APPENDIX 3
NPWS Site Synopses

SITE SYNOPSIS

SITE NAME: LOUGH GARA SPA

SITE CODE: 004048

Lough Gara is a shallow (maximum depth 16 m), medium-sized lake which overlies Carboniferous limestones and shales, and Devonian sandstone. The main inflowing river is the River Lung while the main outflow is the Boyle River. There are two main sections to the lake, a larger northern basin and a smaller southern basin, joined by a narrow channel. The lake is classified as a mesotrophic system, with reduced planktonic algal growth noted in a recent sampling period (1998-2000). The shoreline is convoluted and has receded substantially from its original level due to various drainage schemes since the mid-19th century. The site includes several low-lying islands.

The shallow lake margins have extensive swamps dominated by Common Reed (*Phragmites australis*) and Bottle Sedge (*Carex rostrata*), with occasional Bulrush (*Typha latifolia*). In the southernmost part of the lake, clumps of Common Club-rush (*Scirpus lacustris*) are particularly abundant. The old lakeshore is mostly clearly visible, below which a sedge-rich marsh occurs – this includes such species as Black Bog-rush (*Schoenus nigricans*), Devil's-bit Scabious (*Succisa pratensis*), Creeping Bent (*Agrostis stolonifera*) and Wild Angelica (*Angelica sylvestris*), with willows (*Salix* spp.) colonising some areas. The upper part of the shore is frequently colonised by scrub, which includes willows, Alder (*Alnus glutinosa*) and Hawthorn (*Crataegus monogyna*). Raised bog occurs outside of the site to its south and south-west.

Lough Gara is a regularly used site by an internationally important Greenland White-fronted Goose population (average flock size of 510 individuals over the five winters 1994/95 to 1998/990). The geese feed mainly on intensively-managed grasslands bordering the lake. When disturbed the geese use an island in the site or the lough itself. An important Whooper Swan population also uses the site (average mean peak of 382 for two of the winters in the 1995/96 to 1999/00 period), with numbers of international importance being present in the winter of 1996/97 (peak of 654). A range of other species occurs, though all in relatively low numbers; species present include Great Crested Grebe (32), Mute Swan (38), Wigeon (593), Teal (44), Mallard (157), Shoveler (18), Pochard (41), Tufted Duck (49), Goldeneye (20) and Golden Plover (270) - figures are average peaks for two of the winters in the period 1995/96-1999/00.

There are currently no activities taking place within the site which significantly affect the birds. Part of the site is a Wildfowl Sanctuary.

Lough Gara SPA is of high ornithological importance principally on account of the internationally important Greenland White-fronted Goose population that is associated with the lake and also the high numbers of Whooper Swan. The occurrence of these

SITE SYNOPSIS

Site Name: Annaghmore Lough (Roscommon) SAC

Site Code: 001626

Annaghmore Lough is located 5 km north-west of Strokestown, Co. Roscommon. It lies at the centre of a network of small lakes in a rolling, drift-covered landscape. The shoreline slopes gently to the lake and these low-lying margins are extensively flooded in winter. In summer, when water levels recede, substantial areas of this shallow calcareous lake dry out, leaving flat expanses of exposed marl. A smaller, less calcareous lake occurs to the south of the site.

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

[7230] Alkaline Fens
[1013] Geyer's Whorl Snail (*Vertigo geyeri*)

The main lake at this site is surrounded by Common Club-rush (*Scirpus lacustris*) backed by reedbeds of Common Reed (*Phragmites australis*). Extensive areas of alkaline fen, dominated by Black Bog-rush (*Schoenus nigricans*) occur around the shoreline. Damp calcareous grassland, subject to winter flooding, also occurs in association with the fen. Common Butterwort (*Pinguicula vulgaris*) is extremely abundant in this species-rich grassland, together with Common Sedge (*Carex nigra*), Carnation Sedge (*C. panicea*), Glaucous Sedge (*C. flacca*), Tawny Sedge (*C. hostiana*), Greater Bird's-foot-trefoil (*Lotus uliginosus*) and Few-flowered Spike-rush (*Eleocharis quinqueflora*). Several orchid species are found, including Early Marsh-orchid (*Dactylorhiza incarnata*) and Fragrant Orchid (*Gymnadenia canopsea*). A number of uncommon plants are found in the wet calcareous fen and surrounding grasslands. These include Broad-leaved Cottongrass (*Eriophorum latifolum*), Marsh Helleborine (*Epipactis palustris*), Marsh Hawk's-beard (*Crepis paludosa*), Bee Orchid (*Ophrys apifera*) and Fly Orchid (*O. insectifera*). The fen also hosts two rare moss species, *Bryum neodamense* and *B. uliginosum*, although the latter has not been seen at the site for several years.

