

Celebrating County Leitrim's Wetland Wealth

This booklet aims to raise awareness and improve understanding of the role of wetlands in our lives as a natural asset benefitting everyone

Funded by the Heritage Council and Leitrim County Council
as part of County Leitrim Heritage Plan



An Chomhairle Oidhreachta
The Heritage Council



Comhairle Chontae Liatroma
Leitrim County Council

What is a Wetland?



Reedswamp fringe around the shoreline at Lough Nacrriga

“A wetland is a place that has been wet enough for a long enough time to develop specially adapted vegetation and other organisms – Maltby, 1986”.

Wetland is a collective term for ecosystems (habitats and their species) whose formation has been influenced by water, and whose processes, characteristics and associated plants and animal are largely controlled by water.

Wetlands occur where the water table is at or near the surface of the land, or where the land is covered by a layer of shallow water, for some or all of the year. There are naturally occurring wetlands such as lakes, rivers, bogs, heaths, turloughs, fen, swamp and wet woodland produced as a result of natural environmental processes. There are also artificial wetlands such as fish ponds, farm ponds, reservoirs, gravel pits, sewage farms, treatment facilities, constructed wetlands, drainage ditches and canals.

Since prehistoric times, even in certain so called “natural” wetland systems, human-kind has played a major factor in wetland formation. In Ireland, forest clearance in the uplands helped trigger soil and vegetation changes, which together with a changing climate altered the hydrology leading to bog formation. Today, since some of these bogs have been harvested for fuel and their peat deposits removed, the flooding of the abandoned peat diggings has created new shallow lakes, with marginal fens, marsh and wet woodland areas.

In contrast to some other habitat types such as ancient woodlands, wetlands are often young and dynamic ecosystems, changing in a relatively short period of time as vegetation changes, sediments are laid down, and local hydrological conditions are altered.



Wetland communities along stream edge

Wetland Values

Wetlands are the most biologically diverse of all ecosystems, serving as home to a wide range of plant and animal life. Wetlands are a vital part of the freshwater cycle. The complex interaction of their components – water, soil, plants and animals, delivers many important ecological functions and ecological services. Wetlands are both providers and users of water. They need water in order to maintain their structures and functions, and they provide water, both in terms of quantity and quality.

The multiple roles of wetland ecosystems and their value to humanity have been increasingly understood and documented in recent years, as in the Irish Government report on the Economic & Social Aspects of Biodiversity. Internationally, this has led to large expenditures to restore lost or degraded wetlands.

Functional wetlands are among the world's most productive environments. They are a haven of biological diversity, providing the water and primary productivity upon which a great range of plants and animals depend. They support high concentrations and diversity of birds, mammals, reptiles, amphibians, fish, and especially invertebrates.

Wetlands provide many economic benefits including:

- Wetlands improve water quality by removing and sequestering pollutants and sediments in the water;
- Wetlands are of high importance to fisheries. Over two thirds of the world's fish harvest is linked to the health of coastal and inland wetland areas;
- Wetlands may be of high importance to agriculture and timber production, through the maintenance of water tables and nutrient retention in floodplains;
- Wetlands store floodwaters, acting like natural sponges and slowing down the force of flood and storm waters as they travel downstream. Far from posing a flood threat, wetlands should be viewed as buffers, to protect areas where people live;
- Wetlands may provide important energy resources, such as peat and plant matter;
- Wetlands may be of value to transport, recreation and tourism;

- Wetlands offer habitat for wildlife. Many migratory birds and other wildlife depend on the ecological setting of wetlands for their survival;
- Wetlands support biodiversity. The variety of living organisms found in wetlands contributes to the health of our planet and our own lives;
- Wetlands provide valuable open space and create wonderful recreational opportunities. Hiking, fishing, boating and bird watching are just a few of the activities people can enjoy in wetland areas; and
- Wetlands are vital in preventing further climate change by acting as a store of carbon. Until recently this has not been fully appreciated, and in Ireland it has still not been adequately communicated. Peatlands are known to store 20-30% of the world's soil carbon exceeding by three times the amounts stored in rainforests.

In addition, wetlands have special attributes as part of the cultural heritage of humanity: they are related to religious and cosmological beliefs, constitute a source of aesthetic inspiration and form the basis of many important local traditions.

These functions, values, and attributes of wetlands can only be maintained if the ecological processes of wetlands are allowed to continue functioning. Wetlands continue to be among the world's most threatened ecosystems, owing mainly to ongoing drainage, conversion (most often to agricultural lands), pollution, and over-exploitation of their resources.

