



# Blessington

## Local Area Plan

### Local Biodiversity Areas

#### Wicklow County Council

#### Draft Report: October 2006



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## 1. INTRODUCTION

### 1.1. Background and Aims

Ireland responded to its commitment to the UN Convention on Biological Diversity by publishing a National Biodiversity Plan in April 2002 (Government of Ireland, 2002). This plan outlines the importance of biodiversity plans at all levels and specifically at local levels. From this stance, local authorities are integrating biodiversity into future development plans. As an action of the County Heritage Plan, Wicklow County Council in partnership with The Heritage Council commissioned NATURA Environmental Consultants Ltd. to undertake a study of Local Biodiversity Areas in Blessington town and environs. Local Biodiversity Areas (LBAs) are sites of local biodiversity value that are not within designated areas, such as SACs or SPAs. Thus, they form a lower tier of ecologically important sites than those nationally and internationally recognised. The aims of the study were:

- To identify sites within the study area which are of local value for their natural heritage (termed Local Biodiversity Areas); to assess their ecological values and threats to their conservation.
- To map this information in a format compatible with the Local Authority Geographic Information System (GIS).
- To identify where potential exists for habitat networks which link these LBAs with nearby designated sites, in this way enhancing their overall biodiversity value.

### 1.2. Definitions

*Local Biodiversity Area* is a non-statutory term which simply indicates that the site has some local value for nature conservation. It does not imply any legal or other restrictions to use of the site nor any rights of access to the site.

*Biodiversity* is a shortened form of the words “biological diversity”. This means the variety of life forms, both plant and animal.

### 1.3. Methodology

A desktop study was undertaken by examining colour aerial photographs (flown 2004) of the study area to determine the distribution of semi-natural habitat which is potentially of local biodiversity value. Consultations were undertaken with government agencies to gather records of flora and fauna. The National Parks & Wildlife Service was consulted regarding designated areas and rare species in the locality. The Eastern Regional Fisheries Board (ERFB) was consulted in relation to fisheries value of watercourses in the area.

Field surveys were carried out on 26<sup>th</sup> September and 13<sup>th</sup> October 2006 to ‘ground truth’ the habitats identified on aerial photographs and to classify these according to the Heritage Council scheme (Fossitt 2000). Dominant plant species were recorded and evidence of fauna was noted where relevant. While autumn is not the optimum period for ecological field survey it is possible to identify the habitats present and assess their ecological value.

Based on this information, a number of areas, which contained habitats of local wildlife value, were selected and delineated as **Local Biodiversity Areas (LBAs)**. In addition a number of linear features were identified as **Habitat Networks**. These have the potential to act as corridors or stepping stones for wildlife species moving between the LBAs or between designated areas.

#### 1.4. Site evaluation

The evaluation of each site is based on a field assessment of the diversity and rarity of the habitats and species which it contains. The study used a five-point scale of evaluation for Local Biodiversity Areas based on the site evaluation table (See Appendix 1) prepared by NATURA for other studies. The ratings are as follows:

- A: International value.
- B: National value.
- C: High local value.
- D: Moderate local value.
- E: Low local value.

All designated areas fall into the categories A and B (international and national importance) while remaining sites are generally rated C, D, or E (local value from high to low).

## 2. SURVEY AND ANALYSIS

### 2.1. General description of study area

Blessington town is located in the north west of Co. Wicklow on the border with Co. Kildare. The town is bordered by the Pollaphuca Reservoir, which lies on the River Liffey, to the east and by hills to the west. The land is principally gently sloping from east to west, rising from 190m to approx 270m above sea level. The subsoils are mainly glacial till with glaciofluvial sands and gravels.

During the site visit it was apparent that significant developments have been undertaken since the aerial photography in 2004. This is mainly housing development with some roads and retail. The new and planned developments affect some of the biodiversity areas and are discussed in the report.

### 2.2. Designated areas

Designated areas are those areas of land which have been designated under national or international legislation. These include Natural Heritage Areas (NHAs), Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). In some cases, more than one designation applies to the same area.

There are two designated areas within the general district of Blessington and one of these lies within the town boundary. These are as follows:

**Table 1. Designated areas within the town boundaries and nearby the study area. For further details of each site see text below.**

Site Name	Site Code	Designation	Location
Pollaphuca Reservoir	000731	cSAC, SPA, pNHA	Lake adjacent to Blessington. Shore within town boundary.
Red Bog	000397	cSAC	3km north of town in Co. Kildare

*Pollaphuca Reservoir* (site code 000731): This reservoir is a water supply for Dublin. The site is designated as cSAC, pNHA and SPA. The shoreline of the reservoir is mostly sandy with grassy banks. Some wooded and scrub areas also occur on the shoreline. Pollaphuca is nationally important site for greylag geese and mallard. Other notable waterbird species occurring here are whooper swan, wigeon, teal and pochard. See details in site description in Appendix 2 below.

