

# Appendix 2

## NPWS Site Synopses for the European Sites within 15 km of the Proposed Development and Conservation Objectives References

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**Site Name: Lough Forbes Complex SAC**

**Site Code: 001818**

This site consists of a number of different habitats, and is centred around Lough Forbes, a lake formed by a broadening of the River Shannon. As well as the lake itself, there is also a series of raised bogs, callow grasslands and a variety of other aquatic and terrestrial habitats to the west of Newtown Forbes on the Longford/Roscommon boundary.

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):

[3150] Natural Eutrophic Lakes
[7110] Raised Bog (Active)*
[7120] Degraded Raised Bog
[7150] Rhynchosporion Vegetation
[91E0] Alluvial Forests*

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 raised bogs, located on the south-eastern shore of Lough Forbes, are known as the Ballykenny-Fishertown complex. These bogs are of international importance as unique examples of Shannon River edge bogs and they are also the most northerly intact bogs adjacent to the River Shannon. The central core areas of the bogs are quite wet and spongy, with a good complement of bog mosses and well developed hummocks. Ballykenny Bog is unusual in that some of its margins are intact, a rare feature in the Irish midlands. Between the Camlin River and this bog, a complete transition from raised bog to callow grasslands can be seen, while the interface between the bog and lake is colonised by a narrow band of deciduous woodland.

In the wetter areas of the bog surface, Rhynchosporion vegetation is sometimes found. *Sphagnum cuspidatum* is frequent, along with Bogbean (*Menyanthes trifoliata*), White Beak-sedge and Common Cottongrass (*Eriophorum angustifolium*). The relatively rare Brown Beak-sedge has also been recorded. Degraded raised bog is largely confined to the marginal areas of uncut high bog where drainage effects from adjoining turbary are most pronounced. The plant species composition of degraded raised bog is generally similar to that of active raised bog, however species typical of very wet bog conditions are either much reduced in abundance or absent. In general, the most frequent vascular species are Deergrass, Common Cottongrass, Hare's-tail Cottongrass (*E. vaginatum*), Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Bog Asphodel and Carnation Sedge. The most frequent lower plant species present are the lichen *Cladonia portentosa* and the mosses *Hypnum cupressiforme* and *Sphagnum capillifolium*.

Lough Forbes is a medium sized lake underlain by limestone. It has extensive swamps of Common Reed (*Phragmites australis*) which provide good cover for wildfowl, although numbers have declined recently, possibly due to the increase in cruisers and other pleasure boats. Freshwater marshes are also a common feature along the lakeshore. These areas contain a good diversity of aquatic and emergent vegetation, comprised of species such as sedges (*Carex vesicaria*, *C. rostrata* and *C. acuta*), Bogbean, Common Spike-rush (*Eleocharis palustris*), Fine-leaved Water-dropwort (*Oenanthe aquatica*), Water Plantain (*Alisma plantago-aquatica*), Cowbane (*Cicuta virosa*), Common Club-rush (*Scirpus cucullaris*) and Reed Canary-grass (*Phalaris arundinacea*).

The site contains extensive areas of woodland. The wet woodland types present include willow woodland, Ash-Alder woodland on slightly higher ground, Ash-oak woodland at the highest levels and birch woodlands on dried-out or cut-away bog. The principal woodland type, however, is a drier mixed oak-Ash woodland. The total area of woodland within the SAC is estimated at over 170 ha, of which at least 40 ha are alluvial woodland. Several individual woodlands exceed 40 ha and there is good continuity. There is little woodland on the Roscommon side of the lough. The majority of the woodland within the SAC is recorded as having been present in part or in full on the 1<sup>st</sup> edition Ordnance Survey maps from the 1840s. These may be considered therefore as potentially ancient or long-established woodlands, a conclusion reinforced by the presence of a number of relatively rare species and ancient woodland indicator species.

