distinguished from protection from adverse effects which refers to avoiding, remedying or mitigating the adverse effects of activities on **all** ecosystems.

9.4 Policies

The policies for achieving the ecosystems objectives have been arranged in three groups:

- (1) Policies for adopting an "ecosystem approach" to the management of natural resources in the Region;
- (2) A policy for avoiding, remedying or mitigating adverse effects on all ecosystems; and
- (3) Policies for restoring and protecting special ecosystems.

Policies for Adopting an Ecosystem Approach in Resource Management

Policy 1	<i>To increase understanding of the Region's ecosystems to a level to enable the effective monitoring of change.</i>	Ecosystems Methods 1-3 and 6.
Policy 2	<i>To encourage a greater awareness of the importance of ecosystems to human survival and well-being in all sectors of the regional community.</i>	Ecosystems Methods 4 and 6.
Policy 3	<i>To integrate ecological principles, derived from Maori and western environmental thought and practice, throughout resource management policy, planning and practice.</i>	Ecosystems Methods 5 and 6.

Ecosystems Policies 1-3 underpin the successful implementation of all other ecosystems policies. In order for ecosystem considerations to be taken into account in resource management, there needs to be a fundamental shift in attitude. Ecosystems do not belong to us to use as we wish — humans belong to

ecosystems; we are part of ecosystems and we are dependent on their continued health for our survival.

A shift in attitude requires better knowledge of ecosystems and greater awareness of ecosystems and ecological principles throughout the community. **Policy 1** addresses the need for better information. **Policy 2** focuses on raising awareness throughout the regional community. Examples of **Policy 3** are the inclusion of the iwi environmental system in chapter 3 of the Regional Policy Statement and the ecosystems principles discussed in the introduction of this chapter.

Policy 3 recognises that an ecosystem approach to resource management in New Zealand derives from the dual basis of western thought (western science, religion and philosophy) and Maori thought. The strong ecological basis of Maori environmental philosophy and practice is reflected in the concept of whakapapa, which describes the interrelatedness of all elements of te Taiao (the environment), including people. Specific ecosystems such as maunga (mountains) or awa (rivers) are often personified in tribal histories, so that the ecosystem is also a personality closely connected to the well-being of the iwi that identifies with it. Kaitiakitanga is also central to the integrated approach to ecosystem management. These matters are discussed in more detail in chapter 3, and indicate that there is more than one way of achieving positive outcomes for ecosystems in the Region.

Policy for Avoiding, Remediating or Mitigating Adverse Effects on Ecosystems

Policy 4

To avoid, remedy or mitigate the adverse effects of activities on ecosystems, and in particular, to avoid, remedy or mitigate any of the following effects:

- (1) *Reduction in the indigenous biodiversity of an ecosystem;*
- (2) *Prevention of the natural processes of an ecosystem, including nutrient cycles and energy flows, from operating effectively;*
- (3) *Simplification of the structure of indigenous ecosystems; and*
- (4) *Reduction in the quality or quantity of the non-living parts of an ecosystem (e.g., decaying plant and animal remains, water, air, soil) to a level which adversely affects the life-*

Ecosystems
Methods 7, 8
and 9.

supporting capacity of the ecosystem.

Policy 4 reflects the general duty that the Act places on people to avoid, remedy or mitigate the adverse effects of their activities. This policy is not about managing or protecting particular ecosystems. Rather, it refers to managing activities, substances and organisms in a manner which avoids, remedies or mitigates adverse effects on ecosystems. **Policy 4** has been adopted to help safeguard the life supporting capacity of ecosystems and to increase the quality of all of the Region's ecosystems.

See also
Fresh Water
Policies 1, 4
and
10, and
Coastal
Environment
Policy 1.

The policy applies to all activities which could have adverse effects on ecosystems, including:

See also Air
Policy 10,
and
Energy
Policy 8.

