

Nature-Friendly Farming

A Toolkit for the Carlingford Catchment

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ALICE

Improving the management of Atlantic Landscapes: Accounting for biodiversity and Ecosystem Services

The Interreg ALICE Project began in 2016 as a transnational research project that sought to understand how we can better manage catchment landscapes in the Atlantic area. Throughout this time, AFBI led stakeholder engagement efforts with key community members in Carlingford Catchment. This allowed people living and working in the catchment to make their voices heard and make a valuable contribution to the project. An important takeaway from this work with stakeholders was that a nature-friendly farming tool kit would be beneficial for advancing innovative and sustainable farming practices locally. Most importantly, it needs to explain how these actions are beneficial to the farmer and farm business.

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About Carlingford Catchment

A diverse landscape spanning 470km² in area, Carlingford Catchment lies across the border between Northern Ireland and the Republic of Ireland. With marginal farming in the Mourne and Cooley uplands and more intensive farming in the fertile lowlands surrounding Newry, the catchment is an important landscape supporting rural productivity and heritage.



Figure 4: Carlingford Catchment towns and river system

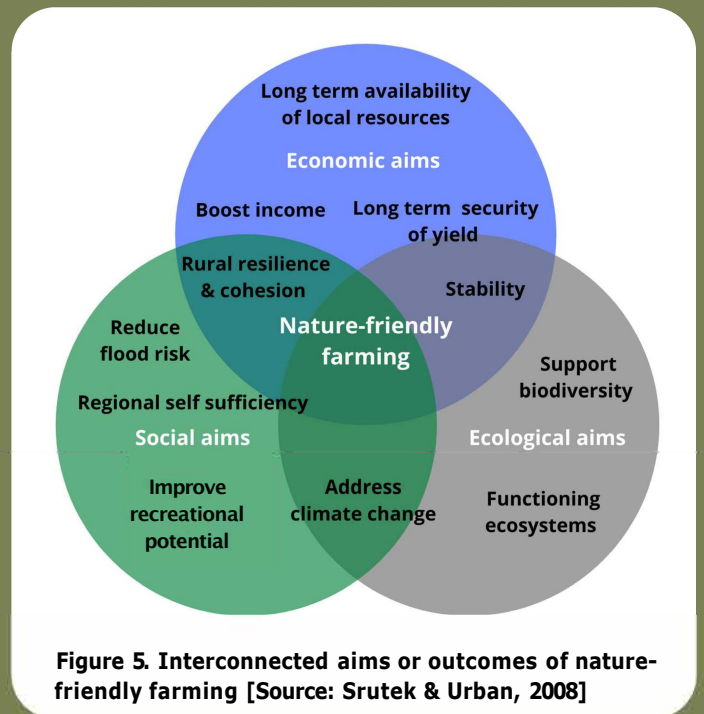
Carlingford Catchment is named as such because all rain that falls here flows towards Carlingford Lough. This interconnected nature of the waterways means all activities and land uses affect one another in some way.

This booklet aims to set out a tool kit for land managers who are interested in nature-friendly farming, a practice which will protect and enhance the Carlingford Catchment for rural and urban communities alike.

Nature-Friendly Farming

What is it?

Nature-friendly farming is the concept of farming in a sustainable way; by working in sync with the environmental systems that farming is very much a part of. With the right knowledge and guidance, this practice can be profitable for the farmer as well as protective of ecosystems and communities. Farms are an important part of the tapestry of a landscape and it's becoming increasingly clear that they play many roles in supporting society besides from food production.



Why should I engage in nature-friendly farming?

Farming is a business, and businesses need resources, income and sustainability. Nature-friendly farming can ensure each of these requirements are met to support the farm business for years ahead. By actively engaging in stewardship of the local environment, this enhances the quality of land and water - resources essential to food production. It also creates a safe and inviting landscape for communities to live in; a landscape with well looked after outdoor sites and low flood risk. With thriving communities comes a reliable local customer base.

As we enter a new era where customers are tuned in to where their food comes from, nature-friendly farming also offers a competitive marketing advantage against competitors. Let your buyers know that your food is produced on a farm that cares for the environment.

Peatland Restoration



Peatlands are an important landscape feature on the island of Ireland. The mountains surrounding Carlingford Lough - the Mourne and Cooleys - are where the majority of peatlands are located in Carlingford Catchment. They may not look like much at first, but they do in fact have numerous environmental and ecological functions, from habitat provision to protection from climate change and flooding.

What is it?

Areas of peat, also known as turf or bog, that have formed over thousands of years from the partial decomposition of plant matter.

Peatlands are referred to as 'degraded' when they have been drained but are not entirely given up to other land uses. Dried peat releases carbon into the atmosphere and sediment into the streams and rivers flowing down into the Lough. It is also susceptible to fires.



Peatland. Photo by w-wings on Canva

Good for the farm



Reduce fire risk

By 're-wetting' degraded peatlands to restore their natural state, this reduces the area of highly flammable land and also introduces fire breaks between grassy areas. Fires can be devastating to the farm business, so risk reduction is important.

Diversify farm produce

Rewetting of peatlands introduces new and exciting business opportunities. 'Paludiculture' is the term for wet agriculture or forestry, or in other words, swamp farming. Certain crops or trees can thrive in boggy peatlands.

Good for nature



Protect unique biodiversity

Peatlands provide habitats for unique plant and animal species which have evolved to live in such an environment, such as marsh fritillary butterflies and sphagnum moss and bog cotton. Restoring their habitat protects their survival.