The dry Pedunculate Oak (*Quercus robur*) – Ash (*Fraxinus excelsior*) woodland is dominated by Pedunculate Oak and Ash, up to 20 m tall, with occasional Alder (*Alnus glutinosa*), Rowan (*Sorbus aucuparia*) and Yew (*Taxus baccata*), as well as a variety of exotic species, principally Sycamore (*Acer pseudoplatanus*), Beech (*Fagus sylvatica*) and lime (*Tilia* sp.). The shrub layer is variable in cover and species, with Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*), Hawthorn (*Crataegus monogyna*), Spindle (*Eunonymus europaea*), willows (*Salix caprea* and *S. cinerea* subsp. *oleifolia*) and the relatively rare species Bird Cherry (*Prunus padus*), Buckthorn (*Rhamnus catharticus*) and Alder Buckthorn (*Frangula alnus*). The introduced and invasive

Cherry Laurel (*Prunus laurocerasus*) and Rhododendron (*Rhododendron ponticum*) are locally abundant. The herb layer consists of Bramble (*Rubus fruticosus* agg.), Enchanter's-nightshade (*Circaea lutetiana*), violet (*Viola* sp.), Bluebell (*Hyacinthoides non-scripta*) and several species of ferns, e.g. *Dryopteris filix-mas*, *D. affine*, *D. dilatata* and *Polystichum setiferum*.

Areas of birch woodland are dominated by birch, occasional Alder on more base-rich sites, Rowan, Holly and Scots Pine (*Pinus sylvestris*). Rhododendron forms thickets in some stands. The herb layer is relatively species-poor with Bramble, Purple Moor-grass (*Molinia caerulea*), Bracken (*Pteridium aquilinum*), Wood-sorrel (*Oxalis acetosella*) and abundant mosses, e.g. *Polytrichum* species.

Extensive areas of alluvial woodland fringe the shores of Lough Forbes and the Shannon, as well as extending along some of the tributaries. Three main types occur: willow woodlands, Alder-Ash woodlands and Ash-oak woodlands.

The willow woodland stands are generally found fringing the rivers and lake, and are usually quite narrow due to the hilly/boggy landscape which tends to rise steeply from the river. This results in a mostly narrow floodplain, but in places, lower lying ground may be flooded at times of high water levels. These woodlands are generally structurally complex stands of multi-stemmed Rusty Willow (*Salix cinerea* subsp. *oleifolia*), up to 8 m tall, where the roots are in permanently waterlogged, acidic to neutral, base-rich silty soils. Birch (*Betula* sp.) and Alder are occasional. A thin shrub layer of Hawthorn may be present in drier locations. Ivy (*Hedera helix*) and Bramble occur only in small amounts. The field layer consists of tall herbaceous species such as Reed Canary-grass, Yellow Loosestrife (*Lysimachia vulgaris*), Purple Loosestrife (*Lythrum salicaria*), Meadowsweet (*Filipendula ulmaria*), Marsh Ragwort (*Senecio aquaticus*), Yellow Iris (*Iris pseudacorus*) and Marsh-marigold (*Caltha palustris*). The moss layer is poorly developed with just a scattering of species such as *Rhizonmium punctatum* and *Mnium hornum*.

Alder-Ash woodland is the most extensive type of alluvial woodland at this site. This community occurs behind the willow woodland on slightly more elevated land that nonetheless is regularly flooded. The main canopy species are Alder and Ash, with occasional Pedunculate Oak, birch and Sycamore. Rusty Willow and Hawthorn are the principal shrub species, with a small amount of Guelder-rose (*Viburnum opulus*), Bird Cherry and Hazel. The herb flora is species-rich and is dominated by Meadowsweet, with Remote Sedge (*Carex remota*) and Golden Saxifrage (*Chrysosplenium oppositifolia*). Geophytes include Bluebell and Lesser Celandine (*Ranunculus ficaria*). Other characteristic species include Ivy, Enchanter's-nightshade, Reed Canary-grass, Yellow Iris, Cuckooflower (*Cardamine pratensis*), Yellow Loosestrife and Broad Buckler-fern (*Dryopteris dilatata*). Where grazing occurs, Creeping Bent (*Agrostis stolonifera*) is abundant. The moss layer is mostly poorly developed, with *Thamnobryum alopecurum*, *Calliergonella cuspidata* and *Conocephalum conicum* being the most frequent species. The rare Elongated Sedge (*Carex elongata*) occurs locally.

Ash-Pedunculate Oak alluvial woodland occurs behind the Alder-Ash woodland where the land is subject to occasional flooding or where the water-table is high. Ash and Pedunculate Oak are the dominant canopy species, with occasional Sycamore, Beech and Horse-chestnut (*Aesculus hippocastanum*). The shrub layer is formed chiefly from Hazel, with Elder (*Sambucus nigra*), Hawthorn and occasional Bird Cherry, along with regenerating Ash and Sycamore. It is essentially a wetter version of the Oak-Ash woodland described above, but the field layer is characterised by moisture-loving species such as Golden Saxifrage, Remote Sedge, Wood-sedge (*Carex sylvatica*) and Bugle (*Ajuga reptans*). While the field layer is diverse and species-rich, the moss layer is only moderately developed, the most common species being *Thamnobryum alopecurum*, *Thuidium tamariscinum* and *Rhytidiadelphus triquetrus*.