*Red Bog* (site code 000397): This site is designated as a candidate SAC. It comprises of a wetland complex of lake, fen and bog. It is of particular note as it supports the habitat transition mire, which is listed on Annex I of the EU Habitats Directive. The site is also of significant ornithological significance as it supports a variety of wildfowl. See details in site description in Appendix 2 below.

### 2.3. Habitats

The main habitat types of biodiversity value which occur within the town boundary of Blessington are listed below. The classification (and codes in parenthesis) follows that of Fossitt (2000).

Reservoirs (FL7)  
 Reed and large sedge swamps (FS1)  
 Eroding upland rivers (FW1)  
 Dry to humid acid grassland (GS3)  
 Wet grassland (GS4)  
 Mixed broadleaved woodland (WD1)  
 Mixed broadleaved/conifer woodland (WD2)  
 Conifer plantation (WD4)  
 Wet willow-alder-ash woodland (WN6)  
 Hedgerows (WL1)  
 Treelines (WL2)  
 Scrub (WS1)  
 Immature woodland (WS2)  
 Recently-felled woodland (WS5)

### 2.4. Key species

#### *Rare plants*

The Green-winged Orchid (*Orchis morio*) has been recorded south of Blessington within the 10km grid square containing Blessington. This species occurs in meadows,

pastures and sandhills. These habitats are common in the environs of Blessington. The species status is listed as vulnerable in the Irish Red Data Book (Curtis and McGough, 1988).

### **Mammals**

Tracks and signs of a number of mammals were encountered during the site survey. Rabbit was common throughout. Fox droppings were observed and badger latrines and diggings were also observed. Badger is likely present in the surrounding woodlands as these provide suitable shelter and there is also suitable foraging ground in the local agricultural grassland. Deer tracks were evident in the wooded areas. Otter and mink have been recorded around the Pollaphuca reservoir (ESB, 1993). Bats are also likely to be common, in particular along the hedgerows and woodland leading to the pond and river west of the town centre.

### **Birds**

Pollaphuca is nationally important for greylag goose and is also important for lesser black-backed gull. Both species roost on the lake at night and the greylag goose feeds during the day in surrounding fields. Although the reservoir supports substantial numbers of waterbirds the numbers have declined significantly (by 45%) since counts in 1984-1986 (Crowe, 2005).

## **2.5. Water Quality and Fisheries**

The Pollaphuca Reservoir is described as being mesotrophic (Toner, 2005). The two rivers that run into Pollaphuca (the River Liffey and the Kings River) have different Q values for water quality at EPA sampling points upstream of their entrance to the reservoir (<http://www.epa.ie/rivermap/data/N25.html>). The River Liffey runs into the reservoir from the west and the Kings River from the south. The two EPA sampling points upstream of the reservoir on the River Liffey are recorded as being slightly polluted (Q 3 to 4), while the two sampling points upstream of the reservoir on the Kings river are unpolluted (Q 4 to 5). The reservoir is important for fisheries and is stocked with trout annually by the ESB. Coarse and pike angling is also common.

Blessington is located within the catchment of the River Liffey, a nationally important salmonid system. The River Liffey supports Atlantic salmon and Sea trout in addition to resident brown trout populations. Fishery habitat is regarded as particularly good for all salmonid life stages throughout much of the Liffey system.

The Eastern Regional Fisheries Board was consulted on the fisheries value of the waterbodies within the study area, in particular on the pond and stream identified within the town boundary. These waterbodies are unnamed on the OS Discovery series maps and are relatively small. On site observations showed considerable algal deposits in the pond, indicating an eutrophic status – possibly from nearby agricultural runoff. The stream runs into the reservoir west of Burgage. The ERFB stated that this stream is thought to be non-salmonid, however they also stated that it may support populations of freshwater crayfish (*Austropotamobius pallipes*), which is a species listed in Annex II of the Habitats Directive (Council Directive 92/43/EEC).

## 2.6. Local Biodiversity Areas

Based on the desktop study and field survey a number of Local Biodiversity Areas were selected and delineated in the study area (Figure 1). These are described below and tabulated in Appendix 3.

