

Introduction

'Biodiversity' means the variety of life on earth. Because Northland has a subtropical, oceanic climate and wide variety of habitat types, the region has an unusually high diversity of plants and animals, including many species that can be found nowhere else in New Zealand, or in the world (known as 'endemic' species).



The Kauri snail was once widespread in Northland before human settlement. Many species are now endangered or threatened, and inhabit a more restricted area of Northland and the islands offshore.

As one of the key environmental agencies in the region, the Council provides advice on biodiversity and funding for landowners wanting to undertake long-term biodiversity projects. The 'Environment Fund' has been established for more than ten years and has provided over \$2 million to help people improve and protect Northland's natural environment.

In addition, the Council undertakes biodiversity monitoring and management in the region and is involved in a number of projects to help collect and manage the information available about biodiversity in Northland.

Environment Fund

The Council's Environment Fund is open to individuals and voluntary groups with eligible biodiversity projects on private land. Most successful projects are funded at 50% of their total cost. Projects must be of long-term benefit to the local environment and be environmentally sustainable.

In 2008-09, 18 Council staff worked with a total of 206 projects across the region. Of these projects, 169 were approved in the 2008-09 round of funding. A further 37 projects were carried over from 2007-08. Only four projects were unfinished this year and these will be carried over to 2009-10. In total, \$646,256 was spent, \$51,248 of which came from the National Biodiversity Condition Fund.



Maitahi Scientific Reserve — one of the largest and best examples of a fen habitat — is one of Northland's significant wetlands.

Biodiversity and land performance targets

To promote the sustainable management of land, including soil, water and ecosystems in the Northland region by:

- Promoting sustainable land management practices by providing advice on land use alternatives, land development techniques, soil conservation and drainage.
- Developing and promoting indigenous biodiversity policies for Northland, including designing and setting up an indigenous biodiversity database for Northland.
- Supporting biodiversity protection and enhancement on private land, by community groups and through the Environment Fund.
- Report on applications to the Environment Fund and progress with previously approved Environment Fund projects, annually.

Key points

- ◆ The Council's land management staff responded to 95 biodiversity enquiries during 2008-09
- ◆ 22 enquiries were referred to the Council's Environment Fund for advice
- ◆ Types of enquiries received included:
 - * Identification of plants and animals
 - * Advice on wetland or bush management
 - * Site information requests
 - * Requests for assistance to assess property biodiversity value
- ◆ More than \$2.5 million has been awarded through the Environment Fund, to help people improve and protect Northland's natural environment.
- ◆ The Priority Wetlands Project will see Northland's remaining wetlands ranked in order of ecological importance and type.
- ◆ Erosion prone soils throughout Northland are being mapped, allowing the Council to focus its efforts on priority areas and issues.



A coastal wetland in Poutō— one of Northland's unique wetlands.



Rare plant species are a feature of Northland's wetlands. The flower (above) is a sun orchid, found in Kerikeri. Many species of orchid are found only in Northland, particularly in wetlands associated with gum land.

In New Zealand there are 120 land-based animals under threat of extinction, of which 36 are found in Northland.

Five of the freshwater and marine animals at greatest risk of extinction are also found in the region.

In Northland 23,202 hectares of land is classified as National Priority One habitat — identified by the Ministry for the Environment as most in need of protection.

Priority wetlands project

As a result of drainage and land disturbance activity, only 5.3% of Northland's wetlands remain. Northland has several different types of wetlands, some of which are nationally rare.

Rules in the Regional Water and Soil Plan for Northland protect significant wetlands. However, there has never been a full survey to find out where these wetlands exist in the region. In order to protect the best of what remains, it is necessary to know where the highest value and most unique and irreplaceable wetlands are sited.

In 2008, the Council launched a project to record and map high priority wetlands in Northland. A 'Biodiversity Wetlands' database has been created to hold this information and this database will be made available to planners, landowners and land managers to help protect these valuable habitats, and to help target funding and advice for their protection.

The first phase of the project is now near completion. Wetlands recorded during the Department of Conservation's (DOC) Protected Natural Areas Programme have been uploaded onto the database (nearly 350 sites) and additional wetland surveys are being undertaken by the Council to supplement this information. It is hoped that this work will be complete by October 2009.