- (1) Discharges of contaminants into air, water and land;
- (2) The deliberate or accidental introduction of organisms;
- (3) The extraction of resources such as sand, water or biological resources; and
- (4) Other activities that do not add contaminants or extract material from ecosystems, but can nevertheless have adverse effects on ecosystem values.

Policies for Restoration and Protection of Ecosystems

Policy 5

To prioritise ecosystems for restoration and protection in the Region, on the basis of the following criteria:

Ecosystems
Method 10.

- (1) *Ecosystems with a high priority for protection:*
 - (a) *are currently or are likely to be under a high degree of threat; and*
 - (b) *are representative of the Region's natural (indigenous) diversity; or*
 - (c) *are regionally or nationally rare or vulnerable; or*
 - (d) *have special features such as regionally or nationally rare, vulnerable or unique species, populations of species known or likely to be of value as a genetic resource, an unusually high diversity of indigenous species, unique or unusual geological features, or special cultural or spiritual*

values.

- (2) *Ecosystems with a high priority for restoration are degraded and:*
- (a) *are currently under a high degree of threat; and*
 - (b) *have one or more of the criteria listed under (1)(b)-(1)(d) above; or*
 - (c) *have the potential to be significant areas of indigenous vegetation or significant habitats of indigenous fauna; or*
 - (d) *have significant public support for their restoration.*

Ecosystems Policies 5-10 have been adopted to improve the quality and area of indigenous ecosystems in the Region and to meet the requirements of s. 6(a) and 6(c) of the Act.

Policy 5 recognises that it is not possible to restore every degraded ecosystem in the Region or protect every special ecosystem **immediately**. Ecosystems therefore need to be prioritised for special attention. The criteria in Policy 5 are designed to reflect community priorities as well as purely ecological factors. An ecosystem under "a high degree of threat" will have evidence of ongoing or potential loss of species, area or ecosystem processes.

The criteria for protection and restoration are weighted towards indigenous ecosystems, but highly modified ecosystems which are valued for social, cultural or historic reasons, or by reason of their proximity to large centres of population, are not excluded, especially in relation to restoration.

Policy 6

To restore or enhance:

- (1) *Indigenous ecosystems which have been degraded; and*
- (2) *Urban and rural ecosystems which have been identified as being of high priority for restoration.*

Ecosystems
Methods 11,
14
and 17.

Policy 7

To actively protect:

- (1) *Indigenous ecosystems; and*

Ecosystems
Methods 12
and
14-17.

(2) *Urban and rural ecosystems which have been identified as being of high priority for protection.*

Policy 8

To improve the management of protected ecosystems, where existing management regimes are not adequately safe-guarding the valued aspects of the protected ecosystems.

Ecosystems
Methods 13
and
17.

Ecosystems Policies 6-8 cover all indigenous ecosystems and those modified urban and rural ecosystems which are identified as "high priority" under Policy 5. All indigenous ecosystems are included because of the significant concerns expressed about the declining area and quality of the Region's indigenous ecosystems. However, not all indigenous ecosystems can be protected or restored immediately, so Policy 5 can be used to assess priority. Ecosystems in the urban and rural environment are specified because concerns have also been expressed about the degradation of these types of ecosystems.

These policies include ecosystems on private land, public land, and in the marine environment. Marine ecosystems, being relatively invisible and inaccessible, are often neglected for restoration and protection.

In **Policy 6** a distinction is made between restoration (which implies a return to a natural state) and enhancement (which implies a general improvement in quality, and not necessarily a return to a previous state). Enhancement may be a more appropriate and realistic option for highly modified urban and rural ecosystems and may also apply to the creation of "new" ecosystems (e.g., the creation of wetlands).

See also
Fresh Water
Policy 14 and
Coastal
Environment
Policy 3.

Policy 7 refers to "active protection", which implies more than simply a passive duty to avoid adverse effects.