Improve water quality

When degraded, water that flows from peatlands to rivers is discoloured and holds more pollutants. Maintaining the health of peatlands can lead to improved water quality in rivers and streams, leading then to improved aquatic biodiversity.

Good for the community



Reduce fire risk

Carlingford catchment is expected to see an increase in wildfires in the near future. These can have devastating effects on the countryside and also put an immense strain on fire and rescue services. Restoration of peatland is an effective way of reducing fire risk and associated impacts.

Address climate change

Peat is mostly made up of carbon - a greenhouse gas. By restoring peatland, you are reducing the carbon that is released into the atmosphere. When done collectively, this can do a great job of minimising the impact of climate change in the future. Garron Plateau Bog Restoration Project has restored 1188 hectares of globally rare blanket bog which is sequestering c.1992 tonnes of carbon per year.

Cost

Set-up: **LOW** Maintenance: **LOW**

Where?

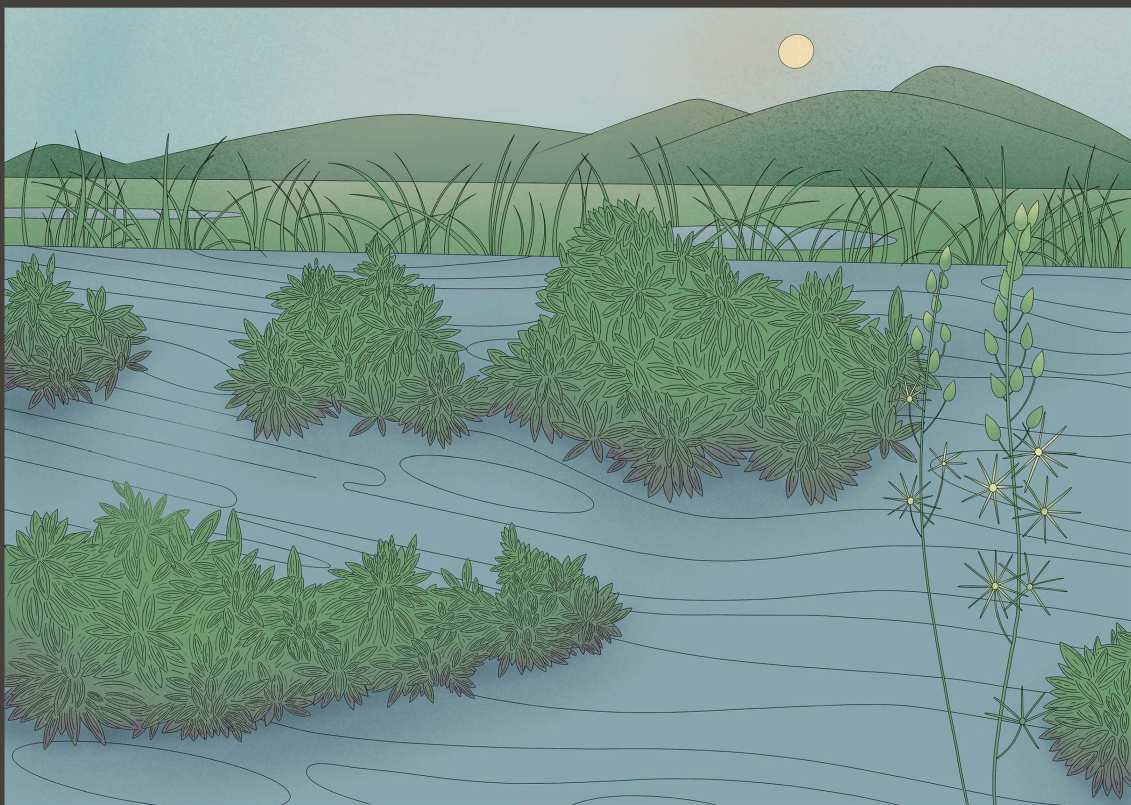
- Any peatland/bog on your farm that is considered degraded

I'm interested in restoring peatland on my farm. Who do I need to talk to?

- Northern Ireland Environment Agency,
- DAERA
- DAFM
- Mourne Heritage Trust who ran the Healthy Heathlands project. See more on the AFBI-ALICE website where MHT forms one of our success stories (links at end of tool kit)

Is payment available?

- Environmental Farming Scheme (NI) - up to £40 per hectare per year
- GLAS (ROI)
- Private funding may be available e.g. from IUCN Peatland Program



Riparian Zones



The land adjacent to river courses has major potential to improve water quality by filtering out sediment, fertiliser and pesticide compounds before they reach the water. By fencing off riverside zones to keep cattle out, and allowing overgrowth of grasses and shrubs, water quality is improved for the benefit of the entire catchment.

What is it?

Grassland that extends 2-4m from a stream or river which is fenced off from livestock and allowed to grow naturally into a strip of rich native shrubs and grasses. A simple, nature-friendly solution for improving water quality.

Good for nature



Improve water quality

Strips of long grasses, shrubs or trees alongside river courses act as a filter for sediment and nutrients. Water quality improves as a result.

Support biodiversity

Aquatic species such as fish and invertebrates begin to thrive as water quality increases. Meanwhile, the riverside vegetation provides a habitat for a range of species including birds and butterflies

Good for the farm



Simplifies crop management

By introducing riparian zones along river courses, irregular field edges are straightened and this enhances crop management operations.

Simplifies ditch management

Riparian zones help to trap sediment and fertiliser which reduces the time spent on ditch management.

