

This report card is one in a series produced to explain the current state of Northland's environment. The cards are based on the 2007 State of the Environment Report and keep you up to date on the work being done to improve our environment.

What is the current state of Northland's land?

Northland is the eighth largest region in New Zealand with a land area of approximately 1.25 million hectares. There are no mountain ranges in the region; landforms vary from young active sand dunes to old greywacke and volcanic peaks and hills.

Northland's soils are dominated by strongly leached, mature, heavy clays. Topsoils are generally thin and subsoils of low fertility. The region contains a wide diversity of habitat types and ecosystems and a high number of indigenous species.

Northland's economy is largely agricultural with approximately 50% of land in the region used for dairy, beef and sheep farming.

Soil quality

In 2001, the national '500 Soils Project' involved soil samples being taken from 25 sites around Northland. Results of tests showed the chemical properties of most sites were good and within recommended guidelines. Around half the sites showed some signs of compaction – the soil being packed down due to trampling – particularly on pasture grazed by dairy and dry stock.

The original 25 sites were sampled again in 2007 and showed many sites had become more compacted as a result of increased land use, such as grazing. There were few other changes and the majority of poor soil quality could be reversed through effective management.

Land instability and erosion

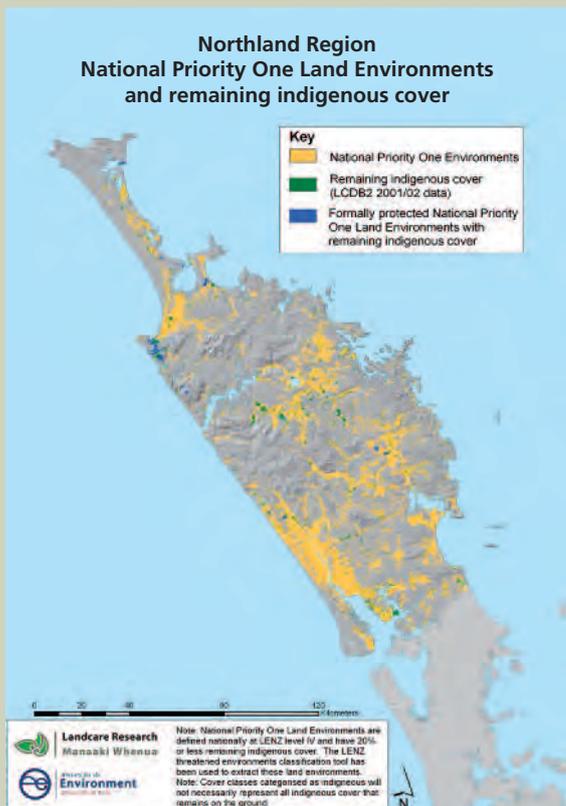
Landslides can be a threat to life and property. The main cause of landslides in Northland is intense or prolonged rainfall. Many areas of Northland are susceptible to land instability.

There are four main types of landslide hazard in Northland:

- **Debris avalanche** – occur on steep, hilly land after heavy rainfall. Contain a high proportion of water as well as logs, boulders and soil. They are highly unpredictable and very destructive;
- **Earth flows** – these occur in the Waipoua and Tutamoe Plateaux where basalt rock caps soft sandstone and mudstone. Water travels through the volcanic rock and sandstone but is blocked by the mudstone forcing it to move sideways over to a seepage point. Landslides and earth flows occur where this water comes out. Earth flows are a form of geological erosion and cannot be prevented;
- **Greywacke slips** – greywacke hill country is susceptible to slipping on slopes with an angle of 12 degrees or more. Soil lies on top of weather rock and travels down through the soil, carrying clay. This clay is deposited on top of the rock creating a slip plane. During long periods of wet weather, the soil becomes waterlogged and can move down slope on the slip plane; and
- **Unstable mudstone** – mudstone is made up of crushed and soft rock, which is very unstable, especially when saturated. It is susceptible to earthflows from deep below ground and slumping, as well as surface erosion.

What are the pressures on Northland's land and environment?

