

Our aim is to protect,  
conserve and promote  
our natural and built  
environment for the  
benefit of present and  
future generations.



**Environment &  
Heritage Service**

[www.ehsni.gov.uk](http://www.ehsni.gov.uk)

Environment and Heritage Service  
Klondyke Building  
Gasworks Business Park  
Cromac Avenue  
Belfast  
BT7 2JA

Web: [www.ehsni.gov.uk](http://www.ehsni.gov.uk)

This document was prepared by Dr. Liz Fawcett, Liz Fawcett Consulting and EHS.



Department of the  
**Environment**  
[www.doeni.gov.uk](http://www.doeni.gov.uk)

Environment & Heritage Service

# 'Our Environment, Our Heritage, Our Future'

State of the Environment Report for Northern Ireland: A Summary

March 2008





# Introduction

There's much to celebrate when examining the state of Northern Ireland's environment:

- Our air quality has improved significantly over the past decade
- The proportion of household waste being recycled has increased in recent years
- For its size, Northern Ireland has one of the most geologically diverse areas anywhere in the world
- It has an unusually rich variety of different animal and plant species
- It also has a range of built heritage sites reflecting 9,000 years of human history

But there are also significant weaknesses which we need to address:

- Our greenhouse gas emissions are not yet falling fast enough
- The build-up of excessive nutrient levels in rivers and lakes poses a major threat to our water environment

- Many of the types of natural feature which support a rich diversity of species – such as lowland meadows and hedgerows – are declining
- As well as our natural heritage, our built heritage is very important – but we lack a full picture of the state of all our valuable historic buildings and archaeological sites

Those are just a few of the key points to emerge from the first State of the Environment report for Northern Ireland. There are many others. Read on to find out more about just how our environment measures up.

“So why do we need a State of the Environment report?”

If everyone was to live as we do in Northern Ireland, we would need nearly three planets to support our level of consumption, and to absorb the resultant pollution and waste.

We are all starting to wake up to the fact that we do have only one planet, and that many of our activities are harming our environment. Some of that damage may be very obvious – unsightly fly tipping and increasing traffic congestion, for example – but much of it is gradual and could easily pass unnoticed until it is too late.

We rely on our environment to provide clean and safe air, water, food and other resources essential to life. It also generates income and jobs. So it is in our interests


to introduce effective ways of measuring every aspect of the state of our environment now and in the future. That way we can spot the less obvious impacts and changes, as well as the very visible ones.

This summary outlines the key points emerging from Northern Ireland's first State of the Environment report. Using existing information, we have put together many parts of the environmental 'jigsaw' to provide a baseline and some analysis of trends over time.

From now on, we will be using a number of different measures – or indicators – to carry out a regular monitoring exercise which will build up a more comprehensive picture of the changing state of our environment.

In all, there are 30 different indicators covering the following broad areas: air and climate; water; land and landscape management; biodiversity; built heritage; and waste and resources. These range from carbon dioxide emissions to the quality of the bathing waters along our coast, and from the number of historic monuments to the amount of waste recycled by local councils.

This information will be of significant public interest – but it is also crucial for the decision-makers striving to manage Northern Ireland's environment in the most effective way possible.



“We do not inherit  
the earth from our  
ancestors, we borrow  
it from our children

~ Native American Proverb ”

# Our Changing Environment

People began having an impact on the environment of the island of Ireland when the first hunter gatherers arrived roughly 9,000 years ago. At first they settled by the coast but, by 4,000 BC, the first farming communities had begun moving along river valleys to clear and cultivate inland areas.





The landscape was no longer shaped purely by the forces of nature – people were making their mark, albeit on a small scale. Over the past few centuries, the rate of economic and social progress has intensified enormously. The pressures this puts on our environment are significant, but they are also common to almost all countries in the developed world.

A rising population and increasing affluence have led to a demand for more housing. We have grown highly dependent on fossil fuels for our energy use, with a resultant impact on air quality and greenhouse gases. We rely to a great extent on road transport.