Areas of callows (winter-flooded grassland) along the Camlin River are also included within this site. Like the internationally important Shannon Callows, these wet grasslands are included for their botanical interest as well as for the waterbirds that they support. Both Lough Forbes and the callow grasslands provide good habitat for a range of wintering waterfowl species though most occur in relatively low numbers. Counts in two of the winters in the 1995/96 to 1999/00 period are as follows: Cormorant (51), Whooper Swan (40), Wigeon (419), Teal (444), Shoveler (6), Tufted Duck (49) and Goldeneye (11). The bogs were formerly used by part of the Loughs Kilglass and Forbes Greenland White-fronted Goose wintering population, but these appear to have now been abandoned in favour of grassland sites elsewhere. Merlin has been recorded within the site and may nest. Whooper Swan and Merlin are listed on Annex I of the E.U. Birds Directive. Red Grouse are known from the bogs. Red Grouse is a Red Listed species in Ireland as it has declined in numbers in recent decades.

The raised bogs are vulnerable to water loss from peat-cutting and drainage, though ongoing restoration work involving blocking of drains is occurring. There are no known threats to the wintering birds though the increased use of the River Shannon system by leisure craft could cause disturbance.

The importance of the Lough Forbes site lies in its excellent diversity of habitats, some of which, for example the raised bogs, are rare and threatened. The site is also of ornithological importance for its wintering waterfowl, breeding Merlin and Red Grouse. The presence of Whooper Swan and Merlin is of particular note as these species are listed on Annex I of the E.U. Birds Directive.



**Site Name: Mount Jessop Bog SAC**

**Site Code: 002202**

Mount Jessop Bog SAC occurs within the larger raised bog system that is designated as Mount Jessop Bog NHA (001450). It is situated 5 km south-west of Longford Town in the townland of Mount Jessop, Co. Longford. The site is part of a basin 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 sides and by agricultural land on its eastern side and 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 [91D0] Bog Woodland*
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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 within 30 years.

Bog Woodland develops on wet peaty soils, with a permanently high water level and it is generally dominated by Downy Birch (*Betula pubescens*) or Scots Pine (*Pinus sylvestris*), with the ground layer dominated by bog mosses and other characteristic species. It is a very rare habitat covering less than 150 ha in Ireland.

Mount Jessop Bog SAC consists of 71.91 ha of raised bog (25.7 ha of high bog and 46.21 ha cutover). In the SAC, approximately 31 ha (44%), both high bog and cutover, was afforested with conifer plantations between 1973 and 1975. Only 11% (8.0 ha) remained open high bog. The remainder of the cutover developed either into birch and willow scrub (19.5 ha) or remained open (12.5 ha) and dominated by heath and bog species.

On the remaining area of open high bog much of the vegetation is typical of Midland Raised Bog type, consisting of Heather (*Calluna vulgaris*), Bog Asphodel (*Narthecium ossifragum*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), Cross-leaved Heath (*Erica tetralix*), White Beak-sedge (*Rhynchospora alba*) and bog mosses. There are wet spongy areas with hummock/hollow systems, which are mainly composed of bog mosses such as *Sphagnum capillifolium* and *S. subnitens*, but some small hummocks of

scarce *S. austinii* and *S. fuscum* occur. In places, *Sphagnum* hummocks support the Midland raised bog indicator species Bog Rosemary (*Andromeda polifolia*) and Cranberry (*Vaccinium oxycoccos*). There is also a record of one of the Western raised bog indicators, the liverwort *Pleurozia purpurea*, being present in the NHA suggesting that this bog has transitional features between the two types of raised bog in Ireland. Lodgepole Pine (*Pinus contorta*), which is invading the open bog, is being controlled as part of the restoration plan for the site.

