Appendix 15.6

Designated Site Synopses

Coolglass Wind Farm EIAR Volume 3

Coolglass Wind Farm Limited

SLR Project No.: 501.V00727.00006

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SITE SYNOPSIS

Site Name: Ballyprior Grassland SAC

Site Code: 002256

Ballyprior Grassland, 4 km south of the village of Stradbally in Co. Laois, is located at the north end of the Castlecomer Plateau on largely limestone bedrock. The soils of the area are generally thin and well drained, varying from a deeper sandy loam in lower places (10-20 cm depth), to thin or stony soil over local drift (5-10 cm depth) on the elevated plateau.

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):

[6210] Orchid-rich Calcareous Grassland*

Ballyprior Grassland SAC contains old grassland habitat of high quality and the site is important due to the loss of similar habitat in surrounding areas. The site has an exceptionally rich myco-flora (fungi) which is a good indication of grassland quality (in terms of continuity, lack of disturbance and low nutrient status).

In the grassland there is abundant cover of grasses and herbs with a high species diversity, but low bryophyte cover. Quaking-grass (*Briza media*) is an abundant species, reflecting the calcareous conditions, in association with abundant Sheep's-fescue (*Festuca ovina*), Sweet Vernal-grass (*Anthoxanthun odoratum*), Crested Dog's-tail (*Cynosurus cristatus*) and Common Bent (*Agrostis capillaris*). Other species present include Heath-grass (*Danthonia decumbens*), the sedges *Carex caryophyllea, C. flacca* and *C. pulicaris,* and Field Wood-rush (*Luzula campestris*). The herb-rich, calcicole flora is characterised by Early-purple Orchid (*Orchis mascula*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Yarrow (*Achillea millefolium*), Lady's Bedstraw (*Galium verum*), Mouse-ear Hawkweed (*Hieracium pilosella*), Wild Thyme (*Thymus praecox*), Fairy Flax (*Linum catharticum*), Oxeye Daisy (*Leucanthemum vulgare*), Rough Hawkbit (*Leontodon hispidus*), Carline Thistle (*Carlina vulgaris*) and Autumn Gentian (*Gentianella amarella*), with Heath Dog-violet (*Viola canina*), Mountain Everlasting (*Antennaria dioica*) and Maidenhair Spleenwort (*Asplenium trichomanes*) prevalent around rock out-crops. On deeper soils, Wild Carrot (*Daucus carota*) and Pignut (*Conopodium majus*) are frequent.

The presence in certain places of species such as Carnation Sedge (*Carex panicea*), Devil's-bit Scabious (*Succisa pratensis*), Tormentil (*Potentilla erecta*) and Heath Bedstraw (*Galium saxatile*) indicates variation in conditions with paucity of minerals, and adds to the species diversity. Hazel (*Corylus avellana*) scrub, with a well

developed ground flora, occurs on the extreme west margins of the grassland. There are also several ponds within the site adding further habitat diversity.

The Irish Hare (*Lepus timidus hibernicus*) occurs in the site. This endemic sub-species is listed in the Red Data Book and is legally protected under the Wildlife Act, 1976.

Ballyprior Grassland was traditionally managed as a commonage for grazing of cattle and horses. But the recent division of the lands into private holdings has led to a drive to improve the agricultural quality and output of these lands. Much of the farmland in surrounding areas is improved. Recent damage has occurred to parts of the site and some damaged habitat has been excluded. Semi-improved grassland has developed from enrichment and fertilising in the west of the site, with persistent Common Sorrel (*Rumex acetosa*) in places. South of the site, recent afforestation has resulted in loss of contiguous grassland habitat.

Ballyprior Grassland is an important example of orchid-rich calcareous grassland, a habitat listed on Annex I of the E.U. Habitats Directive. The site contains a diverse flora and an exceptionally rich myco-flora. This site is also important in the context of the loss of most other similar species rich grasslands in the area to agricultural improvement.

SITE SYNOPSIS

Site Name: Cullahill Mountain SAC

Site Code: 000831

Cullahill Mountain SAC lies on a western outlier of the Castlecomer plateau, 6 km north-east of Johnstown in Co. Kilkenny. In this area, the underlying limestone has been exposed relatively recently by erosion of the higher shales. The rock is in the form of an escarpment, with a steep side facing the central plain (and the Cork-Dublin road) and more gradual slopes to the south-east where the shale soon appears.

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):

[6210] Orchid-rich Calcareous Grassland*

The vegetation of most of the site comprises a herb-rich grassland over limestone. Grasses found include Quaking-grass (*Briza media*), Crested Dog's-tail (*Cynosurus cristatus*), Sheep's-fescue (*Festuca ovina*), Downy Oat-grass (*Avenula pubescens*) and Yellow Oat-grass (*Trisetum flavescens*). Amongst these grasses Mouse-ear Hawkweed (*Hieracium pilosella*), Wild Thyme (*Thymus praecox*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Lady's Bedstraw (*Galium verum*), Carline Thistle (*Carlina vulgaris*), Mountain Everlasting (*Antennaria dioica*), Fairy Flax (*Linum catharticum*) and eyebrighta (*Euphrasia* spp.) grow, while a number of smaller annual species are associated with rock outcrops. The orchid flora of the grassland is notably rich, with Common Twayblade (*Listera ovata*), Frog Orchid (*Coeloglossum viride*), Bee Orchid (*Ophrys apifera*), Early-purple Orchid (*Orchis mascula*) and Green-winged Orchid (*Orchis morio*) occurring. Green-winged Orchid is an uncommon species and the site is particularly notable for the abundance of this species (some 350 individuals were recently recorded from the site).

On its west side, the site extends downslope to some Ash (*Fraxinus excelsior*)/Hazel (*Corylus avellana*) woodland which is regenerating well and spreading on the hill. Some of the trees grow out of moss-covered rocks and although the ground flora is as yet fairly sparse, most of the expected species occur within the wood. Woodland on limestone is quite rare in the midlands and is distinct from adjacent Hazel stands on shale, such as at Spahill.

This site is of conservation importance due to the presence of a priority-listed Annex I habitat type (orchid-rich calcareous grassland), as well as the occurrence of a large population of the rare plant species, Green-winged Orchid.

SITE SYNOPSIS

Site Name: Lisbigney Bog SAC

Site Code: 000869

Lisbigney Bog is situated about 5 km north-east of Durrow in Co. Laois. Although referred to as a bog, this site is actually a wetland dominated by fen vegetation. It is a former lake basin, and is now criss-crossed by streams.

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):

[7210] *Cladium* Fens*
[1016] Desmoulin's Whorl Snail (*Vertigo moulinsiana*)

At Lisbigney Bog areas of sedge-dominated communities with Meadowsweet (*Filipendula ulmaria*), Lesser Spearwort (*Ranunculus flammula*) and Bog-myrtle (*Myrica gale*) divide dense stands of Common Reed (*Phragmites australis*) in the south-west from areas of Great Fen-sedge (*Cladium mariscus*) towards the north-east. In the centre of the stand of reeds is a small area of standing water with an abundance of Marsh Cinquefoil (*Potentilla palustris*), accompanied by a variety of bryophyte species, including *Marchantia polymorpha*, *Calliergon giganteum* and *Bryum pseudotriquetrum*. Scrub and areas of grassland dominated by Purple Moor-grass (*Molinia caerulea*) surround the fen.

The rare snail *Vertigo moulinsiana* was recorded at the site in 1998. This species is a glacial relict with a disjunct European population. It is considered to be vulnerable due to loss of habitat, particularly drainage of wetlands. In Ireland, the species is sparsely distributed in the central lowlands, where it mostly occurs in calcareous wetlands/fens.

Birds recorded at the site includes Jay, Blackcap and Snipe.

Lisbigney Bog is of considerable conservation significance for the good example of *Cladium* fen, a priority-listed habitat on Annex I of the E.U. Habitats Directive, and for the population of *Vertigo moulinsiana* that it supports.

SITE SYNOPSIS

Site Name: Mountmellick SAC

Site Code: 002141

This site comprises a disused stretch of the Grand Canal between Dangan's Bridge and Skeagh Bridge, approximately 3 km east of Mountmellick in Co. Laois.

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):

[1016] Desmoulin's Whorl Snail (*Vertigo moulinsiana*)

The habitat at this site is composed largely of fen-type vegetation, including Bulrush (*Typha latifolia*), Reed Sweet-grass (*Glyceria maxima*) and Yellow Iris (*Iris pseudacorus*). The area west of the bridge has been drained extensively and is now grassland.

The whorl snail *Vertigo moulinsiana* is a glacial relict with a disjunct European population that is considered Vulnerable due to loss of habitat, caused in particular by drainage of wetlands. It was first recorded at this site in 1971. The site was visited again in 1997 and the species re-found. In Ireland, the species is sparsely distributed in the central lowlands. It generally lives in calcareous wetlands, often fens. *Vertigo moulinsiana* was formerly more widespread in the canal area but has disappeared from most of its recorded sites with the dredging and reopening of canal navigation channels. Restoration of disused sections of canal without due consideration of the species is a threat.

The Mountmellick site is important as it provides useful habitat for a population of *Vertigo moulinsiana.*

SITE SYNOPSIS

Site Name: River Barrow and River Nore SAC

Site Code: 002162

This site consists of the freshwater stretches of the Barrow and Nore River catchments as far upstream as the Slieve Bloom Mountains, and it also includes the tidal elements and estuary as far downstream as Creadun Head in Waterford. The site passes through eight counties – Offaly, Kildare, Laois, Carlow, Kilkenny, Tipperary, Wexford and Waterford. Major towns along the edge of the site include Mountmellick, Portarlington, Monasterevin, Stradbally, Athy, Carlow, Leighlinbridge, Graiguenamanagh, New Ross, Inistioge, Thomastown, Callan, Bennettsbridge, Kilkenny and Durrow. The larger of the many tributaries include the Lerr, Fushoge, Mountain, Aughavaud, Owenass, Boherbaun and Stradbally Rivers of the Barrow, and the Delour, Dinin, Erkina, Owveg, Munster, Arrigle and King's Rivers on the Nore.

