Appendix 5.6

Designated Nature Conservation Site Synopses

Knockanarragh Wind Farm EIAR Volume 3

Knockanarragh Wind Farm Limited

24 November 2023

SITE SYNOPSIS

Site Name: River Boyne and River Blackwater SAC

Site Code: 002299

This site comprises the freshwater element of the River Boyne as far as the Boyne Aqueduct, the Blackwater as far as Lough Ramor and the Boyne tributaries including the Deel, Stoneyford and Tremblestown Rivers. These riverine stretches drain a considerable area of Meath and Westmeath, and smaller areas of Cavan and Louth. The underlying geology is Carboniferous Limestone for the most part, with areas of Upper, Lower and Middle well represented. In the vicinity of Kells Silurian Quartzite is present while close to Trim are Carboniferous Shales and Sandstones. There are many large towns adjacent to but not within the site, including Slane, Navan, Kells, Trim, Athboy and Ballivor.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[7230] Alkaline Fens
[91E0] Alluvial Forests*
[1099] River Lamprey (*Lampetra fluviatilis*)
[1106] Atlantic Salmon (*Salmo salar*)
[1355] Otter (*Lutra lutra*)

The main areas of alkaline fen in this site are concentrated in the vicinity of Lough Shesk, Freehan Lough and Newtown Lough. The hummocky nature of the local terrain produces frequent springs and seepages which are rich in lime. A series of base-rich marshes have developed in the poorly-drained hollows, generally linked with these three lakes. Open water is usually fringed by Bulrush (*Typha latifolia*), Common Club-rush (*Scirpus lacustris*) or Common Reed (*Phragmites australis*), and this last species also extends shorewards where a dense stand of Great Fen-sedge (*Cladium mariscus*) frequently occurs. This in turn grades into a sedge and grass community (*Carex* spp. and Purple Moor-grass, *Molinia caerulea*), or one dominated by Black Bog-rush (*Schoenus nigricans*). An alternative aquatic/terrestrial transition is a floating layer of vegetation. This is normally based on Bogbean (*Menyanthes trifoliata*) and Marsh Cinquefoil (*Potentilla palustris*). Other species gradually become established on this cover, especially plants tolerant of low nutrient status e.g. bog mosses (*Sphagnum* spp.). Diversity of plant and animal life is high in the fen and the flora includes many rarities. Plants of interest include Narrow-leaved Marsh-orchid (*Dactylorhiza traunsteineri*), Fen Bedstraw (*Galium uliginosum*), Cowbane (*Cicuta virosa*), Frogbit (*Hydrocharis morsus-ranae*) and Least Bur-reed (*Sparganium minimum*). These species tend to be restricted in their distribution in Ireland. Also notable is the

abundance of aquatic stoneworts (*Chara* spp.) which are characteristic of calcareous wetlands.

The rare plant Round-leaved Wintergreen (*Pyrola rotundifolia*) occurs around Newtown Lough. This species is listed in the Red Data Book and this site represents its only occurrence in Co. Meath.

Wet woodland fringes many stretches of the Boyne. The Boyne River Islands are a small chain of three islands situated 2.5 km west of Drogheda. The islands were formed by the build-up of alluvial sediment in this part of the river where water movement is sluggish. All of the islands are covered by dense thickets of wet, willow (*Salix* spp.) woodland, with the following species occurring: Osier (*S. viminalis*), Crack Willow (*S. fragilis*), White Willow (*S. alba*), Purple Willow (*Salix purpurea*) and Rusty Willow (*S. cinerea* subsp. *oleifolia*). A small area of Alder (*Alnus glutinosa*) woodland is found on soft ground at the edge of the canal in the north-western section of the islands. Along other stretches of the rivers of the site Rusty Willow scrub and pockets of wet woodland dominated by Alder have become established, particularly at the river edge of mature deciduous woodland. Ash (*Fraxinus excelsior*) and Downy Birch (*Betula pubescens*) are common in the latter, and the ground flora is typical of wet woodland with Meadowsweet (*Filipendula ulmaria*), Wild Angelica (*Angelica sylvestris*), Yellow Iris (*Iris pseudacorus*), horsetails (*Equisetum* spp.) and occasional tussocks of Greater Tussock-sedge (*Carex paniculata*).

The dominant habitat along the edges of the river is freshwater marsh, and the following plant species occur commonly in these areas: Yellow Iris, Creeping Bent (*Agrostis stolonifera*), Canary Reed-grass (*Phalaris arundinacea*), Marsh Bedstraw (Galium palustre), Water Mint (*Mentha aquatica*) and Water Forget-me-not (*Myosotis scorpioides*). In the wetter areas Common Meadow-rue (*Thalictrum flavum*) is found. In the vicinity of Dowth, Fen Bedstraw (*Galium uliginosum*), a scarce species mainly confined to marshy areas in the midlands, is common in this vegetation. Swamp Meadow-grass (*Poa palustris*) is an introduced plant which has spread into the wild (naturalised) along the Boyne approximately 5 km south-west of Slane. It is a rare species which is listed in the Red Data Book and has been recorded among freshwater marsh vegetation on the banks of the Boyne in this site. The only other record for this species in the Republic of Ireland is from a site in Co. Monaghan.

The secondary habitat associated with the marsh is wet grassland and species such as Tall Fescue (*Festuca arundinacea*), Silverweed (*Potentilla anserina*), Creeping Buttercup (*Ranunculus repens*), Meadowsweet and Meadow Vetchling (*Lathyrus pratensis*) are well represented. Strawberry Clover (*Trifolium fragiferum*), a plant generally restricted to coastal locations in Ireland, has been recorded from wet grassland vegetation at Trim. At Rossnaree river bank on the River Boyne, Round-Fruited Rush (*Juncus compressus*) is found in alluvial pasture, which is generally periodically flooded during the winter months. This rare plant is only found in three counties in Ireland.

Along much of the Boyne and along tributary stretches are found areas of mature deciduous woodland on the steeper slopes above the floodplain marsh or wet woodland vegetation. Many of these are planted in origin. However the steeper areas of King Williams Glen and Townley Hall wood have been left unmanaged and now have a more natural character. East of Curley Hole the woodland has a natural appearance with few conifers. Broadleaved species include oaks (*Quercus* spp.), Ash, willows, Hazel (*Corylus avellana*), Sycamore (*Acer pseudoplatanus*), Holly (*Ilex aquifolium*), Horse-chestnut (*Aesculus hipposcastanum*) and the shrubs Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and Elder (*Sambucus nigra*). South-west of Slane and in Dowth, some more exotic tree species such as Beech (*Fagus sylvatica*), and occasionally Lime (*Tilia cordata*), are seen. The coniferous trees Larch (*Larix* sp.) and Scots Pine (*Pinus sylvestris*) also occur. The woodland ground flora includes Barren Strawberry (*Potentilla sterilis*), Enchanter's-nightshade (*Circaea lutetiana*) and Ground-ivy (*Glechoma hederacea*), along with a range of ferns. Variation occurs in the composition of the canopy - for example, in wet patches alongside the river, White Willow and Alder form the canopy.

Other habitats present along the Boyne and Blackwater include lowland dry grassland, improved grassland, reedswamp, weedy waste ground, scrub, hedge, drainage ditch and canal. In the vicinity of Lough Shesk, the dry slopes of the morainic hummocks support grassland vegetation which, in some places, is partially colonised by Gorse (*Ulex europaeus*) scrub. Those grasslands which remain unimproved for pasture are species-rich, with Common Knapweed (*Centaurea nigra*), Creeping Thistle (*Cirsium arvense*) and Ribwort Plantain (*Plantago lanceolata*) commonly present. Fringing the canal alongside the Boyne south-west of Slane are areas with Reed Sweet-grass (*Glyceria maxima*), Great Willowherb (*Epilobium hirsutum*) and Meadowsweet.

The Boyne and its tributaries form one of Ireland's premier game fisheries and the area offers a wide range of angling, from fishing for spring salmon and grilse to seatrout fishing and extensive brown trout fishing. Atlantic Salmon (*Salmo salar*) use the tributaries and headwaters as spawning grounds. Although this species is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the Habitats Directive. Atlantic Salmon run the Boyne almost every month of the year. The Boyne is most important as it represents an eastern river which holds large three-sea-winter fish from 20-30 lb. These fish generally arrive in February, with smaller spring fish (10 lb) arriving in April/May. The grilse come in July, water permitting. The river gets a further run of fish in late August and this run would appear to last well after the fishing season. The salmon fishing season lasts from 1st March to 30th September.

The Blackwater is a medium sized limestone river which is still recovering from the effects of the arterial drainage scheme of the 1970s. Salmon stocks have not recovered to the numbers that existed pre-drainage. The Deel, Riverstown, Stoneyford and Tremblestown Rivers are all spring-fed, with a continuous high volume of water. They are difficult to fish because some areas are overgrown, while others have been affected by drainage with resultant high banks.

This site is also important for the populations of two other species listed on Annex II of the E.U. Habitats Directive which it supports, namely River Lamprey (*Lampetra fluviatilis*), which is present in the lower reaches of the Boyne River, and Otter (*Lutra lutra*), which can be found throughout the site. In addition, the site also supports many more of the mammal species occurring in Ireland. Those which are listed in the Irish Red Data Book include Pine Marten, Badger and Irish Hare. Common Frog, another Red Data Book species, also occurs within the site. All of these animals, with the addition of the Stoat and Red Squirrel, which also occur within the site, are protected under the Wildlife Act, 1976.

Whooper Swans winter regularly at several locations along the Boyne and Blackwater Rivers. Known sites are at Newgrange (approx. 20 in recent winters), near Slane (20+ in recent winters), Wilkinstown (several records of 100+) and River Blackwater from Kells to Navan (104 at Kells in winter 1996/97, 182 at Headfort in winter 1997/98, 200-300 in winter 1999/00). The available information indicates that there is a regular wintering population of Whooper Swans based along the Boyne and Blackwater River valleys. The birds use a range of feeding sites but roosting sites are not well known. The population is substantial, certainly of national, and at times international, importance. Numbers are probably in the low hundreds.

Intensive agriculture is the main land use along the site. Much of the grassland is in very large fields and is improved. Silage harvesting is carried out. The spreading of slurry and fertiliser poses a threat to the water quality of this salmonid river and to the lakes. In the more extensive agricultural areas sheep grazing is carried out.

Fishing is a main tourist attraction on the Boyne and Blackwater and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. The Eastern Regional Fishery Board have erected fencing along selected stretches of the river as part of their salmonid enhancement programme. Parts of the river system have been arterially dredged. In 1969 an arterial dredging scheme commenced and disrupted angling for 18 years. The dredging altered the character of the river completely and resulted in many areas in very high banks. The main channel from Drogheda upstream to Navan was left untouched, as were a few stretches on the Blackwater. Ongoing maintenance dredging is carried out along stretches of the river system where the gradient is low. This is extremely destructive to salmonid habitat in the area. Drainage of the adjacent river systems also impacts on the many small wetland areas throughout the site. The River Boyne is a designated Salmonid Water under the E.U. Freshwater Fish Directive.