The conifer plantations were all felled by 2012. All of the intensive drainage systems associated with the plantations were blocked by 2013 as part of an EU-funded LIFE project so as to raise the water table and restore Active Raised Bog (ARB) on the site. Prior to the felling, there were relatively few bog species present in the plantations except along fire breaks and at plantation margins. With the clear-felling of conifers and blocking of drains the high bog appears to be re-wetting, water-levels in some areas now remain high throughout the year and limited areas of wet flats and hollows are developing. As a consequence, raised bog vegetation has returned, with Heather and Hare's-tail Cottongrass dominating, while Common Cottongrass (*Eriophorum angustifolium*), Bog Asphodel and White Beak-sedge are locally common and small amounts of Bilberry (*Vaccinium myrtillus*) and Cross-leaved Heath are widespread. Purple Moor-grass (*Molinia caerulea*) and Soft Rush (*Juncus effuses*) are also present. Bog mosses are regenerating, including *Sphagnum papillosum*, *S. capillifolium*, *S. palustre* and *S. subnitens*, with *Sphagnum cuspidatum* and *S. recurvum* in drains. However, the majority of the restored areas have not yet developed vegetation characteristic of the wet bog conditions. Associated with the bog species there is the development of a considerable amount of ruderal vegetation such as Bramble (*Rubus fruticosus*) and willowherbs (*Epilobium* spp.) with conifer and birch regeneration. This situation is expected to improve over time as the bog surface becomes wetter.

Four small areas, covering 1.14 ha in the northern and western sections of the SAC, have been identified by hydrological modelling and ground survey as Degraded Raised Bog (7120) habitat and these are showing significant indications of recovery. The main areas are on the open bog in the west of the formerly afforested area and in the north-west of the clear-fell area. These areas now have standing surface water in the hollows and pools for most of the year and considerable areas of regenerating *Sphagnum* species. It is considered that these areas will support some areas of Active Raised Bog (7110) habitat within 10–20 years and that this habitat will continue to develop and spread over the following decades.

The unafforested cutover bog areas of the site are mainly overgrown with Downy Birch, Gorse (*Ulex europaeus*), and willow (*Salix* spp.) scrub with occasional Lodgepole Pine from adjacent forestry. There is an area of 0.23 ha of wet woodland on cutover bog to the south-east of the site. This contains depressions with pools and tree species such as Alder (*Alnus glutinosa*), Willow and Downy Birch, which has developed into Bog woodland (91D0). Water-levels remain high throughout the year and the bog moss *Sphagnum cuspidatum* dominates the wet hollows. It is anticipated that this habitat will mature and develop further over time as the cutover becomes

wetter. There is also an area of 0.29 ha of very wet clear-fell on cutover adjacent to the Bog Woodland habitat which is expected to develop into that habitat in the medium to long term.

Current landuse on the site consists of conservation management with the removal of conifer plantations and the blocking of drainage associated with these plantations. All the large area planted with coniferous forestry has been clear-felled and drain-blocked as part of the Coillte EU Life Project *Demonstrating Best Practice in Raised Bog Restoration in Ireland* and the control of regeneration of non-native species such as Lodgepole Pine is on-going. There is a small amount of peat-cutting, with its associated risks of drainage and fire in the NHA which, if allowed to continue, could cause some long term problems to the maintenance of the conservation values of the SAC.

Mount Jessop Bog SAC is a site of considerable conservation significance comprising raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. It contains good examples of the Habitats Directive Annex I habitat Degraded Raised Bog (capable of regeneration) which is reverting to the priority Annex 1 habitat Active Raised Bog (7110) and a small area of the Annex 1 priority habitat Bog Woodland which is developing on the cutover. The site already supports a good diversity of raised bog microhabitats, including some hummock/hollow complexes, and rewetted cutover bog. Red Grouse, a bird which is becoming increasingly rare in Ireland has been recorded at this site, along with the Irish Hare – a Red Data Book species – which increases its overall scientific interest.

Ireland has a high proportion of the total E.U. resource of Atlantic raised bog (over 50%) and so has a special responsibility for its conservation at an international level. The site is being actively managed for conservation as part of the Coillte EU LIFE Project and most of the required major restoration measures have already been carried out. Those measures that remain, or are on-going, will be included in an After LIFE management plan which is being developed by Coillte for the future conservation management of the SAC. The SAC is located within the raised bog Mount Jessop Bog NHA, the conservation management of which should support the redevelopment of Active Raised Bog and Bog Woodland in the SAC. In addition, it is estimated that restoration works carried out on the SAC will benefit the conservation of 2 ha of Active Raised Bog and 0.25 ha of Degraded raised bog in the adjacent area of Mount Jessop Bog NHA (001450).