Both rivers rise in the Old Red Sandstone of the Slieve Bloom Mountains before passing through a band of Carboniferous shales and sandstones. The Nore, for a large part of its course, traverses limestone plains and then Old Red Sandstone for a short stretch below Thomastown. Before joining the Barrow it runs over intrusive rocks poor in silica. The upper reaches of the Barrow also run through limestone. The middle reaches and many of the eastern tributaries, sourced in the Blackstairs Mountains, run through Leinster Granite. The southern end, like the Nore runs over intrusive rocks poor in silica. Waterford Harbour is a deep valley excavated by glacial floodwaters when the sea level was lower than today. The coast shelves quite rapidly along much 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):

[1130] Estuaries
[1140] Tidal Mudflats and Sandflats
[1170] Reefs
[1310] *Salicornia* Mud
[1330] Atlantic Salt Meadows
[1410] Mediterranean Salt Meadows
[3260] Floating River Vegetation
[4030] Dry Heath
[6430] Hydrophilous Tall Herb Communities
[7220] Petrifying Springs*
[91A0] Old Oak Woodlands

[91E0] Alluvial Forests*

[1016] Desmoulin's Whorl Snail (*Vertigo moulinsiana*)
[1029] Freshwater Pearl Mussel (*Margaritifera margaritifera*)
[1092] White-clawed Crayfish (*Austropotamobius pallipes*)
[1095] Sea Lamprey (*Petromyzon marinus*)
[1096] Brook Lamprey (*Lampetra planeri*)
[1099] River Lamprey (*Lampetra fluviatilis*)
[1103] Twaite Shad (*Alosa fallax*)
[1106] Atlantic Salmon (*Salmo salar*)
[1355] Otter (*Lutra lutra*)
[1421] Killarney Fern (*Trichomanes speciosum*)
[1990] Nore Freshwater Pearl Mussel (*Margaritifera durrovensis*)

Good examples of alluvial forest (a priority habitat on Annex I of the E.U. Habitats Directive) are seen at Rathsnagadan, Murphy's of the River, in Abbeyleix estate and along other shorter stretches of both the tidal and freshwater elements of the site. Typical species seen include Almond Willow (*Salix triandra*), White Willow (*S. alba*), Rusty Willow (*S. cinerea* subsp. *oleifolia*), Crack Willow (*S. fragilis*) and Osier (*S. viminalis*), along with Iris (*Iris pseudacorus*), Hemlock Water-dropwort (*Oenanthe crocata*), Wild Angelica (*Angelica sylvestris*), Thin-spiked Wood-sedge (*Carex strigosa*), Pendulous Sedge (*C. pendula*), Meadowsweet (*Filipendula ulmaria*), Common Valerian (*Valeriana officinalis*) and the Red Data Book species Nettle-leaved Bellflower (*Campanula trachelium*).

A good example of petrifying springs with tufa formations occurs at Dysart Wood along the Nore. This is a rare habitat in Ireland and one listed with priority status on Annex I of the E.U. Habitats Directive. These hard water springs are characterised by lime encrustations, often associated with small waterfalls. A rich bryophyte flora is typical of the habitat and two diagnostic species, *Palustriella commutata* and *Eucladium verticillatum*, have been recorded.

The best examples of old oak woodlands are seen in the ancient Park Hill woodland in the estate at Abbeyleix; at Kyleadohir, on the Delour, Forest Wood House, Kylecorragh and Brownstown Woods on the Nore; and at Cloghristic Wood, Drummond Wood and Borris Demesne on the Barrow, though other patches occur throughout the site. Abbeyleix Woods is a large tract of mixed deciduous woodland which is one of the only remaining true ancient woodlands in Ireland. Historical records show that Park Hill has been continuously wooded since the 16th century and has the most complete written record of any woodland in the country. It supports a variety of woodland habitats and an exceptional diversity of species including 22 native trees, 44 bryophytes and 92 lichens. It also contains eight indicator species of ancient woodlands. Park Hill is also the site of two rare plants, Nettle-leaved

Bellflower and the moss *Leucodon sciuroides.* The rare Myxomycete fungus, *Licea minima* has been recorded from woodland at Abbeyleix.

Oak woodland covers parts of the valley side south of Woodstock and is well developed at Brownsford where the Nore takes several sharp bends. The steep valley side is covered by oak (*Quercus* spp.), Holly (*Ilex aquifolium*), Hazel (*Corylus avellana*) and Downy Birch (*Betula pubescens*), with some Beech (*Fagus sylvatica*) and Ash (*Fraxinus excelsior*). All the trees are regenerating through a cover of Bramble (*Rubus fruticosus* agg.), Foxglove (*Digitalis purpurea*), Great Wood-rush (*Luzula sylvatica*) and Broad Buckler-fern (*Dryopteris dilatata*).

On the steeply sloping banks of the River Nore, about 5 km west of New Ross, in Co. Kilkenny, Kylecorragh Woods form a prominent feature in the landscape. This is an excellent example of relatively undisturbed, relict oak woodland with a very good tree canopy. The wood is quite damp and there is a rich and varied ground flora. At Brownstown, a small, mature oak dominated woodland occurs on a steep slope. There is younger woodland to the north and east of it. Regeneration throughout is evident. The understorey is similar to the woods at Brownsford. The ground flora of this woodland is developed on acidic, brown earth type soil and comprises a thick carpet of Bilberry (*Vaccinium myrtillus*), Heather (*Calluna vulgaris*), Hard Fern (*Blechnum spicant*), Common Cow-wheat (*Melampyrum pratense*) and Bracken (*Pteridium aquilinum*).

Borris Demesne contains a very good example of a semi-natural broadleaved woodland in very good condition. There is quite a high degree of natural re-generation of oak and Ash through the woodland. At the northern end of the estate oak species predominate. Drummond Wood, also on the Barrow, consists of three blocks of deciduous woods situated on steep slopes above the river. The deciduous trees are mostly oak species. The woods have a well-established understorey of Holly, and the herb layer is varied, with Bramble abundant. The whitebeam *Sorbus devoniensis* has also been recorded here.

Eutrophic tall herb vegetation occurs in association with the various areas of alluvial forest and elsewhere where the floodplain of the river is intact. Characteristic species of the habitat include Meadowsweet, Purple Loosestrife (*Lythrum salicaria*), Marsh Ragwort (*Senecio aquaticus*), Ground Ivy (*Glechoma hederacea*) and Hedge Bindweed (*Calystegia sepium*). Indian Balsam (*Impatiens glandulifera*), an introduced and invasive species, is abundant in places.

Floating river vegetation is well represented in the Barrow and in the many tributaries of the site. In the Barrow the species found include water-starworts (*Callitriche* spp.), Canadian Pondweed (*Elodea canadensis*), Bulbous Rush (*Juncus bulbosus*), water-milfoils (*Myriophyllum* spp.), the pondweed *Potamogeton* x *nitens*, Broad-leaved Pondweed (*P. natans*), Fennel Pondweed (*P. pectinatus*), Perfoliated Pondweed (*P. perfoliatus*) and crowfoots (*Ranunculus* spp.). The water quality of the Barrow has improved since the vegetation survey was carried out (EPA, 1996).

Dry heath at the site occurs in pockets along the steep valley sides of the rivers especially in the Barrow Valley and along the Barrow tributaries where they occur in the foothills of the Blackstairs Mountains. The dry heath vegetation along the slopes of the river bank consists of Bracken and Gorse (*Ulex europaeus*) with patches of acidic grassland vegetation. Additional typical species include Heath Bedstraw (*Galium saxatile*), Foxglove, Common Sorrel (*Rumex acetosa*) and Creeping Bent (*Agrostis stolonifera*). On the steep slopes above New Ross the Red Data Book species Greater Broomrape (*Orobanche rapum-genistae*) has been recorded. Where rocky outcrops are shown on the maps Bilberry and Great Wood-rush are present. At Ballyhack a small area of dry heath is interspersed with patches of lowland dry grassland. These support a number of clover species, including the legally protected Clustered Clover (*Trifolium glomeratum*) - a species known from only one other site in Ireland. This grassland community is especially well developed on the west side of the mud-capped walls by the road. On the east of the cliffs a group of rock-dwelling species occur, i.e. English Stonecrop (*Sedum anglicum*), Sheep's-bit (*Jasione montana*) and Wild Madder (*Rubia peregrina*). These rocks also support good lichen and moss assemblages with *Ramalina subfarinacea* and *Hedwigia ciliata*.

Dry heath at the site generally grades into wet woodland or wet swamp vegetation lower down the slopes on the river bank. Close to the Blackstairs Mountains, in the foothills associated with the Aughnabrisky, Aughavaud and Mountain Rivers there are small patches of wet heath dominated by Purple Moor-grass (*Molinia caerulea*) with Heather, Tormentil (*Potentilla erecta*), Carnation Sedge (*Carex panicea*) and Bell Heather (*Erica cinerea*).

Salt meadows occur at the southern section of the site in old meadows where the embankment has been breached, along the tidal stretches of in-flowing rivers below Stokestown House, in a narrow band on the channel side of Common Reed (*Phragmites australis*) beds and in narrow fragmented strips along the open shoreline. In the larger areas of salt meadow, notably at Carrickcloney, Ballinlaw Ferry and Rochestown on the west bank; Fisherstown, Alderton and Great Island to Dunbrody on the east bank, the Atlantic and Mediterranean sub types are generally intermixed. At the upper edge of the salt meadow in the narrow ecotonal areas bordering the grasslands where there is significant percolation of salt water, the legally protected species Borrer's Saltmarsh-grass (*Puccinellia fasciculata*) and Meadow Barley (*Hordeum secalinum*) are found. The very rare and also legally protected Divided Sedge (*Carex divisa*) is also found. Sea Rush (*Juncus maritimus*) is also present. Other plants recorded and associated with salt meadows include Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Sea Couch (*Elymus pycnanthus*), Spear-leaved Orache (*Atriplex prostrata*), Lesser Sea-spurrey (*Spergularia marina*), Sea Arrowgrass (*Triglochin maritima*) and Sea Plantain (*Plantago maritima*).