Reduces wind speed

These features can reduce wind speeds over an area of up to 30 times their own size improving crop growth, protection and growing season and animal health.

Create wildlife corridors

When waterways throughout the catchment are lined with riparian zones, a system of corridors is created which allows species to move safely between different pockets of land.



Riverside riparian zone. Photo by David Bannon.



Good for the community



Reduce flood risk

Riparian zones slow the entry of rainwater into rivers and vegetation absorbs some water for its own needs. When this takes place on many farms across the landscape, the cumulative effect is reduced flooding downstream, e.g. in Newry and Warrenpoint.

Improve recreation potential

Water quality improves and biodiversity flourishes when riparian zones are created. This leads to cleaner water and a species rich river system that can support fishing, kayaking, open water swimming and other outdoor activities.

Where?

- Throughout catchment
- Adjacent to any rivers & streams
- Grazing or arable land

Cost

Set-up: **LOW-MODERATE**

Maintenance: **LOW**

I'm interested in creating riparian zones on my farm. Who do I need to talk to?

- DAERA
- Agri-environment measure in N. Ireland
- Forestry measure in Ireland
- See work undertaken by Ballinderry Rivers Trust - check out AFBI-ALICE website where the BRT forms one of our success story videos (links at end of tool kit)

Is payment available?

- Enviro.imer.ital Farming Scheme (NI) provides payment per metre of riparian zone installed
 - £7.63 per metre in first year (10m wide)
 - £6.07 per metre in first year (2m wide)
- GLAS in ROI also provide payments

Hedgerow Restoration



Well maintained hedgerows at field margins are a simple yet effective feature for supporting wildlife, improving water quality, reducing flood risk and improving the aesthetic of the countryside. They also bring important benefits to the farm business and provide a means of boosting income.

What is it?

Rows of closely lined shrubs or trees that are planted to show ownership boundaries or to divide fields. They provide many benefits to environment and farm however many are degraded and poorly maintained which means these benefits are not at their fullest potential at the moment.

Good for nature



Support biodiversity

Hedgerows are an important habitat for many species including roosting birds, foraging bats, harvest mice and many plants.

Create wildlife corridors

Networks of hedgerows between farms in the countryside provides access for species that reside in these hedges. This makes passage safer for different species and contributes to their wellbeing.

Good for the farm



Reduced field erosion

Hedgerows cut down wind speed which reduces soil erosion on farmland.

Boost farm income

The Environmental Farming Scheme (EFS) provides payments for well maintained hedgerows on farmland. Hedges provide wood fuel for additional income.

Livestock protection from disease

Creation of a stock proof barrier between fields means that infectious disease transmission is no longer possible. This improves overall health of livestock and reduces veterinary expenditure.

Reduces wind speed

These features can reduce wind speeds over an area of up to 30 times their own size improving crop growth and protection, length of growing season and benefits animal health.



Hedgerow. Photo by Glen Pearson on Canva.



Good for the community



Address climate change

An abundance of hedgerows in the countryside means that more carbon is stored in the vegetation they are comprised of. It has been suggested that hedgerows may play an important role in reaching net-zero carbon by 2050.

Protect rural history and aesthetic

Some of the oldest hedges in Ireland date back to the medieval period. Hedgerows are a recognisable feature of rural history and identity.

Where?

- Any suitable field margins
- For DAERA payments, hedgerows must be a minimum of 10m in length, and 2.5-3m in height

Cost:

Set-up: **LOW**

Maintenance: **LOW**

I'm interested in creating or restoring hedgerows on my farm. Who do I need to talk to?

- DAERA
- Department of Agriculture, Food and the Marine
- hedgelaying.ie

Is payment available?

- Environmental Farming Scheme (NI) provides £15.83 per metre of hedge and protective fences in the first year
- GLAS (ROI)

Tree Planting



The Northern Irish government have pledged to plant 18 million new trees over the next decade. To make this a reality, land managers need to believe in the great benefits that can come from planting trees on farmland.

What is it?

Trees come in many types, with some suited to locations or functions better than others. "The right tree in the right place" is heard often when talking about planting new trees. Species native to NI include sessile oak, alder, ash and rowan.

Planting trees on the farm could include setting aside land dedicated to woodland, or agro-forestry, where trees are combined with livestock or crops.



Good for nature



Reductions in surface run-off and improvements in the land's capability to hold water, improve water quality and slow peak flow rates in nearby water courses.

Trees can play a key role in reducing the impact of farming practice on watercourses. In a recent review of silvoarable systems in temperate climates it was found that nitrate leaching was reduced by 46% in Canada and 30% in France.

Good for the farm



Reduces soil erosion

Trees integrated into arable settings are known to improve the quality of soil in fields.

Strengthens biosecurity

Potential for disease transmission from neighbouring animals reduced.

Provides shelter for livestock

Trees can be introduced to grazing land to provide livestock cover from wind and rain.

Lengthens growing season

Trees can extend the growing season by warming the soil.

Reduces wind speed

These features can reduce wind speeds over an area of up to 30 times their own size.

No negative effects

No negative effects of agro-forestry to farm production have been found at least up until 12 years after planting.

Trees integrated into arable settings have been proven to reduce soil erosion by up to 65%. The UK government has committed to increase soil carbon stocks by 0.4% year on-year. Agroforestry can make an important contribution to this goal.

Many species rely on native woodland in order to flourish, the island of Ireland is one of the least forested areas in Europe. Increasing native woodland increases biodiversity.