The next phase of the project involves scoring and ranking each wetland according to its value. This information will be used to shortlist around 200 of Northland's 'top' wetlands (those with the highest biodiversity value), regardless of ownership, protection status, wetland type, size or condition. Draft lists of the 'top' wetlands will be produced in the following categories:

- Top Northland wetlands;
- Top wetlands by ecological district; and
- Top wetlands by type (swamp, marsh, fen, bog, coastal, gumland etc).

Once these lists are drafted, they will be given to other organisations, such as DOC and district councils, for review and comment. The landowners of listed wetlands will also be consulted. Protection and management needs for each wetland chosen will then be discussed with all landowners, along with funding opportunities and possible formal protection mechanisms.

Biodiversity website project

In 2008, the Council applied for funding to construct a Geographic Information System (GIS) linked Northland Biodiversity website on behalf of Biodiversity Northland. The funding was approved from TFBIS (Terrestrial and Freshwater Biodiversity Information Systems), a national funding pool.

The project will make important information about Northland's biodiversity, such as the location of species or habitats, available on the internet. In order to protect our rarest species, however, there will be different levels of access for different users, depending on the sensitivity of the data.

The Northland Biodiversity website is a pilot for the 'One Land Project', a national initiative to bring together information from a number of key agencies in one website, where it can be accessed by everyone. Work on the Northland Biodiversity website was scheduled to commence in September 2009 and the website is due to be launched late 2010.

Find out more about Northland's land and biodiversity:

www.nrc.govt.nz/land



Land

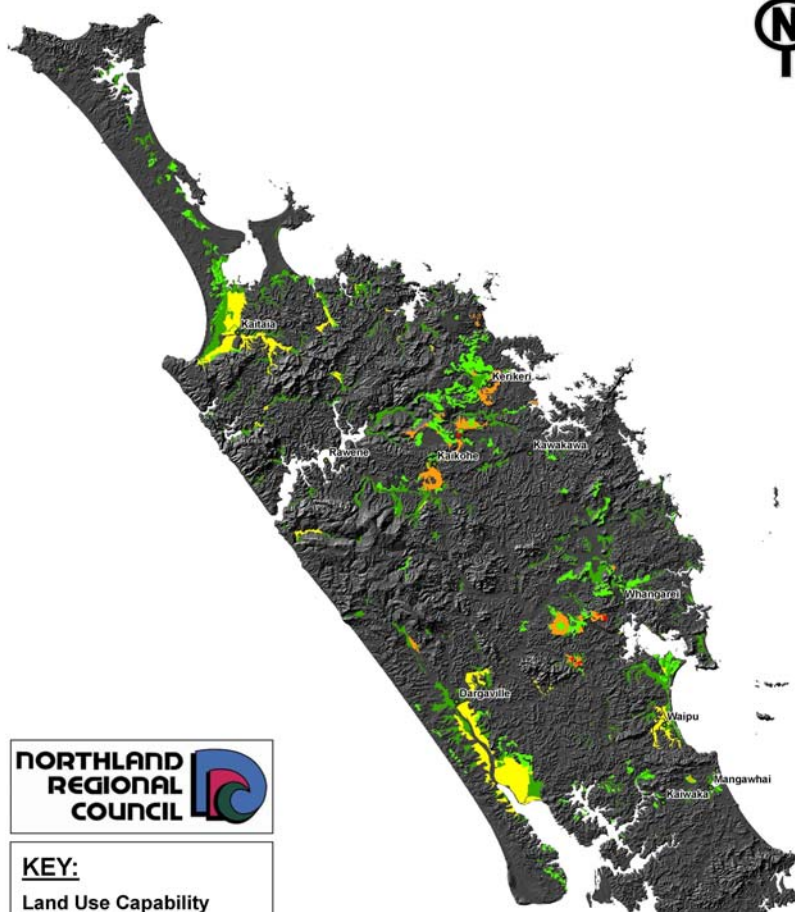
Highly versatile soils

Highly versatile or 'productive' soils are those on which we can grow a wide range of high value crops – tree crops, field crops and vegetables, grain crops, pasture and forest trees – with no or few limitations. This definition includes soils that are already in production, and those with the potential for high productivity that may not currently be used.

The Regional Policy Statement (RPS) for Northland identifies the loss of these highly productive and versatile soils, particularly around Whāngārei and Kerikeri, as an issue that needs addressing. The RPS recommends that we protect these soils from subdivision and land-use that may result in their permanent loss from production.