Glassworts (*Salicornia* spp.) and other annuals colonising mud and sand are found in the creeks of the saltmarshes and at the seaward edges of them. The habitat also occurs in small amounts on some stretches of the shore free of stones.

The estuary and the other E.U. Habitats Directive Annex I habitats within it form a large component of the site. Extensive areas of intertidal flats, comprised of substrates ranging from fine, silty mud to coarse sand with pebbles/stones are present. Good quality intertidal sand and mudflats have developed on a linear shelf on the western side of Waterford Harbour, extending for over 6 km from north to south between Passage East and Creadaun Head, and in places are over 1 km wide. The sediments are mostly firm sands, though grade into muddy sands towards the upper shore. They have a typical macro-invertebrate fauna, characterised by polychaetes and bivalves. Common species include *Arenicola marina*, *Nephtys hombergii*, *Scoloplos armiger*, *Lanice conchilega* and *Cerastoderma edule*. An extensive area of honey-comb worm biogenic reef occurs adjacent to Duncannon, Co. Wexford on the eastern shore of the estuary. It is formed by the polychaete worm *Sabellaria alveolata.* This intertidal *Sabellaria alveolata* reef is formed as a sheet of interlocking tubes over a considerable area of exposed bedrock. This polychaete species constructs tubes, composed of aggregated sand grains, in tightly packed masses with a distinctive honeycomb-like appearance. These can be up to 25cm proud of the substrate and form hummocks, sheets or more massive formations. A range of species are reported from these reefs including: *Enteromorpha* sp.; *Ulva* sp.; *Fucus vesiculosus*; *Fucus serratus*; *Polysiphonia* sp.; *Chondrus crispus*; *Palmaria palmate*; *Coralinus officialis*; *Nemertea* sp.; *Actinia equine*; *Patella vulgate*; *Littorina littorea*; *Littorina obtusata* and *Mytilus edulis*.

The western shore of the harbour is generally stony and backed by low cliffs of glacial drift. At Woodstown there is a sandy beach, now much influenced by recreation pressure and erosion. Behind it a lagoonal marsh has been impounded which runs westwards from Gaultiere Lodge along the course of a slow stream. An extensive reedbed occurs here. At the edges is a tall fen dominated by sedges (*Carex* spp.), Meadowsweet, willowherbs (*Epilobium* spp.) and rushes (*Juncus* spp.). Wet woodland also occurs.

The dunes which fringe the strand at Duncannon are dominated by Marram (*Ammophila arenaria*) towards the sea. Other species present include Wild Clary/Sage (*Salvia verbenaca*), a rare Red Data Book species. The rocks around Duncannon ford have a rich flora of seaweeds typical of a moderately exposed shore and the cliffs themselves support a number of coastal species on ledges, including Thrift, Rock Samphire (*Crithmum maritimum*) and Buck's-horn Plantain (*Plantago coronopus*).

Other habitats which occur throughout the site include wet grassland, marsh, reedswamp, improved grassland, arable land, quarries, coniferous plantations, deciduous woodland, scrub and ponds.

Seventeen Red Data Book plant species have been recorded within the site, most in the recent past. These are Killarney Fern (*Trichomanes speciosum*), Divided Sedge, Clustered Clover, Basil Thyme (*Acinos arvensis*), Red Hemp-nettle (*Galeopsis angustifolia*), Borrer's Saltmarsh-grass, Meadow Barley, Opposite-leaved Pondweed (*Groenlandia densa*), Meadow Saffron/Autumn Crocus (*Colchicum autumnale*), Wild Clary/Sage, Nettle-leaved Bellflower, Saw-wort (*Serratula tinctoria*), Bird Cherry

(*Prunus padus*), Blue Fleabane (*Erigeron acer*), Fly Orchid (*Ophrys insectifera*), Ivy Broomrape (*Orobanche hederae*) and Greater Broomrape. Of these, the first nine are protected under the Flora (Protection) Order, 2015. Divided Sedge was thought to be extinct but has been found in a few locations in the site since 1990. In addition plants which do not have a very wide distribution in the country are found in the site including Thin-spiked Wood-sedge, Field Garlic (*Allium oleraceum*) and Summer Snowflake. Six rare lichens, indicators of ancient woodland, are found including *Lobaria laetevirens* and *L. pulmonaria.* The rare moss *Leucodon sciuroides* also occurs.

The site is very important for the presence of a number of E.U. Habitats Directive Annex II animal species including Freshwater Pearl Mussel (both *Margaritifera margaritifera* and *M. m. durrovensis*), White-clawed Crayfish, Salmon, Twaite Shad, three lamprey species – Sea Lamprey, Brook Lamprey and River Lamprey, the tiny whorl snail *Vertigo moulinsiana* and Otter. This is the only site in the world for the hard water form of the Freshwater Pearl Mussel, *M. m. durrovensis,* and one of only a handful of spawning grounds in the country for Twaite Shad. The freshwater stretches of the River Nore main channel is a designated salmonid river. The Barrow/Nore is mainly a grilse fishery though spring salmon fishing is good in the vicinity of Thomastown and Inistioge on the Nore. The upper stretches of the Barrow and Nore, particularly the Owenass River, are very important for spawning.

The site supports many other important animal species. Those which are listed in the Irish Red Data Book include Daubenton's Bat, Badger, Irish Hare and Common Frog. The rare Red Data Book fish species Smelt (*Osmerus eperlanus*) occurs in estuarine stretches of the site. In addition to the Freshwater Pearl Mussel, the site also supports two other freshwater mussel species, *Anodonta anatina* and *A. cygnea*.

Three rare invertebrates have been recorded in alluvial woodland at Murphy's of the River. These are: *Neoascia obliqua* (Order Diptera: Syrphidae), *Tetanocera freyi* (Order Diptera: Sciomyzidae) and *Dictya umbrarum* (Order Diptera: Sciomyzidae). The rare invertebrate, *Mitostoma chrysomelas* (Order Arachnida), occurs in the old oak woodland at Abbeyleix and only two other sites in the country. Two flies (Order Diptera) *Chrysogaster virescens* and *Hybomitra muhlfeldi* also occur at this woodland.

The site is of ornithological importance for a number of E.U. Birds Directive Annex I species, including Greenland White-fronted Goose, Whooper Swan, Bewick's Swan, Bar-tailed Godwit, Peregrine and Kingfisher. Nationally important numbers of Golden Plover and Bar-tailed Godwit are found during the winter. Wintering flocks of migratory birds are seen in Shanahoe Marsh and the Curragh and Goul Marsh, both in Co. Laois, and also along the Barrow Estuary in Waterford Harbour. There is also an extensive autumnal roosting site in the reedbeds of the Barrow Estuary used by Swallows before they leave the country. The old oak woodland at Abbeyleix has a typical bird fauna including Jay, Long-eared Owl and Raven. The reedbed at Woodstown supports populations of typical waterbirds including Mallard, Snipe, Sedge Warbler and Water Rail.

Land use at the site consists mainly of agricultural activities – mostly intensive in nature and principally grazing and silage production. Slurry is spread over much of the area. Arable crops are also grown. The spreading of slurry and fertiliser poses a threat to the water quality of the salmonid river and to the populations of E.U. Habitats Directive Annex II animal species within the site. Many of the woodlands along the rivers belong to old estates and support many non-native species. Little active woodland management occurs. Fishing is a main tourist attraction along stretches of the main rivers and their tributaries and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. There is net fishing in the estuary and a mussel bed also. Other recreational activities such as boating, golfing and walking, particularly along the Barrow towpath, are also popular. There is a golf course on the banks of the Nore at Mount Juliet and GAA pitches on the banks at Inistioge and Thomastown. There are active and disused sand and gravel pits throughout the site. Several industrial developments, which discharge into the river, border the site. New Ross is an important shipping port. Shipping to and from Waterford and Belview ports also passes through the estuary.

The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, over-grazing within the woodland areas, and invasion by non-native species, for example Cherry Laurel (*Prunus laurocerasus*) and Rhododendron (*Rhododendron ponticum*). The water quality of the site remains vulnerable. Good quality water is necessary to maintain the populations of the Annex II animal species listed above. Good quality is dependent on controlling fertilisation of the grasslands, particularly along the Nore. It also requires that sewage be properly treated before discharge. Drainage activities in the catchment can lead to flash floods which can damage the many Annex II species present. Capital and maintenance dredging within the lower reaches of the system pose a threat to migrating fish species such as lamprey and shad. Land reclamation also poses a threat to the salt meadows and the populations of legally protected species therein.

Overall, the site is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive. Furthermore it is of high conservation value for the populations of bird species that use it. The occurrence of several Red Data Book plant species including three rare plants in the salt meadows and the population of the hard water form of the Freshwater Pearl Mussel, which is limited to a 10 km stretch of the Nore, add further interest to this site.

SITE SYNOPSIS

SITE NAME: RIVER NORE SPA

SITE CODE: 004233

The River Nore SPA is a long, linear site that includes the following river sections: the River Nore from the bridge at Townparks, (north-west of Borris in Ossory) to Coolnamuck (approximately 3 km south of Inistioge) in Co. Kilkenny; the Delour River from its junction with the River Nore to Derrynaseera bridge (west of Castletown) in Co. Laois; the Erkina River from its junction with the River Nore at Durrow Mills to Boston Bridge in Co. Laois; a 1.5 km stretch of the River Goul upstream of its junction with the Erkina River; the Kings River from its junction with the River Nore to a bridge at Mill Island, Co. Kilkenny. The site includes the river channel and marginal vegetation.