**Site Name: Ardaguillion Bog SAC**

**Site Code: 002341**

Ardaguillion Bog is located 5 km north-east of Edgeworthstown, mainly in the townlands of Cloonshannagh (Coolamber Manor Demesne) and Ardaguillion in Co. Longford. The site comprises a raised bog that includes both areas of high bog and cutover bog. The site is bounded in the north-east by the local road running to Coolagherty.

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*).

This site is the remnant of a much larger bog that is now cutover and afforested. There are areas of hummocks and pools in the centre of the high bog and the ground is wet and quaking. There is one flush in the centre of the high bog. There is a small area of coniferous forestry on a section of high bog and cutover in the south-west of the site. Cutover bog is found all around this site.

Much of the high bog has vegetation typical of a Midland Raised Bog, consisting of Heather (*Calluna vulgaris*), Cranberry (*Vaccinium oxycoccos*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), White Beak-sedge, Bog Asphodel and Bog-rosemary (*Andromeda polifolia*). The bog mosses *Sphagnum papillosum*, *S. capillifolium* and *S. magellanicum* are common on the high bog, and *S. imbricatum* is found at the centre of the site. At the centre of the high bog there are frequent pools that all contain the bog moss *S. cuspidatum*. Great Sundew (*Drosera anglica*) is found in all the pools in the

centre of the bog and Bogbean (*Menyanthes trifoliata*) is present in some. The inter-pool areas have a high bog moss cover. Many hummocks have good clumps of the lichens *Cladonia portentosa* and *C. uncialis*. On the south-west margins of the high bog there are some young Lodgepole Pine (*Pinus contorta*) but none are thriving. There is one very wet flush in the centre of the high bog with Common Cottongrass (*E. angustifolium*), extensive lawns of the bog moss *S. cuspidatum* and some Purple Moor-grass (*Molinia caerulea*). The cutover in the north-west, east and south-east is dominated by Purple Moor Grass, Soft Rush (*Juncus effusus*) and Common Cottongrass. There is some Gorse (*Ulex europaeus*) scrub in the east of the site and extensive Downy Birch (*Betula pubescens*) scrub in the south-east.

Current land uses on the site include forestry, peat-cutting and agriculture. The forestry is found on a small section of high bog and adjoining cutover in the south-west of the site. Areas of cutover in the south and west of the site that were previously forested have only recently been clear-felled. Active peat-cutting is taking place in the north-west, east and south-east of the site. Two fields in the north of the site have been reclaimed for agriculture. Damaging activities associated with these land uses include drainage throughout the site and burning of the high bog. There is also evidence of old burning in the northern part of the high bog. All these activities have resulted in the loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Ardagullion 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 hummocks and pools. 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 Name: Brown Bog SAC**

**Site Code: 002346**

Brown Bog NHA is located 5 km north-west of Longford town, mainly in the townlands of Tully, Lissanurlan and Cartronlebagh. The site comprises a raised bog that includes both areas of high bog and cutover bog. The bog margins are mainly surrounded by scrub/woodland.

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*).

This site is situated in a drumlin-filled valley and consists of a small raised bog characterised by a central wet depression with quaking mats of bog mosses and tear pools colonised by algae. Water flows through the pools and it is possible that there is a spring located in the bog centre. A flush area occurs in the north. Abandoned cutover is found around the northern, western and north-eastern bog margins. Remnant old deciduous woodland occurs to the north-west.

The site supports typical Midland Raised Bog communities, which include Heather (*Calluna vulgaris*), Carnation Sedge, Bog-rosemary (*Andromeda polifolia*) and occasional Cranberry (*Vaccinium oxycoccos*). The high bog supports extensive quaking carpets of bog mosses including *Sphagnum magellanicum*, *S. papillosum* and *S. capillifolium*. Pools occur frequently and support *Sphagnum auriculatum*, Bogbean (*Menyanthes trifoliata*) and Great Sundew (*Drosera anglica*). Bare pools and algal pools are also found. Hummocks of *Sphagnum imbricatum* and *S. fuscum* occur. The high

bog is drier around the margins, where Heather and lichens (*Cladonia* spp.) dominate. Scattered Downy Birch (*Betula pubescens*) occurs in association with the northern flush, along with Soft Rush (*Juncus effusus*). Quaking flats of Bog Asphodel and bog moss lawns dominate the inter-pool areas of the flush. One pool with obvious water flow supports Bog Pondweed (*Potamogeton polygonifolius*). Old cutover is mainly colonised by Gorse (*Ulex europaeus*), Downy Birch, Scots Pine (*Pinus sylvestris*) and Purple Moor-grass (*Molinia caerulea*). In the north-west, old deciduous woodland with Downy Birch, Scots Pine, Rowan (*Sorbus aucuparia*) and occasional the Beech (*Fagus sylvatica*) is found.