The site supports populations of several species listed on Annex II of the E.U. Habitats Directive, and habitats listed on Annex I of this Directive, as well as examples of other important habitat types. Although the wet woodland areas appear small there are few similar examples of this type of alluvial wet woodland remaining in the country, particularly in the north-east. The semi-natural habitats, particularly the strips of woodland which extend along the river banks, and the marsh and wet

grasslands, increase the overall habitat diversity and add to the ecological value of the site, as does the presence of a range of Red Data Book plant and animal species and the presence of nationally rare plant species.

SITE SYNOPSIS

Site Name: Girley (Drewstown) Bog SAC

Site Code: 002203

Girley (Drewstown) Bog SAC occurs within the larger raised bog system that is designated as Girley Bog NHA (001580). It is situated 5.5 km north of Athboy in the townland of Drewstown, Co. Meath. The site is part of a raised bog that includes both areas of high bog and cutover bog. It is bordered by open high bog on its northern and eastern margins, by agricultural land on its western margin and by a conifer plantation on cutover bog on its southern side. The underlying geology is carboniferous limestone.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/ or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[7120] Degraded Raised Bog

Degraded Raised Bog corresponds to those areas of high bog where the hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration to Active Raised Bog (7110) within 30 years.

Girley (Drewstown) Bog consists of 32.26 ha of raised bog (15.05 ha of high bog and 17.21 ha of cutover bog) which occupies the south-western part of Girley Bog NHA (Site Code 001580). Girley Bog is a Midland type raised bog developed in a basin. It originally covered approximately 190 ha in the early 1800s but by 2010 had been reduced to 72.5 ha (38.4% of the original area) by turf cutting. Most of the SAC and all of the high bog included in the SAC was completely covered by coniferous forestry, which was planted in the 1970s, and was recently clear-felled as part of the restoration program for the site. The areas of high bog that were planted supported a dense plantation of Lodgepole Pine (*Pinus contorta*) and Sitka Spruce (*Picea sitchensis*).

Most of the conifers in the SAC were removed and the intensive drainage system associated with it was blocked by 2013 as part of an EU LIFE-funded Coillte project *Demonstrating Best Practice in Raised Bog Restoration in Ireland* so as to raise the water table and restore Active Raised Bog on the site. With the clear-felling of conifers and blocking of drains, water-levels on the high bog have risen and remain high throughout the year. As a consequence, raised bog vegetation has returned to the wetter areas of the high bog. Hare's-tail Cottongrass (*Eriophorum vaginatum*) dominates these wet hollows with Bilberry (*Vaccinium myrtillus*), Heather (*Calluna vulgaris*) and Cross-leaved Heath (*Erica tetralix*) along with Bog Rosemary (*Andromeda polifolia*)and Cranberry (*Vaccinium oxycoccos*). Bog mosses that are regenerating include *Sphagnum subnitens*, *Sphagnum capillifolium* and *Sphagnum*

palustre forming low hummocks with *Sphagnum recurvum* in drains. Overall, the high bog appears to be re-wetting and limited areas of wet flats and hummock/hollows have developed. However, the majority of the restored areas have not yet developed vegetation characteristic of the wettest conditions and there is a considerable amount of conifer and birch regeneration occurring in these areas. Two areas in the north-east of the site covering 2.28 ha have been identified by hydrological modelling as Degraded Raised Bog habitat. They now have standing surface water in the hollows and pools for most of the year with considerable areas of rapidly regenerating *Sphagnum* species. These wet areas with regenerating *Sphagnum* moss are expected to develop into Active Raised Bog habitat within 20 years.

The cutover bog to the south of the site is generally drier and is developing into wet and dry woodland dominated currently by Downy Birch (*Betula pubescens*) scrub with occasional conifers from the former plantation. Cherry Laurel (*Prunus laurocerasus*), Rhododendron (*Rhododendron ponticum*) and conifers are regenerating in this area and are subject to ongoing control programs.

Current landuse on the site consists of conservation management with the removal of conifer plantations and the blocking of the drainage associated with these plantations, both on the high bog and on the cutover. However, active drains are still present on the northern and eastern boundaries of the SAC which are adversely impacting on its restoration and need to be blocked in consultation with other stakeholders. In addition, there have been fires on the adjacent bog and within the SAC causing some damage to the recovering vegetation. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability. There is also some dumping around the site.

Girley Bog SAC is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site is being actively managed for conservation as part of the Coillte EU LIFE Project. This site supports regenerating raised bog microhabitats, including hollows and wet flats, which add to the diversity and scientific value of the site. This site is one of the few remaining raised bogs in County Meath and represents the eastern extreme of the range of raised bogs in the country. Ireland has a high proportion of the total E.U. resource of the Atlantic raised bog habitat type (over 50%) and so has a special responsibility for its conservation at an international level.

SITE SYNOPSIS

Site Name: Lough Bane and Lough Glass SAC

Site Code: 002120

This site is located on the Meath/Westmeath border, about 10 km south of Oldcastle. It comprises three lakes situated in a shallow valley. Lough Bane is by far the largest of the group, with the much smaller Lough Glass occurring immediately to the east and Lough Glass North to the north-west. The lakes occur at the headwaters of the River Deel, with the main outflow at the south-east end of Lough Bane. The outflow is not very substantial and partly overgrown with vegetation. The connection between Lough Glass and Lough Bane has now been severed and the flow from Lough Glass is diverted to the south-west. The water level has dropped over the years and has exposed soft marl along parts of the shore.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[3140] Hard Water Lakes
[1092] White-clawed Crayfish (*Austropotamobius pallipes*)

Lough Bane is a good example of a hard water marl lake with well developed stonewort (*Chara* spp.) communities. Sampling of the aquatic flora has shown the presence of at least four species of Charophyte, i.e. *Chara rudis* (dominant in deep water), *C. curta* (shallow water at north shore), *C. globularis* and *C. contraria* (both mid-south shore).

Much of the shoreline of the lakes has a fringe of wetland vegetation, mostly Common Reed (*Phragmites australis*) and Common Club-rush (*Scirpus lacustris*), but also some Water Horsetail (*Equisetum fluviatile*) and Bottle Sedge (*Carex rostrata*). At the east and west ends of Lough Bane the swamp vegetation is particularly well developed and there is also fen vegetation. Species include Jointed Rush (*Juncus articulatus*), Water-cress (*Nasturtium officinale*), Meadowsweet (*Filipendula ulmaria*), Devils'-bit Scabious (*Succisa pratensis*), Meadow Thistle (*Cirsium dissectum*), Marsh Bedstraw (*Galium palustre*) and Grass-of-parnassus (*Parnassia palustris*).

Mixed woodland occurs along parts of the south and north shores. Species present include Beech (*Fagus sylvatica*), oak (*Quercus* sp.), Holly (*Ilex aquifolium*), Scots Pine (*Pinus sylvestris*) and European Larch (*Larix decidua*). In some areas Hazel (*Corylus avellana*) becomes dominant, along with other shrubby species such as Hawthorn (*Crataegus monogyna*).

Dry calcareous grassland (mostly unimproved) is found in a few areas, notably at Noggin Hill. Species present here include Primrose (*Primula vulgaris*), Fairy Flax (*Linum catharticum*), Lady's Bedstraw (*Galium verum*), Ribwort Plantain (*Plantago lanceolata*) and the grasses *Briza media* and *Cynosurus cristatus*.

The lake has Brown Trout and is an important angling lake. An important population of White-clawed Crayfish was known from these lakes, but this species disappeared from the site in the 1980s following what is considered to have been an outbreak of crayfish fungus plague (*Aphanomyces astaci*). The National Parks and Wildlife Service has a desire to see the White-clawed Crayfish population re-established in Lough Bane should habitat conditions be assessed as suitable.

The lakes and fringing wetlands support a varied avifauna, including Little Grebe, Cormorant, Lapwing, Curlew and Snipe.

Despite being surrounded by mostly improved pasture, the quality of the water appears good and Lough Bane has been classified as a very oligotrophic system. However, as it is a small water body and situated in a valley, it is vulnerable to water pollution. A further threat comes from afforestation within the catchment - should there be an increase in the areas under commercial forestry, the quality of the water could be affected.

Overall, this is a fine example of a hard water marl lake system with good *Chara* communities. Such systems are becoming scarce in Europe.

SITE SYNOPSIS

Site Name: Lough Lene SAC

Site Code: 002121

This lake is situated 4 km north-east of Castlepollard in Co. Westmeath. It is a deep (20 m maximum depth), clear, hard-water lake with marl deposition (especially noticeable on the margins).

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[3140] Hard Water Lakes
[1092] White-clawed Crayfish (*Austropotamobius pallipes*)

Lough Lene supports a range of pondweeds (including *Potamogeton perfoliatus* and *P. lucens*), Canadian Pondweed (*Elodea canadensis*) and a variety of stoneworts (*Chara* spp.), such as *C. pedunculata* and *C. curta* which are marl or hard water lake indicators. A stony shore fringes much of the lake. Here species such as spike-rush (*Eleocharis* sp.), Jointed Rush (*Juncus articulatus*), Shoreweed (*Littorella uniflora*), Redshank (*Polygonum persicaria*), Marsh Pennywort (*Hydrocotyle vulgaris*) and sedges (*Carex* spp.) are found. A narrow fringe of emergent plant species dominated by Common Reed (*Phragmites australis*) and Common Club-rush (*Scirpus lacustris* subsp. *lacustris*) occurs along some areas of the lakeshore.

Patches of wet woodland colonise former areas of cut-away bog and other low-lying areas close to the lake, and are dominated by willows (*Salix* spp.), birch (*Betula* sp.) and Alder (*Alnus glutinosa*), with patches of Common Reed also occurring. These areas support a rich ground flora. The ground flora of the wood at the north-western end of the site supports a range of bog mossess (*Sphagnum* spp.), Bilberry (*Vaccinium myrtillus*) and Heather (*Calluna vulgaris*). Alder carr occurs on the spur of land jutting into the lake at its north-western end.

Freshwater marsh/fen vegetation, with such species as Purple Moor-grass (*Molinea caerulea*), Bottle Sedge (*Carex rostrata*), Black Bog-rush (*Schoenus nigricans*) and Marsh Cinquefoil (*Potentilla palustris*) occurs in some areas by the lake. One such area supports a population of the rare Round-leaved Wintergreen (*Pyrola rotundifolia* subsp. *rotundifolia*).

Lough Lene had a notable population of White-clayed Crayfish, a species that is listed on Annex II of the E.U. Habitats Directive, but this species disappeared from the site in 1987 following what is considered to have been an outbreak of crayfish fungus plague (*Aphanomyces astaci*). The species was re-introduced to the site and

breeding was recorded in 1995 but this also was unsuccessful. The National Parks and Wildlife Service has a desire to see the White-clawed Crayfish population re-established in Lough Lene should habitat conditions be assessed as suitable.

Bird species using the site include Mute Swan, Teal, Pochard, Great-crested Grebe, Little Grebe, Tufted Duck, Grey Heron, Water Rail, Mallard, Golden Eye, Cormorant and Wigeon. The surrounding lands are used by Snipe, Lapwing and Curlew. Of particular significance is the Pochard population which, in the winters 1995/96 and 1996/97, was of national importance (average max. 515 individuals).