### ***LBA 1. Haylands – Mosaic of Grassland, Scrub and Woodland***

This site lies to the west of the reservoir shore and to the east of an active sand quarry. The site is flanked by a quarry to the west, mature wooded gardens to the south, pasture to the north and the NHA boundary and lake to the east. The site is split by a minor road leading to Crosscoolharbour and Kilbride. West of the road the site is a mosaic of dry grassland (GS3), scrub (WS1), mixed conifer/broadleaved woodland (WD2) and wet woodland (WN6). The habitats run approximately in this order from south west to north east (Plate 1). A grassland verge borders the quarry site at the top of a mound dominated by red fescue (*Festuca rubra*). Further east the grassland blends into willow (*Salix* spp.) scrub with alder (*Alnus glutinosa*) and occasional gorse (*Ulex europeaus*). The woodland is bounded by walls, suggesting previous management and contains a mix of native and non-native species, including conifers and broadleaves. The dominant conifer is fir (*Abies* sp.) and the dominant broadleaf is alder, with some very mature specimens of alder. Other broadleaved species included beech (*Fagus sylvatica*), poplar (*Populus* sp.) and pendunculate oak (*Quercus robur*). This wooded area also supports a diverse fungal biota. Further to the north of the site there is a wet area with a small stand of wet willow (*Salix* sp.) and alder woodland with an undergrowth of common reed (*Phragmites australis*) and sedges (*Carex* sp.) and occasional ash (*Fraxinus excelsior*). At the north west end of the site plantation forestry (WD4) is dominant. Rabbit and deer were evident, as were fox and badger. Sand martin burrows were seen on the quarry cliff faces.



**Plate 1: Photograph showing an overview of the different habitats in LBA 1. In the foreground is the edge of the quarry, thereafter is grassland, scrub and woodland, with the lake in the background.**

East of the road the site borders the NHA which is a wet woodland habitat along the shoreline of the lake. The habitat on site is mixed broadleaf and conifer woodland (WD2) and was recently felled of many of the conifers (WS5). Remaining trees on site include mature alder and ash and shrubs such as hawthorn and elder. The entire site has a variety of habitats of different ages and also a variety of species and is thus of high local value for biodiversity.



**LBA 2. Santryhill – Mosaic of Grassland, Scrub, Woodland and Reeds swamp**

The site at Santryhill has a varied topography and a broad number of habitats (Plate 2). The area is apparently remediated from previous quarrying operations. The grassland is dry (GS3) to wet (GS4) grassland, similar to that in LBA 1 with the addition of hard rush (*Juncus inflexus*) and more damp in places. Scrub (WS1) blends into mixed broadleaved and conifer woodland (WD2). The species diversity in young trees is more diverse and these are obviously planted judging from the mix of species and the exotic species present, such as black poplar and red alder. Species included ash, willow (*Salix cinerea*), sycamore (*Acer pseudoplatanus*), alder, birch (*Betula pendula*) and poplar (*Populus nigra*). Towards the east near the road the topography of the landscape is varied and there is a mix of sandy cliff faces, grassland, scrub and reeds swamp. The reeds swamp (FS1) is a small area and is dominated by bulrush (*Typha latifolia*). The cliff faces had holes that were suitable for sand martin. Rabbit and deer were evident on the site. This area is of high local value for biodiversity.



**Plate 2: Photograph showing the varied topography and habitat types in LBA 2, including bare cliff faces, recolonising scrub, young trees and grassland.**

**LBA 3. Deerpark – Mosaic of Woodland**

This is a large site on the border with county Kildare. It contains a mosaic of mature beech woodland with fir intermixed (WD2) and conifer plantations (WD4) dominated by fir and spruce. There is a small area of amenity grassland (GA2) around the monument on the top of the hill in the west of the site. On the western boundary of the site there is a treeline of mature oaks (*Quercus robur*). The woodland has paths throughout and is used by local walkers. Beech is non-native (Webb, 1996), but the size of this site and the maturity of the trees are of note (Plate 3). The beech woods in particular support a diverse fungal biota. Further north east in this complex, north of Blessington Demesne there are some very mature oak and some younger stands of oak. There are also some mature oaks on the boundaries of this site, in particular on the south eastern and northern boundaries. Due to the size of the area this site is of regional importance and is of high local value for biodiversity. The woodland is of high value for birds and mammals and the dead wood in particular is of high value for fungi and invertebrates.