For a large part of its course the River Nore traverses Carboniferous limestone plains; it passes over a narrow band of Old Red Sandstone rocks below Thomastown.

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 22 pairs of Kingfisher (based on 16 probable and 6 possible territories) within the SPA. Other species which occur within the site include Mute Swan (35), Mallard (267), Cormorant (14), Grey Heron (45), Moorhen (14), Snipe (17) and Sand Martin (1,029) – all figures are peak counts recorded during the 2010 survey.

The River Nore SPA 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.

13.9.2011

SITE SYNOPSIS

Site Name: Slieve Bloom Mountains SAC

Site Code: 000412

The Slieve Bloom Mountains lie on the Offaly-Laois border, starting about 8 km north-east of Roscrea and running about 24 km north-east, towards Clonaslee. The mountains are of Old Red Sandstone, flanked by Silurian rocks. The site extends from approximately 180 m to 529 m O.D.

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):

[4010] Wet Heath
[7130] Blanket Bogs (Active)*
[91E0] Alluvial Forests*

This site is remarkable for its mountain blanket bog habitat. Generally uniform in character, the vegetation consists of a deep, spongy mat of the bog moss *Sphagnum capillifolium*, with other mosses and lichens. Growing on this are Heather (*Calluna vulgaris*) and Crowberry (*Empetrum nigrum*), with smaller amounts of Cottongrasses (*Eriophorum* spp.), Bilberry (*Vaccinium myrtillus*), Deergrass (*Scirpus cespitosus*) and Bog Asphodel (*Narthecium ossifragum*). An unusual feature is the abundance of Bog-rosemary (*Andromeda polifolia*) and Cranberry (*Vaccinium oxycoccos*), species usually associated with raised bogs. The uncommon Lesser Twayblade (*Listera cordata*) occurs under Heather at this site.

This extensive site is dominated by blanket bog on a high plateau. However, on more steeply-sloping flanks wet heath vegetation occurs on shallower peat (typically 0.5-1.5 m deep). The dominant species in the wet heath are Heather and Purple Moor-grass (*Molinia caerulea*), with species such as Cross-leaved Heath (*Erica tetralix*), Tormentil (*Potentilla erecta*), Lousewort (*Pedicularis sylvatica*) and the bog moss *S. capillifolium* also being frequent components. Often wet heath vegetation is associated with flushed areas along the margins of narrow streams.

Alluvial forest occurs along the Camcor River in the northern part of the site, on the floodplain of the river and on adjacent slopes along the valley. The canopy consists of scattered tall Ash (*Fraxinus excelsior*), Pedunculate Oak (*Quercus robur*) and Alder (*Alnus glutinosa*). Rusty Willow (*Salix cinerea* subsp. *oleifolia*), Hawthorn (*Crataegus monogyna*), Hazel (*Corylus avellana*) and Downy Birch (*Betula pubescens*) form a lower canopy. The ground flora is species-rich, with Bluebell (*Hyacinthoides non-scripta*), Enchanter's-nightshade (*Circaea lutetiana*), Wood-sorrel (*Oxalis acetosella*) and Bugle (*Ajuga reptans*). Marsh-marigold (*Caltha palustris*) and Meadowsweet (*Filipendula*

ulmaria) typify the wetter areas. The natural flood regime at the site has been altered by drainage activities for forestry (embankments, etc.), though the least disturbed areas in the floodplain still retain a substantial wetness. Seepage areas on the slopes also contribute to the wetness of the woods.

The uplands at this site provide excellent habitat for Peregrine, a species listed on Annex I of the E.U. Birds Directive. Breeding pairs occur here.

For the main part, the site is fringed by forestry plantations, although in a few places there remains a relatively undisturbed transition downslope to poorly-drained acidic grassland. The primary threats to Irish blanket bogs in general are afforestation, drainage and over-grazing, and current habitat quality is often dependent on past land use. On the Slieve Blooms, the Heather forms tall, dense stands, with individual stems up to 20 years old, suggesting that burning has not been extensive in recent years. There is little evidence of grazing or erosion. Overall, vegetation structure is exceptionally well-conserved due to lack of disturbance. A large portion of the site lies within a Statutory Nature Reserve.

Blanket bogs are an increasingly rare habitat in Europe, and in Ireland are continually under threat. The Slieve Bloom Mountains are an important link in the east-to-west gradient of bogs in Ireland, and are floristically linked to the midland raised bogs north of the site. The intactness of the blanket bog here is remarkable and is echoed in few other areas in Ireland, making this site of unique conservation value. Also of conservation importance is the presence of wet heath and an example of alluvial forest.

SITE SYNOPSIS

SITE NAME: SLIEVE BLOOM MOUNTAINS SPA

SITE CODE: 004160

The Slieve Bloom Mountains SPA is situated on the border between Counties Offaly and Laois, and runs along a north-east/south-west aligned ridge for approximately 25 km. Much of the site is over 200 m in altitude, rising to a maximum height of 527 m at Arderin. The mountains are of Old Red Sandstone, flanked by Silurian rocks. Several important rivers rise within the site, including the Barrow, Delour and Silver.

The site has a near continuous ridge of mountain blanket bog, with wet and dry heaths also well represented. Species present in these habitats include Ling Heather (*Calluna vulgaris*), Crowberry (*Empetrum nigrum*), Bilberry (*Vaccinium myrtillus*), Cottongrasses (*Eriophorum* spp.), Deergrass (*Scirpus cespitosus*) and Bog Asphodel (*Narthecium ossifragum*). Much of the slopes are afforested, and overall coniferous plantations account for *c*. 60% of the site. The forests include first and second rotation plantations, with both pre-thicket and post-thicket stands present. Substantial areas of clear-fell are also present at any one time. The principal tree species present are Sitka Spruce (*Picea sitchensis*) and Lodgepole Pine (*Pinus contorta*). The remainder of the site is mostly rough grassland that is used for hill farming. This varies in composition and includes some wet areas with rushes (*Juncus* spp.) and some areas subject to scrub encroachment. Some stands of deciduous woodland also occur, especially within the river valleys.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for Hen Harrier.

This SPA is one of the strongholds for Hen Harrier in the country and, indeed, is the most easterly regular population. A survey in 2005 recorded eight pairs, whereas eleven pairs had been recorded in the 1998-2000 period. The numbers recorded in 2005 represent *c*. 3.7% of the all-Ireland total. The mix of forestry and open areas provides optimum habitat conditions for this rare bird, which is listed on Annex I of the E.U. Birds Directive. The early stages of new and second-rotation conifer plantations are the most frequently used nesting sites, though some pairs may still nest in tall heather of unplanted bogs and heath. Hen Harriers will forage up to *c*. 5 km from the nest site, utilising open bog and moorland, young conifer plantations and hill farmland that is not too rank. Birds will often forage in openings and gaps within forests. In Ireland, small birds and small mammals appear to be the most frequently taken prey.

The site is also a traditional site for a breeding pair of Peregrine. Several pairs of Merlin are known to breed within the site but further survey is required to determine the exact status of this small falcon. Red Grouse is found on many of the unplanted areas of bog and heath – this is a species that has declined in Ireland and is now Red-listed.

The Slieve Bloom Mountains SPA is of ornithological importance because it provides excellent nesting and foraging habitat for breeding Hen Harrier and is one of the top sites in the country for the species. The presence of three species, Hen Harrier, Merlin and Peregrine, which are listed on Annex I of the E.U. Birds Directive is of note. The Slieve Bloom Mountains is a Ramsar Convention site and a Biogenetic Reserve. Part of the Slieve Bloom Mountains SPA is a Statutory Nature Reserve.

20.1.2015

SITE SYNOPSIS

SITE NAME: CLONREHER BOG NHA

SITE CODE: 002357

Clonreher Bog NHA is located 6km south of the town of Mountmellick in the townlands of Clonreher, Rossnagad and Clonsoghey, Co.Laois. It is situated just west of the Mountmellick to Portlaoise road (N80). This site comprises a raised bog that includes both areas of high bog and cutover bog. The site is bounded by the N80 to the east and the abandoned railway line (Mountmellick Branch) to the west. It can be accessed from bog tracks off the N80, to the north-east and south-east of the site.

Much of the high bog has vegetation typical of a Midland Raised Bog, dominated by bog moss (*Sphagnum*) species, over which grow Ling Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Deergrass (*Scirpus cespitosus*), Bog Asphodel (*Narthecium ossifragum*) and Bog Rosemary (*Andromeda polifolia*).

To the north and south of the intact dome are expanses of cutaway bog, which are no longer in use and which are now overgrown with Purple Moor-grass (*Molinia caerulea*) and Ling Heather (*Calluna vulgaris*). In some areas Gorse (*Ulex europaeus*) and/or Downy Birch (*Betula pubescens*) are colonising and creating patches of scrub. There is an extensive area of scrub along the abandoned railway line to the west.

Current landuses on the site include peat-cutting and agriculture. Active peat-cutting occurs to the south and north. Damaging activities associated with these landuses include drainage at the bog margins and burning on the high bog in connection with peat-cutting. Frequent burning is detrimental to the bog as it causes dessication of the surface and removal of semi-natural vegetation. These activities have resulted in the loss of habitat, damage to the hydrological status of the site, and pose a continuing threat to its viability.

Clonreher 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 and its southerly location, is of ecological interest. 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.