Much of the lakeshore is accessible to grazing cattle and the surrounding fields have been heavily improved. The stoneworts may become gradually displaced as the principal primary producers by phytoplankton or vascular plants if the lake becomes artificially enriched with nutrients.

Unpolluted hard-water lakes such as Lough Lene are becoming increasingly rare in Ireland and in Europe, and are of a type that is listed on Annex I of the E.U. Habitats Directive. This site is thus of conservation importance.

SITE SYNOPSIS

Site Name: White Lough, Ben Loughs and Lough Doo SAC

Site Code: 001810

White Lough, Ben Loughs and Lough Doo SAC is comprised of four hard water lakes in a small, poorly-drained valley, 4 km east of Castlepollard, Co. Westmeath.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[3140] Hard Water Lakes
[1092] White-clawed Crayfish (*Austropotamobius pallipes*)

A curious feature of the site is the contrast between Lough Doo and the other loughs. Although they are in close proximity and are connected by a ditch, Lough Doo has a very limited aquatic and marginal flora while all the rest are colonised by a wide, dense fringe of Great Fen-sedge (*Cladium mariscus*) swamp.

The bottom of Lough Doo is covered by an unusually extensive mat of stonewort species (*Chara* spp.), with a few sparse stands of Common Reed (*Phragmites australis*). The calcium-rich water has deposited marl on the lake bed and over the stoneworts themselves. The presence of stoneworts in such abundance is significant as many of these species are threatened by loss of habitat or by pollution.

Areas of wet woodland dominated by willows (*Salix* spp.) fringe some of the lakes, and elsewhere wet grassland and freshwater marsh occur. In places peat formation and acidification is indicated by the presence of heath species. Some of the steeper slopes around the lakes are covered with scrub or small areas of broadleaf woodland.

The White-clawed Crayfish, a species listed on Annex II of the E.U. Habitats Directive and protected under the Wildlife Act, 1976, has been recorded from these lakes.

This site is of considerable conservation significance for its hard water lakes and for the occurrence of White-clawed Crayfish. The variety of habitats within this valley and the contrasting vegetation types add further to its interest.

SITE SYNOPSIS

Site Name: Killyconny Bog (Cloghbally) SAC

Site Code: 000006

Killyconny Bog is a raised bog situated approximately half way between Virginia and Kells on the Cavan/Meath border and some 8 km from each. It is underlain by Lower Palaeozoic shales and consists of two small basins which have coalesced over a low drumlin ridge. There are few raised bogs in the north-east region and Killyconny Bog seems to be one of the best developed. Though some marginal drainage and cutting has taken place, the central part of the bog is relatively intact.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[7110] Raised Bog (Active)*
[7120] Degraded Raised Bog

Active raised bog comprises areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses (*Sphagnum* spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration.

Much of the bog is very wet and there are many areas of pool and hummock formation. The pools support the bog moss *Sphagnum cuspidatum*, and a good growth of algae in summer. Wet areas about the pools support other *Sphagnum* mosses such as *S. magellanicum*, while *S. papillosum*, *S. fuscum*, *S. capillifolium* and *Hypnum cupressiforme* are important components of hummocks. A range of vascular plants typical of raised bogs are found, including cottongrasses (*Eriophorum angustifolium* and *E. vaginatum*), heathers (*Calluna vulgaris* and *Erica tetralix*), Bog Asphodel (*Narthecium ossifragum*) and White Beak-sedge (*Rhynchospora alba*). Also occurring on the site is Bog-rosemary (*Andromeda polifolia*) which is found almost exclusively on raised bogs and which is rare in north-east Ireland.

While the surface of the bog is generally homogeneous some higher areas with dense tussocks of Hare's-tail Cottongrass (*Eriophorum vaginatum*) are found; these provide shelter for Hares. There are also lines of water movement, shown by the occurrence of Common Sedge (*Carex nigra*) and Soft Rush (*Juncus effusus*).

The degraded bog is largely restricted to the margins of the high bog areas where drainage effects are most pronounced. In general, much of the degraded bog surface

is dominated by Heather (*Calluna vulgaris*) and Deergrass (*Scirpus cespitosus*) with Bog Asphodel and White Beak-sedge dominating in the wetter areas. Typically these species form mono-dominant, species-poor stands. In the driest areas of degraded raised bog there is some colonisation by plant species such as Downy Birch (*Betula pubescens*) and Bracken (*Pteridium aquilinum*).

The uncut high bog area is surrounded by extensive cutover surfaces and a portion of this cutover has been planted with conifers.

Bird species found on the bog include Meadow Pipit and Curlew, and sometimes also Kestrel and Long-eared Owl which hunt over it for prey items such as beetles, Pygmy Shrew and Common Frog.

Killyconny Bog is of considerable conservation value, being one of the largest extant areas of relatively intact raised bog in the north-east of the country. The site contains good examples of the E.U. Habitats Directive Annex I priority habitat active raised bog and the non-priority habitat degraded raised bog (capable of regeneration).

SITE SYNOPSIS

Site Name: Mount Hevey Bog SAC

Site Code: 002342

Mount Hevey Bog is situated approximately 4 km north-east of Kinnegad, in the townlands of Cloncrave, White Island, Aghamore, Kilwarden and Kilnagalliagh. The Meath-Westmeath County boundary runs through the centre of the bog. The site comprises a raised bog that includes both areas of high bog and cutover bog. The Dublin-Sligo railway runs through the northern part of the bog isolating two northern lobes. The northern lobes are adjacent to the Royal Canal.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[7110] Raised Bog (Active)*
[7120] Degraded Raised Bog
[7150] Rhynchosporion Vegetation

Active raised bog comprises areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses (*Sphagnum* spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions, pool edges and erosion channels where the vegetation includes White Beak-sedge (*Rhynchospora alba*) and/or Brown Beak-sedge (*R. fusca*), and at least some of the following associated species, Bog Asphodel (*Narthecium ossifragum*), sundews (*Drosera* spp.), Deergrass (*Scirpus cespitosus*) and Carnation Sedge (*Carex panicea*).

The site consists of a long, narrow bog separated into four sub-sections; the larger eastern section supports a wet quaking area with hummock/hollows and pool complex. Hummock/hollow complex also occurs in the south-west lobe and the north-west lobe of the site. An infilled lake is now a soak system. Forestry occurs on the most easterly section of the site. There is abandoned cutover bog all around the bog and particularly on the western section. There are some wet and actively regenerating areas of the cutover along the southern margins of the western lobe and along the railway.

Much of the high bog has vegetation typical of the Midlands Raised Bog type. The vegetation consists of Heather (*Calluna vulgaris*), cottongrasses (*Eriophorum angustifolium* and *E. vaginatum*), Bog Asphodel, White Beak-sedge and midland

indicator species Bog-rosemary (*Andromeda polifolia*) and the bog moss *Sphagnum magellanicum*. The wet quaking area in the eastern section of the bog has pools that support the bog moss *Sphagnum cuspidatum,* with White Beak-sedge, cottongrasses and Heather at the edges. The hummock/hollow complex supports a range of hummock-forming bog mosses, including *Sphagnum imbricatum* and *S. fuscum*, as well as other species such as *S. capillifolium, S. magellanicum and S. papillosum*. Other plants found in the hummock/hollow complexes are Bog-rosemary, Cross-leaved Heath (*Erica tetralix*), Bog Asphodel and Deergrass.

The infilled lake is wet and quaking and the vegetation is dominated by Purple Moor-grass (*Molinia caerulea*), Bog-myrtle (*Myrica gale*) and Downy Birch (*Betula pubescens*), along with the bog mosses *Sphagnum palustre* and *S. papillosum*. The Downy Birch trees appear to be between 20 and 30 years old, and the Bog-myrtle is over 150 cm high. The edge of the former lake is clearly marked by robust plants of Heather. Some areas of old abandoned cutover bog on the site are very wet and regenerating well, with a good cover of bog mosses, including species such as *S. cuspidatum, S. papillosum*, *S. capillifolium*, *S. auriculatum* and *S. subnitens.*

Current land use on the site consists of limited mechanised peat-cutting, mostly on the eastern end of the high bog. There are areas of old peat cuttings all around the site with some very old abandoned regenerating cutover along the edge of the railway. The area to the east of the site has been afforested. Areas of cutover have been reclaimed for agricultural purposes. Damaging activities associated with these land uses include drainage throughout the site (both old and recent) and burning of the high bog. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Mount Hevey Bog is a site of considerable conservation significance as it comprises a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site supports a good diversity of raised bog microhabitats, including hummock/hollow complexes, pools, flushes and regenerating cutover, as well as a number of scarce plant species. Active raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion of the total E.U. resource of this habitat type (over 60%) and so has a special responsibility for its conservation at an international level.

SITE SYNOPSIS

Site Name: Wooddown Bog SAC

Site Code: 002205

Wooddown Bog SAC occurs within the larger raised bog system that is designated as Wooddown Bog NHA (000694). It is situated 5.0 km north-east of Mullingar in the townland of Wooddown, Co. Westmeath. The underlying geology is carboniferous limestone.

The site is part of a raised bog that includes both areas of high bog and cutover bog. The site is bordered by open high bog on its northern and western margins, by forestry on cutover bog on its eastern margin and by agricultural grassland on its southern side.

Wooddown Bog SAC has a small area of open high bog but most of the area was covered by coniferous forestry, which has been recently clear-felled. The bog is intensively drained and most of this drainage is associated with forestry. A deep drain bisects the dome surface, running from north-east to south-west, from the planted area to the middle of the adjacent unplanted dome. There is a small soak located on the cutover at the north-west margin of the high bog. This area supports a low canopy Downy Birch (*Betula pubscens*) and Willow (*Salix* spp.) woodland. The cutover to the south supports Downy Birch and Common Gorse (*Ulex europaeus*) scrub. Young trees of Lodgepole Pine (*Pinus contorta*) are encroaching onto the adjacent high bog to the north and west of the site through natural regeneration.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/ or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[7120] Degraded Raised Bog

Degraded Raised Bog (DRB) corresponds to those areas of high bog where the hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration to Active Raised Bog (ARB) within 30 years.

Wooddown Bog is a Midlands Raised Bog type, which has developed in a topographic basin. Typical raised bog species are present on the unplanted dome. However, an absence of pools and a reduction in the cover of *Sphagnum* indicates that the bog has dried out. The open high bog vegetation is dominated by Heather (*Calluna vulgaris*), Hare's tail Cotton-grass (*Eriophorum vaginatum*) and Bog Asphodel (*Narthecium ossifragum*), with White-beaked sedge (*Rhynchospora alba*)

and the lichen *Cladonia portentosa*, with the bog mosses *Sphagnum papillosum*, *Sphagnum subnitens* and *Sphagnum capillifolium*.

There is a flush and soak system on the north-west margin of the high bog, which supports Downy Birch and Willow woodland with an understorey of Heather, Purple Moor-grass (*Molinia caerulea*), Bilberry (*Vaccinium myrtillus*), Bog Myrtle (*Myrica gale*) and Bracken (*Pteridium aquilinum*).