**Plate 3: Photograph showing a portion of the mature beech wood in LBA 3.**

**LBA 4. Blessington Demesne - Wooded Grove**

This is a small wooded grove surrounded by pasture (Plate 4). The trees are mature with no regeneration of younger saplings or seedlings evident underneath. Trees present include pedunculate oak, sycamore and some hawthorn (*Crataegus monogyna*) understorey. The area is joined to the larger wood in Deerpark via a hedgerow, although this connection is severed by the construction of a recent road. Due to the maturity of the trees in this grove, the site has potential as a bat roost and it is also a small rookery. This area is of moderate local value for biodiversity and provides for shelter and feeding ground for mammals and birds.



**Plate 4: Photograph showing the wooded grove of broadleaved trees in LBA 4.**

**LBA 5. Blessington Demesne - Pond**

The pond (FL8) in the east of Blessington Demesne is used by, among others, gulls, mallard and heron. A recent algal bloom was evident and curled pondweed (*Potamogeton crispus*) dominated the water. The surrounds of the pond have been landscaped to the north with willow and alder and to the south with field maple (*Acer campestre*) and to the east with an evergreen shrub. The pond is an important freshwater site for the surrounding habitats and is of particular importance for feeding bats. Thus it is of moderate local importance for biodiversity.



**Plate 5: Photograph showing the pond with recently landscaped shore in LBA 5 and the recent development in the background.**

**LBA 6. Blessington Demesne - Stream**

The stream (FW1) is small, approx. 0.5 m wide and approx. 0.2 m deep. The water is slow moving and there is a gravel bed with silt deposits. The channel of the stream acts as a corridor between sites and forms part of a habitat network, however the sites demarcated on Figure 1 also compose of mature treelines and so are considered as a LBA in their own right. The river feeds the pond and there is an area of reedswamp downstream of the pond. The dominant plant downstream of the pond is brooklime (*Veronica beccabunga*), however, upstream of the pond along the stream is a line of mature oak and beech (WL2) over grassland pasture. This stream is likely to contain crayfish as the water in most of the streams surrounding Blessington is relatively hard and alkaline and thus suitable for crayfish. Further upstream of the mature trees this site is impacted by recent and future planned developments (as per plans from Wicklow County Council).

**LBA 7. Deerpark- Immature Woodland**

This area is remediated from quarrying activities. It is an area of immature woodland (WS2) and is composed of a plantation of young alder (~10 years old) over grassland. The grassland species include species such as cock's foot (*Dactylis glomerata*), creeping bent (*Agrostis stolonifera*), red fescue and crested dog's-tail (*Cynosurus cristatus*). Fungi such as ink-cap (*Coprinus* sp.) were also present. The mono-dominant stand of alder lacks diversity, but as shelter and foraging habitat for animals it is of moderate local ecological value. It also diversifies the area as the majority of the surrounding habitat is conifer plantation.

**LBA 8. Burgage-Wet Grassland and Willow Woodland**

The shoreline along the Burgage area is protected under the designation as an NHA (site code 000731). The main habitats along the shoreline are wet willow woodland (WN6) and reedswamp (FS1). Inside of the boundary of the NHA is a small area of wet grassland (GS4) and willow woodland and scrub surrounded by conifer plantation and recent conifer clearfell. The wet grassland was dominated by grasses such as cock's foot, creeping bent and red fescue. These wetland habitats along the NHA boundary provide a buffer for the NHA and tracks were evident throughout this site indicating use by mammals such as otter, badger and fox.



**Plate 6: Photograph showing willow woodland and scrub beyond the reedswamp/wet grassland in the foreground. The conifer clearfell area is located to the right of this area.**

***LBA 9. Glebe East - Wetland***

A small area of wetland that is not contained within the NHA boundary is located on the east of the reservoir at this site. The site is composed of conifer plantation (WD4) and reedswamp (FS1). Some of the conifer plantation has been recently felled (WS5). This site again acts as a buffer for the adjoining NHA as the surrounding land is primarily agricultural pasture.

***LBA 10. Blessington Town South***

At the southern end of Blessington at the intersection of the N81 and the R410 there is a small group of mature beech scattered on amenity grassland (WD5). There are approximately 17 mature trees in the area (estimate of 150 years old). Other tree species present included sycamore and whitebeam (*Sorbus* sp.), with some elder shrubs. Some of the beech support substantial ivy cover and are thus potentially important for bat roosts. Across the road to the south of the junction of the N81 and the R410 is a field of pasture surrounded by mature trees – including oak, beech and sycamore. While currently this site is of particular importance for the mature trees, there is excellent opportunity to develop this into a wooded park or green space for the town.



**Plate 7: Photograph showing the mature beech at LBA 10 at the south of Blessington town.**

## 2.7. **Habitat Networks**

One of the aims of this study was to identify where potential exists for habitat networks which link the Local Biodiversity Areas with each other and with nearby designated sites. This is important so as to prevent islands of habitat from being isolated entities. By definition such networks are composed of linear features that may provide corridors or stepping stones for wildlife species moving within their normal range. They are particularly important for mammals (in particular for bats) and small birds.