Policy 8 refers to the management of protected ecosystems. If the existing management regime is not protecting the valued aspects of the ecosystem then the policy states that management should be improved. The "valued aspects" of protected ecosystems need to be identified on a case by case basis.

Policy 9

To prevent the isolation of ecosystems by providing linking corridors and buffer zones and avoiding the fragmentation of ecosystems.

Ecosystems
Methods 18
and
19.

One of the major causes of degradation of ecosystems and loss of species at a local level is the fragmentation and isolation of

ecosystems. An ecosystem surrounded by an environment of a different type (e.g., a bush remnant surrounded by farmland, or an estuary surrounded by subdivision) is effectively an island for the species that live there. A small protected ecosystem is extremely vulnerable to the environmental effects of activities in the surrounding environment. Small patches often cannot support the minimum number of individuals necessary to maintain a population, and fragmentation of ecosystems can destroy migration routes, breeding areas and food sources. **Policy 9** recognises that ecosystems cannot be managed in isolation.

Policy 10

To encourage the planting of native vegetation, and particularly, regionally appropriate species.

Ecosystems
Method 20

Policy 10 recognises the unique nature of New Zealand's native vegetation and, in particular, the vegetation of the Wellington Region. "Regionally appropriate species" are species indigenous to the Ecological District in which the planting is being done. **Policy 10** has been adopted in order to conserve and enhance the valuable genetic resource which is contained in the Region's indigenous flora.

9.5 Methods

Methods for implementing the ecosystems policies are arranged in three groups which match those used in the discussion of ecosystems policies.

Methods for Adopting an Ecosystem Approach in Resource Management

The Wellington Regional Council will:

Method 1

- *Gather information and monitor the state of the Region's ecosystems by:*
 - (1) *Carrying out State of the Environment Reporting for the Region;*
 - (2) *Developing and maintaining a data base of the Region's ecosystems, including data on rare and endangered species;*
 - (3) *Including ecosystem monitoring provisions in*

Ecosystems
Policy 1.

regional plans; and

- (4) *Encouraging the inclusion of ecosystem monitoring provisions in district plans.*

Method 2

- *Where it is the resource consent authority, consider applying resource consent conditions which require holders to monitor ecosystems which may be affected by the resource consent.*

Ecosystems Policy 1.

Method 3

- *Encourage the development of processes for tangata whenua and local communities to monitor the health of ecosystems.*

Ecosystems Policy 1.

The first step in adopting an ecosystem approach in resource management is to gather information on the condition and trends of ecosystems in the Region, as set out in **Methods 1-3**. A suite of methods is envisaged, ranging from broad scale monitoring in State of the Environment Reporting, to the monitoring of specific ecosystems and the effects of activities on ecosystems through resource consent conditions. These methods build on work currently being undertaken by the Regional Council.

Method 3 is included because communities, and particularly tangata whenua, are intimately connected with local ecosystems on a day-to-day and sometimes generation to generation level. They are often in the best position to monitor and determine trends in ecosystem health and functioning. In Maori resource management practice, kaitiaki (natural as opposed to human) may act as an indicator of the well-being of an ecosystem and its surroundings.

Method 4

To achieve integrated management, means which could be used to implement Ecosystems Policy 2 include:

- (1) *Using statutory public participation processes as an opportunity to increase public awareness of ecosystem considerations (e.g., in the preparation of regional plans, district plans, and management plans);*
- (2) *Preparing publications or leaflets on local ecosystem issues;*
- (3) *Making opportunities for educational institutions to learn about local ecosystems (e.g., school trips);*

Ecosystems Policy 2.