Putting an economic value on something as abstract as the ecological services of a wetland is a difficult idea, but is becoming a more accepted economic tool. More commonly, the open market puts monetary values on society's goods and services. In the case of wetlands, there is no direct market for services such as clean water, maintenance of biodiversity, and flood control. There is, however, a growing recognition that such natural benefits do have real economic value and that these values need to be included in decision-making processes.

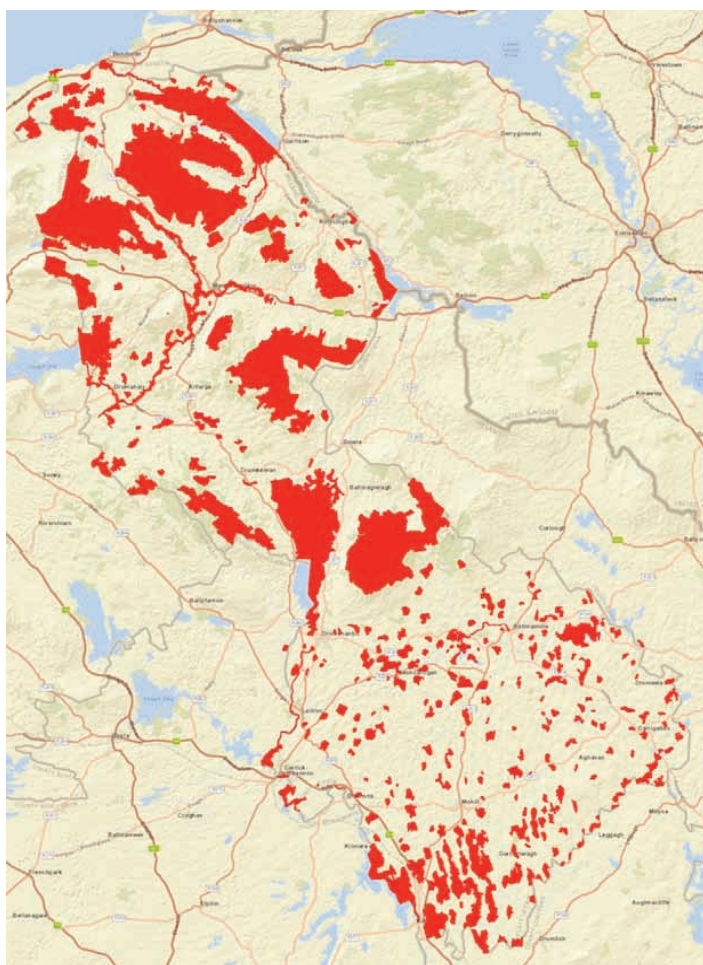


Wetlands in County Leitrim

Due to the varying topography, geology, hydrology, climate, and soils present, County Leitrim has wetland habitats ranging from raised and blanket bogs, fens, marshes, rivers and associated floodplains, lakes, springs, turloughs, and wet woodlands.

In 2019 Leitrim County Council commissioned the County Leitrim Wetland Survey which aimed to map all wetland areas in the county. This study found that larger lakes, blanket bog and wet heath areas dominated the northern half of the county, with smaller raised bogs and other discrete wetland sites occurring more frequently in the southern half. It is estimated that 23.5% of county Leitrim is covered in wetlands with a total surface area of approximately 375km².

In the section which follows some of the more commonly encountered and important wetland types in County Leitrim are described in more detail.



Map showing the distribution of wetlands in County Leitrim (Source: County Leitrim Wetland Survey 2019).

Wet grassland and marsh

Wet grassland may be one of the commonest wetland habitats in the county. This habitat is found on flat ground along rivers, beside lakes, around bogs and on drumlin slopes. The wet mineral or organic soils are poorly-drained or subject to periodic flooding. Wet grassland commonly occurs in areas of farmland that has not been recently affected by drainage and/or fertiliser application, and is often characterised by the occurrence of rushes and a range of broad-leaved herbs.



Rush dominated wet grassland

Natural wet grasslands are rich in invertebrates making them ideal breeding sites for ground-nesting waders such as redshank, snipe, lapwing and curlew. Wet grassland areas are susceptible to changes in management that reduces species diversity such as fertilizer application or increased drainage.

Marsh occurs in scattered fragments, often in a complex mosaic with a range of other wetland habitat types such as wet grassland, fen, wet woodland and swamp. It is an ideal habitat for breeding waders such as snipe, and numerous invertebrate species.



