5.5 Ecosystems and biodiversity

5.5.1 Introduction

An ecosystem may be described as a community of plants, animals and micro-organisms interacting with each other and their surrounding environment. There can be forest ecosystems, mountain ecosystems, wetland and fresh water ecosystems, and coastal and marine ecosystems.

Plants, animals, insects, fungi and bacteria (together forming biodiversity), their habitats and the ecosystems they form are not just a natural backdrop to our everyday activities. Healthy ecosystems provide us with life's essentials – plants and animals for food, fibre for clothing, timber for construction and so on. Ecosystems also supply the "services" that power the cycles of life – processes that purify air and water, decompose and detoxify wastes, give us productive soils and stabilise climate extremes. We do value them for their aesthetic and intrinsic qualities, but also for the unique sense of identity that they give our region. Worldwatch Institute estimate that the dollar value of the services provided by ecosystems is, at a conservative estimate, five times the annual gross domestic product (GDP) in the USA.

So, ecosystems are important for lots of reasons. They are at the heart of the "life-supporting capacity" that is central to the purpose and principles of the *Resource Management Act 1991* (RMA).

How should ecosystems be managed to sustain their life-supporting capacity? The problem is that they are not static, clearly defined areas that can be marked on a map. Ecosystems are dynamic – constantly changing – and the many and diverse natural processes which drive ecosystems are as important as the species within them. Some parts of ecosystems are closely interconnected and confined to a small area but others may be geographically extensive and distant from each other.

The *Regional Policy Statement for the Wellington Region 1995* attempts to address the management of complex ecosystems. But how complicated is it to manage a constantly moving target that changes itself through time?

It seems that everyone has found it very hard and, not surprisingly, we've not made a very good job of it.

5.5.2 How successful has the Regional Policy Statement been?

The current Regional Policy Statement has objectives about the overall quality of ecosystems and the desire to increase that quality, having a diverse and wide spread distribution of healthy ecosystems (especially indigenous ecosystems), full representation of the region's flora, fauna and habitats, and protection for special ecosystems.

Greater Wellington's state of the environment report, *Measuring up 2005*, gives some good and quite a lot of bad news about the region's ecosystems and biodiversity. The good news is that there is a growing awareness of the need to better manage ecosystems. Small scale practical actions to enhance and restore habitats and ecosystems are also underway across the region, through community and individual landowner's initiatives.

However, we don't really know if much of a difference is being made through these efforts, and the broader signs are that the region's biodiversity is now significantly diminished and that this trend is continuing. Ecological processes are impaired as a result of habitat fragmentation, and the presence of plant and animal pests in many ecosystems. The objectives and supporting policies in the Regional Policy Statement are ambitious; but does this make them unrealistic? Or is the real question, how well are the provisions being implemented?

What the Regional Policy Statement has achieved is a higher profile for, and a greater understanding of, the significance of ecosystem and biodiversity

management. The Regional Policy Statement has influenced the slow but growing number of ecosystem management provisions in district plans (although the pace of this process of inclusion in plans could be quicker). Significant habitats and remnants of rare and diminishing ecosystems continue to be the victims of development pressures. Controls and/or guidance in statutory documents would help address and relieve some of these pressures.

5.5.3 What's changed and what are the ecosystem and biodiversity issues now and for the future?

The imperative for managing ecosystems and their associated natural processes and biodiversity has gained greater urgency as these fundamental life-supporting resources continue to decline in area, numbers and health internationally, nationally and locally.

The theme for the *New Zealand Biodiversity Strategy 2000* was "turning the tide". That message is important in two senses – of turning the tide of public opinion and agency awareness of the significance of ecosystems and biodiversity and also in the sense of actually stopping the pattern of species reduction and damage.

In addition to the New Zealand Biodiversity Strategy, maintaining indigenous biodiversity is now explicitly identified in the RMA as a function for Greater Wellington and city and district councils. Funding for biodiversity management has improved at national and regional/local levels and we are beginning to get a better picture of ecosystem health through advances in technology.

To sum up, there are some gains and some definite losses. But what are the likely issues for ecosystem and biodiversity management during the next decade or so? *Measuring up 2005* identified the following:

- Many of the issues identified in the current Regional Policy Statement are still relevant and there is now an even greater urgency in tackling them.
- While small gains are being made, we need to at least maintain, and preferably improve, the successful efforts in pest management and restoration and enhancement of habitat and ecosystem processes.
- Besides major animal pests like possums, goats, rats, cats and stoats, and plant pests too numerous to mention, there are less obvious but equally important pressures such as:
  - draining wetlands and channelling natural waterways
  - air and water pollution
  - fire
  - grazing forest remnants and riparian areas
  - clearance of regenerating scrub and native bush
  - water extraction (which drives up temperatures and increases nutrient and pollutant concentrations in streams, and reduces groundwater levels with drying out effects on wetlands)
  - urban expansion, land use changes and structures that modify or destroy habitat
  - pollution and over-fishing of coastal waters
  - climate change (reducing habitat for mountain species, placing stresses on indigenous species to adapt and increasing the risks of new pests).
- As a result of these issues, the most at-risk ecosystems are lowland forests, rivers and lakes and their margins, wetlands, dunes, estuaries and coastal escarpments.
- We know that seals populate parts of our coastline and whales and dolphins visit our coastal waters but, in general and much more importantly, we have very limited knowledge about marine ecosystems and the marine biodiversity that inhabits or visits our coast.

5.5.4 Comments and questions for you to consider

Are we achieving our aim of "turning the tide"? Some would argue that to sustain our very existence, we have to keep trying. Moreover, Greater Wellington has a statutory obligation to do something about ecosystems and biodiversity, so we would like some feedback about what can be done collectively: where we should put our efforts; who can help; and what roles each of us may have.

Question 1:

Do you think we have identified the right ecosystem and biodiversity issues? Are there other issues that we should recognise for the region?

Question 2:

How effective do you feel ecosystem and biodiversity management practice has been during the last decade? What have been the main factors that have influenced our performance? How could we further encourage the good factors and reduce the bad ones?

Question 3:

Where do you think the priority areas are for action? Should there be a focus on some areas, ecosystems or species while we leave others to fend for themselves as best they can?

Question 4:

What role do you see for the Regional Policy Statement in ecosystem and biodiversity management for the region in the future? Would it be helpful if the Regional Policy Statement kept a separate chapter on ecosystem and biodiversity management or should there be a more integrated approach with related policy areas, such as provisions that address fresh water, soil, air, the coast and the urban environment?

Question 5:

Can ecosystem and biodiversity management be effectively addressed by district plans alone, or does the Regional Policy Statement need to provide some policy guidance? If city and district councils prepare changes to district plans for ecosystem and biodiversity management, would it be helpful if there were more directive policies in the Regional Policy Statement (and rules and/or standards in regional plans)? What guidance do the community and private landowners need on ecosystem and biodiversity management?

Question 6:

Is the allocation of responsibilities shown below, the most effective way to specify the objectives, policies and methods for the control of the use of land to maintain indigenous biological diversity? Is this the best way to achieve good biodiversity outcomes for the region?

	Responsibilities for developing objectives	Responsibilities for developing policies	Responsibilities for developing methods
Coastal marine area	GW	GW	GW
Beds of lakes and rivers	GW	GW	GW
Other land	GW* TA	GW* TA	GW TA*

GW = Greater Wellington Regional Council TA = Territorial authorities (district and city councils)

* = Primary responsibility