14.11.2002

SITE SYNOPSIS

SITE NAME: COAN BOGS NHA

SITE CODE: 002382

Coan Bogs NHA consists of two small areas of upland blanket bog located to the east of Castlecomer, Co. Kilkenny. The first bog lies in the townland of Coan East, 2.5 km to the north-east of Coan village at the altitude 270 m to 281 m. The second bog is situated 3 km to the north-west of Coan village in the townland of Smithstown. It lies at an altitude of 240 m. Bedrock geology for both areas is shale overlain locally by glacial till. Blanket bog vegetation is well developed in central areas of both bogs although cutover surrounds them. Plantation forestry also surrounds the sites.

Vegetation on the eastern bog is characterised by tall Ling Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Hare's-tail Cottongrass (*Eriophorum vaginatum*) and lichen *Cladonia portentosa*. Round-leaved Sundew (*Drosera rotundifolia*) is also common. There are large hummocks of bog mosses *Sphagnum capillifolium* and *S subnitens.* Hollows containing some *S. papillosum* are dominated by Bog Asphodel (*Narthecium ossifragum*). Cranberry (*Vaccinium oxycoccos*), a species more characteristic of raised bogs, is also present and Bilberry (*V. myrtillus*) occurs on larger hummocks along with the moss *Hypnum jutlandicum.* Further east the bog becomes wetter with up to 60% bog moss cover. In this wet area Cranberry is abundant and another characteristic raised bog species, Bog-rosemary (*Andromeda polifolia*) occurs.

The western bog is also dominated by Ling Heather, Crossed-leaved Heath and Hare's-tail Cottongrass with some Bog Asphodel. Bog moss cover reaches 80% and moss *Hypnum jutlandicum* and Lichens (*Cladonia* spp.) also occur. Bog-rosemary and Round-leaved Sundew are also present. This bog becomes drier in the south with Deergrass (*Scirpus cespitosus*) more prevalent. Bog Asphodel occurs on bare peat by the southern cutover.

The cutover around the eastern bog is dominated by Purple Moor-grass *(Molinia caerulea*) with clear-felled plantations at the margins. Cutover on the northern side is planted with new conifer forest. Wet cutover on the eastern side is dominated by Purple Moor-grass with Ling Heather, Bilberry, the moss *Polytrichum commune* and scattered Willow (*Salix* spp.).

The western bog has cutover dominated by Birch (*Betula* spp.) scrub to the east and south and new plantation forest to the west.

Current landuse on the margins of the western bog consists of mechanical peat-cutting and planting of conifer forest. There is some encroachment of conifer seedlings onto both bogs from surrounding forestry. These activities that have resulted in loss of habitat and damage to the hydrological condition of both areas, pose a continuing threat to their conservation.

Coan Bogs NHA is a site of considerable conservation significance consisting of upland blanket bog. This site, although small, is undisturbed and shows good characteristics of blanket bog with some raised bog indicator species. Blanket bog habitat is a globally scarce resource. It is largely confined to coastal regions at temperate latitudes with cool, wet, oceanic climates. North-west Europe contains some of the best-developed areas of blanket bog in the world. The most extensive areas are found in Ireland and Britain. Upland blanket bogs, due to their exposure to severe climatic conditions at high elevations, are particularly vulnerable to erosion by human activities and extensive areas are currently undergoing active erosion due mainly to overgrazing. The current area of intact upland blanket bog in Ireland represents only a fraction of the original resource, due to the combined impacts of afforestation and overgrazing, and intact examples are therefore extremely valuable for nature conservation. Their long-term survival requires sensitive management.

27.1.2004

SITE SYNOPSIS

SITE NAME: DUNMORE CAVE

SITE CODE: 000401

Dunmore Cave is a tourist cave owned by the Office of Public Works which is used by at least 50 Natterer's Bats (*Myotis nattereri*) during the summer months. It is a fossil cave located in an isolated limestone outcrop on the Castlecomer plateau, overlooking the Dinin River Valley, approximately seven miles north of Kilkenny City. It is possible that more bats roosted in the cave before it was developed and opened to the public in the late 1960s. It is possible that this bat also hibernates in the cave during the winter. However, it is not easy to count Natterer's Bats in hibernation as they hide in small cracks and crevices.

The Natterer's Bat is an uncommon bat in Ireland, only several thousand are known from throughout the island. Body measurements include forearm 36-43mm, head and body 45mm, wingspan 270mm and weight 5-12g. It is distinguished from other species by the presence of a still fringe of hairs along the tail membrane, fairly long pink ears and bright white fur on its underside. Few nursery colonies are known and these are in a variety of buildings, including church and house roofs, stone barns and caves. Single bats or small numbers are found under bridges during the summer. During winter, a few Natterer's Bats have been found in underground sites. This species forages in woodland where it catches insects in the air, or off foliage or the ground.

As only a few thousand Natterer's Bats have been recorded throughout Ireland in the past ten years, this site is definitely of national importance and possibly of international importance.

6.11.2009

SITE SYNOPSIS

SITE NAME: MOTHEL CHURCH, COOLCULLEN

SITE CODE: 000408

This bat site is located in the loft of the Church of Ireland, Mothel, Coolcullen, Co. Kilkenny. A nursery colony of Natterer's Bat (*Myotis nattereri*) uses the loft and bell tower of the church. Over 100 bats were counted at the site in 1993 making it one of the biggest in the country.

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As the national population of Natterer's Bats is estimated to be only several thousand, this nursery roost is of national importance and also of international importance. There are no immediate threats facing this roost.

The woodland to the east of the church is probably the preferred foraging area for this colony so any changes to this could adversely affect the colony.

6.11.2009

SITE SYNOPSIS

SITE NAME: DERRIES WOOD

SITE CODE: 000416

Derries Wood is situated less than 2km south-west of Ballybrittas, adjacent to the main Dublin - Portlaoise Road. Much of the site is disturbed bog habitat, lying in the former flood plain of the nearby River Barrow.

The site mainly consists of a mixed coniferous plantation grading from mature Scots Pine (*Pinus sylvestris*) to newly planted Sitka Spruce (*Picea sitchensis*). In more open areas and in more recently planted sections, the native trees of Downy Birch (*Betula pubescens*), Alder (*Alnus glutinosa*), Ash (*Fraxinus excelsior*), Hawthorn (*Crataegus monogyna*) and Holly (*Ilex aquifolium*) occur, beneath which Heather (*Calluna vulgaris*) and Purple Moor-grass (*Molinia caerulea*) grow. In parts, for instance Fox Covert at the south-eastern end, mature Beech (*Fagus sylvatica*) is found. Also included in the site is Rathdoire Lake with its associated reed-beds, a fen area with tussocks of sedge in a shallow lake (Dease's Bog) and a disused gravel pit.

Derries Wood is of conservation significance, particularly for the presence of populations of several rare insects, most notably *Criorhina ranunculi* (Diptera, Syrphidae) in Beechwood and *Chrysops caecutiens* (Diptera, Tabanidae) on old bog habitat.

The varied array of conifers of different species, ages and quality as well as the native species present add to the interest of this site. Stands of mature Beech support a rich diversity of insects. In addition, the lake, fen areas and disused gravel pit, as well as small sections of bog, result in a diversity of habitats on the site. These serve as refuges for a variety of threatened animals and birds, including Sika Deer, Pine Marten, Mute Swan and various duck species.

6.11.2009

SITE SYNOPSIS

SITE NAME: GRANTSTOWN WOOD AND LOUGH

SITE CODE: 000417

This State owned Nature Reserve is situated some 8km northwest of Durrow in Co. Laois.

Grantstown Lough is completely surrounded by woodland and appears to be a classic example of a lake in seral transition through fen to Alder (*Alnus glutinosa*)/ willow (*Salix* spp.) carr. There are Black Bog-rush (*Schoenus nigricans*) fen meadows at the outer edge of the swamp.

Conservation management has focused on the removal of non-native tree species from the woodland, this is now almost complete, and the woodland is being nurtured back to a very natural and undisturbed state with a good age structure and plenty of dead wood. The invertebrate fauna has been studied and includes internationally threatened wetland species and nationally threatened woodland species.

That such systems are now very rare in Ireland makes the Nature Reserve designation and subsequent site management very important.

6.11.2009

SITE SYNOPSIS

SITE NAME: CUFFSBOROUGH

SITE CODE: 000418

Cuffsborough National Heritage Area (NHA) lies in farmland about 10km west of Abbeyleix in Co. Laois. Previously the site has been referred to as Kilminfoyle.

The site is predominantly under improved grassland, of little botanical interest. However the pastures are used for feeding by Greenland White-fronted Geese. The flock at Cuffsborough numbered 40 - 44 individuals in 1994. The Republic of Ireland holds some 50% of the world population of this race, and has international conservation commitments.

6.11.2009

SITE SYNOPSIS

SITE NAME: TIMAHOE ESKER

SITE CODE: 000421

Eskers are raised ridges of sand and gravel which were deposited under the ice mass, during the last period of glaciation. They provide well-drained base-rich substrates for plants. This site consists of two small eskers which lie approximately 1km north of the town of Timahoe in Co. Laois.

The esker ridges at this site support broad-leaved woodland dominated by multi-stemmed Hazel (*Corylus avellana*). Also present are Ash (*Fraxinus excelsior*), oak (*Quercus* spp.), Holly (*Ilex aquifolium*), Elder (*Sambucus nigra*) and Hawthorn (*Crataegus monogyna*). Beech (*Fagus sylvatica*) occurs frequently at this site. It is a non-native tree which has naturalized in Ireland. Beneath the canopy, the ground flora typically includes Bluebell (*Hyacinthoides non-scripta*), Primrose (*Primula vulgaris*) and violets (*Viola* spp.).

Occasional gaps in the canopy occur and here Gorse (*Ulex europaeus*) and Bracken (*Pteridium aquilinum*) are found.

These eskers are currently owned by the State, and constitute a Nature Reserve. Other eskers in the vicinity have been destroyed by the quarrying of their sand and gravel, this trend is apparent on a nationwide scale and esker habitats are diminishing, and therefore under threat. The Timahoe Eskers are important as among the best of the few intact eskers remaining in Co. Laois.