Marsh with Flag Iris near Carrick-on-Shannon

Lakes & Swamps

County Leitrim has a large selection of lake types, including hard water, mesotrophic and eutrophic lakes. Hard water lakes and ponds of limestone areas are base-rich and poor to moderately rich in nutrients. The water is typically clear and the lake sediment usually has a high proportion of marl, a white clay precipitate of calcium carbonate. Marl-forming Stoneworts (*Chara* spp.) are often abundant and may form dense carpets in unpolluted waters. Various-leaved Pondweed (*Potamogeton gramineus*) is also characteristic. These lakes are frequently fringed by alkaline fen and flush vegetation. These lakes are important habitats for insects and birds.



River Front Amenity Park, Carrick-on-Shannon

Mesotrophic lakes and ponds are waterbodies that are moderately rich in nutrients, and where the water is sometimes discoloured by algae. Characteristic aquatic plants include White Water-lily (*Nymphaea alba*), Yellow Water-lily (*Nuphar lutea*), and a large number of Pondweeds and Stoneworts (*Chara* spp.) may also be present. The fringing and aquatic plant communities are typically more lush than those associated with oligotrophic lakes.



Glenade Lough

Eutrophic lakes and ponds are waterbodies that are high in nutrients and base-rich and the water is usually discoloured or turbid, often grey to green in colour, from the abundant algae and suspended matter present.

Some water bodies are naturally eutrophic but most Irish lakes are eutrophic as a result of enrichment and high levels of nutrients entering the water.

Swamp habitat occurs around many of the lakes and fens in County Leitrim and usually remains waterlogged throughout the year. Swamps have lots of tall perennial grasses such as bulrush or reedmace, reed sweet-grass, common club-rush, common reed and reed canary-grass.

Swamps are rich in invertebrate life and support a number of notable bird species including reed warbler, water rail, moorhen and other waterfowl. They are also prime habitats for a number of freshwater molluscs and water beetles and provide ideal cover for otter and water rail. The reed stems are also the food plant for a number of moth species.



Mosaic of wetland communities on Leitrim Turlough

Bogs and Fens



Aghnamona Bog

In County Leitrim, three main bog types occur, raised bog, upland and lowland blanket bog and cutover bog. The common feature of bogs is that they are soft (Irish: bogach) to walk on because they are made of peat, which is formed from partially decomposed plant remains.

Raised bogs developed in water filled lowland hollows or lakes 10,000 years ago. Sphagnum moss grew in these hollows, and over time their remains turned into peat, rising above the original water table, to form peat domes. This habitat was common throughout the county before peat cutting removed the layers of peat for fuel. Blanket Bog deposition started to form 4,000 years ago as the climate warmed and where poor drainage caused the build up of peat (partly decomposed plant remains) in the oxygen starved environment. There are extensive areas of relatively intact upland blanket bog in the north-west of the county.

Removal of turf for fuel from raised or blanket bogs created cutover bog. When peat extraction ceased and these bogs were abandoned, the

areas often regenerated secondary wetland communities, with a mosaic of pools, bog, fen and wet woodland habitats.

A fen is a wetland system with a permanently high water table at or just below its surface that receives nutrients via direct contact with mineral enriched surface or groundwater. Fens also developed on areas with a history of extensive peat extraction in the 17th-19th centuries, and secondary fens are likely to be widespread in Leitrim.

Fens are characterised by a rich selection of sedges and grasses which make up a framework on which the flowering plants, mosses and fen wildlife depends. Four main fen types are recorded in Leitrim. Poor fen is found in bog areas, transition mire is frequent throughout the county on lakeshores, in wet infilling hollows and in regenerating cutover bog areas. Alkaline fen and Cladium fen are influenced by base rich alkaline water, both of which are habitats found in the northern half of the county.



Fen vegetation on lake edge



Mountain blanket bog in Cuilcagh Anieren Uplands

Rivers and Wet woodland



Wet woodland at Killylea Lough and Wetland

Rivers, canals and smaller waterways are an important habitats in County Leitrim, in both the uplands and lowlands.

Eroding rivers include watercourses, or sections of these, that are actively eroding, unstable and where there is little or no deposition of fine sediment. Eroding conditions are typically associated with the upland parts of river systems where gradients are often steep, and water flow is fast and turbulent. The beds of eroding/upland rivers are characterised by exposed bedrock and loose rock. Pebbles, gravel and coarse sand may accumulate in places, but finer sediments are rarely deposited. These rivers vary in size but are usually smaller and shallower than depositing rivers.