There are few land uses associated with this site. There are no high bog drains and only two sets of marginal drains are present in the cutover to the north-west. At present there is no active peat-cutting on the site. A large area of cutover to the east of the site has been recently afforested with Sitka Spruce (*Picea sitchensis*). The majority of the bog has not been burnt for some time, although recent localised burning has taken place along the southern margin. Overall there has been little damage to this bog, with only small areas of cutover present. Most of the extent of the original peat basin appears to be remaining. However, peat-cutting and burning are the two main threats to the site.

Brown Bog is a site of considerable conservation significance as it comprises a relatively little-damaged raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. Although the site is small it supports a good diversity of raised bog microhabitats including hummock/hollow complexes, pools and a flush system with surrounding tear pool complex, along with cutover which adds to the diversity and scientific value of the site. 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 E.U. resource of this habitat type (over 60%) and so has a special responsibility for its conservation at an international level.



**Site Name: Clooneen Bog SAC**

**Site Code: 002348**

Clooneen Bog lies approximately 3 km south-east of Roosky in Co. Longford on the east bank of the River Shannon, just north of Lough Forbes. It is located almost entirely in the townlands of Clooneen, Bunanass, Edercloon and Cloonart (North and South). The site comprises areas of high bog, including bog woodland and cutover bog, and is bounded by a mineral ridge to the east and agricultural fields to the north. Although it would have originally adjoined the River Shannon to the west and Lough Forbes to the south, it is now separated from these by a road and agricultural fields.

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] Active Raised Bog*
[7120] Degraded Raised Bog
[7150] Rhynchosporion Vegetation
[91D0] Bog Woodland*

Active Raised Bog (ARB) habitat 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 (DRB) 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*).

This site consists of a narrow bog dome, with cutover bog to the north, south and west. An interesting feature is the extensive area of bog woodland growing on a flush in the northern section of the bog. There is also a large flush to the south-east associated with a marginal area which slopes relatively steeply towards an extensive region of old cutover. Wet grassland in this area floods from Lough Forbes.

Much of the high bog has vegetation typical of the Midland Raised Bog type, with Heather (*Calluna vulgaris*), Common Cottongrass (*Eriophorum angustifolium*) and Deergrass all occurring abundantly. Other species present include Cranberry

(*Vaccinium oxycoccos*), Cross-leaved Heath (*Erica tetralix*), White Beak-sedge and Bog Asphodel. In the narrow central region of the high bog there are small pools containing the bog moss *Sphagnum cuspidatum*, Great Sundew (*Drosera anglica*) and Bogbean (*Menyanthes trifoliata*). Bog mosses are plentiful between these pools, with *S. capillifolium*, *S. magellanicum* and *S. fuscum* noted. These pools are associated with a depression and become algal-filled tear pools towards the margins of the high bog.

Results from surveys of Clooneen Bog in 1999 indicate the area of ARB to be 10 ha, corresponding with sub-central ecotope, active flush (soak) and bog woodland. The open bog woodland is dominated by lichen encrusted Downy Birch (*Betula pubescens*), with a field layer of Purple Moor-grass (*Molinia caerulea*) and Hare's-tail Cottongrass (*Eriophorum vaginatum*) and ericaceous shrubs such as Heather, Crowberry (*Empetrum nigrum*), Bog-myrtle (*Myrica gale*) and Bilberry (*Vaccinium myrtillus*). Mosses such as *Hylocomium splendens* and *Breutelia chrysocoma* are also abundant. Species such as *Sphagnum recurvum*, *S. imbricatum* and *S. palustre* are less common. There are also several ferns present including Hard Fern (*Blechnum spicant*) and Broad Buckler-fern (*Dryopteris dilatata*). The flush to the south-east is dominated by Purple Moor-grass and may be associated with an area that has subsided. There are occasional clumps of Bog-myrtle, with some small Rhododendron (*Rhododendron ponticum*) bushes encroaching. This latter species is an invasive, non-native species. Common Reed (*Phragmites australis*) is associated with this flush, indicating some groundwater influence.

The current extent of DRB as estimated using a recently developed hydrological modelling technique, based largely on Light Detection and Ranging (LiDAR) data, is 7.6 ha.