Good for the community



Reduce flood risk

Trees slow the flow of water across land and help to trap some water by taking it up through their roots. Increased tree cover on a farm can therefore reduce flooding events downstream, for example in Newry.

Address climate change

Climate change will affect everyone in some way or another. Widespread tree planting is a great way to reduce carbon emissions while also delivering farm benefits.

Where?

- Agro-forestry: Grazing land
- Tree corridors: Field margins and hedgerows
- Native woodland: Prioritise riverside zones

I'm interested in planting trees on my farm. Who do I need to talk to?

- Woodland Trust are experienced in providing advice to farmers, whether you are interested in creating native woodland or diversifying into agro-forestry. Contact: northernireland@woodlandtrust.org.uk
- DAERA
- Irish Agroforestry Forum
- National Forestry Programme of ROI

Is payment available?

- Enviro.imer.ital Farming Scheme (NI):
 - **£360** per hectare of native woodland (Years 1-5)
 - **£1,637** per hectare of agro-forestry established (1st year)
 - **£3,832.68** per hectare of traditional orchard introduced (1st year)
- National Forestry Programme of Republic of Ireland
- Woodland Trust "MOREwoods" can cover up to 75% of costs for 1/2 hectare woodland
- Woodland Trust subsidised tree packs available online

Wild Bird Cover



Several irriteririlatio rila 11½important bird species call Carlingford Catchment home, however their food sources dwindle in the cold winter months. Provision of wild bird seed mixtures on farmland is a simple way of boosting farm income while also protecting bird species.

Wild bird cover crops. Photo by Mark McCormick.

What is it?

A spring-sown crop mixture, ideally next to a thick hedge, which is left unharvested over winter to provide food for seed eating farmland birds.



Good for the farm



Boost farm income

Provision of wild bird cover is an important service that land managers can offer to wider society. As such, participants are eligible for payments for services provided.

Eco marketing opportunities

Engagement in impactful nature-friendly farming opens new doors for promoting the environmental benefits of your food production practices.

See www.ecolabelindex.com for more information.

Good for nature



Support birds

Loss of food supply is a major cause of the decline in farmland bird species. Provision of cover crops ensures bird populations can survive through the winter and leads to greater species diversity and richness.

Support wider ecosystem

It appears that other species including bees and butterflies increase in abundance on farms with winter bird cover.

Create wildlife corridors

When bird cover is provided across farms in the catchment, this creates a patchwork of safe spaces for species to move between.



Good for the community



Rich local biodiversity

A healthy ecosystem with thriving plant and animal species is a fantastic natural resource for education, science and hobbyists, e.g. bird watchers. Protecting our species means their existence can go on to inspire and fascinate people for many years to come.

Cost

Set-up: **LOW**

Maintenance: **LOW**

I'm interested in providing wild bird cover on my farm. Who do I need to talk to?

- DAERA
- RSPB

Where?

- Well drained site that can support a cereal crop
- Adjacent to thick hedges if possible
- Plots should be >6m wide

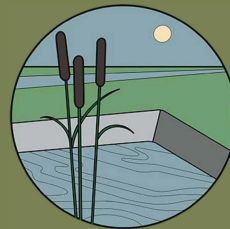
Is payment available?

- Environmental Farming Scheme (NI) provides £590 per hectare
- GLAS Scheme (RoI) provides up to €900 per hectare per year

Did you know?

Wild bird cover can help populations of grey partridge, song thrush, tree sparrow, linnet, yellowhammer, and reed bunting. It also provides an ideal hunting habitat for the barn owl and kestrel.

Floodwater Storage



Newry and Warrenpoint are major flood risk areas and the severity of flooding is projected to increase in future due to climate change. The impact of flooding can be reduced by storing water on upstream land, however this must be mutually beneficial for land owners and flood risk areas alike.

Good for the farm



Reduce widespread flooding

By allocating a section of grassland to collect water during a period of intense rainfall, this reduces the risk of valuable productive land from becoming saturated and damaged. This ultimately can lead to protection of profits.

What is it?

An area of grassland that becomes inundated with water following a period of heavy or prolonged rainfall. Also known as 'constructed wetlands' or 'leaky ponds', these landscape features help to reduce flood risk downstream while also benefitting ecosystems. Most effective when implemented by many participants in upstream areas.

Good for nature



Improve water quality

Strips of long grasses, shrubs or trees alongside river courses act as a filter for sediment and nutrients. Water quality improves as a result.

Support biodiversity

Aquatic species such as fish and invertebrates begin to thrive as water quality increases. Meanwhile, the riverside vegetation provides a habitat for a range of species including birds and butterflies.

Floodwater retention pond.

Photo by Charles Hester on Canva.





Good for the community



Reduce flood risk

When water is stored in rural areas of the catchment, this prevents the total water that runs into flood risk areas such as Newry. Storage ponds can greatly reduce the damage caused by floods downstream.

Measures have been shown to provide quick wins as ponds created in upper catchments can readily store water and have an effect on run-off. Down stream ponds may have the capability of reducing run off by larger amounts reducing discharge peaks and delaying it significantly.

Where?

- Less favourable land
- On floodplains, i.e. adjacent to rivers or streams

Cost

Set-up: **HIGH**

Maintenance: **LOW**

I'm interested in installing floodwater storage on my farm. Who do I need to talk to?

- Tweed Forum - see contacts at end of tool kit
- DAERA

Is payment available?