With the clear-felling of conifers and blocking of drains, water-levels have risen and now remain high throughout the year. In some areas conditions in the wet flats and hollows are now suitable to support even the most drainage sensitive species. As a consequence, raised bog vegetation has returned to the high bog. At this early stage of restoration, the raised bog vegetation is dominated by Heather and Hare's tail Cotton-grass. Common Cotton-grass (*Eriophorum angustifolium*), Bog Asphodel and White-beaked sedge are locally common and small amounts of Bilberry and Cross-leaved Heath (*Erica tetralix)* are widespread. Bog mosses are regenerating and include *Sphagnum papillosum*, *Sphagnum capillifolium* and *Sphagnum palustre*, with *Sphagnum recurvum* in drains with a combined cover of approximately 50%. At the current rate of progress these wet areas should have been restored to active bog in 20 years. However the majority of the restored areas have not yet developed vegetation characteristic of the wettest conditions and there is a considerable amount of conifer and birch regeneration occurring in these areas which will require ongoing management.

Current landuse on the site consists of conservation management with the removal of conifer plantations and the blocking of drainage associated with these plantations, both on the high bog and on the cutover. This work was undertaken as part of the Coillte E.U. Life Project *Demonstrating Best Practice in Raised Bog Restoration in Ireland*. Active peat-cutting and drainage is occurring outside the south-western boundary and to the north-east of the SAC and there is a major drain running through the centre of the adjacent high bog. There is also some dumping around the site. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability. The site is being actively managed for conservation as part of the Coillte E.U. LIFE Project and most of the required restoration measures have already been carried out. However some significant threats remain and an After LIFE management plan is being developed for the future conservation management of the SAC.

Wooddown Bog SAC is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site now supports regenerating raised bog microhabitats, including hollows and wet flats, a soak system and flushes, as well as a number of scarce plant species. Ireland has a high proportion of the total E.U. resource of this habitat type (over 50%) and so has a special responsibility for its conservation at an international level.

SITE SYNOPSIS

Site Name: Boyne Coast and Estuary SAC

Site Code: 001957

Boyne Coast and Estuary SAC is a coastal site which includes most of the tidal sections of the River Boyne, intertidal sand- and mudflats, saltmarshes, marginal grassland, and the stretch of coast from Bettystown to Termonfeckin that includes the Mornington and Baltray sand dune systems.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[1130] Estuaries
[1140] Tidal Mudflats and Sandflats
[1210] Annual vegetation of drift lines
[1310] *Salicornia* Mud
[1330] Atlantic Salt Meadows
[2110] Embryonic Shifting Dunes
[2120] Marram Dunes (White Dunes)
[2130] Fixed Dunes (Grey Dunes)*

The Boyne River channel, which is navigable and dredged, is defined by training walls, these being breached in places. Intertidal flats occur on the sides of the channelled river. The sediments vary from fine muds in the sheltered areas to sandy muds or sands towards the river mouth. The linear stretches of intertidal flats to the north and south of the river mouth are mainly composed of sand. One or more species of eelgrass (*Zostera* spp.) occur in the estuary.

Parts of the intertidal areas are fringed by saltmarshes, most of which are of the Atlantic type, and dominated by Sea-purslane (*Halimione portulacoides*). Other species present include Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Lax-flowered Sea-lavender (*Limonium humile*) and glassworts (*Salicornia* spp.). Common Cord-grass (*Spartina anglica*) occurs frequently on the flats and saltmarshes.

The two sand dune systems in the site, at Baltray and Mornington, are of conservation value, despite the restricted distribution of the intact areas and the high recreational pressure to which they are subjected. A gradient from embryonic dunes to Marram (*Ammophila arenaria*) dunes and then fixed dunes is shown at both systems.

The largest area of annual vegetation of drift lines within this SAC is located at Baltray, north of the estuary. The vegetation is highly representative of the habitat type, which is limited to a small number of highly specialised species that are capable of coping with harsh environmental conditions including high salinity, wind exposure, and unstable substrate and lack of soil moisture. Species present include oraches (*Atriplex* spp.), Sea Rocket (*Cakile maritima*), Prickly Saltwort (*Salsola kali*) and Sea Sandwort (*Honkenya peploides*). Embryonic dunes are particularly well-developed at Baltray where there is active accretion. Species present include Sand Couch (*Elymus farctus*), Lyme-grass (*Leymus arenarius*), Marram, Sea Sandwort and Prickly Saltwort. The embryonic dunes grade into a narrow band of shifting Marram dunes. Marram is dominant, though there are also such species as Cat's-ear (*Hypochoeris radicata*), Mouse-ear Hawkweed (*Hieracium pilosella*) and Dandelion (*Taraxacum* agg.). The areas of fixed dunes on the site have a typical diversity of species, including Marram, Red Fescue (*Festuca rubra*), Wild Carrot (*Daucus carota*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Common Restharrow (*Ononis repens*), Wild Thyme (*Thymus praecox*), Lady's Bedstraw (*Galium verum*) and Wild Pansy (*Viola tricolor*). Vegetation dominated by bryophytes and lichens is limited, though such species as *Brachythecium albicans*, *Hypnum cupressiforme*, *Peltigera canina* and *Cladonia* spp. occur. Some dune slacks may still occur at the site. A number of scarce plants such as Viper's-bugloss (*Echium vulgare*), Adder's-tongue (*Ophioglossum vulgatum*), Variegated Horsetail (*Equisetum variegatum*) and Wild Clary/Sage (*Salvia verbenaca*) have been recorded from the site in the past. The last-named species is of particular note as it is a Red Data Book species at its most northerly known Irish station.

The Boyne is the second most important estuary for wintering birds on the Louth-Meath coastline. From a recent wetland survey carried out over 4 seasons (1994/95-97/98), it is known that this site supports nationally important numbers of Shelduck (176 individuals), Golden Plover (5,338), Lapwing (4,755), Knot (1,559), Black-tailed Godwit (414), Redshank (539), Turnstone (104), Oystercatcher (922), Grey Plover (112) and Sanderling (93).

Other species of regional or local importance include Brent Goose (142), Wigeon (485), Teal (185), Mallard (160), Dunlin (627), Curlew (352) and Ringed Plover (approx. 100). An area of shingle at Baltray Dunes is also an important breeding site for Little Tern, with 14 pairs recorded in 1995. Little Tern is the rarest Irish tern species, and is listed on Annex I of the E.U. Birds Directive. Part of the estuary is a Wildfowl Sanctuary and has been designated a Special Protection Area under the E.U. Birds Directive.

This site has been somewhat modified by human activities. The river is regularly dredged to accommodate cargo ships, which causes disturbance to the bird, fish and invertebrate communities in the estuary. Several factories operate upstream from the estuary and pollution and disturbance associated with them has had an impact on the ecology of the area. There is a proposal to create a deep water facility at the north end of Mornington Dunes on the mouth of the Boyne estuary.

The site is of considerable conservation interest as a coastal complex that supports good examples of eight habitats that are listed on Annex I of the E.U. Habitats Directive, including one which is listed with priority status, and for the important bird populations that it supports.

SITE SYNOPSIS

SITE NAME: RIVER BOYNE AND RIVER BLACKWATER SPA

SITE CODE: 004232

The River Boyne and River Blackwater SPA is a long, linear site that comprises stretches of the River Boyne and several of its tributaries; most of the site is in Co. Meath, but it extends also into Cos Cavan, Louth and Westmeath. It includes the following river sections: the River Boyne from the M1 motorway bridge, west of Drogheda, to the junction with the Royal Canal, west of Longwood, Co Meath; the River Blackwater from its junction with the River Boyne in Navan to the junction with Lough Ramor in Co. Cavan; the Tremblestown River/Athboy River from the junction with the River Boyne at Kilnagross Bridge west of Trim to the bridge in Athboy, Co. Meath; the Stoneyford River from its junction with the River Boyne to Stonestown Bridge in Co. Westmeath; the River Deel from its junction with the River Boyne to Cummer Bridge, Co. Westmeath. The site includes the river channel and marginal vegetation.

Most of the site is underlain by Carboniferous limestone but Silurian quartzite also occurs in the vicinity of Kells and Carboniferous shales and sandstones close to Trim.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive of special conservation interest for the following species: Kingfisher.

A survey in 2010 recorded 19 pairs of Kingfisher (based on 15 probable and 4 possible territories) in the River Boyne and River Blackwater SPA. A survey conducted in 2008 recorded 20-22 Kingfisher territories within the SPA. Other species which occur within the site include Mute Swan (90), Teal (166), Mallard (219), Cormorant (36), Grey Heron (44), Moorhen (84), Snipe (32) and Sand Martin (553) – all figures are peak counts recorded during the 2010 survey.

The River Boyne and River Blackwater Special Protection Area is of high ornithological importance as it supports a nationally important population of Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive.

25.11.2010

SITE SYNOPSIS

SITE NAME: LOUGH DERRAVARAGH SPA

SITE CODE: 0004043

Lough Derravaragh is located approximately 12 km north of Mullingar town in Co. Westmeath. It is a medium- to large-sized lake of relatively shallow water (maximum depth 23 m). The lake extends along a south-east/north-west axis for approximately 8 km. The Inny River, a tributary of the River Shannon, is the main inflowing and outflowing river. It is a typical limestone lake with water of high hardness and alkaline pH, and is classified as a mesotrophic system.

At the western end of the lake are extensive areas of swamp dominated by Common Reed (*Phragmites australis*). Elsewhere along the shore there is freshwater marsh vegetation dominated by sedges (*Carex* spp.) and tussock-forming grasses such as Tufted Hair-grass (*Deschampsia cespitosa*) and fescues (*Festuca* spp.), with a range of flowering herbs. The lakeshore is a mineral-rich substrate and several plant species of fen habitats occur in abundance, such as Black Bog-rush (*Schoenus nigricans*) and Long-stalked Yellow-sedge (*Carex lepidocarpa*). Deciduous woodland fringes the lake in some areas.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Whooper Swan, Pochard, Tufted Duck and Coot. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Lough Derravaragh is one of the most important midland lakes for wintering waterfowl. It supports nationally important populations of Whooper Swan (102), Pochard (3,129), Tufted Duck (1,073) and Coot (1,358) - all counts are mean peaks for the five winters 1995/96-1999/2000. The Pochard population is of particular note as it represents over 6% of the all-Ireland population total, and at times has exceeded the threshold for international importance (i.e. 3,500). Other species which occur include Mute Swan (159), Little Grebe (42) Great Crested Grebe (34), Cormorant (34), Wigeon (207), Teal (52), Mallard (195), Pintail (6), Shoveler (12), Goldeneye (46), Golden Plover (158) and Lapwing (1,079). The lake is occasionally used as a roost site by small numbers of Greenland White-fronted Goose.

Lough Derravaragh is of major ornithological importance as it regularly supports nationally important populations of four species, and at times is used by the internationally important population of Greenland White-fronted Goose which is based in the region. Also of note is that three of the species which occur at the site, Greenland White-fronted Goose, Whooper Swan and Golden Plover, are listed on Annex I of the E.U. Birds Directive. Lough Derravaragh is a Ramsar Convention site.