Old cutover to the north is dominated by Purple Moor-grass, with cottongrass, Heather and Carnation Sedge. There is some active regeneration in the north-east, with cottongrass dominating over bog moss (*S. cuspidatum*). Birch and Gorse (*Ulex europaeus*) scrub occurs on old cut-away to the west and east. An extensive area of cut-away to the south is dominated by Purple Moor-grass and Heather, with Bog-myrtle occurring abundantly in places. This area forms a mosaic with wet grassland and there is some flooding from Lough Forbes.

Current land use on the site consists of mechanised peat-cutting to the north-west and south-west of the high bog. Some areas of cutover have been reclaimed for agriculture to the south-east and there are small conifer plantations to the east. Damaging activities associated with these land uses include drainage and burning. 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 bog is generally *Sphagnum*-poor due to burning, but regeneration is taking place.

Clooneen Bog is a site of considerable conservation significance as it consists of a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. 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. Bog woodland 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. The areas of degraded raised bog and Rhynchosporion are also of conservation importance, being habitats that are listed on Annex I of the E.U. Habitats Directive.

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## SITE SYNOPSIS

**SITE NAME: GLEN LOUGH SPA**

**SITE CODE: 004045**

Glen Lough is situated about 5 km north-west of Lough Iron on the border of Co. Westmeath and Co. Longford. Extensive drainage in the 1960s has resulted in a dramatic drop in the watertable here, with the result that there is now little open water, except during flooding in the winter months. Sedge-dominated freshwater marsh now occupies the majority of what was once open water. Plant species present include Bottle Sedge (*Carex rostrata*), Water Horsetail (*Equisetium fluviatile*) and Canary Reed-grass (*Phalaris arundinacea*). Other habitats present include reedswamp, wet and dry grassland, cutaway bog colonised by heath vegetation, scrub and wet willow (*Salix* spp.) woodland.

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

An internationally important Whooper Swan population uses the site at times. This flock (mean peak of 327 individuals for the 5 seasons 1995/96-1999/2000) also uses Lough Iron and a range of grassland feeding areas in the vicinity. At times, the site is visited by part of the internationally important Midland lakes Greenland White-fronted Goose population, although numbers are low (17). Dabbling ducks are well represented, but in relatively low numbers, and include such species as Wigeon (81), Teal (69), Mallard (46), Pintail (7) and Shoveler (23). Lapwing (189) is also found in the area (all figures are mean peaks for the 5 seasons 1995/96-1999/2000).

Whilst this site attracts a range of wintering waterfowl, the principal ornithological interest lies in the internationally important Whooper Swan population that is based in the area. Whooper Swan is of particular note as it is listed on Annex I of the E.U. Birds Directive. Greenland White-fronted Goose, nowadays an occasional visitor to the site, is also listed on Annex I of this Directive. The site provides useful habitat for Shoveler, which in Ireland is a fairly localised species. Glen Lough is a Ramsar Convention site.

7.7.2014



## SITE SYNOPSIS

**SITE NAME: BALLYKENNY-FISHERSTOWN BOG SPA**

**SITE CODE: 004101**

Ballykenny-Fisherstown Bog SPA is located on the border between Counties Longford and Roscommon in the north-central midlands and is underlain by Carboniferous limestone. It is centered around Lough Forbes, a naturally eutrophic lake on the River Shannon system which is fed also from the north by the River Rinn. The lake has well-developed swamp vegetation and displays natural transitions to seasonally flooded grassland, marsh and raised bog. The raised bogs, known as the Ballykenny-Fishertown complex, are separated by the Camlin River, which has further areas of callow grassland. The central core areas of the bogs are quite wet with a good complement of bog mosses (*Sphagnum* spp.) and well-developed hummocks. Ballykenny Bog is unusual in that some of its margins are intact, a rare feature in the Irish midlands. Between the Camlin River and this bog, a complete transition from raised bog to callow grasslands can be seen, while the interface between the bog and lake is colonised by a narrow band of deciduous woodland.

At the time this site was designated as a Special Protection Area (SPA) it was being used by part of the Loughs Kilglass and Forbes Greenland White-fronted Goose population. The geese appear to have since abandoned the peatland sites in favour of grassland sites elsewhere. The site was regularly utilised during the 1980s and Greenland White-fronted Goose is regarded as a special conservation interest for this SPA. The last record of Greenland White-fronted Goose at this site was in 1990/91 (111 individuals).

Merlin and Red Grouse have also been recorded within the site.