- No funding at the moment however private funding may be available e.g. through research activities

Did you know?

One flooding event in August 2018, cost Northern Ireland and Ireland over £30million and was still ongoing one year later.

Benefits of Nature-Friendly Farming: Water Quality



Stage 1: Poor water quality

Cows that have immediate access to rivers can reduce water quality by trampling soil and sediment into the river.

Poor quality rivers lack biodiversity. Some less sensitive species will survive however many important, more sensitive species cannot.



Stage 2: Moderate water quality

Different nature-friendly farming features such as tree planting or introducing hedgerows can improve water quality.

As water quality improves, biodiversity becomes more rich and varied.

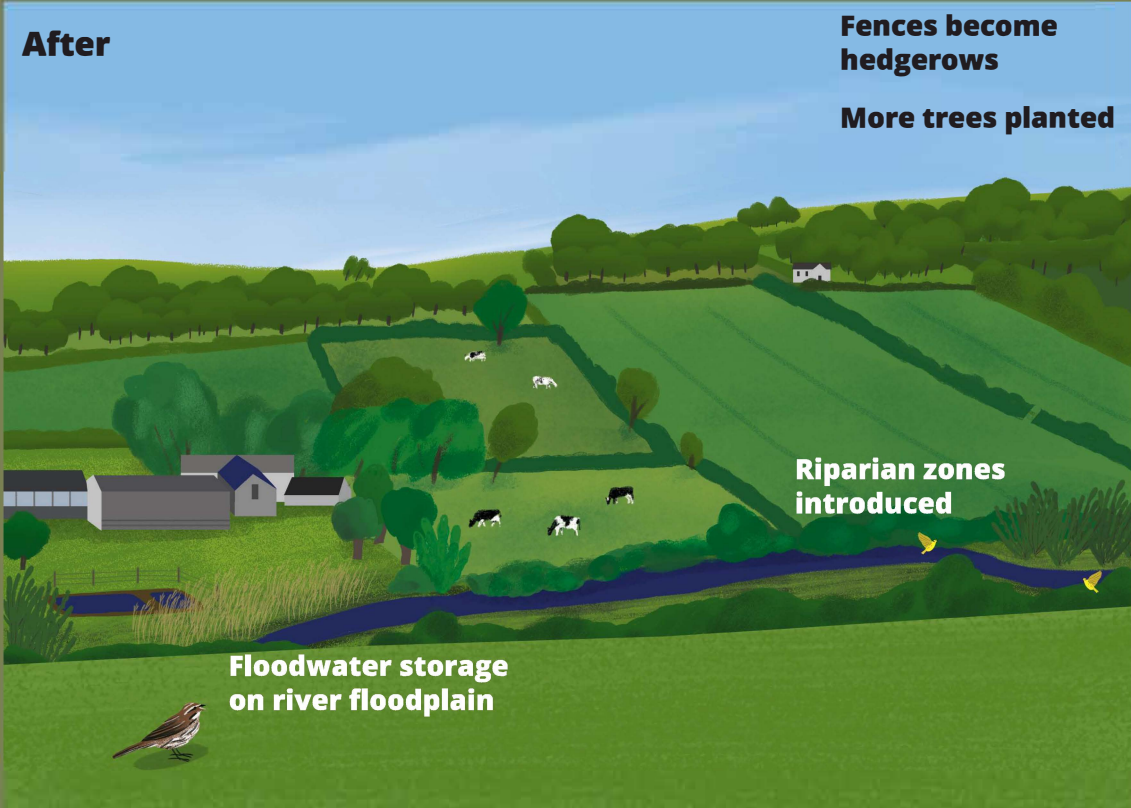
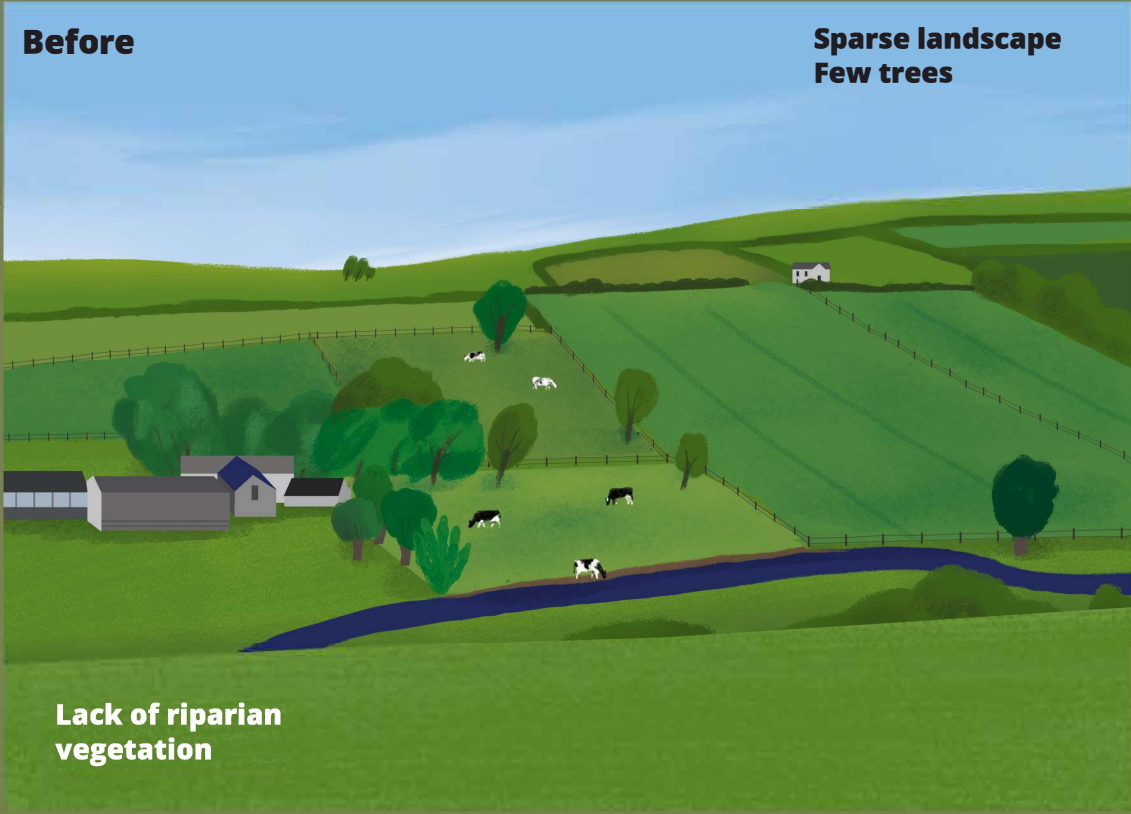