6.11.2009

SITE SYNOPSIS

SITE NAME: OAKPARK

SITE CODE: 000810

Oakpark is located approximately 5km north of Carlow. The site is a shallow artificial pond, bounded almost completely by woodlands. There are eight small islands bearing coniferous and deciduous trees within the lake. Much of the open water has been colonised by Common Reed (*Phragmites australis*). A drainage channel was cut through the reed-bed in 1973 to ensure circulation of freshwater.

Marginal vegetation includes Bulrush (*Typha latifolia*) and Reed Sweet-grass (*Glyceria maxima*). Vegetation along the banks includes Rosebay Willowherb (*Epilobium angustifolium*), Hemp-agrimony (*Eupatorium cannabinum*), Common Nettle (*Urtica dioica*) and Bramble (*Rubus fruticosus* agg.). Bladderwort (*Utricularia* spp.) is found in the water and willow (*Salix* spp.) scrub occurs on the wooded banks.

The scarce Myxomycete fungus, *Licea marginata* has been recorded from woodland in the site.

The site attracts a variety of birds and records have been kept since 1966. Breeding species include Little Grebe, Grey Heron (17 occupied nests in 1993), Mute Swan, Mallard, Water Rail, Coot, and many passerine species. Wintering waterfowl include Mallard (24), Golden Plover (125) and Lapwing (125) (figures are one count during 1984/85-1986/87 period). Many other species occur in winter, such as Wigeon, Teal, Shoveler, Tufted Duck and Pochard.

Oakpark is the largest area of still water in the county and is of regional and local value to birds.

12.11.2009

SITE SYNOPSIS

SITE NAME: ESKER PITS

SITE CODE: 000832

Esker Pits proposed Natural Heritage Area, near Gragara, County Kilkenny, is a lightly worked gravel quarry supporting a range of vegetation types, most notably areas of species-rich calcareous grassland. Of particular significance is the presence of a large population of a rare Red Data Book plant species.

The site comprises a mosaic of different habitats including patches of species-rich calcareous grassland, dry gravel banks, small ponds, scrub woodland and marsh areas which are flooded in the winter.

The grassland areas contain an excellent diversity of species including a substantial population of the rare, Red Data Book species, Blue Fleabane (*Erigeron acer*). Other characteristic calcareous grassland species which occur here include Oxeye Daisy (*Leucanthemum vulgare*), Black Medick (*Medicago lupulina*), Common Knapweed (*Centaurea nigra*), Greater Knapweed (*Centaurea scabiosa*), Carline Thistle (*Carlina vulgaris*), Common Centaury (*Centaurum erythraea*), Wild Carrot (*Daucus carota*), Fairy Flax (*Linum catharticum*), Field Scabious (*Knautia arvensis*) and Lady's Bedstraw (*Galium verum*), amongst others. The site supports a good range of ruderal plant species of interest.

12.11.2009

SITE SYNOPSIS

SITE NAME: BALLYLYNAN

SITE CODE: 000857

About 5km south of Athy, between the village of Ballylynan and the River Barrow is found a system of wet meadows on calcium-rich glacial drift; those of the highest conservation significance have been designated as a proposed Natural Heritage Area (pNHA).

The land is poorly-draining and includes areas of undergrazed and rank grasslands with Purple Moor-grass (*Molinia caerulea*), invaded in places by Gorse (*Ulex europaeus*), and wet, rushy grazed grasslands with Creeping Bent (*Agrostis stolonifera*) and Soft Rush (*Juncus effusus*). Drainage ditches occur frequently and add a wetland dimension to the site, with such wetland species as water crowfoot (*Ranunculus* spp.) and water-starwort (*Callitriche* spp.) occurring. Areas of better-drained grassland found on the site support such species as Smooth Meadow-grass (*Poa pratensis*), Timothy (*Phleum pratense*), Crested Dog's-tail (*Cynosurus cristatus*) Meadow Fescue (*Festuca pratensis*) and Common Knapweed (*Centaurea nigra*).

The grassland vegetation here shows a continuity of sensitive management and it is evident that fertiliser has been generally used sparingly. Recently, botanically rich land in the area has been lost to forestry and intensive agriculture and further inroads into the site should be resisted. While there have been no great botanical discoveries on this site, the backdrop of a pastoral landscape that has become increasingly intensively farmed makes this a locally rare habitat.

12.11.2009

SITE SYNOPSIS

SITE NAME: CLOPOOK WOOD

SITE CODE: 000860

In south County Laois, 6km south of Stradbally and 10km west of Athy, a small Ash (*Fraxinus excelsior*) and Hazel (*Corylus avellana*) woodland occurs on the steep, rocky slopes of a prominent limestone hill. This area, known as the Doon of Clopook, is of considerable ecological, geological and archaeological significance.

The canopy of this dry woodland is dominated by Ash and Hazel but also contains frequent Holly (*Ilex aquifolium*), Blackthorn (*Prunus spinosa*), Hawthorn (*Crataegus monogyna*) and Spindle (*Eunonymus europaeus*). Introduced species such as Sycamore (*Acer psuedoplatanus*) are common on the west side, but on the east side the woodland has a more natural assemblage of species.

The ground flora contains a good diversity of calcicole species and features Woodruff (*Galium odoratum*), Pignut (*Conopodium majus*), Ground-ivy (*Glechoma hederacea*), Garlic Mustard (*Alliaria petiolata*) and Early-purple Orchid (*Orchis mascula*). The summit of the 'Doon' is comprised of herb-rich dry grassland. Blackthorn and Hawthorn form a dense thicket on its margins.

Very rich lichen and bryophyte communities have been recorded at Clopook. Several species such as *Marchesinia mackaii* and *Cololejeunea rosettiana* do not occur elsewhere in the county. The absence of grazing animals in this wood has favoured their establishment in comparison with other woodlands in the region which have been overgrazed.

This site is also a good example of the Tertiary karst landscape of south Laois where weathering over a long period has resulted in a series of isolated limestone hills. This weathering process has created numerous solution cavities, fissures and caves in the limestone. Clopook is reported to contain many long, narrow passages but at present many of the openings have been blocked off or are overgrown. There is one broad open cave entrance at the base of the hill which has been colonised by Badgers, an internationally protected species.

Cloopok Wood is one of the only remaining intact Ash and Hazel woodlands on limestone in County Laois. It supports a rich flora and fauna including several species of regional and international importance.

In addition to its botanical and ecological significance, the summit of the hill contains a Bronze Age hillfort which features prominently in the history of the area.

12.11.2009

SITE SYNOPSIS

SITE NAME: COOLACURRAGH WOOD

SITE CODE: 000862

This woodland site occurs on fen peat over marl and is situated approximately 5.5km east north-east of Rathdowney in Co. Laois.

The vegetation is dominated by native tree species such as Downy Birch (*Betula pubescens*), Alder (*Alnus glutinosa*), Ash (*Fraxinus excelsior*), willow (*Salix* spp.) and Holly (*Ilex aquifolium*). Sycamore (*Acer pseudoplatanus*), spruce (*Picea* spp.) and pine (*Pinus* spp.) can also be found adding plant diversity to the site. The occurrence of substantial amounts of dead and decaying wood in the site is an ecological bonus. These serve as microhabitats for various plant, animal and insect life.

Human land use of the wood is of low intensity. Overall, the site appears quite undisturbed and in a semi-natural state.

Coolacurragh Wood is a good example of relatively undisturbed woodland dominated by native tree species. It contains a flora representative of poorly drained areas typical of the central Irish plain before agricultural land reclamation.

12.11.2009

SITE SYNOPSIS

SITE NAME: EMO COURT

SITE CODE: 000865

Emo Court is an area within the Emo desmesne, 7km south of Portarlington, Co. Laois. It contains a large mixed woodland, a freshwater lake, parkland and amenity grassland which are surrounded by rich agricultural land and conifer plantations.

A semi-natural mixed woodland surrounds the lake on three sides and is comprised of a wide variety of native and exotic deciduous and coniferous species. The canopy is comprised of mature Pedunculate Oak (*Quercus robur*), Ash (*Fraxinus excelsior*), birch (*Betula pendula* and *B. pubescens*), Yew (*Taxus baccata*), Rowan (*Sorbus acuparia*), Goat Willow (*Salix caprea*) mixed with Beech (*Fagus sylvatica*), Scots Pine (*Pinus sylvestris*), Sycamore (*Acer psuedoplatanus*) and a variety of exotic conifers. Within these woods, particularly near the lake, are spectacular, large specimens of Pedunculate Oak and Yew.

The ground flora is inhibited by the spread of Rhododendron (*Rhododendron ponticum*) in some areas but where it is not invasive there is a rich cover on the forest floor. The ground flora features Sanicle (*Sanicula europaea*), Bluebell (*Hyacinthoides non-scripta*), Early-purple Orchid (*Orchis mascula*), Honeysuckle (*Lonicera periclymenum*), Wood-sorrel (*Oxalis acetosella*) and a variety of ferns and mosses. The woodland is the site of a rare Myxomycete fungus, *Stemonitis herbatica*.

Emo Lake is a medium sized shallow lake with an extensive fringe of reed-beds. The aquatic flora is rather sparse but there is a rich bird and invertebrate fauna. This lake is one of the few remaining freshwater lakes in County Laois. A study of its invertebrate fauna found it to contain several species of interest such as the Cladocera species *Scapholeberis mucronata* and *Disparalona rostrata*, which is rare in the British Isles, and the Copepoda species, *Eudiaptomus gracilis*.

Several areas of conifer plantation were also included in the site to retain what is left of the woodland cover around the lake. Rowan, Ash and other native trees are naturally regenerating within and on the margins of these plantations. Some clear-felled areas with mature oak (*Quercus* spp.) and Beech, scrub and heath communities have also been included.