Cars and lorries contribute to greenhouse gas emissions, and roads can have a negative effect both on our landscape and on the diversity of our animal and plant life.


Moreover, 6,000 years on from the establishment of those first farming communities, most of our land is used for agriculture, which often has unintended and sometimes harmful consequences for our landscape, biodiversity, water quality and greenhouse gas levels.



The sections that follow look in a little more detail at the state of each of the most important aspects of our environment.

# Air and Climate

Air quality is critical for individual human health, for the sustainability of wildlife habitats, and for the quality of the built environment. We are also becoming increasingly aware of its impact on the world's climate and the grave implications that climate change holds for future generations.



Northern Ireland's air quality has improved significantly over the past decade, with a reduction in overall levels of air pollution as a result of controls. However, this is not reflected in emissions of greenhouse gases.

The Northern Ireland Sustainable Development Strategy has set the targets for the reduction of the greenhouse gases which contribute to global warming by 2025 of a 25% reduction below 1990 levels in overall greenhouse gas emissions, and a 30% reduction below 1990 levels in carbon dioxide emissions.

Both globally and in Northern Ireland, carbon dioxide is the greenhouse gas which is the biggest contributor to climate change. In Northern Ireland, transport and power generation are the largest sources of greenhouse gas emissions, followed by agriculture.

Transport emissions increased at a much faster rate here between 1990 and 2005 than in the UK as a whole. Cars and lorries are the biggest sources of carbon dioxide in this sector. Power generation is a major source of greenhouse gases due to our dependence on fossil fuel for our energy supply.

Agriculture is the third largest contributor because of the huge quantity of methane produced by cattle. Methane has a much more powerful effect than carbon dioxide on global warming.

Total emissions of the main greenhouse gases which contribute to global warming fell slightly in Northern Ireland between 1990 and 2005. But there is no conclusive evidence that greenhouse gas emissions are yet declining at a sufficiently fast rate to meet the Sustainable Development Strategy targets. In future, the proposed Climate Change Bill for the UK will enable Northern Ireland to play its part in this global issue.

# Water

Water is an essential natural resource. It plays a vital role in maintaining our health and social welfare, sustaining biodiversity, and supporting economic development.





There has been some reduction in chemical pollution of our rivers in recent years and the quality of the bathing waters around our coasts is improving. However, some other aspects of our water quality do not measure up so favourably. The biological quality of our rivers, measured by the abundance and variety of small animal life in them, has deteriorated in recent years and levels of nutrients are relatively high in rivers and lakes.

**Eutrophication** is probably the most widespread threat to good water quality in Northern Ireland.

Eutrophication occurs when higher than normal nutrient levels lead to excessive growth of algae – the algae take away oxygen from the water, making it difficult for other plants and animals to get enough oxygen to survive.

A considerable number of Northern Ireland's rivers are showing signs of eutrophication.

One of the causes of this phenomenon is run off from farmland of fertilisers and animal wastes which seep into streams and rivers. Another factor is sewage and other discharges from towns and cities.

Positive steps to address this issue include controls on the use of agricultural fertilisers and investment to meet more stringent discharge controls.


The new European Commission Water Framework Directive has established an integrated framework for the sustainable management of our water resources. This will make a major contribution to the delivery of long-term improvements in the quality of our water, and in the sustainability of our water supply.

Meeting the requirements of the Directive sets a major challenge for all of us with a role in managing this vital resource.

# Land and Landscape Management

The background of the slide features a warm, golden-orange sunset sky. In the foreground, several dark silhouettes of dandelion seed heads are visible, with their thin stems extending upwards and outwards. The overall mood is serene and natural.

Northern Ireland has one of the most geologically diverse areas anywhere in the world for a territory of its size. Its landscapes are renowned for their distinctive features, and the management of those landscapes is of primary importance.



Nearly one-fifth of the total area of Northern Ireland falls within a designated Area of Outstanding Natural Beauty, providing those landscapes with special protection.