The habitat networks generally consist of treelines, hedgerows and rivers/streams. In general, the links between habitats in the study area are poor and the habitat networks are outlined on Figure 1. LBA 1 is connected to Blessington Lake but is bisected by a minor road. The connection to the lake is important for foraging mammals, including deer. A number of hedgerows act as a network linking LBAs 3 and 4. The stream running south of Blessington Demesne acts as a network for the pond and the mature trees upstream (LBA 6) of this pond. It also links into the northern end of LBA 3. This river is the only natural network in the study area and is of great importance in this respect, although it is a highly modified channel. Another important element to the network of habitats is the shoreline of Blessington lake. This is essential for connectivity along the lake and is also important for anglers access. At present the NHA boundary (marked in Figure 1) provides a buffer along the shoreline, but in places the shoreline is being eroded so existing fencing and boundaries are at risk.

## 3. **THREATS AND PRIORITIES**

There are two obvious threats to biodiversity maintenance and enhancement in the Blessington environs. First is infrastructural development such as housing and roads. Such development is inevitable due to increasing populations in the area. Increasing development and populations in the greater Dublin area are also likely to affect the levels of the reservoir and have knock-on effects to the surrounding wetland habitats in particular. Second, quarrying is an obvious threat to habitats, although there are excellent examples of remediation nearby current quarrying activities around Blessington (e.g. LBA 2).

### 3.1. **Threats from Infrastructural Development**

Residential, business and infrastructure development will always be a threat to biodiversity unless properly planned and mitigated against. Where development is being undertaken it is important to try to landscape appropriately with appropriate native species - for example in areas of pond and lake shore, species such as alder and willow should be used.

The proximity of Blessington town to the nationally important SPA of the Pollaphuca reservoir means that this SPA should be taken into account with developments or biodiversity related issues. As an example, Crowe (2005) cites conflicts with farming practices and grazing of Greylag Goose in the Blessington area. The geese feed on pasture and are sensitive to disturbance from shooting etc. (Crowe, 2005). Pollaphuca is important due to its numbers of waterfowl. However, increasing demand of the reservoir for water supply can lead to a decrease in the quantity of water and thus

reduction in the surrounding wetland areas. The reduction in wetland areas is a nationally important issue and is also important in light of the EU Water Framework Directive (Council Directive 2000/60/EC).

A major threat of infrastructural development is the degradation of networks or fragmentation of habitat. This is particularly noticeable in recent developments in the Blessington environs – for example a new road has severed links between LBA 3 and LBAs 4 and 5. These are good pockets of biodiversity interest, but they lack sufficient links to form a network. Networks provide corridors for transfer of animals and plants, without which there are isolated populations. Isolated populations are likely to suffer from inbreeding depression after prolonged isolation and thus decrease genetic fitness and adaptability over time. Thus future plans should take creation and enhancement of networks as a priority. In particular, the lakeshore should be maintained as a natural corridor as much as possible. At present the NHA boundary provides protection for the lake shore and this boundary should be buffered from future developments by maintaining green spaces, hedgerows and treelines.

Potential for networks exist in two areas in particular. First maintaining and enhancing links between LBA 1 and the reservoir shore (Figure 1). The reservoir itself and the shoreline is designated SPA and NHA. The shoreline contains scrub and wooded sections which provide cover and corridors for animal movement. Second, linking the freshwater pond and stream with LBAs 3 and 4 (Figure 1). This is of particular use to bats. Bats are likely to feed over the pond and along the stream and will roost in nearby trees, so linking these two sites would enhance habitat for bats.

### **3.2. Threats from Quarrying**

Use of surrounding land for quarrying activities has obvious effects on removal of habitats and pollution of surrounding areas from dust. Suitable mitigation against dust can counteract the pollution and this is obviously in place. Suitable remediation after quarrying can potentially enhance the biodiversity of the area, for example in the case of LBA 2 above. This site seems to have been remediated after quarrying and has great potential in terms of landscape and habitat diversity. The quarrying activity has provided varied topography onto which has been landscaped suitable and diverse habitat.

## **4. CONCLUSIONS AND RECOMMENDATIONS**

### **4.1. Conclusions**

This study has identified a number of Local Biodiversity Areas around the town of Blessington that are not already protected under national or international legislation. The sites identified contain a number of diverse habitat types that maintain a diversity of flora and fauna. The study has also identified where potential exists for habitat networks which link these LBAs with each other and with nearby designated sites. The vulnerability of these areas and networks varies depending on the types of threat to the habitats concerned. Enhancement and maintenance of networks is considered a priority in this area as infrastructural developments are already eroding the links between habitats.