Depositing rivers include those where fine sediments are deposited on the river bed. Depositing conditions are typical of lowland areas where gradients are low and water flow is slow and sluggish. These rivers vary in size but are usually larger and deeper than those above. In a natural state these rivers erode their banks and meander across floodplains.

The substratum of depositing rivers comprises mainly fine alluvial or peaty sediments. Vegetation may include floating and submerged aquatics, with fringing emergents in shallow water or overgrowing the banks. Due to their location in lowland areas, where agricultural activities are prevalent and with increased population pressures, most of these rivers have been modified to some extent to control water flow, facilitate navigation or prevent flooding and erosion. These

activities all alter the natural river bank and adjacent vegetation occurring along such rivers.

Wet woodland includes woodlands of periodically or permanently waterlogged sites. These woodland habitats may contain a variety of trees including birch, ash, alder and various willow species. Wet woodlands occur on basin peats on flat sites in the lowlands, such as lakeshores, river margins and in fens, where the woodland is



Lough Allen Canal

known as carr. The soils are mildly acidic to strongly basic and generally nutrient enriched. The herb layer in wet woodlands is very rich in species with an abundance of moisture-loving herbs.

Bog woodlands are a type of wet woodland that occurs on peat at the edge of raised bogs and on some regenerating cutover bog sites. They usually are dominated by birch trees which are suited to the acidic conditions.



The River Shannon

Wetland Biodiversity



Bog bean

Wetlands are the most biologically diverse of all ecosystems, serving as home to a wide range of plant and animal life.

Wetlands are a critical part of our natural environment, and play a key role in supporting Leitrim's biological diversity. Wetlands are rich in biodiversity, supporting numerous species from all of the major groups of organisms – from microbes to plants, invertebrates, amphibians, birds and mammals. Wetlands support species during important life stages by providing breeding, roosting, nesting and feeding habitats as well as refuges during adverse weather conditions. They also form corridors or stepping stone habitats by providing stop-offs that support the migration of species such as waterbirds.

Physical and chemical features of the wetland habitat such as climate, topography (landscape shape), geology, nutrients, and hydrology (the quantity and movement of water) determine what plants and animals will inhabit various wetland habitat types.

Plants

Wetland plants (or hydrophytes) are plants that grow in water or need a waterlogged environment and include a large variety of trees, shrubs, herbs, grasses, sedges, ferns, mosses and algae. Many of these species have special adaptations to allow them to live in the waterlogged environment found in wetlands. Shallow roots or hollow stems facilitate survival of the root system during times of waterlogging and low oxygen levels. These adaptations also enable plants to grow in extremely acid habitats such as a bog.

Wetland Wildlife

The many wetland plants and the habitats they create are home to a large array of animals that live in wetlands. Some of these animals use both wetland and adjacent dry land habitats during their life cycle (e.g. birds of prey and bats), while others live out their entire life within the wetland habitat and are entirely dependent on the wetland for their survival (e.g. otter, grouse, curlew, amphibians, many invertebrates, moths and butterflies). Many of these wetland species have declined significantly in recent times as wetlands have been reclaimed and reduced in number.

Leitrim's many lakes and rivers are rich in fish life, and provide a valuable income stream for the county from visiting anglers. This wetland resource offers fishing famous for specimen bream, ponds that are loaded with brightly coloured rudd, tench, and vast lakes alive with roach and hybrids.



Coot feeding its chicks

Wetland Animals



The Common frog is our most abundant and widespread amphibian found in many wetland types in County Leitrim.



Brown trout is a native Irish species and the most widely distributed freshwater fish in Ireland.



The preferred habitat of the Grey wagtail is around fast-flowing rivers in the summer as well as fresh water rocky streams, weirs, lakes and woodland brooks.



Grey heron rely completely on wetlands for their food, consisting of fish and amphibians.



The Smooth newt is an amphibian found in wetlands, especially ponds (both natural and artificial) and smaller water bodies.



The Viviparous lizard our only native reptile is found in many lowland bog and heathland areas.

Wetland Invertebrates



Orange tip butterfly. The caterpillar of this species feed on cuckooflower a plant common on wet grassland, fen and marsh.



One of the largest moths found in wetlands is the Emperor moth, who's caterpillars feeds on ling heather, bilberry and other wetland plants.