A small area of limestone pavement with abundant White Stonecrop (*Sedum album*) and an old cutover bog add diversity to the site.

Two populations of the rare whorl snail *Vertigo geyeri* are found in association with Black Bog-rush in the alkaline fen on the northern shore of Annaghmore Lough. This species is rare in Europe and listed on Annex II of the E.U. Habitats Directive.

The site is important for wintering birds and is listed as a wildfowl sanctuary, with nationally important numbers of Teal (545) and Shoveler (55) (counts are average peaks for period 1998/99 – 2002/03). A good diversity of other species occur in local or regional concentrations, including Wigeon (402), Mallard (183), Pochard (28), Goldeneye (22), Lapwing (297) and Curlew (84). Of particular note is the occurrence, albeit in small numbers, of two species which are listed on Annex I of the E.U. Birds Directive, Whooper Swan (7) and Golden Plover (264).

This site is relatively intact with only minor damage caused by cattle poaching and some burning on the fen. Some infilling of wetland vegetation has occurred between the northern shore of the lake and the nearby road. Drainage is a potential threat to the site and associated floodlands.

This is a site of considerable conservation importance as it contains a range of uncommon plant species, supports significant bird numbers, and contains a good example of alkaline fen vegetation. It is also particularly noteworthy because it supports a population of the rare snail *Vertigo geyeri*.

SITE SYNOPSIS

Site Name: Bellanagare Bog SAC

Site Code: 000592

Bellanagare Bog is a large bog situated 6 km north-north-east of Castlerea in Co. Roscommon. It is classified as a western, or intermediate, raised bog, because is shows features of both raised bog and blanket bog. The bog is underlain by muddy Carboniferous limestone with a low permeability. The sub-soil is predominantly of clayey limestone till. The site lies in an upland area at the top of a surface catchment divide. The surface of the bog is undulating and the peat is concentrated on ridges, with flushes occurring in between. A number of streams, including the Frances River, rise on the site. The bog is traversed by several tracks. A large section of the site is in state ownership.

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
[1065] Marsh Fritillary (*Euphydryas aurinia*)

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 high bog at Bellanagare is predominantly comprised of degraded raised bog. This habitat tends to be drier that the active bog areas and species such as Cross-leaved Heath (*Erica tetralix*), Heather (*Calluna vulgaris*), Common Cottongrass (*Eriophorum angustifolium*), Bog Asphodel, Carnation Sedge and Deergrass tend to be the most frequent and conspicuous. Indicator species of midland raised bogs such as Bog-rosemary (*Andromeda polifolia*) and the bog moss *S. magellanicum* are present, though they are not as common as in raised bogs further east in the country. The

cover of bog mosses is relatively low in areas of degraded bog and there are few wet pool areas

Well-developed hummocks and several quaking areas occur in the active area of the high bog at this site. Rhynchosporion vegetation is best developed in the areas of active raised bog where there is deep and quaking peat. Such areas contain numerous pools and quaking flats which support a typical, species-poor vegetation that includes plant species such as *Sphagnum cuspidatum*, Bogbean (*Menyanthes trifoliata*), White Beak-sedge, Great Sundew (*Drosera anglica*) and Common Cottongrass. The rare moss *Sphagnum pulchrum* has been recorded from such areas recently, and Brown Beak-sedge, a relatively scarce species in Ireland, has also been recorded from wet pools. Bog-sedge (*Carex limosa*), a species more usually found on blanket bogs, occurs in some pools.

Bellanagare Bog is also notable for the range of flush types found. These occur quite frequently and are usually located in depressions. Flush types on the site include an in-filling lake, an extensive Purple Moor-grass (*Molinia caerulea*) flush with a high diversity of plant species, a large swallow-hole flush, and flushes associated with springs, rises and streams. One flush is coincident with a bog burst. The site also includes much cut-away bog, small areas of heath, scrub, wet grassland and several small conifer plantations.

The scarce butterfly, Marsh Fritillary, a species listed on Annex II of the E.U. Habitats Directive, is found at this site. This species has most commonly been recorded in areas where its food plant Devil's-bit Scabious (*Succisa pratensis*) occurs, such as in flushes, cutover bog and wet grassland.