## 4.2. Recommendations

In addition to statutory requirements with respect to the NHA/SAC/SPA of Pollaphuca Reservoir, the following issues should be taken into account in future development plans for Blessington and environs.

1. The Local Biodiversity Areas presented in this report should be considered in the Local Area Plan for Blessington. Areas identified as LBAs should be maintained where possible and the evaluation given in the table in Appendix 3 can be used for prioritizing.
2. Maintaining and enhancing the connectivity between the sites is encouraged, so as to form networks of habitat rather than isolated pockets. This can involve maintenance of interconnecting hedgerows, treelines and streams.
3. Maintain good water quality in the pond and stream (LBAs 5 and 6) around Blessington Demesne.
4. Levels of the Pollaphuca reservoir should be monitored to avoid loss of wetland habitat around the lake.
5. Consideration should be given to protecting the group of trees in LBA 4 under a statutory Tree Protection Order.
6. Sites remediated after quarrying activities were some of the most diverse areas in this study (e.g. LBA 2) and thus this remediation measures should be encouraged for future quarrying.

## 5. REFERENCES

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## APPENDIX 1. SITE EVALUATION SCHEME

<i>Rating</i>	<i>Qualifying Criteria</i>
A	<p><b>Internationally important</b> Sites designated (or qualifying for designation) as SAC* or SPA* under the EU Habitats or Birds Directives.</p> <p>Undesignated sites containing good examples of Annex I <u>priority</u> habitats under the EU Habitats Directive.</p> <p>Major salmon river fisheries.</p> <p>Major salmonid (salmon, trout or char) lake fisheries.</p>
B	<p><b>Nationally important</b> Sites or waters designated or proposed as an NHA* or statutory Nature Reserves.</p> <p>Undesignated sites containing good examples of Annex I habitats (under EU Habitats Directive).</p> <p>Undesignated sites containing <u>significant numbers</u> of resident or regularly occurring populations of Annex II species under the EU Habitats Directive or Annex I species under the EU Birds Directive or species protected under the Wildlife (Amendment) Act 2000.</p> <p>Major trout river fisheries.</p> <p>Water bodies with major amenity fishery value.</p> <p>Commercially important coarse fisheries.</p>
C	<p><b>High value, locally important</b> Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or significant populations of locally rare species.</p> <p>Small water bodies with known salmonid populations or with good potential salmonid habitat.</p> <p>Sites containing <u>any</u> resident or regularly occurring populations of Annex II species under the EU Habitats Directive or Annex I species under the EU Birds Directive.</p> <p>Large water bodies with some coarse fisheries value.</p>
D	<p><b>Moderate value, locally important</b> Sites containing some semi-natural habitat or locally important for wildlife.</p> <p>Small water bodies with some coarse fisheries value or some potential salmonid habitat.</p> <p>Any water body with unpolluted water (Q-value rating 4-5).</p>
E	<p><b>Low value, locally important</b> Artificial or highly modified habitats with low species diversity and low wildlife value.</p> <p>Water bodies with no current fisheries value and no significant potential fisheries value.</p>

\*SAC = *Special Area of Conservation*

SPA= *Special Protection Area*

NHA= *Natural Heritage Area*

## APPENDIX 2: SITE SYNOPSES FOR DESIGNATED AREA

### SITE NAME: POULAPHOUCA RESERVOIR

SITE CODE: 000731

DATE: 10th July, 1995.

Poulaphouca Reservoir is located south-east of Blessington, and extends into eastern Kildare - it lies at an altitude just below 190 m. The reservoir was created in 1944 by damming the river Liffey for the purpose of generating electricity from hydropower. The reservoir covers an area of approximately 20 square kilometres and is the largest inland water body in south-east Ireland.

The reservoir receives water from two main sources, the river Liffey which flows into the northern end, and the Kings river which enters at the southern end, near Lockstown. Underlying the reservoir are sands and gravels deposited during the last glaciation.

The shores of the lake are mostly sandy, otherwise the water washes against grassy banks which are generally less than 1 m high. In a few places there are steep sand and clay cliffs, up to 15 m high - these are remnants of the old river Liffey channel. In many places the banks are actively eroding, and a strip of conifers has been planted around much of the perimeter of the reservoir in an attempt to stabilize the banks and to reduce pollution.