7.7.2014

SITE SYNOPSIS

SITE NAME: BOYNE ESTUARY SPA

SITE CODE: 004080

This moderately-sized coastal site is situated west of Drogheda on the border of Counties Louth and Meath. The site comprises most of the estuary of the Boyne River, a substantial river which drains a large catchment. Apart from one section which is over 1 km wide, its width is mostly less than 500 m. The river channel, which is navigable and dredged, is defined by training walls, these being breached in places. Intertidal flats occur along the sides of the channelled river. The sediments vary from fine muds in the sheltered areas to sandy muds or sands towards the river mouth. The linear stretches of intertidal flats to the north and south of the river mouth are mainly composed of sand. One or more species of Eelgrass (*Zostera* spp.) occur in the estuary. Parts of the intertidal areas are fringed by salt marshes, most of which are of the Atlantic type, and dominated by Sea-purslane (*Halimione portulacoides*). Other species present include Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Lax-flowered Sea-lavender (*Limonium humile*) and Glasswort (*Salicornia* spp.). Common Cord-grass (*Spartina anglica*) occurs frequently on the flats and salt marshes.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Shelduck, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Knot, Sanderling, Black-tailed Godwit, Redshank, Turnstone and Little Tern. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The Boyne Estuary is the second most important estuary for wintering birds on the Louth-Meath coastline. Black-tailed Godwit occurs here in internationally important numbers (471). A further nine species of wintering waterbirds have populations of national importance, i.e. Shelduck (218), Oystercatcher (1,179), Golden Plover (6,070), Grey Plover (146), Lapwing (4,771), Knot (1,944), Sanderling (81), Redshank (583) and Turnstone (221) - all figures are mean peaks for the 5 year period 1995/96-1999/2000. Of particular note is that the site supports 6.8% of the all-Ireland population of Knot and almost 3% of the total for Golden Plover. Other species which occur include Bar-tailed Godwit (86), Cormorant (97), Brent Goose (172), Wigeon (454), Teal (230), Dunlin (498), Curlew (395), Mallard (197), Red-breasted Merganser (14), Greenshank (6), Ringed Plover (80) and Mute Swan (13). The site provides both feeding and high-tide roost areas for the birds. The estuary also attracts large numbers of gulls in winter, including Black-headed Gull (593), Common Gull (145), Herring Gull (403) and Great Black-backed Gull (160).

Little Tern have bred here since at least 1984 and a nationally important population was recorded in 1995 (14 pairs). In the intervening years breeding numbers and fledgling success has varied significantly. In 1996 approximately 20 pairs fledged 15

- 20 chicks but in 1998 and 1999 part of the shingle bank where the birds nested was washed away by storms. In 2008 35 pairs of Little Tern were recorded.

The site is of considerable ornithological importance for wintering waterfowl, with Black-tailed Godwit occurring in internationally important numbers and nine other species having populations of national importance. Of particular significance is that three species that regularly occur, Golden Plover, Bar-tailed Godwit and Little Tern are listed on Annex I of the E.U. Birds Directive. Part of the Boyne Estuary SPA is a Wildfowl Sanctuary.

SITE SYNOPSIS

SITE NAME: WEXFORD HARBOUR AND SLOBS SPA

SITE CODE: 004076

Wexford Harbour is the lowermost part of the estuary of the River Slaney, a major river that drains much of the south-east region. The site is divided between the natural estuarine habitats of Wexford Harbour, the reclaimed polders known as the North and South 'Slobs', and the tidal section of the River Slaney. The seaward boundary extends from the Rosslare peninsula in the south to the area just west of The Raven Point in the north. Shallow marine water is a principal habitat, but at low tide extensive areas of intertidal flats are exposed. These vary from rippled sands in exposed areas to sandy-muds in the more sheltered areas, especially at Hopeland and the inner estuary to the west of Wexford bridge. The flats support a rich macro-invertebrate fauna, including the bivalves Cockle (*Cerastoderma edule*), Baltic Tellin (*Macoma balthica*) and Peppery Furrow-shell (*Scrobicularia plana*), the polychaetes Lugworm (*Arenicola marina*), Catworm (*Nepthys hombergi*) and Ragworm (*Hediste diversicolor*) and the crustacean *Corophium volutator*. Beds of mussels (*Mytilus edulis*) also occur. Salt marshes fringe the intertidal flats, especially in the sheltered areas such as Hopeland and towards Castlebridge. The Slobs are two flat areas of farmland, mainly arable and pasture grassland, empoldered behind 19th century sea-walls. The lands are drained by a network of channels which flow into two central channels, in parts several hundred metres in width. Water from the channels is pumped into the sea with electric pumps. The channels often support swamp vegetation. The river section of the site is extensive, extending to Enniscorthy, a distance of almost 20 km from Wexford town. It is noticeably tidal as far as Edermine Bridge but with tidal influence right up to Enniscorthy. In places, such as the Macmine marshes, it is several hundreds metres wide and here reedswamp is well developed.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Bewick's Swan, Whooper Swan, Greenland White-fronted Goose, Light-bellied Brent Goose, Shelduck, Wigeon, Teal, Mallard, Pintail, Scaup, Goldeneye, Red-breasted Merganser, Hen Harrier, Coot, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Knot, Sanderling, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Black-headed Gull, Lesser Black-backed Gull and Little Tern. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands, and as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The site is of international importance for several species of waterbirds but also because it regularly supports well in excess of 20,000 waterbirds (average peak of 49,030 for the 5 winters 1996/97-2000/01). Wexford Harbour and Slobs is one of the top three sites in the country for numbers and diversity of wintering birds. The

combination of estuarine habitats, including shallow waters for grebes, diving duck and seaduck, and the farmland of the polders, which include freshwater drainage channels, provides optimum feeding and roost areas for a wide range of species. Of particular importance is that it is one of the two most important sites in the world for Greenland White-fronted Goose (9,353) (all given figures for species are average peaks for the 5 winters 1995/96-1999/00). The geese feed almost entirely within the Slobs and roost at The Raven (a separate SPA). The site also has internationally important populations of Mute Swan (543), Light-bellied Brent Goose (1,469), Bar-tailed Godwit (1,696) and Black-tailed Godwit (790).

There are at least a further 26 species of wintering waterbirds which occur in numbers of national importance, i.e. Great Crested Grebe (117), Little Grebe (82), Cormorant (495), Grey Heron (52), Whooper Swan (100), Bewick's Swan (191), Shelduck (753), Wigeon (2,752), Teal (1,538), Mallard (3,290), Pintail (66), Scaup (339), Goldeneye (182), Red-breasted Merganser (209), Coot (351), Oystercatcher (1,493), Golden Plover (5,013), Grey Plover (1,279), Lapwing (11,826), Knot (453), Sanderling (210), Dunlin (2,485), Curlew (1,771), Redshank (555), Black-headed Gull (5,977) and Lesser Black-backed Gull (1,086). Other species that use the site include Ringed Plover (69), Turnstone (41), Greenshank (12), Shoveler (24), Tufted Duck (114), Pochard (218), Common Gull (100+) and Little Egret. Several of the above populations represent substantial proportions of the national totals, especially Shelduck (5.2%), Scaup (5.3%), Red-breasted Merganser (5.7%) and Grey Plover (19.9% and the top site in the country). The Slobs is the most important and indeed one of the few sites in the country which supports a regular flock of Bewick's Swan. Numbers of wintering birds are often swelled by hard-weather movements from Britain and Europe, notably Golden Plover and Lapwing.

The site is a regular location for scarce passage waders such as Ruff, Spotted Redshank and Green Sandpiper, as well as Curlew Sandpiper in varying numbers. The rare Wood Sandpiper is seen each year, mainly in autumn.

Short-eared Owl and Hen Harrier are regular visitors to the Slobs during winter. Of particular note is the presence of a Hen Harrier communal roost site with a five year mean peak count of 5 birds (2005/06 to 2009/10).

The site is important for Little Tern as it has can hold a nationally important breeding colony (12 pairs in 1995 and 30 pairs in 2000). The Slobs support a nesting colony of Tree Sparrow, a very localised species in Ireland that is listed in the Irish Red Data Book. Another very localised breeding species, Reed Warbler, is well established within the swamp vegetation along the River Slaney and on the South Slob (estimated as at least 10 pairs).

A range of duck species breed, including Teal, Tufted Duck and, probably in most years, Shoveler.

Wexford Harbour and Slobs SPA is one of the most important ornithological sites in the country supporting internationally important populations of Greenland White-fronted Goose, Light-bellied Brent Goose, Black-tailed Godwit and Bar-tailed Godwit. In addition, it has 26 species of wintering waterbirds with populations of

national importance and nationally important numbers of breeding Little Tern. Also of significance is that several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Little Egret, Whooper Swan, Bewick's Swan, Greenland White-fronted Goose, Hen Harrier, Golden Plover, Bar-tailed Godwit, Ruff, Wood Sandpiper, Little Tern and Short-eared Owl. The site is an important centre for research, education and tourism. Wexford Wildfowl Reserve, located within Wexford Harbour and Slobs SPA, is a Ramsar Convention site, a Biogenetic Reserve and a Statutory Nature Reserve. Parts of the Wexford Harbour and Slobs SPA are also designated as Wildfowl Sanctuaries.

8.7.2014

SITE SYNOPSIS

SITE NAME: GIRLEY BOG NHA

SITE CODE: 001580

Girley Bog NHA is located 7 km south-west of Kells, mainly in the townlands Chamberlainstown, Girley, Drewstown Great and Ethelstown in Co. Meath. The site comprises a raised bog that includes both areas of high bog and cutover bog, and is bounded in parts by coniferous forestry to the south and north. The site is partially divided by a large drain that runs across the high bog. There is an area of hummocks and pools in the southern half of the high bog, although parts of the south-west have been afforested. Cutover is found all around this site and in the north-west and south-west the cutover has been utilised for forestry.

Much of the high bog has vegetation typical of a Midland Raised Bog, consisting of Ling Heather (*Calluna vulgaris*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), Cranberry (*Vaccinium oxycoccos*) and Bog-rosemary (*Andromeda polifolia*). Cross-leaved Heath (*Erica tetralix*) and the lichen *Cladonia portentosa* are common on areas of the high bog. The bog mosses *Sphagnum papillosum*, *S. capillifolium* and *S. magellanicum* are common in the centre and south-west of the high bog and the scarce bog moss *S. fuscum* is found at the centre of the site. The bog moss *S. cuspidatum* is found in the pools at the centre of the bog and is also found in the tear pools in the north-west of the site in association with Great Sundew (*Drosera anglica*). The bog moss *S. magellanicum* and White Beak-sedge (*Rhynchospora alba*) are found growing on the edges of these tear pools. Young Lodgepole Pine (*Pinus contorta*) and Scots Pine (*Pinus sylvestris*) are frequently encroaching on the high bog in the north-west and south-east of the site. In the south-west of the high bog there is coniferous forestry plantation. The cutover on the western half of the site is also dominated by coniferous forestry. The remainder of the cutover is dominated by Ling Heather and Downy Birch (*Betula pubescens*) scrub.

Current landuses on the site include forestry, both on the high bog and on the cutover. There has been burning on the north-west of the high bog in the past. There is active peat-cutting in the north-west and south-east of the site. Damaging activities associated with these landuses include drainage throughout the site and burning of the high bog. There are major drains running through the centre of the high bog. All these activities have resulted in loss of habitat, damage to the hydrological status of the site, and pose a continuing threat to its viability.