The raft spider is a semi-aquatic species. Adults can walk on water and hunt for prey in freshwater wetlands, especially wet heaths and acid bogs.



*The large ground beetle *Carabus glabratus* lives among heather and litter on well-vegetated upland peat, and on raised bogs.*



The Banded demoiselle is an insect carnivore found in wetlands, especially along slow-flowing streams and rivers.

Wetland Plants



L to R: Reedmace is one of the larger grasses found in reedswamps and transition mires, especially those with some degree of enrichment; Purple loosestrife, this beautiful, upright perennial grows in ditches, river banks, canals and marshes; the Great willowherb is a tall plant of damp places, ditches, riversides.



Cuckooflower favours wet habitats such as marshes and damp meadows, and often puts on a spectacular show when in flower in April and May.



Great sundew is an insectivorous plant found in raised bog pools. The plant gets nutrients by trapping and digesting insects.

Sphagnum moss, without these mosses there would be no bogs in Ireland. Bogs have a living surface which is made of a carpet of Sphagnum mosses, which as they die accumulate to form peat.



Where to see wetlands in County Leitrim

County Leitrim is rich in wetlands. This section includes information on sites which are open to the public where you can see and explore some wetlands further. The sites have a variety of visitor facilities including parking, paths, boardwalks, exhibitions and information signs that will help you enjoy a visit to these magical places, and learn

more about wetlands and their value to wildlife.

The wetlands to visit in Leitrim is based on a selection of sites shown on the Map of Irish Wetlands which you can find at <http://www.fossenvironmentalconsulting.com/>

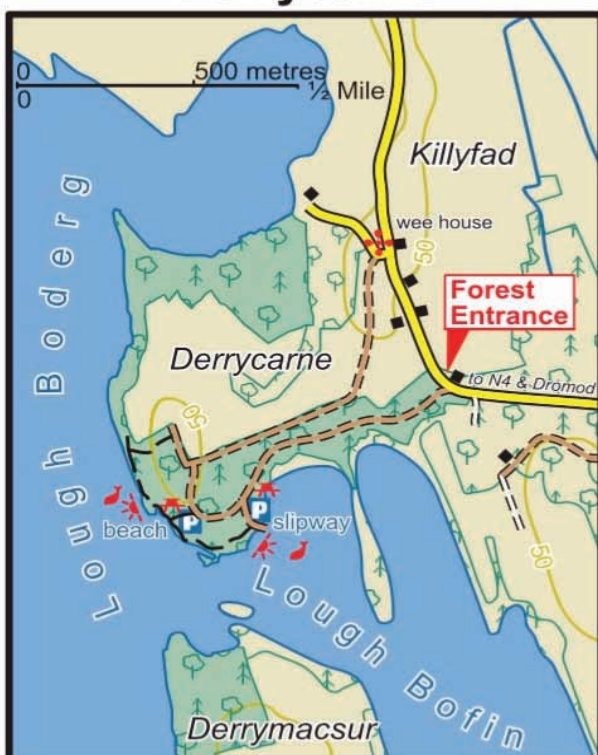


ACRES LAKE FLOATING BOARDWALK

This lovely walking trail can be completed in either direction from Drumhauver Bridge or Acres Lake. Follow the towpath around the lovely loop on either side of the canal on the Shannon Blueway. These off road trails are a wonderful way to

explore the beauty and wildlife living along the Shannon Blueway and be sure to pay a visit to the new and iconic Acres Lake floating boardwalk where you can 'walk on water'. There is parking, walking trail and a floating boardwalk.

Derrycarne



DERRYCARNE WOODLAND AND LOUGH BOFIN

This woodland is situated in an area that was formerly part of the Derrycarne Demense. The lands were owned by the Nesbitt family in the early 1800s. They were subsequently acquired by Edward Willis and William Ormsby Gore MP. The woodland provides a very pleasant walk along the shore of Lough Boderg. Cruisers have access to this lake through the Shannon water system. The remains of an ice house can be seen along the shore. The trail passes through mixed woodland of beech, oak, and holly together with Sitka spruce and Lawson cypress. The wetland habitats of the lake include extensive areas of reedswamp vegetation in sheltered bays, that provide good cover for a variety of bird species. There are narrow areas of wet woodland around the lake shore with alder, ash and willows. Facilities include parking, picnic area and extensive network of walking trails.