Wet grassland areas occur in sheltered bays around the lake but especially in the northern part. Reed Canary-grass (*Phalaris arundinacea*) is the main grass, but other grasses, sedges and herbaceous plants characteristic of wet grasslands occur. These include Creeping Bent (*Agrostis stolonifera*), Meadowsweet (*Filipendula ulmaria*), Common Valerian (*Valeriana officinalis*), Yellow Iris (*Iris pseudacorus*) and Water Mint (*Mentha aquatica*). Sedges (*Carex* spp.) are locally common, as is Tufted Hair-grass (*Deschampsia caespitosa*) in the slightly drier areas. The mosses *Climacium dendroides* and *Fontinalis antipyretica* occur in areas subject to some inundation, while Willow scrub (*Salix atrocinerea*) is often found associated with the wet grassland.

Because it is a reservoir water levels fluctuate more strongly than in natural lakes. When the water level recedes, extensive areas of the reservoir floor are exposed and during the summer months these muddy areas become colonised by annual plants.

Many parts of the reservoir are bordered by dry grassy banks. The grasses present include Creeping Bent (*Agrostis* spp.), Cock's Foot (*Dactylis glomerata*) and Sweet-vernal Grass (*Anthoxanthum odoratum*). Other herbaceous plants are typically Common Sorrel (*Rumex acetosa*), Ribwort Plantain

(*Plantago lanceolata*), Common Ragwort (*Senecio jacobaea*) and Common Knapweed (*Centaurea nigra*). In places there is a good moss cover dominated by *Rhytidiadelphus squarrosus*. South of Poulaphouca dam is a dramatic steep-sided gorge, Poulaphouca Gorge, which now has a much reduced river flowing through it. The slopes of the gorge are covered with mixed woodland. Oak (*Quercus petraea*) is the main tree species, but Beech (*Fagus sylvatica*) and Ash (*Fraxinus excelsior*) are also found. A shrub layer is fairly well developed near the bridge and consists mainly of Holly (*Ilex aquilinum*) and Hazel (*Corylus avellana*). On the ground, Wood Rush (*Luzula sylvatica*) is abundant. There is a good cover of ferns, which include Soft Shield Fern (*Polystichum setiferum*), Hart's Tongue (*Phyllitis*

scolopendrium) and Broad Buckler Fern (*Dryopteris dilatata*), while among the mosses, *Thuidium* and *Polytrichum* species have a luxuriant growth.

The site extends southwards to include a stretch of the Kings River, a fine example of an acid mountain river strewn with granite boulders. The sandy river banks are known for the occurrence of the Mountain Pansy (*Viola lutea*), which only occurs in the south-east of Ireland and counties Clare and Cork.

The Winter Wetlands Survey in 1984/85 - 1986/87 showed Poulaphouca to be a nationally important site for Greylag Geese (average peak 308) and Mallard (average peak 869). Average peak counts for other species in the same period were Whooper Swan 55, Wigeon 407, Teal 353, Pochard 173, Tufted Duck 142, Lapwing 207 and Curlew 173. Since then, Greylag Geese numbers have increased, with a maximum count of about 750 in January 1994.

Up to seven pairs of Great Crested Grebe breed annually, as well as Snipe and Lapwing. Although this lake is of artificial origin, extensive areas of semi-natural habitats, especially wet grassland and scrub, have developed around parts of its margins. The site is an important inland waterfowl site, particularly for Greylag Geese. In addition to providing Dublin with a water supply, it is an important amenity resource. Care must be taken to ensure that the amenity activities are compatible with the important ecological value of the area.

**SITE NAME: RED BOG, KILDARE****SITE CODE: 000397****DATE: 13.06.2003**

Red Bog, Kildare is located 3 km north of the village of Blessington in east Co. Kildare, close to the boundary with Co. Wicklow. It comprises a wetland complex of lake, fen and bog situated in a hollow between ridges of glacially-deposited material and underlain by rocks of Ordovician age.

The site is a candidate SAC selected for transition mire, a habitat listed on Annex I of the E.U. Habitats Directive.