Girley Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats, including hummocks and pools. This site is one of the few remaining raised bogs in County Meath and represents the eastern extreme of the range of raised bogs in the country. Ireland has a high proportion of the total E.U. resource of this

habitat type (over 50%) and so has a special responsibility for its conservation at an international level.

14.11.2002

SITE SYNOPSIS

SITE NAME: JAMESTOWN BOG NHA

SITE CODE: 001324

Jamestown Bog NHA is situated approximately 8 km west of Navan, mainly in the townlands of Tullaghanstown, Herbertstown and Jamestown in County Meath. The site comprises a raised bog that includes both areas of high bog and cutover bog. The site is bounded on all sides by coniferous forestry and old cutover.

The raised bog consists of two flat, elongated lobes, separated by areas of cutover bog and coniferous forestry. The eastern lobe is the largest and contains areas which are quaking, with small, infilling pools and also some dry hummocks. There are large areas of both abandoned and active cutting around the high bog, along with areas of coniferous forestry. There are a number of tracks in the site. This raised bog is of particular interest as it is one of the most north-eastern of the remaining raised bogs in the country, and one of only two raised bogs in County Meath.

Much of the high bog vegetation is typical of raised bogs in Ireland, with species such as Ling Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Cottongrasses (*Eriophorum* spp.) and bog mosses (including *Sphagnum capillifolium, S. magellanicum, S.* cuspidatum and *S. papillosum*). In addition, Bog Asphodel (*Narthecium ossifragum*) and White Beak-sedge (*Rhynchospora alba*) are commonly found. There is quite high lichen (*Cladonia* spp.) cover in parts of the high bog, and there are a number of young Downy Birch (*Betula pubescens*) plants scattered over the surface of the high bog.

The Irish Hare, a Red Data Book species, has been recorded at the site.

Current landuse on the site consists of intensive peat-cutting around the edge of the high bog, and the drainage associated with this. There are large areas of coniferous forestry all around the margins of the site. These areas have also been significantly drained. Large portions of the bog have been burned in the past. These activities have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Jamestown Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. Its location makes it especially important as it is representative of the north-eastern extreme of the geographic range of raised bogs in Ireland. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

15.11.2002

SITE SYNOPSIS

SITE NAME: LOUGH DERRAVARAGH NHA

SITE CODE: 000684

Lough Derravaragh is located approximately 12 km north of Mullingar town mainly in the townlands Clonava, Derrya, Kiltoom, Donore, Ballynakill, Streamstown and Knockbody in Co. Westmeath. The majority of the site comprises the lake, but it also includes a variety of wetland, grassland and woodland habitats. The site includes a small area of raised bog. The site is bounded in the north-west by the River Inny.

The River Inny, which is a major tributary of the River Shannon, flows into and out of Lough Derravaragh at its north-west end. At this end, the lake is wide and shallow and the raised bog and cutover is found in this area. Lough Derravaragh is shallow and its water is hard with an alkaline pH. There is only a small area of raised bog in the site, but formerly it comprised a very large bog complex which extended to the north-west of the lake. Most of this has now been cutover and large areas have been reclaimed for agriculture. The remaining area of bog has hummock/hollow complexes but no pools. Coniferous forestry has been planted on the high bog and a section of cutover. Cutover is found all around the high bog and there is also a separate small area of old cutover 2.5 km south of the raised bog.

Much of the high bog has vegetation typical of a Midland Raised Bog, with such species as Ling Heather (*Calluna vulgaris*) and Hare's-tail Cottongrass (*Eriophorum vaginatum*). The hummock-forming bog moss *Sphagnum papillosum* has been recorded on the high bog as has the more scarce *S. imbricatum*. Overall, *Sphagnum* covers around one third of the high bog area and the centre of the bog is wet with standing water in places. The aquatic bog moss *S. cuspidatum* has been recorded in the hollows on the bog. Ling Heather and Hare's-tail Cottongrass are common on the hummocks as are lichens (*Cladonia* sp.). There are dried out channels on the bog which are colonised by algae, Deergrass (*Scirpus cespitosus*) and lichens. Coniferous forestry has been planted on the western side of the high bog and on adjoining areas of cutover. On the cutover in the south-east, south and north of the site of the site there are areas of Downy Birch (*Betula pubescens*) woodland, with patches of Gorse (*Ulex europaeus*) scrub in between.

A notable feature of Lough Derravaragh is the range of Charophytes (Stoneworts) that occur in the lake; to date eight species have been recorded here, several of which have a restricted range in Ireland. Around the lake margin, a range of habitats have been created as a result of drainage of the River Inny. At the western end are extensive reed beds and swamps dominated by Common Reed (*Phragmites australis*) with scattered stands of Downy Birch and willows (*Salix* spp.). Elsewhere, there is freshwater marsh vegetation dominated by sedges (*Carex* spp.) and often tussock-forming grasses such as Tufted Hair-grass (*Deschampsia cespitosa*) and fescues (*Festuca* spp.), with a range of flowering herbs including Nodding Bur-Marigold (*Bidens cernua*) and Trifid Bur-Marigold (*Bidens tripartita*). The lakeshore is a

mineral-rich substrate and several plant species of poor fen habitats occur in abundance, such as Black Bog-rush (*Schoenus nigricans*) and Long-stalked Yellow-sedge (*Carex lepidocarpa*). Knockeyon and the other hills around the south-eastern end of the lake support deciduous woodland which is comprised mostly of native species. Hazel (*Corylus avellana*), Rowan (*Sorbus aucuparia*), Ash (*Fraxinus excelsior*) and Sessile Oak (*Quercus petraea*) are abundant. Exotic species occur occasionally, including Beech (*Fagus sylvatica*).

Lough Derravaragh is an important site for wintering waterfowl, and is of particular note as a site for geese, swans and diving duck. It is a traditional haunt for the internationally important midland flock of Greenland White-fronted Geese (which also use Loughs Iron, Owel and Ennel). This flock, whose numbers usually range between 300 and 400 birds, use the lake mainly for roosting purposes. Counts for principal waterfowl species over the five winters 1995/96 to 1999/00 are as follows (figures are average maxima): Little Grebe 42, Great Crested Grebe 34, Cormorant 34, Mute Swan 159, Whooper Swan 102, Greenland White-fronted Goose 409, Wigeon 207, Teal 52, Mallard 195, Pintail 6, Shoveler 12, Pochard 3129, Tufted Duck 1,073, Goldeneye 46, Coot 1,358, Golden Plover 158 and Lapwing 1,079. The populations of Little Grebe, Mute Swan, Whooper Swan, Pochard, Tufted Duck and Coot are of National Importance. At times, the Pochard population, which is one of the largest in the country, has exceeded the threshold for International Importance (i.e. 3,500).

This site regularly supports nationally important populations of six species, and at times is used by the internationally important population of Greenland White-fronted Geese which is based in the region. Three of the species which occur at the site (Greenland White-fronted Geese, Whooper Swan, Golden Plover) are listed on Annex I of the E.U. Birds Directive. The rare Charophyte *Chara denudata*, has been recorded in Lough Derravaragh and the Red Data Book species Otter and Irish Hare have also been noted from the site.

Current landuses on the site include active peat-cutting, agriculture, forestry, fishing, hunting and leisure activities. On the southern margins of the high bog there is a small area of active peat-cutting. There are only a small number of agricultural fields within the site, with a few on reclaimed cutover. There is coniferous forestry on a small section of high bog and cutover. Damaging activities associated with these landuses include drainage throughout the site and burning of the high bog. The lake is an important amenity for anglers, as it holds a population of Brown Trout. Knockbody Wood is used for shooting Pheasant. Local groups use the lake for canoeing and watersports. Parts of the site have also been used for dumping and as an encampment. These activities have resulted in the loss of habitat and damage to the hydrological status of the site, and pose a threat to its viability.

Lough Derravaragh NHA is a site of considerable conservation significance, including as it does, a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site supports a good diversity of raised bog microhabitats, including hummocks and hollows. Ireland has a high proportion of the total E.U. resource of the raised bog (over 50%) and so has a special responsibility for its conservation at an international level. Lough Derravaragh itself

is of importance for its aquatic flora and fauna and for its marginal wetland habitats. It is also of major ornithological importance and is designated a Special Protection Area under the E.U. Birds Directive.

14.11.2002

SITE SYNOPSIS

SITE NAME: WOODDOWN BOG

SITE CODE: 000694

Wooddown Bog NHA is situated approximately 4km east of Mullingar in the townlands of Curraghmore, Macetown and Wooddown in Co. Westmeath. The site comprises a raised bog that includes both areas of high bog and cutover bog.

The site consists of a Midlands Raised Bog type, which has developed in a basin. The bog has good hummock/hollow microtopography but few pools. There is a small soak area situated close to the northern edge of the high bog. This area also supports a low canopy of Downy Birch (*Betula pubescens*) woodland. A small fen is located to the south-west of the bog. The cutover supports humid grassland, Birch and Gorse (*Ulex europaeus*) scrub and woodland. There appears to be a flush on the cutover off the northern margin of the high bog.

Much of the high bog has vegetation typical of a Midland Raised Bog. Ling Heather (*Calluna vulgaris*), Deergrass (*Scirpus cespitosus*) and the bog moss *Sphagnum capillifolium* are the dominant species on the bog. Other common species include Bog Asphodel (*Narthecium ossifragum*), Cross-leaved Heath (*Erica tetralix*) and Common Cottongrass (*Eriophorum angustifolium*). Midland Raised Bog indicators include Bog-rosemary (*Andromeda polifolia*), Cranberry (*Vaccinium oxycoccos*) and bog moss *Sphagnum magellanicum*.

There are only a few pools on the bog, which is very dry. These pools support the bog moss *Sphagnum cuspidatum*, Common Cottongrass and White Beaked-sedge (*Rhynchospora alba*). There is good hummock/hollow microtopography where burning has not occurred. The hummocks comprise bog mosses, including *Sphagnum capillifolium*, Crowberry (*Empetrum nigrum*), Ling Heather and *Cladonia* Lichens

There is a flush and soak system on the northern margin of the highbog, which supports Downy Birch woodland with an understorey of Purple Moor-grass (*Molinia caerulea*). Bog Mrytle (*Myrica gale*), Meadowsweet (*Filipendula ulmaria*), the bog mosses *Sphagnum palustre, S. recurvum* var *tenue* and the rare *S. fimbriatum* are also found in the flush.

To the south is an area of fen, which supports Long-stalked Yellow Sedge (*Carex lepidocarpa*), Common Sedge (*C. nigra*), Bottle Sedge (*C. rostrata*), Water Mint (*Mentha aquatica*) and Marsh Cinquefoil (*Potentilla palustris*).

Birch and mixed woodland occur on the north and north-east margin of the high bog on the cutover. The Birch woodland to the north of the site has Ling Heather, Bilberry (*Vaccinium myrtillus*) and the bog mosses *Sphagnum palustre* and *S. capillifolium*. The woodland to the north-east also supports Sycamore (*Acer pseudoplantus*), Elder (*Sambucus nigra*) and Bracken (*Pteridium aquilinum*).

The cutover, which contains areas of old peat cutting and active peat cutting, also supports Birch and Gorse scrub, flush vegetation, humid grasslands and forestry. Grassland is present on mineral soil to the west of the site.