Stage 3: High water quality

Establishing a riparian zone adjacent to rivers is an important measure for improving water quality. By fencing these off and preventing cows from accessing the river, cows cannot contribute to excess sediment entering the river.

High quality rivers are rich in plant and animal biodiversity.

Farm level nature-friendly farming measures in the Carlingford Catchment lowlands

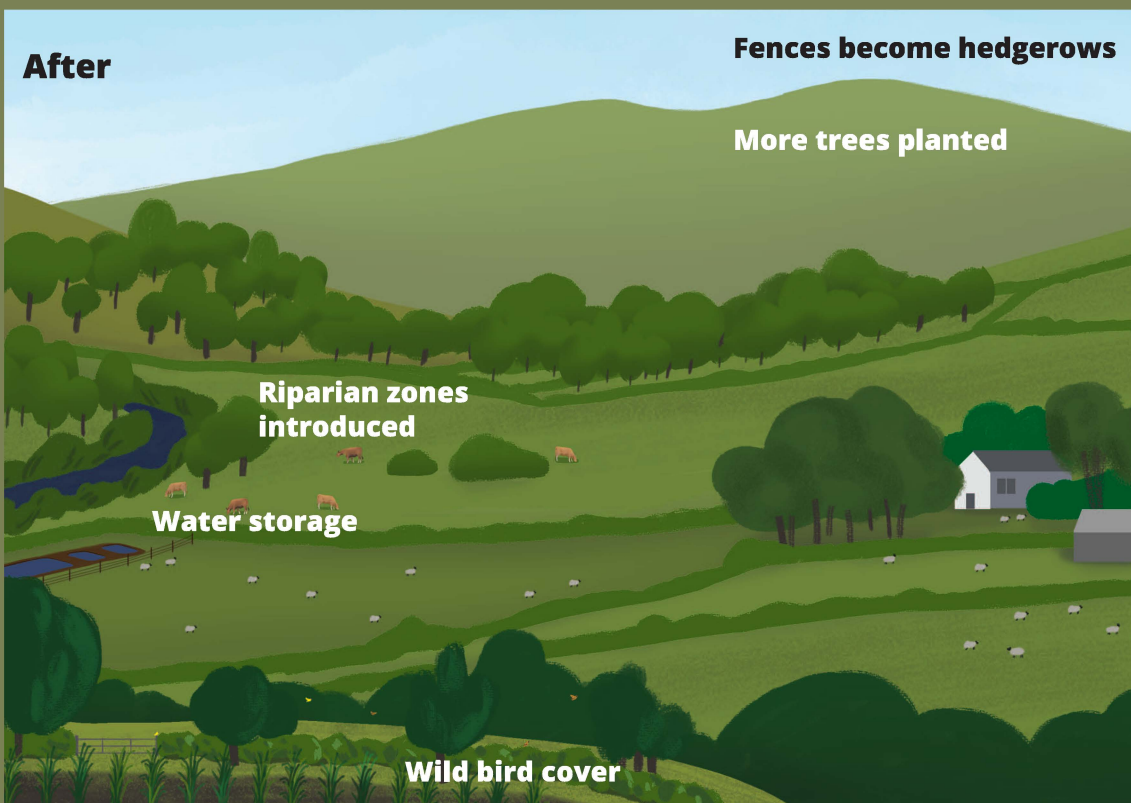
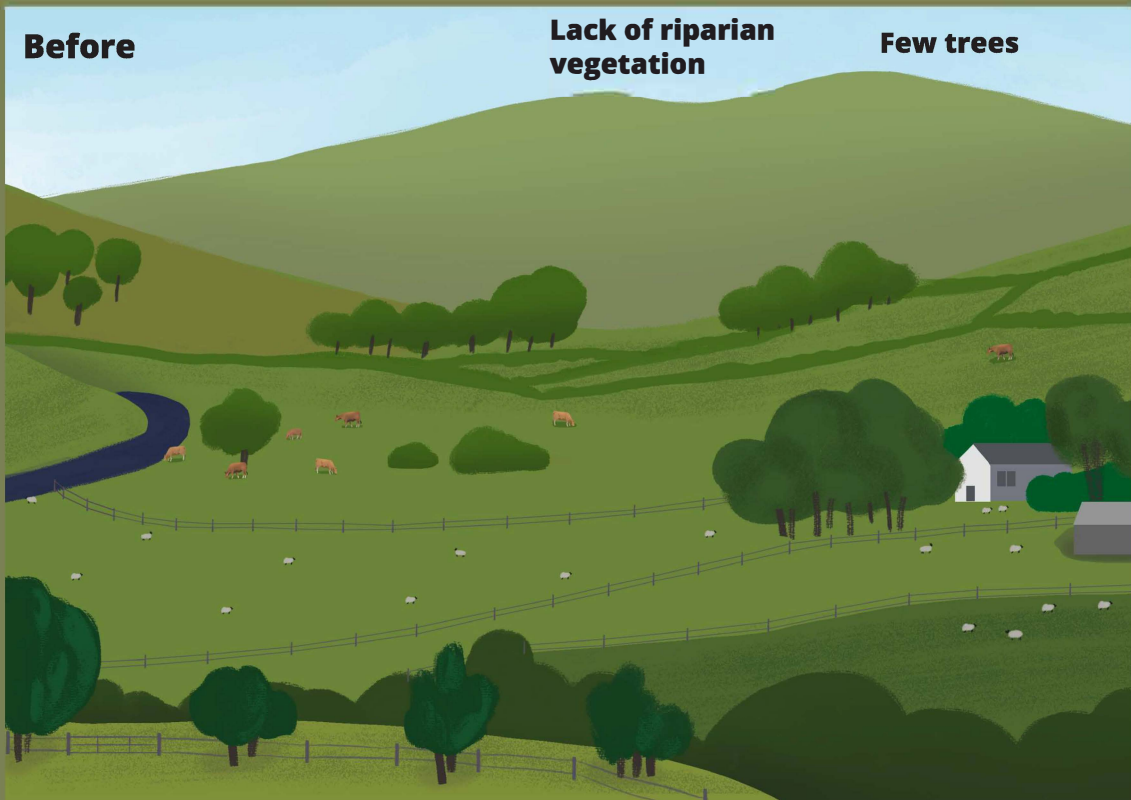