- (4) *Setting a good example of ecosystem awareness when carrying out operational responsibilities;*
- (5) *Providing interpretation centres at reserves and parks;*
- (6) *Developing codes of practice which incorporate sound environmental principles;*
- (7) *Carrying out environmental audits;*
- (8) *Reporting against environmental objectives in annual reports;*
- (9) *Sponsoring community ecosystem restoration and protection projects;*
- (10) *Establishing environmental education centres;*
- (11) *Including appropriate teaching modules in schools, universities and polytechnics; and*
- (12) *Using student "placements" in environmental management organisations.*

Method 4 lists 12 ways of raising ecosystem awareness in the regional community. **Many** organisations can have a role in raising ecosystem awareness both within their own organisation and in the wider community. These methods could be implemented by the Regional Council, territorial authorities, educational institutions, industries, the Department of Conservation, other Government departments or other interested groups.

Education is a major means of raising ecosystem awareness because it changes the community's attitudes towards the environment. Many of the methods in this section have the effect of raising ecosystem awareness in combination with some other function which the organisation would be carrying out in any case.

Method 5

The Wellington Regional Council will integrate relevant ecological principles derived from western and Maori environmental philosophy in all relevant policies and plans.

Ecosystems Policy 3.

Method 6

To achieve integrated management, other means which could be used to implement Ecosystems Policies 1-3 include:

Ecosystems Policies 1-3.

- (1) *Liaison between all agencies with responsibilities for ecosystem research and resource management in the Region;*
- (2) *Co-ordination of ecosystem data bases and monitoring requirements across the Region;*
- (3) *Integration of research results into regional and territorial policy and plans; and*
- (4) *Co-ordination of the management of adjacent ecosystems.*

Method 5 ensures that relevant ecological principles are reflected in statutory planning. Ecological principles in policies and plans can:

- Act as a "checklist" to ensure that objectives, policies and methods are not inconsistent with the healthy functioning of ecosystems;
- Provide guidance for applicants for resource consents with respect to assessing the effects of the proposed activity on ecosystems; and
- Provide general guidance when a plan (or regional policy statement) does not state specific policies or rules about an activity.

Further explanation of ecological principles derived from western and Maori environmental philosophy is contained in the explanation of Ecosystems Policy 3.

Method 6 lists some ways in which ecosystem research and resource management responsibilities can be co-ordinated between agencies. There are a number of agencies involved in ecosystem research and management in the Region, including Victoria University of Wellington, the Museum of New Zealand, Crown Research Institutes, Government departments such as the Department of Conservation and the Ministry of Agriculture and Fisheries, the Regional Council, territorial authorities and other organisations with ecosystem management responsibilities (quangos, statutory bodies and boards, voluntary groups, private landowners, etc.). There are limited resources available for research and it is to the advantage of all groups that these limited

resources are used in a manner which is efficient — avoiding duplication and focusing on priority issues.

Methods for Avoiding, Remediating or Mitigating Adverse Effects on Ecosystems

Methods for avoiding, remediating or mitigating adverse effects on ecosystems are found throughout the Policy Statement, and include a variety of mechanisms available to local authorities under the Act. These methods are not repeated in this section.

Method 7

The Wellington Regional Council will, in co-operation with the Animal Health Board, the Ministry of Agriculture and Fisheries Quality Management and the Department of Conservation:

Ecosystems
Policy 4.

- (1) Provide control and maintenance programmes for the management of possums in specified areas; and*
- (2) Continue to educate landowners on the control of animal pests.*

The Council shares the management of possums with the agencies specified in **Method 7**. It will continue to undertake possum control to minimise damage to ecosystems (e.g., native forests) and reduce risks to animal health through the provision of services, and the education of farmers and landowners.

Method 8

District plans would be an appropriate means of implementing Ecosystems Policy 4.

Ecosystems
Policy 4.

Method 9

To achieve integrated management, other means which could be used to implement Ecosystems Policy 4 include the use of the provisions of the Biosecurity Act 1993 and other legislation and non-statutory mechanisms, by all agencies with responsibilities for the control of substances or organisms with the potential for adverse effects on ecosystems.

Ecosystems
Policy 4.

District plans can contain provisions that allow activities to occur, provided any adverse effects on ecosystems can be avoided, remedied or mitigated.