Only a relatively small amount of land in Northern Ireland is covered by woodland, much of which consists of non-native conifers. However, the area occupied by woodland has expanded over the past decade and recently, more native broadleaved trees have been planted.

Our rural landscapes have altered greatly due to agricultural change and the desire of more people to live in the countryside. Nearly two-thirds of land in Northern Ireland is used for farming. Well over one third of all farmland is registered in an agri-environment scheme, where farmers take steps to protect wildlife and heritage during their everyday work.

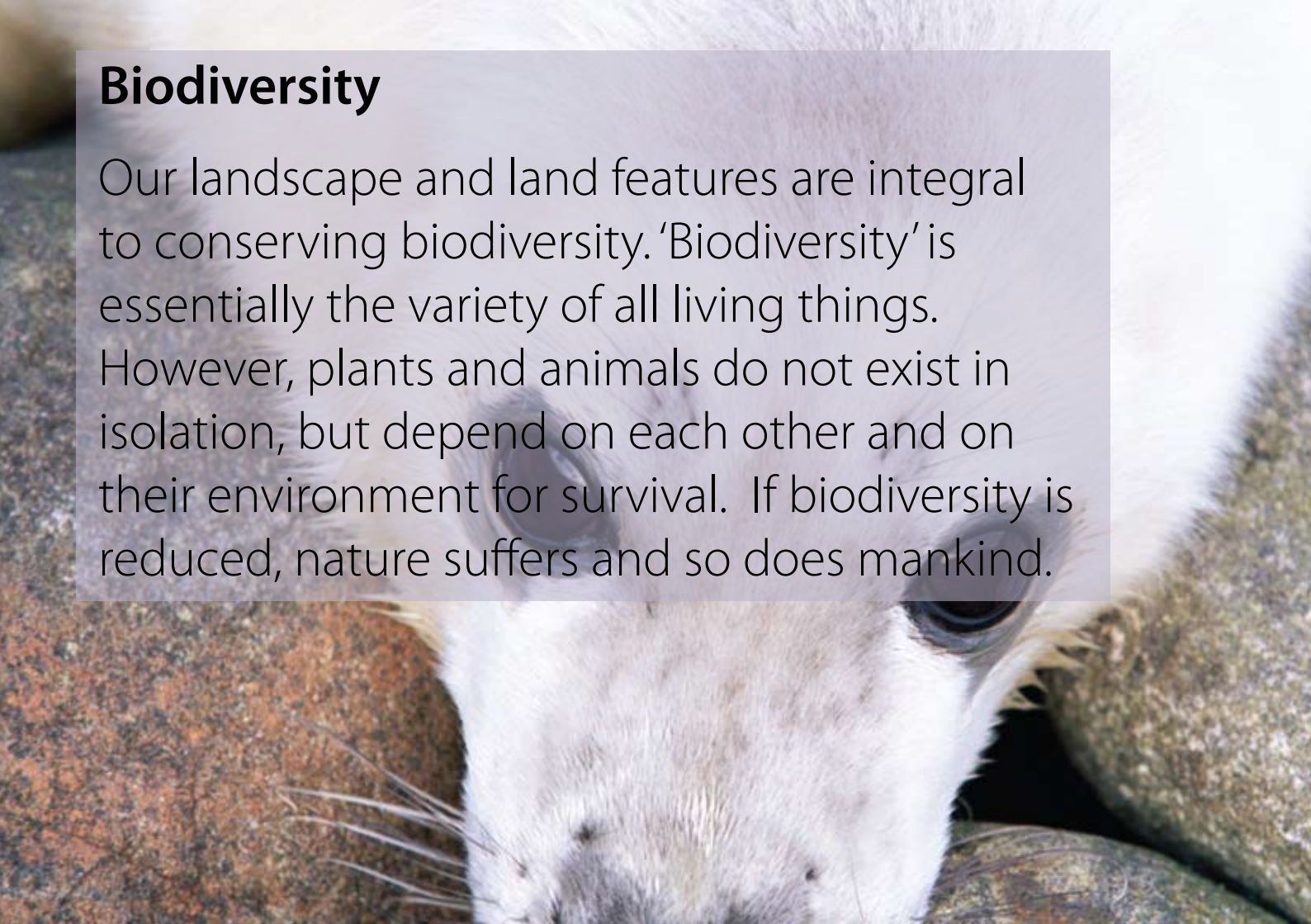
At the same time, a major problem on our farmland is the over-accumulation of phosphorus in the soil, which is often caused by the use of agricultural fertilisers containing phosphorus and can contribute to eutrophication.