**Flood protection on
river floodplain**

**Improved water
quality**

**Increased
biodiversity**

Farm level nature-friendly farming measures in the Carlingford Catchment uplands



Flood protection on river floodplain

Improved water quality

Increased biodiversity

A Network of nature-friendly farming measures in the Carlingford Catchment lowlands (Lower catchment)



A Network of nature-friendly farming measures in the Carlingford Catchment lowlands (upper catchment)



A Network of nature-friendly farming measures in the Carlingford Catchment lowlands (mid catchment)

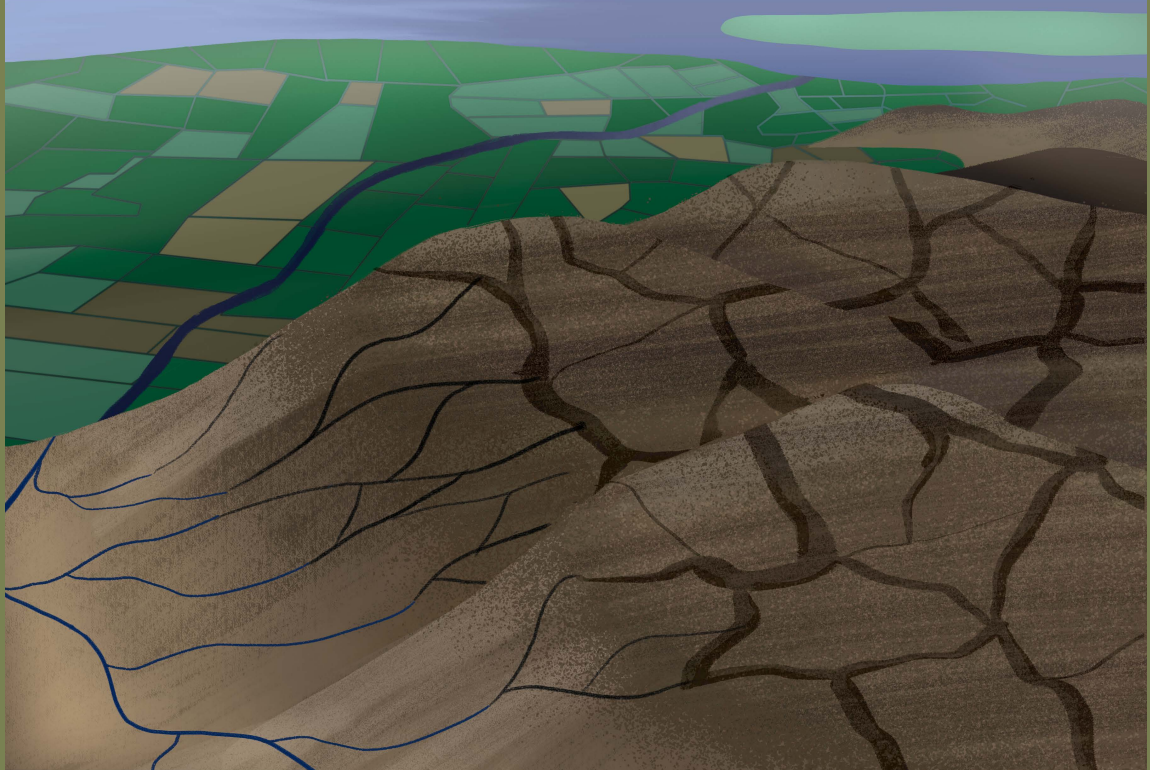


A Network of nature-friendly farming measures in the Carlingford Catchment Cooley Mountains