Further information:

<https://www.coillte.ie/site/derrycarne/>



LOUGH RINN AMENITY AREA

Lough Rinn Amenity area occurs at the northern end of the lake. The lake is a popular public amenity for rowing and canoeing enthusiasts. The area provides scenic views over the lake, reedswamp and wooded shoreline of Lough Rinn.

There is parking, a picnic area, floating pontoons and short walking paths.



RIVER FRONT AMENITY PARK, CARRICK-ON-SHANNON

The River Park is located in the town of Carrick-on-Shannon. The park consists of a narrow site, which stretches along the River Shannon and is defined along its northern side and is segregated from the town by the N4 Dublin to Sligo road. The park supports many habitats that are typical of the Shannon and demonstrates zonation of wetland types from terrestrial to open water, including reed beds, wet woodland, wet grassland and marsh. Associated with this habitat diversity the site has a large variety of flora and fauna. 139 species of plants, 30 species of birds and 2 species of mammals (otter and fox) have been identified at this site. There is parking, walking paths and a boardwalk.



GLENFARNE WOOD AND LOUGH MACNEAN

This site lies on the shore of Lough Macnean which forms the natural boundary between the counties of Leitrim, Cavan and Fermanagh. The wood forms part of what was once the Tottenham Estate, that existed from 1780 to 1919. The “big house” known as Glenfarne Hall was built in the 1800s. The estate was later acquired as a hunting retreat for Sir Edward Harland, founder of the Harland and Wolfe shipyard in Belfast. A feature of the trails is the presence of a number of sculptures which form a section of the Lough Macnean sculpture trail. There are also a number of other features along or adjacent to the trails, notably, the Ladies Rest, Myles Big Stone and the badgers well. There is parking, extensive walking trails, picnic areas and panoramic views.

Further information:

<https://www.coillte.ie/site/glenfarne-wood/>

What you can do to help wetlands in Leitrim

Remember

Wetlands = water

Wetlands = wildlife

Wetlands = flood control

Wetlands = climate change mitigation

Wetlands = amenity and recreational open spaces

Wetlands = economic value to County Leitrim

Wetlands = winter and summer colour in our countryside

Wetlands = life

Learn more about wetlands

Learn more about wetlands, their wildlife and values by visiting one of the sites suggested in the wetlands to visit section. Remember to pick up all litter and dispose in appropriate waste bins or take it home with you.

Stop the spread of invasives

A threat to many wetlands is the negative effect of invasive species (plants or animals) on biodiversity. The Giant Hogweed (*Heracleum mantegazzianum*), Japanese Knotweed (*Fallopia japonica*), Himalayan Balsam (*Impatiens balsamifera*) and Australian Swamp Stonecrop (*Crassula helmsii*) are among the worst flora culprits. If they establish in a wetland they can cause health risks and affect the occurrence of native wetland plants which tend to be crowded out. Similarly, invasive fauna such as the Zebra Mussel can alter the ecology of lakes, affecting angling.

Stop the spread of invasives

Make sure to take precautions and do not help the spread of invasive species. Report the occurrence of these species to the County Council or the National Biodiversity Data Centre. Join with a local group that are trying to eradicate a species from an area.

Organise a wetland clean-up

Participate in or organise a clean-up event of your local wetland and coordinate with other volunteers to help save or restore a wetland habitat. Contact your local authority, community groups, tidy towns group, environmental organisations or a non-government organisation that may know of events near you.

Prevent wetland infilling

Infilling areas of wetland, even pieces of wetland on the edge of a large site has negative impacts on the whole site and the functions it performs. Infilling can cause flooding in other places which have never previously flooded, due to a loss in water absorption capacity of the damaged wetland.

Infilling directly removes wildlife habitat for plants, insects, butterflies, dragonflies and birds. It is unsightly and destroys the natural character and beauty of an area.

Infilling requires a waste permit from the Local Authority. Take measures to ensure your construction and demolition waste is going to a permitted site. Or better still try to re-use construction waste and all subsoil on site as part of your development.

Prevent wetland dumping

Dumping domestic waste and other waste in wetlands can affect water quality and result in surface water and groundwater pollution. Dumping is unsightly and illegal, and shows little respect for our environment. Report any dumping to Leitrim County Council.

Create your own rural or urban wetland

Creating a small wetland in your garden or on the farm is very simple, even when there are no natural wet spots. It's a way to attract much more wildlife into your garden or onto your land. There are lots of websites that can help you find the ideal design for your conditions. Plant only native species of trees, shrubs, and flowers to preserve the ecological balance of your wetland.

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