The lake and callow grasslands provide good habitat for a range of wintering waterfowl species though most occur in relatively low numbers: Cormorant (51), Whooper Swan (40), Wigeon (419), Teal (444), Tufted Duck (49) and Goldeneye (11) – are counts are two year mean peaks for the period 1998/99 to 1999/2000.

24.4.2012

Site specific and more detailed conservation objectives were available for the following sites:

- NPWS (2018a) Conservation objectives for Mount Jessop Bog SAC 002202. Generic Version 6.0. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.
- NPWS (2018b) Conservation objectives for Glen Lough SPA 004045. Generic Version 6.0. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.
- NPWS (2016a) Conservation Objectives: Clooneen Bog SAC 002348. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
- NPWS (2015) Conservation Objectives: Ardagullion Bog SAC 002341. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
- NPWS (2016b) Conservation Objectives: Lough Forbes Complex SAC 001818. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
- NPWS (2018c) Conservation objectives for Ballykenny-Fisherstown Bog SPA [004101]. Generic Version 6.0. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.
- NPWS (2016c) Conservation Objectives: Clooneen Bog SAC 002348. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

The following conservation objectives supporting documents have been produced for Mount Jessop Bog SAC (Site Code: 002202):

- NPWS (1995a), Mount Jessop Bog NHA (001450) site synopsis, National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.
- SI No. 599 of 2003, European Communities (Natural Heritage Area (Mount Jessop Bog NHA 001450) regulations 2003. European Union, The Stationery Office, Dublin, Ireland.

The following conservation objectives supporting documents have been produced for Glen Lough SPA (Site Code: 004045):

- NPWS (1995b), Glen Lough pNHA (001687) site synopsis, National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.
- SI No. 65 of 2010, European Communities (Conservation of Wild Birds (Glen Lough Special Protection Area 004045)) regulations 2010. European Union, The Stationery Office, Dublin, Ireland.

The following conservation objectives supporting documents have been produced for Clooneen Bog SAC (Site Code: 002348):

- NPWS (2002), Clooneen Bog (000445) site synopsis, National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.
- NPWS (2016d), Clooneen Bog SAC (002348) Conservation objectives supporting document - raised bog habitats, National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

The following conservation objectives supporting documents have been produced for Ballykenny-Fisherstown Bog SPA (Site Code: 004101):

- SI No. 298 of 1996, European Communities (Conservation of Wild Birds (Amendment0 (No. 2) (Ballykenny-Fisherstown Bog Special Protection Area 004101)) regulations 1996. European Union, The Stationery Office, Dublin, Ireland.

The following conservation objectives supporting documents have been produced for Lough Forbes Complex SAC (Site Code: 001818):

- SI No. 452 of 2017, European Communities (Lough Forbes Complex Special Area of Conservation (001818)) regulations 2017. European Union, The Stationery Office, Dublin, Ireland.
- Fernandez, F., Crowley, W. & Wilson S. (2012) Raised Bog Monitoring Project 2011 – Volume 1: Main Report. Irish Wildlife Manuals, No. 62. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.
- NPWS (2013a), Raised Bog Monitoring and Assessment Survey 2013-Ballykenny Bog (SAC 001818), Co. Longford, National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.
- NPWS (2013b), Raised Bog Monitoring and Assessment Survey 2013-Fisherstown Bog (SAC 001818), Co. Longford, National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.
- O Connor, Á. (2015) Habitats Directive Annex I lake habitats: a working interpretation for the purposes of site-specific conservation objectives and Article 17 reporting. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Ireland.
- NPWS (2016e), Lough Forbes Complex SAC (001818) Conservation objectives supporting document - raised bog habitats, National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

The following conservation objectives supporting documents have been produced for Brown Bog SAC (Site Code: 002346):

- NPWS (2013c), Raised Bog Monitoring and Assessment Survey 2013-Brown Bog (SAC 002346), Co. Longford, National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.
- NPWS (2016f), Brown Bog SAC (002346) Conservation objectives supporting document - raised bog habitats, National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

The following conservation objectives supporting documents have been produced for Ardagullion Bog SAC (Site Code: 2341):

- SI No. 647 of 2016, European Communities (Ardagullion Bog Special Area of Conservation (002341)) regulations 2016. European Union, The Stationery Office, Dublin, Ireland.
- NPWS (2015b), Ardagullion Bog SAC (002341) Conservation objectives supporting document - raised bog habitats, National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.