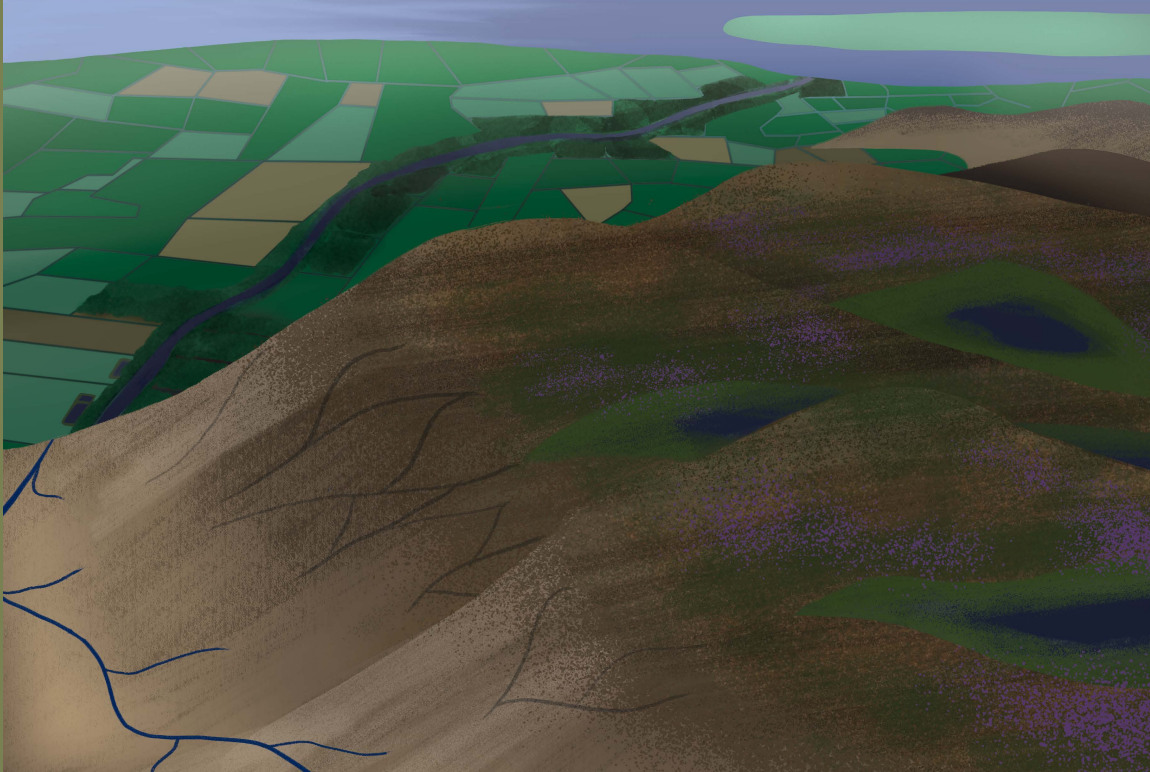


A Network of nature-friendly farming measures in the Carlingford Catchment, Mourne Mountains

Before



After



Useful resources

General

AFBI ALICE Site:

<https://www.afbini.gov.uk/alice-toolkit>

Environmental Farming Scheme (EFS) managed by DAERA (NI):

<https://www.daera-ni.gov.uk/topics/rural-development/environmental-farming-scheme-efs>

Green, Low-Carbon, Agri-Environment Scheme (GLAS) managed by DAFM (RoI)

<https://www.gov.ie/en/service/9133a5-green-low-carbon-agri-environment-scheme-glas/>

Wild Bird Cover

Wild Bird Cover (Bird Seed Mixtures):

<https://www.rspb.org.uk/our-work/conservation/conservation-and-sustainability/farming/advice/managing-habitats/wild-bird-seed-mixture/>

Farm Wildlife:

<https://farmwildlife.info/>

Nature Friendly Farming Network:

<https://www.nffn.org.uk/>

Floodwater Storage

The Flooding Manifesto - National Farmers Union, 2017:

<https://www.nfuonline.com/cross-sector/environment/water/water-must-read/our-flooding-manifesto/>

Tweed Forum:

<https://tweedforum.org/>

Riverside/Riparian Zones

Keeping Rivers Cool: A Guidance Manual, 2016:

<https://www.woodlandtrust.org.uk/publications/2016/02/keeping-rivers-cool/>

Agriculture:

<https://www.agricology.co.uk/resources>

Ballinderry Rivers Trust:

<http://www.ballinderryriver.org/>

Useful resources

Peatland Restoration

IUCN UK Peatlands programme, Ongoing:
<https://www.iucn-uk-peatlandprogramme.org/>

Mourne Heritage Trust:
<http://www.mournelive.com/>

Hedgerow Restoration

"WoodWise - Hedgerows and Hedgerow Trees", Woodland Trust, 2014:
<https://www.agricology.co.uk/resources/hedgerows-and-hedgerow-trees>

Tree Planting

"Tree Shelter for Livestock" - Woodland Trust, 2017:
<https://www.woodlandtrust.org.uk/publications/2017/05/benefits-of-tree-shelter-for-livestock/>

"Native Woodlands: Definitions and Guidance" - DAERA, 2008:
<https://www.daera-ni.gov.uk/publications/native-woodlands-definitions-and-guidance>