Current landuse on the site includes active peat-cutting in the north-east and south-east of the site. Afforestation occurs on high bog and cutover to the east and on cutover to the south-east. Areas of cutover have been reclaimed for agricultural purposes around the site. The grassland is used for grazing. Damaging activities associated with these landuses include drainage and burning of the high bog. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Wooddown Bog NHA is a site of conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats, including hummock/hollow complexes, a soak system and flushes, as well as a number of scarce plant species. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

SITE SYNOPSIS

SITE NAME: MOLERICK BOG

SITE CODE: 001582

Molerick Bog NHA is situated approximately 4 km south-west of Longwood in the townlands of Molerick, Anneville and Blackshade Co. Meath. The site comprises a raised bog that includes both areas of high bog and cutover bog. The site is bounded by the Dublin-Sligo railway line to the north and local roads to the east.

The site consists of a small basin bog with a dry surface. Cutover is found all around the site, there is broadleaved woodland located to the south-west, wet woodland is located to the north-west, scrub to the east, humid grassland to the south, a flush/fen area to the west and humid grassland on mineral soil to the north-west.

Much of the high bog has vegetation typical of a Midland Raised Bog including Ling Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Deergrass (*Scirpus cespitosus*), Common Cottongrass (*Eriophorum angustifolium*) and *Sphagnum* spp.. The Midland Raised Bog indicator species Bog-rosemary (*Andromeda polifolia*) is also found on the bog. Downy Birch (*Betula pubescens*) is found growing in a wet part of the high bog and is also invading the high bog margins from the cutover.

Active cutover bog occurs on the east and west margins of the high bog. Scrub occurs to the north, east and south-east of the site. Dry, broadleaved semi-natural woodland on cutover, comprising Ash (*Fraxinus excelsior*), Downy Birch and Willow (*Salix* spp.) with some Hawthorn (*Crataegus monogyna*) and Elder (*Sambucus nigra*) is located to the south-west of the site. A small area of wet woodland dominated by Alder (*Alnus glutinosa*) is located to the north-west. Wet improved grassland occurs to the south of the high bog, supporting Rushes (*Juncus* spp.), bog mosses (*Sphagnum* spp.) and Common Cottongrass. There is also a fen/flush area to the south-east margin of the site on cutover. Species found here include Marsh Cinquefoil (*Potentilla palustris,*), Common Marsh-bedstraw (*Galium palustre*), Ragged Robin (*Lychnis flos-cuculi*), Sedges (*Carex* spp.), Marsh Pennywort (*Hydrocotyle vulgaris*) and several orchids, including Common Twayblade (*Listera ovata*).

Current landuse on the site includes extensive active peat-cutting on the east and western margins, with old peat-cuttings all around the site. Areas of cutover have been reclaimed for agricultural purposes to the south. Damaging activities associated with these landuses include drainage and burning of the high bog. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Molerick Bog NHA is a site of conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site is located in Co. Meath at the eastern extreme of raised bogs in Ireland and is one of only four raised bogs in the county. Ireland has a high proportion of the total E.U. resource of this habitat type (over 50%) and so has a special responsibility for its conservation at an international level.

14.11.2002

SITE SYNOPSIS

SITE NAME: LOUGH RAMOR

SITE CODE: 000008

Lough Ramor lies in a hollow in the Silurian strata that cover most of eastern Cavan. It is a very shallow lake with a pH of about 7.5 and a maximum depth of 6m. The water is nutritionally poor but suffers periodic enrichment, resulting in algal blooms. Being situated on a different rock type than the other Cavan lakes it differs also in appearance. Much of the shore has semi-natural woodland of Alder (*Alnus glutinosa*), willows (*Salix* spp.) and Hazel (*Corylus avellana*), those stands near Virginia being originally planted.

Hazel and Hawthorn (*Crataegus monogyna*) scrub is widespread on relatively dry sites with Bramble (*Rubus fruticosus*), False Brome (*Brachypodium sylvaticum*), Wood-sedge (*Carex sylvatica*), Common Dog-violet (*Viola riviniana*) and Primrose (*Primula vulgaris*). Where such communities occur on a rocky shore Crab Apple (*Malus sylvestris*) often grows with roses (*Rosa* spp.) and Heath Dog-violet (*Viola canina*). The scrub grades into woodland in several places on the southern shore and here Ash (*Fraxinus excelsior*) and oak (*Quercus* spp.) occur with some Holly (*Ilex aquifolium*). The bird community in such sites includes Treecreeper, Long-tailed Tit, Chiffchaff, Willow Warbler and, locally, Blackcap. Woodpigeon, Sparrowhawk, Jay, Pheasant and Woodcock are also found.

The islands are mostly covered by willows and in more open places Black-headed Gulls nest. Mallard, Teal and Red-breasted Merganser breed on the island while Great Crested Grebe largely use the mainland shores of the lake.

Freshwater marshes exist in many places around the shore but extensive reedbeds stretching out into the lake are rare. The margins of the marshes are mostly sedge-dominated by such species as Bottle Sedge (*Carex rostrata*), Bladder-sedge (*C. vesicaria*), Tufted-sedge (*C. elata*), Common Sedge (*C. nigra*) and occasionally Water Sedge (*C. aquatilis*). Water Horsetail (*Equisetum fluviatile*), Marsh Cinquefoil (*Potentilla palustris*) and bur-reeds (*Sparganium* spp.) also occur commonly. Also on the fringes occurs a more varied community characteristic of base-poor areas, with such species as Marsh Ragwort (*Senecio aquaticus*), Lesser Spearwort (*Ranunculus flammula*), Devil's-bit Scabious (*Succisa pratensis*), Common Marsh-bedstraw (*Galium palustre*), Hoary Willowherb (*Epilobium parviflorum*), Creeping Bent (*Agrostis stolonifera*), Sweet Vernal-grass (*Anthoxanthum odoratum*), Yorkshire-fog (*Holcus lanatus*) and Purple Moor-grass (*Molinia caerulea*). Cuckooflower (*Cardamine pratensis*) occurs commonly and Marsh Violet (*Viola palustris*) and Greater Spearwort (*Ranunculus lingua*) are to be found in places.

Stretches of the shore with muddy or stony substrates provide niches for Trifid Bur-marigold (*Bidens tripartita*) and the scarce Tasteless Water-pepper (*Persicaria mitis*) and Small Water-pepper (*Persicaria minor*).

The lake supports nationally important numbers of Cormorant (average maximum of 201) and notable concentrations of Whooper Swan, Wigeon, Teal, Mallard and Lapwing. Snipe, Lapwing and Curlew also nest in the fringing marshes.

The plant communities along the lake margins are of note and, combined with the over-wintering bird numbers, make Lough Ramor an important wetland site.

4.11.2009

SITE SYNOPSIS

SITE NAME: HILL OF MAEL AND THE ROCK OF CURRY

SITE CODE: 000681

Roughly midway between Lough Derravaragh and Lough Sheelin, about 6km north of Castlepollard, the Hill of Mael and the Rock of Curry are twin protrusions of pale grey reef limestone, otherwise known as the Meoul Hills. Both hills and a narrow connection between them are designated a Natural Heritage Area (NHA).

Bare limestone outcrops on both hills. Although the only extensive cliffs are on the Rock of Curry, the generally horizontal strata have resulted in the development of some limestone pavement on both hills which is largely obscured by calcareous turf. On the grassy summits the depth of the soil seems to determine its calcium content - on thinner soils species that demand a high calcium status such as Kidney Vetch (*Anthyllis vulneraria*), Field Gentian (*Gentianella campestris*) and Wild Thyme (*Thymus praecox*) characterise the grassland. On thicker soils leaching allows species such as Heath-grass (*Danthonia decumbens*) and Devil's-bit Scabious (*Succisa pratensis*) to grow.

On the limestone, species such as Maidenhair Spleenwort (*Asplenium trichomanes*), Wall-rue (*Asplenium ruta-muraria*) and Shining Crane's-bill (*Geranium lucidum*) occur. Ivy Broomrape (*Orobanche hederae*) is parasitic upon the swathes of Ivy (*Hedera helix*).

Much of the southern slopes are covered in scrub, with more mature areas of Hazel (*Corylus avellana*), Hawthorn (*Crateagus monogyna*), Ash (*Fraxinus excelsior*) and Spindle (*Euonymus europaeus*). Here understorey plants such as Garlic Mustard (*Alliaria petiolata*) are found. Elsewhere the scrub is less mature and contains much Gorse (*Ulex europaeus*), and in places is seen to be spreading out from the hedges. The NHA also includes some areas of relatively unimproved pasture on the flanks of the hills. These are in floristic contrast with the hilltop grasslands.

This area is unique in County Westmeath with the few limestone exposures in the midlands being of great importance.

The eastern slopes of the Hill of Mael have been extensively planted with conifers. Afforestation, bulldozing of scrub areas, and fertilisation of the grassland areas are the main threats to this NHA.

11.11.2009

SITE SYNOPSIS

SITE NAME: LOUGH GLORE

SITE CODE: 000686

This lake is situated about 3km north-east of Castlepollard in Co. Westmeath. It is a shallow, calcareous and highly productive lake.

The open water has been colonised by Canadian Waterweed (*Elodea canadensis*), Mare's-tail (*Hippuris vulgaris*), duckweeds (*Lemna minor* and *L.trisulca*), Whorled Water-milfoil (*Myriophyllum verticillatum*), starwort (*Callitriche* spp.) and the moss *Fontinalis antipyretica*. Rigid Hornwort (*Ceratophyllum demersum*) was abundant at the time of the survey and extensive mats covered the water surface.

All around the lake but particularly at the southern end, extensive stands of Reed Canary-grass (*Phalaris arundinacea*) and Common Reed (*Phragmites australis*) are present. Lakewards of these, on reasonably firm substrate, Branched Bur-reed (*Sparganium erectum*), Water-cress (*Nasturtium officinale*), Water Horsetail (*Equisetum fluviatile*), Bulrush (*Typha latifolia*), Bottle Sedge (*Carex rostrata*) and Common Club-rush (*Schoenoplectus lacustris*) occur.

Other areas of reed-bed have scattered willow (*Salix* spp.), Downy Birch (*Betula pubescens*) and Alder (*Alnus glutinosa*). In places, flushed lakeshore vegetation can be seen including Purple Moor-grass (*Molinia caerulea*), cottongrass (*Eriophorum* spp.), Black Bog-rush (*Schoenus nigricans*), Grass-of-parnassus (*Parnassia palustris*), Devil's-bit Scabious (*Succisa pratensis*), Marsh Cinquefoil (*Potentilla palustris*) and orchids. In peaty regions stoneworts (*Chara* spp.) can be observed in bog holes left from turf cutting.

At the north-east of the site on an area of former cutaway is a stand of birch wood (*Betula* spp.) with some other scrub species including Rowan (*Sorbus aucuparia*). Patches of Common Reed are also seen.

The birdlife of this small lake includes Pochard, Great-crested Grebe, Grebe, Tufted Duck, Ringed Plover, Grey Heron, Coot, Water Rail and Teal. The surrounding wetlands are used by Snipe, Lapwing, Curlew, Reed Bunting and Kestrel species. The mammals frequenting the site include hare and Otter. The latter is listed in Annex II of the EU Habitats Directive as it is threatened within the European Union.