- **Land use** – pastoral farming is the main land use in Northland. Over recent decades, there has been a move from sheep to dairying and farming has become more intensive. This has affected water quality and soil health and has led to an increase in greenhouse gas emissions. Forestry, horticulture and mining also have an impact on the environment if not managed correctly.
- **Development** – in recent years, large areas of productive land in Northland have been subdivided into lifestyle blocks or taken for urban development. Approximately 9% of Northland's prime soils have been subdivided in the last six years. Subdivision is expected to continue at this level into the foreseeable future.
- **Habitat loss and fragmentation** – 95% of both forests and wetlands have gone from throughout Northland over the last 160 years of European settlement. Habitat loss occurs through vegetation clearance, nutrient and sediment input and by flooding or natural disturbance. Land-use and development causes habitats to become fragmented and vulnerable to damage from pests and diseases.
- **Environmental incidents** – environmental incidents that affect land include oil, diesel or hazardous substance spills and earthworks and vegetation clearance. Every year, approximately 15% of the incidents reported affect land resources and have a significant or large impact on the environment.
- **Pest plants and animals** – Northland's warm, temperate climate and high rainfall provides ideal conditions for pest plants and animals to thrive. A wide range of pest species are already established in the region. These species affect agriculture, horticulture and the environment, as well as out-competing native species.
- **Climate change** – according to the latest reports, New Zealand's climate is virtually certain to be warmer in the future. Heat waves and fire risks will increase in intensity and frequency. Floods, landslides, droughts and storms are likely to become more frequent and intense. Natural ecosystems are most vulnerable to these changes.



Over half Northland’s land area is classed as erosion prone. In 2002 almost half of this land was covered by indigenous vegetation and therefore of low erosion risk. Pastoral land covers 52% and is a high erosion risk. It requires careful management, appropriate soil conservation and erosion control methods.



Erosion on pastoral land in Te Hana.

Biodiversity

In 2002, approximately a third of Northland’s land area was covered in indigenous vegetation. Almost a quarter of this land is legally protected, either as DOC reserves, QEII covenants, Whangarei District Council (WDC) covenants, wildlife refuge or District Council reserves.

Of the remaining land that is not legally protected, 23,202 hectares is classified as National Priority One habitat – identified by the Ministry for the Environment as habitat most in need of protection.

Overall, the biodiversity of indigenous species is declining and many indigenous plant and animal species are becoming extinct or nationally or regionally threatened.

In 2007, of the plants nationally classified as under the greatest threat of extinction, 28 were found in Northland and three were already extinct in the region, including Adam’s mistletoe. This list is due to be revised to give a more up to date picture.



Native New Zealand wood pigeon – kereru – are one of many declining indigenous animal species found throughout Northland.

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 the greatest risk of extinction are also found in the region.



Native kakabeak – no longer found in the wild in Northland.

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What pest plants, mammals and insects threaten Northland's biosecurity?

Pest plants

Major pest plants in Northland include Manchurian ricegrass, African feathergrass, spartina, lantana, nassella tussock, evergreen buckthorn, Bathurst bur, nodding thistle and Californian thistle. All of these plants are included in the Regional Pest Management Strategy for Northland, which contains objectives to control and manage each pest species.



Lantana.



Nassella tussock.



Californian thistle.



Tropical grass webworm.



Kaipara District Council Drainage Co-ordinator, Wayne Crump (left) and Peter Joynt, a former Northland Regional Council Biosecurity Officer, are dwarfed by a Manchurian ricegrass infestation.

Pest insects

Tropical Grass Webworm (TGW) has caused severe pasture damage in the Far North. Since the initial outbreak in 1999, damage from populations of larval TGW has not been widespread, however localised infestations have occurred.

Guava moth and Argentine ants are also of concern and monitored by Regional Council biosecurity officers.

Pest mammals

Wild deer pose a serious threat to the farming industry in Northland as they carry Bovine Tuberculosis (Tb). Northland currently has a Tb-free status and is the only region in New Zealand that has successfully controlled the threat of wild deer.

Wild goats, possums, ferrets, stoats and weasels are also a problem.



Possums are Northland's number one pest animal. In Northland, the average adult possum weighs 2-3 kg, and lives for about seven to nine years.