On the south-west shore of the lake, large parkland and gardens occur. This area, known as the Grapery, is comprised of a collection of native and introduced species from all over the world including oak, Beech, Holm Oak (*Quercus ilex*), Tree of Lebanon (*Cedrus libani*), Japanese Maple (*Acer palmatum*), Copper Beech (*Fagus sylvatica* Purpurea Group), Lime (*Tilia* x *europaea*), Horse-chestnut (*Aesculus hippocastanum*), Holly (*Ilex aquifolium*), Whitebeam (*Sorbus aria* agg.) and Yew with a variety of exotic shrubs.

SITE SYNOPSIS

SITE NAME: KILTEALE HILL

SITE CODE: 000867

This small limestone outcrop lies about 3km north-west of Stradbally in Co. Laois. It is one in a chain of such outcrops which includes the more westerly Rock of Dunamase.

The site primarily consists of a Hazel (*Corylus avellana*) wood with Ash (*Fraxinus excelsior*), Blackthorn (*Prunus spinosa*) and Elder (*Sambucus nigra*) also present. Patches of gorse (*Ulex* spp.) and Bracken (*Pteridium aquilinum*) scrub are also interspersed.

Kilteale Hill is indicative of climax vegetation for a basic soil. The site serves as an example of Hazel woodlands which formerly vegetated many of the Midland region hillocks.

12.11.2009

SITE SYNOPSIS

SITE NAME: MANNIN WETLAND

SITE CODE: 000868

The Mannin Wetland proposed Natural Heritage Area (NHA) comprises two small blocks, one to either side of the Durrow road at Mannin cross roads, about 4km west of Borris in Ossory. These blocks are boggy fields developed over poor draining areas of glacial drift deposited over Lower Limestone.

It can be speculated that this area was once a lowland raised bog which is now cutaway, but research has not been undertaken to confirm this. The site now resembles a young, peat-forming fen. The vegetation consists largely of Purple Moor-grass (*Molinia caerulea*) and Bog-myrtle (*Myrica gale*) with areas of Black Bog-rush (*Schoenus nigricans*) suggesting a high calcium content. The area is wet enough for there to be occasional pools, where Great Fen-sedge (*Cladium mariscus*), Bogbean (*Menyanthes trifoliata*) and Water Mint (*Mentha aquatica*) can be found.

The area, although small, is fairly species-rich. Gorse (*Ulex europaeus*) bushes and small birch (*Betula* spp.) trees are scattered throughout the site.

Although much of the former fen area has now been reclaimed and a section planted with conifers, the two small blocks that remain, support vegetation that is now becoming rare in this area.

12.11.2009

SITE SYNOPSIS

SITE NAME: RIDGE OF PORTLAOISE

SITE CODE: 000876

The ridge of Portlaoise is an elongated raised ridge or esker formed of sand and gravel which was deposited when a mass of ice covered this area during the last period of glaciation. The esker runs through the eastern part of Portlaoise town and extends in a south-south-east to north-north-west direction. North of the town, the secondary road to Mountmellick runs along the top of the ridge, while south of Portlaoise the L26 road to Timahoe runs alongside it.

Much of the esker is wooded. In the southern part, Scots Pine (*Pinus sylvestris*) and Beech (*Fagus sylvatica*) form the canopy. Elsewhere, multi-stemmed Hazel (*Corylus avellana*) and/or Ash (*Fraxinus excelsior*) predominate, with a range of other native species, for example Wych Elm (*Ulmus glabra*), Elder (*Sambucus nigra*), Holly (*Ilex aquifolium*) and Hawthorn (*Crataegus monogyna*) occasionally present. Ground flora beneath the woodland canopy includes Wood Melic (*Melica uniflora*), Sanicle (*Sanicula europaea*), Bluebell (*Hyacinthoides non-scripta*), with a range of ferns such as Hart's-tongue (*Phyllitis scolopendrium*) and grasses including False Brome (*Brachypodium sylvaticum*).

Open grassland on the esker is calcareous and typically species-rich. Quaking-grass (*Briza media*), Crested Dog's-tail (*Cynosurus cristatus*) and Cock's-foot (*Dactylis glomerata*) are among the grasses which predominate. Herbs present include Yarrow (*Achillea millefolium*), Pignut (*Conopodium majus*) and Common Bird's-foot-trefoil (*Lotus corniculatus*).

There are a number of disused gravel pits located along the length of the esker which are assessed by means of old trackways. All of these add habitat diversity to the site.

Nettle-leaved Bellflower (*Campanula trachelium*) is a rare species which is legally protected under the Flora Protection Order of 1987. This plant has been recently recorded on this site – a new station for the species. Elsewhere in Ireland it is virtually confined to the south-east of the country, and has been reported from only three sites since 1970. Another rare plant, listed in the Red Data Book, Blue Fleabane (*Erigeron acer*), occurs in disused gravel pits within the site. It is a plant of eskers, dry grassland, sandy pastures and walls (especially on calcium-rich substrates) and has been recorded from only five 10km squares since 1970.

Light grazing by cattle/sheep is not necessarily incompatible with conservation of esker habitats although overgrazing can result in a lack of tree regeneration and damage to ground flora.

Eskers are under increasing threat in Ireland, due to the demand for sand and gravel for the construction industry. Of the few eskers which have survived, only a small percentage retain their semi-natural flora of woodland and this is one of the best

SITE SYNOPSIS

SITE NAME: ROCK OF DUNAMASE

SITE CODE: 000878

This site, otherwise named the 'Fort of the Plain', starts on a prominent limestone outcrop 8km east of Portlaoise. It is one in a string of small limestone outcrops in the region.

Surrounding the ruined fort, the grassland present has developed in the absence of invasion by scrub. The grass species include Crested Dog's-tail (*Cynosurus cristatus*), False Oat-grass (*Arrhenatherum elatius*), Cock's-foot (*Dactylis glomerata*) and Downy Oat-grass (*Helictotrichon pubescens*).

The more interesting aspects, from the botanical point of view, are the large limestone boulders and the areas of short turf on the very shallow limestone soil. Here, Quaking-grass (*Briza media*), Fern-grass (*Catapodium rigidum*) and Heath-grass (*Danthonia decumbens*) grow and a rich bryophyte flora exists with nine species of moss identified. Herbaceous species such as Lady's Bedstraw (*Galium verum*) and Hedgerow Crane's-bill (*Geranium pyrenaicum*) can also be observed.

A dense Hazel (*Corylus avellana*) scrub, with Hawthorn (*Crataegus monogyna*) and Beech (*Fagus sylvatica*), encircles the rock. The understorey includes Honeysuckle (*Lonicera periclymenum*) and Blackthorn (*Prunus spinosa*) with typical open woodland herbs such as Woodruff (*Galium odoratum*), Ground-ivy (*Glechoma hederacea*), Sanicle (*Sanicula europaea*), and Wood Avens (*Geum urbanum*).

The site is a local picnic spot and is visited by numerous people during summer weekends. Pathways are all worn but otherwise there is no great impact on the grasslands. The density of Hazel scrub prevents much exploration and destruction.

The Rock of Dunamase is an interesting botanical site including meadow grassland, shallow limestone soil, pasture and Hazel scrub. It is also important archaeologically, geologically and historically.

12.11.2009

SITE SYNOPSIS

SITE NAME: THE GREAT HEATH OF PORTLAOISE

SITE CODE: 000881

The Great Heath of Portlaoise, otherwise known as the Great Heath of Maryborough, is located by the main Portlaoise to Monasterevin road about 6km north of Portlaoise. Much of the proposed Natural Heritage Area (NHA) is made up by The Heath Golf Club.

The main vegetation is that of an acidic grassland formed mainly of Sweet Vernal-grass (*Anthoxanthum odoratum*), Creeping Bent (*Agrostis stolonifera*), Common Bent (*A. capillaris*), and Red Fescue (*Festuca rubra*) with various herbs typical of acidic places, such as Heath Bedstraw (*Galium saxatile*), Tormentil (*Potentilla erecta*) and Bitter-vetch (*Lathyrus linifolius*). Other herbs indicate areas where the soil is not as acidic. Mosses such as *Rhytidiadelphus squarrosus* are typical.

The flatter central areas have accumulated peat, which has since been cut away, but the vegetation still reflects an organic soil with plants such as Mat-grass (*Nardus stricta*), Heather (*Calluna vulgaris*) and Purple Moor-grass (*Molinia caerulea*). The north-east of the NHA area slopes slightly to the east, here there is no trace of peat, the area is less intensively managed than elsewhere and the vegetation is generally taller with some additional species such as Tufted Hair-grass (*Deschampsia cespitosa*) and Star Sedge (*Carex echinata*). Stands of Gorse (*Ulex europaeus*) scrub are scattered throughout, and are controlled by occasional burning.

There are two small wetlands within the site.

The first, Bog Lough, lies between the golf course and the road, and here amongst the bushy Gorse there are patches of particularly rich grassland with Sheep's fescue (*Festuca ovina*), Pill Sedge (*Carex pilulifera*), and several other sedges (*Carex* spp.). The open water is fringed by Water Horsetail (*Equisetum fluviatile*) and patches of Bulrush (*Typha latifolia*) with other emergent species such as Lesser Water-parsnip (*Berula erecta*). Common Water-crowfoot (*Ranunculus aquatilis*) and duckweeds (*Lemna minor* and *L. trisulca*) make up the aquatic flora.

The second wetland is a fen in front of the Catholic Church in the western end of the site. Here calcareous springs feed the area and the vegetation is consequently markedly different from the rest of the site. Black Bog-rush (*Schoenus nigricans*), Blunt-flowered Rush (*Juncus subnodulosus*) and Purple Moor-grass (*Molinia caerulea*) predominate. Species such as Fragrant Orchid (*Gymnadenia conopsea*) and Bog Pimpernel (*Anagallis tenella*) also testify to its mineral enrichment.