Method 9 recognises that activities, substances and organisms (including animals and plants) which could have adverse effects on ecosystems, are managed by a range of agencies under various different statutes (including regional pest management strategies prepared by the Regional Council under the Biosecurity Act

1993).

Methods for Restoration and Protection of Ecosystems

Method 10

The Wellington Regional Council will, in consultation with the agencies with responsibility for ecosystems management and the regional community, identify and prioritise ecosystems of regional significance.

Ecosystems
Policy 5.

Method 10 recognises that many agencies (including territorial authorities) and sectors of the community need to be involved in identifying and prioritising ecosystems for restoration and protection in the Region.

The Wellington Regional Council will:

Method 11

- *Restore or enhance high priority degraded ecosystems, where practicable, and where it is within the Council's powers to do so.*

Ecosystems
Policy 6.

Method 12

- *Protect indigenous ecosystems and high priority urban and rural ecosystems, where practicable, and where it is within the Council's powers to do so.*

Ecosystems
Policy 7.

Method 13

- *Review and, where appropriate, improve the management of protected and high priority ecosystems on Regional Council land, including through the preparation of management plans, where appropriate.*

Ecosystems
Policy 8.

Method 14

- *Support community initiatives for the restoration and protection of high priority ecosystems in the Region.*

Ecosystems
Policies 6
and 7.

Method 15

- *Encourage, support and facilitate the protection of high priority ecosystems on private land, and ecosystems of significance to iwi, by:*

Ecosystems
Policy 7.

(1) *Acting as a source of information on the different options available to private landowners and iwi;*

(2) *Investigating and co-ordinating the use of financial incentives and other available assistance; and*

(3) *Adopting a flexible approach towards the use of*

formal and informal voluntary protection mechanisms.

Many agencies have responsibilities for managing (including restoring and protecting) the Region's ecosystems. **Methods 11-15** relate to things which the Regional Council can do. Criteria for identifying high priority ecosystems are given in Policy 5.

The Regional Council's direct involvement in restoration and protection of ecosystems is limited to ecosystems on Regional Council land and other ecosystems for which the Council has management responsibility (**Methods 11, 12 and 13**). Mechanisms which the Council can utilise for protecting ecosystems (**Method 12**) include:

- (1) The preparation of the Regional Coastal Plan and other regional plans, which can be prepared if there is "any significant demand for the protection of any natural or physical resources or of any site, feature or place of regional significance";
- (2) The acquisition of land under the Local Government Act 1974 as a regional park or regional reserve;
- (3) The acquisition of land by agreement under the Resource Management Act 1991, if there is a regional plan in place which has objectives or policies which relate to the protection of ecosystems;
- (4) The use of heritage protection orders under the Act to request a territorial authority to include in its district plan a Heritage Protection Order for protecting a special ecosystem;
- (5) The use of conservation covenants with private landowners or the Crown to manage land for the protection of values of the natural environment, wildlife, freshwater or marine life habitat under the Reserves Act 1977. The Council can also establish reserves on its own land with the approval of the Minister of Conservation;
- (6) The use of "local authority contributions" under the Conservation Act 1987 for the management, improvement or maintenance of any conservation area (in negotiation with the Department of Conservation);

See also
Coastal
Environment
Method 1.

- (7) The use of open space covenants, in conjunction with the Queen Elizabeth II National Trust, for the protection of natural features on private land;
- (8) The use of voluntary agreements between parties with an interest in the land;
- (9) The use of remission or postponement of rates for land voluntarily protected for conservation purposes (Rating Powers Act 1988).

Ecosystem management plans are favoured in **Method 13** because they are forward looking and can be prepared with public input, reflecting community aspirations.

The Regional Council also supports other agencies with responsibilities for ecosystem management, including organisations with statutory responsibilities (see **Method 17** below), community groups (**Method 14**), private landowners and iwi (**Method 15**). Improved co-ordination of different ecosystem protection initiatives will bring benefits, including opportunities for joint initiatives.