In 2008-09, the Council began a project to map all versatile soils in the region. These soils were chosen based on characteristics including underlying rock (geology), soil type, slope and wetness. The map (below) is now complete and can be used by both the Regional and District Councils to consider subdivision applications and land-use activities that may impact upon this valuable resource.

Distribution of Northland's highly versatile soils

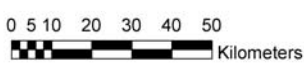


KEY:

Land Use Capability
High Versatility Unit

Red	1c 1
Orange	2e 1; 2s 1
Yellow	2w 1; 2w 2; 2w 3
Light Green	3e 1; 3e 4; 3e 5; 3s 1; 3s 2; 3s 4; 3s 5
Dark Green	3w 1; 3w 2; 3w 4

Source: NZLRI - LUC



Regional Council staff learn how to conduct a visual soil assessment survey.



Clearly identifiable layers of soil types.



Mapping erosion prone soils in urban areas will identify land that is suitable for development or prone to slipping.



Erosion Prone Soils Project — initial findings:

- Natural events such as severe storms can cause widespread erosion which contributes sediment to the river systems for the next 20-30 years.
- There are currently very few areas where there is significant soil erosion due to land development or major land use changes.
- However, research shows that there have been periods of extensive and very serious soil erosion in the past as a result of land-use activity.
- Stream bank erosion is now the most widespread and significant source of coarse sediment in most of the Priority Rivers Catchments.

Why is sediment a problem?

- Sediment contaminates rivers, estuaries, harbours and inshore waters in Northland.
- It can smother aquatic life and change the nature of river beds and estuaries, encouraging the growth of mangroves.
- It reduces water quality and carries other contaminants, such as illness-causing bacteria and nutrients.
- It reduces the value of water bodies for activities such as gathering kaimoana and swimming.
- It is very costly to remove sediment to make water suitable for drinking.
- It reduces channel capacity and increases the risk of flooding.
- It builds up the ground level on flood plains, increasing the frequency with which buildings, roads and other infrastructure flood.
- It is costly to remove.

Erosion prone soils

The Council has been working on a soil conservation project aimed at finding out where soil erosion is occurring in the region, and what may be done to reduce the amount of soil lost from the land. The Erosion Prone Soils Project is closely associated with the Priority Rivers Project - for more information go to www.nrc.govt.nz/priorityrivers - and the Council's work on water quality and estuary/harbour health. The initial focus of the project has been the catchments included in the Priority Rivers Project.

The soil conservation project aims to identify where soil erosion is likely to occur by mapping land-use and land cover over soil type. This information is then checked on the ground to see where soil erosion is occurring. In addition, the project aims to identify sources of sediment in our rivers and streams other than from soil erosion. Once this information has been gathered, areas can be prioritised for soil conservation and sediment management initiatives.



Sediment entering a stream.

Maps comparing current land use and vegetation cover with potential for erosion have now been completed for all of the larger Priority Rivers Project catchments and field checking has been completed for the majority of these. These first two stages of the project will be completed over the next two months.

Most of the marginal farmland that, until the early 1980s, was suffering from serious erosion has now been converted to production forest or has reverted to native bush, reducing the loss of coarse sediment from this land. Improved pasture cover has also reduced the incidence of large-scale erosion on farmland. However, this cover is masking the loss of very fine sediment from the land and it is the increase in this sediment, along with the nutrients it carries, that is currently having the biggest impact on our waterways.

Once work is complete on mapping erosion prone soils and researching other sources of sediment in the priority river catchments, the Council can focus its efforts on priority areas and issues. Soil conservation initiatives can then be implemented in these areas to reduce the amount of sediment entering our water bodies.

Urban land-use capability

In addition to looking at erosion prone land in rural areas, the Council has been looking at land-use in urban areas to identify where people can build in order to avoid areas that are prone to flooding. To identify suitable areas for development, the Council looked at potential limitations on land such as how stable it is for building, how much erosion occurs on the land, how wet the land is and whether there would be room for infrastructure, such as soakage fields for septic tanks.

The 'Urban Land-use Capability' of each area is assessed by looking at rock type, soil type, slope, terrain (ridge top, side slope, valley bottom, terrace, etc), erosion forms and severity, and any evidence of drainage or flooding problems. Areas mapped to date include Pawarenga, Panguru, Waihou Valley, Taupō Bay, Tauranga Bay, Wainui, Mahinepua and Te Ngaere Bay.