While the amount of agricultural land in Northern Ireland has not changed much in the past decade, the area of land taken up by buildings and roads has grown. That has had a negative impact on the amount of space covered by the types of landscape which form natural homes or 'habitats' for wildlife.

The increase in sustainable land management, promoted through agri-environment schemes and forestry standards, will have benefits for habitats, biodiversity, archaeology and landscape, and will reduce pollution of the air and water environments.

# Biodiversity

Our landscape and land features are integral to conserving biodiversity. 'Biodiversity' is essentially the variety of all living things. However, plants and animals do not exist in isolation, but depend on each other and on their environment for survival. If biodiversity is reduced, nature suffers and so does mankind.





For its size, Northern Ireland has a particularly diverse range of species of animals and plants, and a wide variety of the natural habitats which support their existence. Yet the available data suggest that our biodiversity is being threatened by a range of factors.

The Northern Ireland Biodiversity Strategy sets goals designed to protect and enhance biodiversity in Northern Ireland. These include halting the loss of biodiversity by 2016. A European Union Communication has stressed the importance of tackling biodiversity loss by 2010.

Designated nature conservation sites have an important role in protecting our biodiversity. However, the evidence shows that the coverage and condition of our designated sites needs to be improved.

The available data also suggest that many of our habitats, such as lowland meadows, hedgerows and coastal sand dunes, are declining. Species that are dependent on these habitats are also vulnerable. However, some species, such as many of our commonest birds, are stable or increasing in numbers.

The impact of non-native species on our wildlife is a growing problem. These species can sometimes expand in numbers to the detriment of indigenous wildlife because they lack the usual naturally-occurring controls on their growth. Grey squirrels, whose numbers have increased at the expense of red squirrels, are one well-known example of this.

Another example of the harmful effect of a non-native species is the **expansion in Zebra mussels** in Northern Ireland.

Zebra mussels originally came from the Caspian and Black Sea region, and spread throughout Europe in the late 1700s. They were first discovered in Northern Ireland in 1994. They probably arrived attached to the hulls of second-hand boats imported from England.

Zebra mussels can attach themselves to, and smother, native mussel species, and can also upset the delicate balance of the food chain because their presence can lead, indirectly, to the growth of algae which are poisonous for fish. They have also been responsible for blocking water intake pipes at Killyhevlin water treatment works in Enniskillen, Co Fermanagh, causing problems which cost £100,000 to overcome.

Zebra mussels have now spread to over 50 lakes in the island of Ireland, including Lough Erne and Lough Neagh.

The information we have available to monitor changes in biodiversity within Northern Ireland is incomplete. Future reports will present a more comprehensive picture of how our local biodiversity is fairing against a backdrop of environmental and man-made changes.





# Built Heritage

'Built heritage' means the buildings and structures which we feel are architecturally, historically and culturally important to us. Built heritage is a vital aspect of our culture and landscape. It plays a major role in shaping the distinctive character of an area or community.





Northern Ireland's built heritage is remarkably diverse. For many centuries it was also very well preserved, thanks to slow population growth and low intensity agricultural practices which protected certain features of our built heritage. However, during the 20th century all that changed. The economic and social progress of the last 100 years has put considerable pressure on our built heritage – most notably through shifts in agriculture, housing and development, and tourism.