The site provides habitat for a relatively large population of Red Grouse, a scarce and declining species in Ireland.

The site is vulnerable to water loss through the extensive drain network in its northern half, and from active peat- cutting which occurs in places all around the site. The site is also very vulnerable to burning because of it being quite a dry bog.

For a raised bog, Bellanagare Bog is floristically unusual, supporting species typically found on raised bogs as well as species more usually found on blanket bogs. Bellanagare Bog is of considerable scientific and conservation significance, in particular for its status as an intermediate raised bog, but also for the wide variety of flush types found, as well as for its large size and for the presence of scarce plant species. Raised bogs are rare and threatened in Europe, and are listed as a priority habitat on Annex I of the E.U. Habitats Directive.

SITE SYNOPSIS

Site Name: Cloonshanville Bog SAC

Site Code: 000614

Cloonshanville Bog is located approximately 2 km east of Frenchpark in Co. Roscommon. The eastern boundary of the site is the Breedoge River, while the southern is the Frenchpark/Elphin road. The bog developed in a shallow basin in a groundwater discharge zone and is underlain by low-permeability, clayey limestones. The regional water table has been lowered, but evidence of groundwater inputs are seen on and around the high bog.

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
[91D0] Bog Woodland*

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*).

At this site the majority of the uncut high bog is dominated by degraded raised bog. However, a significant area of active bog occurs in the central and northern part of the bog. In the wettest areas hummock/pool systems have developed and it is here that Rhynchosporion vegetation is best represented. The pools and/or quaking lawns are dominated by the bog moss *S. cuspidatum* and White Beak-sedge. Other species which have been noted from this area include Bogbean (*Menyanthes trifoliata*), Great Sundew (*Drosera anglica*), Common Cottongrass (*Eriophorum angustifolium*), Bog Asphodel and the bog mosses *S. papillosum* and *S. pulchrum*. Heather (*Calluna vulgaris*) is a common species of the hummocks, occurring with such species as Cross-leaved Heath (*Erica tetralix*), Cranberry (*Vaccinium oxycoccos*), Bog-rosemary

(*Andromeda polifolia*) and the bog mosses *S. fuscum* and *S. pulchrum*. The cover of lichens is generally good.

A large flush area occurs in the centre of the bog dome. The main body of the flush supports an extensive area of bog woodland, an extremely rare Irish woodland type. The woodland is well-developed structurally and contains a diverse range of plant species. It is dominated by birch (*Betula* sp.), with some willow (*Salix* sp.) occurring also, and with an understorey of tussocky Purple Moor-grass (*Molinia caerulea*). Bog-myrtle (*Myrica gale*) occurs in places.

Much of the degraded bog still retains a raised bog flora and the main species are Heather, Hare's-tail Cottongrass (*E. vaginatum*), Bog Asphodel and Deergrass, along with scarcer species such as Cranberry and Bog-rosemary. *Sphagnum* cover is variable, but is generally below 30% within these degraded areas. The nationally rare *Sphagnum pulchrum* is common throughout areas of degraded bog within the site.

There are three areas of conifer plantation on the peat along the margins of the site. These were planted within the past 25 years. In places the trees have not grown well, and in these areas there is still a significant understorey of typical raised bog plants. It is likely that bog vegetation would regenerate well in these areas following tree removal and the implementation of some restoration measures such as drain blocking.

The high bog is surrounded by cutover areas, some of which have been converted to improved grassland. The Breedoge River, which marks the eastern boundary of the site, adds habitat diversity and is of some importance for waterfowl, including Mallard and Snipe.

Much of the uncut high bog is in a degraded state as a result of drainage associated with peat cutting. Afforestation has also affected the integrity of the bog. Additionally, it is possible that dredging of the adjacent river may, indirectly, have had a deleterious effect on the hydrology of the habitat. Further drying out of the surface of the bog remains a threat.

Cloonshanville Bog is a site of high conservation importance as it contains good examples of the Annex I habitats bog woodland, active raised bog, degraded raised bog and Rhynchosporion depressions on peat substrates, with the first two habitats being listed with priority status. The area of bog woodland ranks as one of the most extensive and well-preserved examples of wet bog woodland in the country. The bog also supports a large population of the uncommon bog moss, *Sphagnum pulchrum*.

SITE SYNOPSIS

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 lacustris*) 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 1st 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 (*Eunoymus 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 stoloniifera*) 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 *Rhytidiadelpus 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.

species, along with Golden Plover, is of particular note as they are listed on Annex I of the E.U. Birds Directive.