Much of the lakeshore is accessible to grazing cattle. Other land use includes fishing and bird shooting. In past times the Inny Drainage Scheme lowered the level of this lake. Presently, further drainage of the Inny is occurring and is a threat to the site quality.

Lough Glore is important as a very productive midland limestone lake. The open water and surrounding lakeshore support a vast range of aquatic vegetation, insect life

and birdlife. The use of the site by mammal species such as Otter is an added bonus to the ecological quality.

SITE SYNOPSIS

SITE NAME: BALLYNBARNY FEN

SITE CODE: 001573

This fen lies in a small, deep, artificially-created valley between the embankments of the Royal Canal and the nearby railway, and is situated about 3km west-north-west of Longwood in Co. Meath.

In 1972 An Foras Forbartha described the core fen area as rich in sedges (such as *Carex diandra, C. lepidocarpa, C. disticha, C. panicea, C. flacca* and *C. rostrata*). Grass-of-parnassus (*Parnassia palustris*), Few-flowered Spike-rush (*Eleocharis quinqueflora*) and Variegated Horsetail (*Equisetum variegatum*) were also observed. The latter species is relatively rare in Ireland.

In June 1993 an ecologist's visit confirmed the continued presence of the fen. The margins are dominated by scrub mainly composed of Purple Moor-grass (*Molinia caerulea*). At the southern end of the site Beech (*Fagus sylvatica*) trees are colonising.

The level of human activities within the site is low. There is some evidence of littering and rubbish dumping. The use of the canal for navigational purposes should have little impact on the site quality. However, dredging of the canal is a threat if the spoil is dumped onto the site. Also, the water level within the canal may impact on the wetness of adjoining lands and hence the quality of the fen site.

Ballynabarny Fen contains a good floral representation of a fen community. This habitat is relatively uncommon and the presence of Variegated Horsetail is a bonus. The adjacent canal adds habitat diversity to the site.

23.11.2009

SITE SYNOPSIS

SITE NAME: LOUGH NANEAGH

SITE CODE: 001814

This site is located approximately 10km north-east of Castlepollard, about 2km off the road to Oldcastle. It spans the Cos Meath/Westmeath border, lying mostly in Meath. The site consists of a complex of small lakes (the largest of which is Lough Naneagh itself) and wetlands which lie in poorly-drained hollows between drumlins and moraisic hummocks. This undulating topography is a typical product of glaciation and the soil type in this site is glacial drift which is a calcium-rich, poorly-drained substrate.

The lakes in this site, are fringed by broad bands of fen vegetation particularly Lough Naneagh and Deerpark Lough. Plants which are typical of fens occur here e.g. Black-Bog-Rush (*Schoenus nigricans*), Common Reed (*Phragmites australis*), Long-Stalked Yellow Sedge (*Carex lepidocarpa*) and Great Fen-Sedge (*Cladium mariscus*). The margins of open water are typically colonised by Bottle Sedge (*Carex rostrata*) and Bulrush (*Typha latifolia*). In some cases, the fens in this site are developing further to form bogs. Towards the centre, the ground is firmer and drier and bog plants are found.

Heather (*Calluna vulgaris*) and Purple Moor-grass (*Molinia caerulea*) are abundant here, and there is a good cover of *Sphagnum* mosses (*S. capillifolium*).

On the drumlins or hummocks, the grasslands tend to be species-rich and contain a range of species typical of calcareous grasslands. These include Mountain Everlasting (*Antennaria dioica*), Common Bird's-foot-trefoil (*Lotus corniculatus*) and Lady's Bedstraw (*Galium verum*). The grasslands are variously improved for pasture, with a resulting reduction in species diversity in more heavily improved fields. The elongated hummock or esker which runs in an approximately east/west direction south of the lakes is partially covered by woodland. The woodland varies in character. Some areas are dominated by multi-stemmed Hazel (*Corylus avellana*) with frequent Ash (*Fraxinus excelsior*), while in others, the canopy is formed by Beech (*Fagus sylvatica*).

The ground flora includes an attractive variety of wildflowers including Early-Purple Orchid (*Orchis mascula*), Wood Anemone (*Anemone nemorosa*), Cowslip (*Primula veris*), Goldilock's Buttercup (*Ranunculus auricomus*), Sanicle (*Sanicula europaea*) and Bluebell (*Hyacinthoides non-scripta*).

The main land use practice in the site is cattle-grazing. Uncontrolled cattle access to the lakeshore, fens and woodland would threaten the survival of the semi-natural vegetation. Drainage of outflowing channels and/or pollution of in-flowing channels would pose a major threat to the lakes and fens. Application of fertilisers can lead to a reduction in species diversity of calcareous grasslands on the drumlins. In the woodlands, there is much evidence of damage and disturbance related to removal of

timber. Indiscriminate clearing or removal of trees could lead to a degeneration of woodland structure and a reduction in the quality of this habitat.

In summary, this site is recommended as a NHA due to the presence of transitional fen and lake habitats. Species-rich grasslands and woodland lend habitat diversity to the site and enhance its educational potential. The site was rated as being of local importance by An Foras Forbartha in 1972.

SITE SYNOPSIS

SITE NAME: GRAND CANAL

SITE CODE: 002104

The Grand Canal is a man-made waterway linking the River Liffey at Dublin with the Shannon at Shannon Harbour and the Barrow at Athy. The Grand Canal proposed Natural Heritage Area (pNHA) comprises the canal channel and the banks on either side of it. The canal system is made up of a number of branches - the Main Line from Dublin to the Shannon, the Barrow Line from Lowtown to Athy, the Edenderry Branch, the Naas and Corbally Branch and the Milltown Feeder. The Kilbeggan Branch is dry at present, but it is hoped to restore it in the near future. Water is fed into the summit level of the canal at Lowtown from Pollardstown Fen, itself a pNHA.

A number of different habitats are found within the canal boundaries - hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland.

The hedgerow, although diverse, is dominated by Hawthorn (*Crataegus monogyna*). On the limestone soils of the midlands Spindle (*Euonymus europaeus*) and Guelder-rose (*Viburnum opulus*) are present.

The vegetation of the towpath is usually dominated by grass species. Where the canal was built through a bog, soil (usually calcareous) was brought in to make the banks. The contrast between the calcicolous species of the towpath and the calcifuge species of the bog is very striking.

The diversity of the water channel is particularly high in the eastern section of the Main Line - between the Summit level at Lowtown and Inchicore. Arrowhead (*Sagittaria sagittifolia*) and Water-cress (*Rorippa nasturtium-aquaticum*) are more common in this stretch than on the rest of the system. All sites for Hemlock Water-dropwort (*Oenanthe crocata*) on the Grand Canal system are within this stretch.

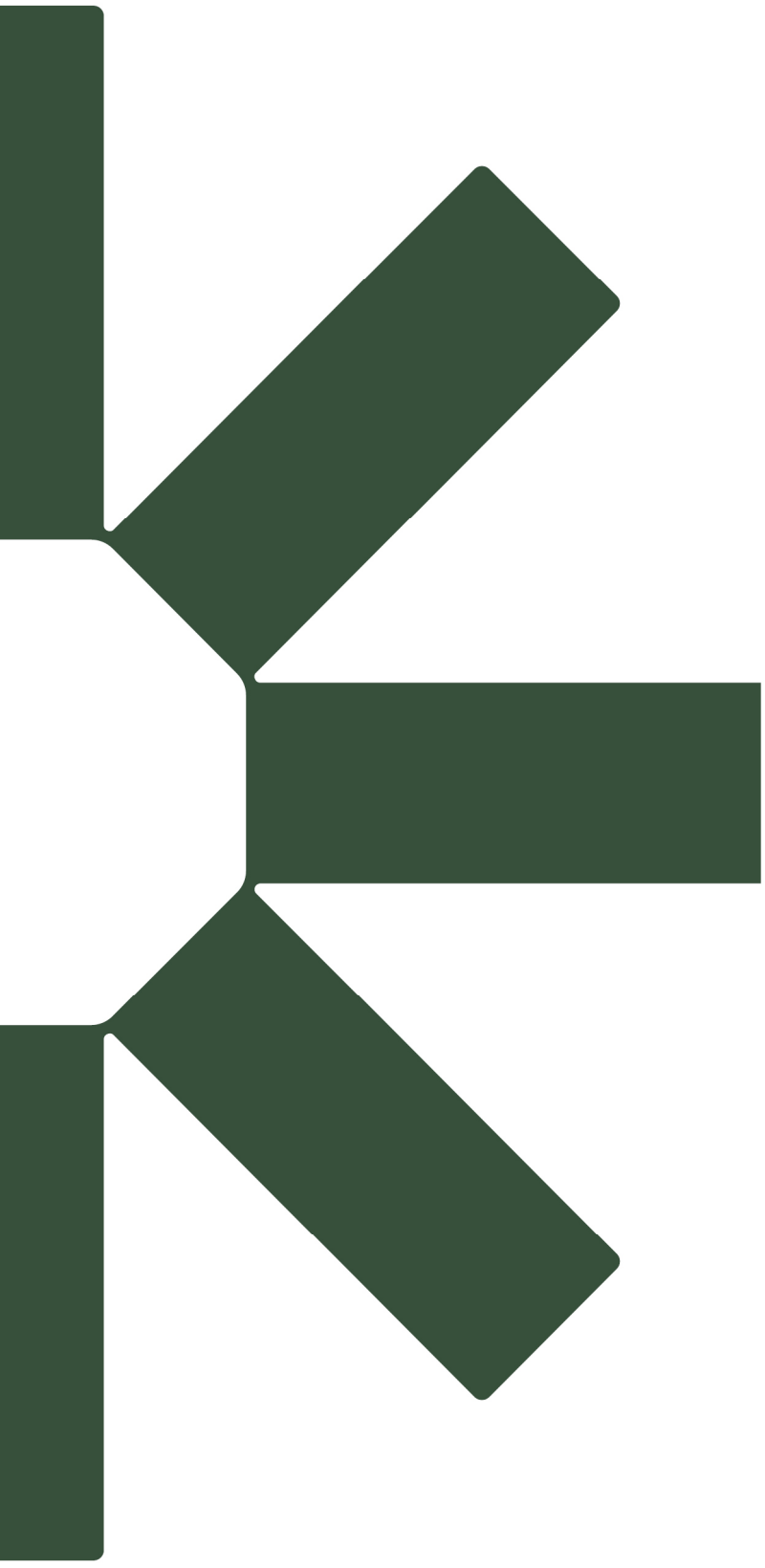
The aquatic flora of the Corbally Extension of the Naas Branch of the canal is also very diverse, with a similar range of species to the eastern Main Line.

Otter spraints are found along the towpath, particularly where the canal passes over a river or stream.

The Smooth Newt (*Lissotriton vulgaris*) breeds in the ponds on the bank at Gollierstown in Co. Dublin.

The rare and legally protected Opposite-leaved Pondweed (*Groenlandia densa*) (Flora Protection Order 1987) is present at a number of sites in the eastern section of the Main Line, between Lowtown and Ringsend Basin in Dublin.

The ecological value of the canal lies more in the diversity of species it supports along its linear habitats than in the presence of rare species. It crosses through agricultural



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