Progressive measures have been introduced to protect our valuable sites, archaeological features and historic buildings through recording and protection. Northern Ireland has now protected more than 1,600 scheduled historic monuments, such as castles and abbeys, with 183 of these in state care, and recorded over 16,000 archaeological sites. Also, more than 8,000 buildings in Northern Ireland are protected as 'listed' by Environment and Heritage Service – in other words, being of special architectural or historic interest.

The Sustainable Development Strategy sets a target of improving the condition of 200 of our most important listed buildings over the next ten years, so they are no longer deemed to be 'at risk' of loss or further decay. Positive steps have already been taken to begin meeting this target, and there has been a reduction in the number of buildings categorised as being 'at risk' in this way.

Although we have lacked good information on archaeological sites in Northern Ireland, we'll shortly be publishing the results of a major survey of the condition of such sites here. A wide ranging survey of historic buildings will also add to our knowledge.

Environment and Heritage Service looks after nearly 200 historic sites and monuments in state care. **Dunluce Castle** provides a good example of the challenges which can arise in caring for an historic monument.

This stunning mediaeval building, perched on top of a precipitous rocky crag, is one of Northern Ireland's best-known and most photographed monuments. It has been largely unoccupied since its kitchen collapsed into the sea during a storm one night in the late seventeenth century.

The cliffs on which Dunluce Castle is set continue to be eroded by the sea, and the Environment and Heritage Service has had to take steps to stabilise the cliffs on a number of occasions in recent years.

As development pressures increase, we will promote a better understanding of how best to reuse and regenerate buildings. Our built heritage represents a fragile resource, which when damaged and lost, is irreplaceable.





## Waste and Resources

Waste is produced by every one of us. It is estimated that we throw away our own body weight in rubbish once every seven weeks. As our society gets more affluent, we are disposing of more and more waste. That is bad news for our environment because rubbish has a harmful effect on the quality of our air, water, soil and landscapes.



In Northern Ireland, we dispose of much of our rubbish in landfill sites where it decomposes very slowly and can cause pollution. The Northern Ireland Waste Management Strategy 'Towards Resource Management' is designed to ensure we move away from landfill towards reducing, reusing and recycling much of our waste. It sets a target of reducing the amount of household waste going to landfill by 2010 by one-third of 1995 levels, with further larger cuts by 2020.


The proportion of household waste which is now recycled is increasing but before 2010 we will need an increase of 10% in the current rate of household recycling in order to reach the targets in the Waste Management Strategy. Even though the amount of waste produced by the average household in Northern Ireland hasn't risen a great deal in recent years, the number of households has increased, generating more waste in total, and increasing the need to recycle more.

We also need to invest in the facilities to deal with our waste through new infrastructure for recycling, composting and energy recovery.

## Next Steps

So, now we have a better idea of the state of our environment, where do we go from here?





It is important to bear in mind that this first State of the Environment report is an incomplete one as we still lack some of the crucial information we need and we will be working hard to fill in the gaps over the next few years. While this summary has tried to provide some analysis of trends over time, we will be able to do this in a more consistent way in the future.

But we do not need to wait for that improved picture to pinpoint the major environmental issues and pressures facing us.

- **Climate change** is probably the biggest threat to our environment globally. We need to play our part in tackling that threat through a greater reduction in our greenhouse gases, but we also need to change the way we manage our environment to cope with the predicted changes in our own climate, such as more extreme weather conditions.
- **Economic growth** has brought us many benefits but that has come with a significant environmental cost. We need to find more sustainable ways of enjoying the rewards of increased affluence and of pursuing further economic expansion.
- **Rural land use** has shaped our countryside for many centuries, but modern agricultural practices aren't always compatible with a high quality environment. We need to develop more sustainable agricultural and rural land use practices.

Our ability to effectively address these issues will be central to the environmental legacy we leave for future generations in Northern Ireland. State of the Environment monitoring will play a key role in that process.