The initiatives of community groups are specifically recognised in **Method 14** because it is often local communities which are best able to restore and protect local ecosystems. Examples of community initiatives include comprehensive schemes such as the Royal Forest and Bird Protection Society's Natural Wellington Programme and smaller scale less formal initiatives of local community groups.

The protection of ecosystems on private land has been identified as an issue of particular concern. **Method 15** focuses on distributing information and co-ordinating the various available mechanisms to ensure the best outcome for the landowner in question. A similar approach has been adopted for the protection of ecosystems of significance to iwi (which includes ecosystems on Maori land or land held in private ownership by iwi members, and other ecosystems of significance). It is acknowledged that the protection of ecosystems does not necessarily preclude the harvesting of resources, provided that the ecosystem can be managed in a sustainable manner.

Method 16

District plans would be an appropriate means of implementing Ecosystems Policy 7.

Policy 7.

Territorial authorities also have responsibilities for protecting ecosystems on their own land or where it is otherwise within their powers to do so, through district plans or other means, as appropriate. For example, ecosystem protection can be promoted through the inclusion in district plans of appropriate policies, resource consent information requirements and conditions on resource consents.

Method 17

To achieve integrated management, other means which could be used to implement Ecosystems Policies 6-8 include:

Ecosystems Policies 6-8.

- (1) The use, by territorial authorities, of the esplanade reserve and strip provisions of the Act for the protection of riparian ecosystems;*
- (2) The use of other legislation by agencies with statutory responsibilities for ecosystem restoration and protection; and*
- (3) The use of Ecosystems Methods 10-14 above by all agencies with responsibilities for ecosystem management, where it is within their powers to do so.*

Method 17 recognises that **all** agencies with ecosystem management responsibilities in the Region can contribute to achieving the ecosystems objectives of the Policy Statement.

See also Fresh Water Methods 30 and 32. Ecosystems Policy 9.

Method 18

The Wellington Regional Council will, in consultation with other agencies with responsibilities for ecosystem management, identify areas where linking corridors and buffer zones are needed and advocate for their establishment and protection.

Method 19

District plans would be an appropriate means of implementing Ecosystems Policy 9.

Ecosystems Policy 9.

Several agencies have responsibilities for the management of land which could provide linking corridors and buffer zones for ecosystems. Provisions in district plans have been identified as a major method for achieving Ecosystems Policy 9. For example, provisions relating to conditions on subdivisions can help avoid the fragmentation of ecosystems and reserve contribution requirements can assist in the provision of buffer zones. The mechanisms listed under Method 16 above can also be used to implement Policy 9.

Method 20

To achieve integrated management, means which could be used to implement Ecosystems Policy 10 include:

Ecosystems
Policy 10.

- (1) Incorporating policies supporting the planting of regionally appropriate native vegetation in regional plans, district plans and other management plans, as appropriate;*
- (2) Placing appropriate conditions on resource consents; and*
- (3) Planting indigenous vegetation in parks, reserves and other public areas.*

Method 20 is directed largely at local authorities and other managers of parks, reserves and public areas, and is a means of maintaining and enhancing the Region's genetic resources. Clauses (1) and (2) of the Method relate to the planning and regulatory roles of those agencies, and clause (3) indicates that those responsibilities may also be backed up by practical actions.

9.6

Anticipated Environmental Results

Avoiding adverse effects on ecosystems is a key result of policies throughout the Regional Policy Statement. The anticipated results of the ecosystems policies and methods will therefore only be realised in combination with the implementation of other policies in the Policy Statement.

- (1) The area of indigenous ecosystems in the Region is increased and, in particular, there is an increase in the area of vegetation which is native to the Region.
- (2) There are healthy, functioning ecosystems throughout the urban, rural and natural areas of the Region.
- (3) Rare and endangered species in the Region are protected through protection of their habitat and the management of pests.