Possums breed in autumn and often again around November. After a gestation period of 17-19 days, the young possum is born hairless, blind, 15mm long and weighing only 0.2 grams. It climbs into its mother's pouch where it stays for five months before transferring to her back. They are weaned at six to eight months, and start mating at two years of age.

Possums seriously damage native forests. They can destroy forest canopies and, in combination with deer or goats, eventually decimate tall forests. Possums reduce native birdlife and have caused the drastic decline of some native snail populations. Possums damage horticultural crops, commercial forests and gardens. Northland possums are currently Tb-free however they pose an ongoing threat to our export beef, dairy and deer industries.

Northland Regional Council Environment Fund

The Environment Fund was established to assist land owners and community groups carry out work that helps protect and enhance indigenous biodiversity. Often this protection or enhancement work also has further benefits to landowners and the community.

For more information and application forms go to www.nrc.govt.nz/environmentfund

Northland Biodiversity Enhancement Group

The group was formed in 2001 and was New Zealand's first biodiversity forum. The forum aims to promote the protection of biodiversity in Northland.

What can you do to help?

There are several things you can do to help manage Northland's valuable land and biological resources:

On the farm

- Protect important areas from stock;
- Exclude stock from waterways;
- Covenant your special areas to provide long-term protection;
- Develop a nutrient management plan for your property;
- Develop a farm plan that helps to best match land use to capability;
- Plant trees to reduce erosion;
- Attend industry monitor farm days; and
- Undertake regular weed and pest control.

Anyone can

- Be a responsible pet owner. Dogs should be kept under control at all times and cats should be kept in at night to reduce the impact on native animals;
- Be a responsible gardener and grow plants that will not become pests;
- Carry out pest and weed control on their property;
- Find out the value of what they have on their land. Council staff can help to identify native species and weed species and will give advice on how to protect what you have;
- Join a local landcare group;
- Report incidents of poor land management to the Regional Council on 0800 002 004.

What is being done?

Regulation

The Regional Policy Statement (RPS) for Northland sets out the objectives for the maintenance and enhancement of soil and land resources, including ecosystems and biodiversity, in the region. These objectives include reducing the effects of land use on water and soil quality, biodiversity and controlling pest plants and animals.

The Regional Water and Soil Plan (RWSP) contains rules for activities that may affect land resources, including rules for controlling earthworks and vegetation clearance.

The Regional Pest Management Strategy (RPMS) for Northland is an action plan that describes why and how plant and animal pests will be controlled in Northland. These strategies are not compulsory however the Council has developed this document for Northland as the benefits of pest management strategies far outweigh the costs.

Management

The Council is also involved in programmes to release biocontrol agents for the control of specific weed species in the region. It works with local communities and landowners to promote pest management and assist with Community Pest Control Areas (CPCAs). Ongoing control work is also being done to control a wide range of pest animals, including rabbits, goats, possums and mustelids.

Monitoring

The Protected Natural Areas Programme (PNAP) is a process whereby all remaining natural areas of significance throughout New Zealand are identified, evaluated and mapped. PNAP surveys have been done for most Ecological Districts in Northland over the last 14 years. This information needs to be kept up to date by checking and resurveying sites.

The Regional Council also intends to set up a long term wetland monitoring programme for Northland. Approximately 20 wetlands that remain in good condition will be monitored. The results from this wetland monitoring will be recorded in the Regional Council's Biodiversity and Wetlands database.

Education and support

- The Council has run erosion and sediment control workshops for developers, earthwork contractors and planners to help reduce the adverse effects of earthworks operations on the environment.
- The Envirolink scheme funds research organisations to provide regional councils with advice and support on identified environmental issues and projects. The Council has started a number of Envirolink research projects. These can be viewed at www.envirolink.govt.nz
- The Northland Pastoral Farming Development Group comprises representatives from the Council, pastoral farmers, service and supply companies and training providers. The group is involved in a number of projects to promote research of benefit to pastoral production and distribute new and existing research material to Northland farmers.
- There are currently more than 55 landcare and community groups operating in Northland, many of which are involved in a range of biodiversity focused projects, from small scale possum and pest insect control or plant pest eradication, to large scale ecosystem protection projects.

24/7 Environmental Hotline
0800 504 639