Between these areas is winter wet grassland which constitutes an important part of the site with an abundance of Common Sedge (*Carex nigra*), *Sphagnum denticulatum* and another moss *Aulacomnium palustre*.

SITE SYNOPSIS

SITE NAME: DERRYVULLAGH ISLAND

SITE CODE: 001390

This site is located about 7km north of Athy. It is a low drift wooded island surrounded by extensive developed raised bog.

The island was formerly cultivated but is now wooded. The wood is mostly an even-aged stand of Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Elder (*Sambucus nigra*) and Hazel (*Corylus avellana*), with a few trees of Wild Privet (*Ligustrum vulgare*). Some Ash trees (*Fraxinus excelsior*) overtop this canopy while at its edges Spindle (*Euonymus europaeus*) is prevalent with abundant Bracken (*Pteridium aquilinum*), bramble (*Rubus* spp.) and Rosebay Willowherb (*Chamerion angustifolium*).

The Hawthorn-Blackthorn area is distinct from the Hazel stand and the ground flora differs. In the former place it is predominantly of Ivy (*Hedera helix*), with some Wood Avens (*Geum urbanum*), Lords-and-ladies (*Arum maculatum*) and Germander Speedwell (*Veronica chamaedrys*). In the lighter conditions below Hazel, the flora is richer, with the following species recorded – Ramsons (*Allium ursinum*), Primrose (*Primula vulgaris*), Lesser Celandine (*Ranunculus ficaria*), Wood Speedwell (*Veronica montana*), Wood Anemone (*Anemone nemorosa*), Barren Strawberry (*Potentilla sterilis*), Pignut (*Conopodium majus*), Wild Strawberry (*Fragaria vesca*) and Early Dog-violet (*Viola reichenbachiana*). In addition, Toothwort (*Lathraea squamaria*) is widespread on old Hazel.

The area of semi-natural woodland has spread beyond the original boundary identified by An Foras Forbatha in 1975.

Birdlife is rich with typical woodland passerine species, as well as Sparrowhawk and Long-eared Owl.

This site is of scientific interest as it is intact semi-natural deciduous woodland with a well-developed flora. Similar such habitats are rare in Co Kildare.

19.11.2009

SITE SYNOPSIS

SITE NAME: DUNAMASE WOODS

SITE CODE: 001494

Two small, but prominent hills lie to the west of, and within 1km of, the Rock of Dunamase in Co. Laois. In both cases, unlike the Rock, drift deposits cover underlying limestone.

The main vegetation feature of the hills is woodland. The larger area (about 9ha) is found on the western most hill, where the main woodland tree is Pedunculate Oak (*Quercus robur*), and the size of these trees bear witness to the age of the woodland. Ash (*Fraxinus excelsior*) is widespread and other trees present include non-native species such as Horse-chestnut (*Aesculus hippocastanum*), Sweet Chestnut (*Castanea sativa*) and Sycamore (*Acer pseudoplatanus*). The soil is well drained and the ground flora, dominated by Bluebell (*Hyacinthoides non-scripta*) with Lesser Celandine (*Ranunculus ficaria*), reflects this.

The smaller woodland to the east, known as 'Beech Wood' is essentially a similar mix of native Pedunculate Oak and Ash, with Hazel (*Corylus avellana*) and non-native species, as the name suggests, particularly Beech (*Fagus sylvatica*). The ground flora is also similarly dominated by Bluebell with Lesser Celandine and Ground-ivy (*Glechoma hederacea*).

These two woodland blocks are not large, there origin has not been studied, but it is likely that they are historical plantings rather than fragments of ancient woodland. The preponderance of non-native trees detracts from the naturalness of both woodland blocks. However few woodlands occur in Co. Laois, especially those dominated by Pedunculate Oak, a feature of our most prized woodlands. Appropriate management, including the exclusion of stock, and the selective removal of non-native species, would enhance the scientific interest of these sites.

23.11.2009

SITE SYNOPSIS

SITE NAME: STRADBALLY HILL

SITE CODE: 001800

This site lies about 2km south-east of Stradbally in a chain of limestone hills, which are occasionally indented by caves.

The site comprises three separate woodland areas. Ballykilcavan Wood is dominated by Pedunculate Oak (*Quercus robur*) with Ash (*Fraxinus excelsior*), Downy Birch (*Betula pubescens*) and sections of coniferous plantations interspersed. The understorey flora includes Honeysuckle (*Lonicera periclymenum*), Bramble (*Rubus fruticosus* agg.), ferns, Lesser Celandine (*Ranunculus ficaria*), Bluebell (*Hyacinthoides non-scripta*) and Ivy (*Hedera helix*). The woodland at Kylebeg is also Pedunculate Oak-dominated, with scattered Ash and Wild Cherry (*Prunus avium*). Hazel (*Corylus avellana*) and Spindle-tree (*Euonymus europaeus*) occur in the understorey. A small conifer plantation lies in the northern part of the site. The most southerly section of the site, near Ballintlea is, in contrast, a mixed wood of Hazel, Beech (*Fagus sylvatica*) and planted conifers.

Ballykilcavan Wood encloses a small lake which adds habitat diversity to the site, as do the small areas of scrubland scattered throughout the site.

The most serious damaging operation occurring within the woodlands is the clearance of mature deciduous trees, especially Pedunculate Oaks. Frequently coupled with this activity is the replanting of such areas with coniferous trees. This serves to reduce the site quality by replacing native, wildlife-rich trees with exotic species. Another threat is infestation of these woodlands with Cherry Laurel (*Prunus laurocerasus*) which has already occurred in places in Kylebeg Wood.

Stradbally Hill is an important woodland site containing many mature oaks and Hazel. Extensive stands of mature oak on mineral soil are unusual in the county and the country as a whole.

26.11.2009

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.

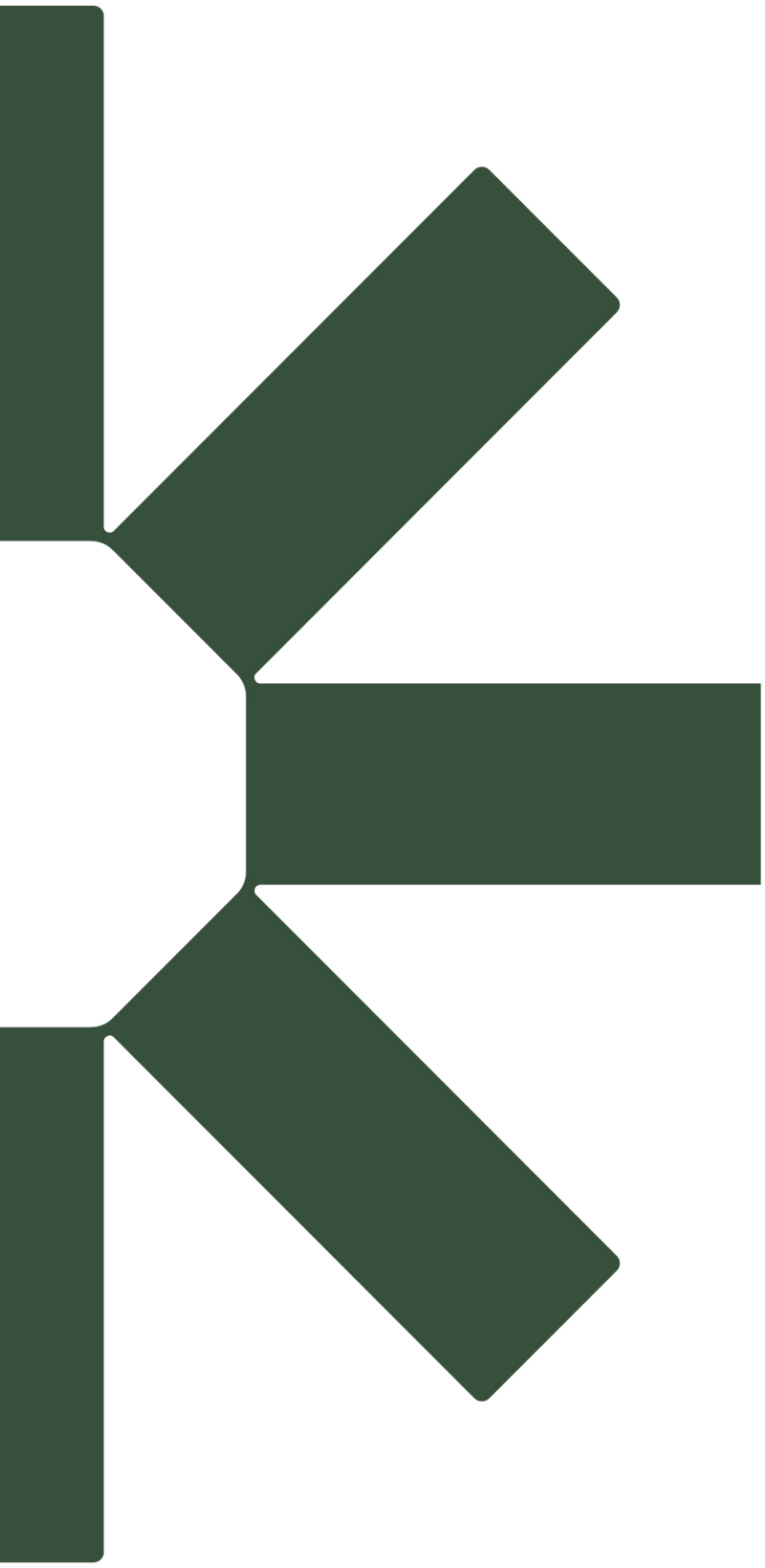
The Smooth Newt (*Lissotriton vulgaris*) breeds in the ponds on the bank at Gollierstown in Co. Dublin.

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

land and therefore provides a refuge for species threatened by modern farming methods.

9.12.2009



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