The shores of the lake are muddy and support such species as Bog Stitchwort (*Stellaria alsine*), Brooklime (*Veronica beccabunga*) and Soft Rush (*Juncus effusus*). Fringing the lakeshore is a narrow zone with emergent Soft Rush, Water-plantain (*Alisma plantago-aquatica*), Bottle Sedge (*Carex rostrata*), as well as the moss *Climacium dendroides*. In places, particularly at either end of the lake and along its south-eastern side, this zone grades into extensive areas of quaking scraw vegetation of dense Bogbean (*Menyanthes trifoliata*) and Marsh Cinquefoil (*Potentilla palustris*), accompanied by such species as Sharp-flowered Rush (*Juncus acutiflorus*), Cuckooflower (*Cardamine pratensis*), Marsh Speedwell (*Veronica scutellata*), Common Marsh-bedstraw (*Galium palustre*), Water Horsetail (*Equisetum fluviatile*), Common Sedge (*Carex nigra*), Common Spotted-orchid (*Dactylorhiza fuchsii*) and the mosses *Rhytidiadelphus squarrosus* and *Sphagnum squarrosus*. Bulrush (*Typha latifolia*) and areas of Willow scrub (*Salix* spp.) also occur in association with this vegetation.

The deeper water supports submerged aquatic plants such as Water-starwort (*Callitriche*) and Water-crowfoot (*Ranunculus* spp.), while in sheltered areas floating plants including Duckweed (*Lemna minor*) and the liverwort *Riccia fluitans* are found.

At the north-east end of the site bog vegetation has developed, with Ling Heather (*Calluna vulgaris*) and Hare's-tail Cottongrass (*Eriophorum vaginatum*) being the most frequent species. Other bog plants found here include Bog Asphodel (*Narthecium ossifragum*), Cross-leaved Heath (*Erica tetralix*), Tormentil (*Potentilla erecta*), Heath Wood-rush (*Luzula multiflora*), the mosses *Sphagnum palustre*, *S. capillifolium*, *S. subnitens*, *Hypnum cupressiforme*, *Polytrichum commune* and *Dicranum scoparium*, and the lichen *Cladonia portentosa*.

Red Bog is of ornithological significance and breeding birds recorded from the site include Mute Swan, Mallard, Tufted Duck, Coot, Moorhen, Snipe and Black-headed Gull (< 20 pairs).

Gravel extraction, drainage and eutrophication of the wetland from agricultural activities in the surrounding lands all pose a threat to the site.

Red Bog, Kildare is a site of particular conservation significance, supporting as it does, a good example of a transition mire, a habitat that is listed on Annex I of the E.U. Habitats Directive.

## APPENDIX 3: LOCAL BIODIVERSITY AREAS IN BLESSINGTON AND ENVIRONS

<i>LBA No.</i>	<i>Site name</i>	<i>Habitats present (Codes as in Fossitt 2000)</i>	<i>Evaluation</i>	<i>Vulnerability (threats)</i>
1	Haylands	GS3: Dry-humid acid grassland WS1: Scrub WD2: Mixed broadleaved/conifer woodland WD4: Conifer plantation WN6: Wet willow-alder-ash woodland WS5: Recently-felled woodland	C High local	Moderate: Exotic conifer species planted.
2	Santryhill	FS1: Reedswamp GS3: Dry-humid acid grassland GS4: Wet grassland WS1: Scrub WD2: Mixed broadleaved/conifer woodland	C High local	Moderate: Vehicular traffic and noise from quarry. Drainage may affect reedswamp and wet grassland habitats.
3	Deerpark	GA2: Amenity grassland WD2: Mixed broadleaved/conifer woodland WD4: Conifer plantation	C High local	Moderate: Harvesting of plantation forestry.
4	Blessington Demesne - Wooded Grove	WD1: Mixed broadleaved wood	D Moderate local	Moderate: Small isolated pocket of woodland.

<b>LBA No.</b>	<b>Site name</b>	<b>Habitats present (Codes as in Fossitt 2000)</b>	<b>Evaluation</b>	<b>Vulnerability (threats)</b>
5	Blessington Demesne - Pond	FL8: Artificial pond FS1: Reedswamp WS2: Immature woodland WS3: Ornamental/non-native shrubs	D Moderate local	Moderate: Agricultural runoff.
6	Blessington Demesne - Stream	FW1: Eroding upland river	C High local	Moderate to high: Pollution due to runoff from agriculture and roads Culverts without mammal ledges under roads.
7	Deerpark - Immature Woodland	WS2: Immature woodland.	D Moderate local	Moderate: Natural regeneration should reduce the dominance of alder.
8	Burgage	FS1: Reedswamp GS4: Wet grassland WD4: Conifer plantation WN6: Wet willow-alder-ash woodland WS5: Recently-felled woodland	D Moderate local	Moderate: Conifer dominance and leaching from plantation.
9	Glebe East	FS1: Reedswamp WD4: Conifer plantation WS5: Recently-felled woodland	D Moderate local	Moderate: Runoff from road and agricultural land.
10	Blessington Town South	WD5: Scattered trees and parkland	D Moderate local	Moderate: Felling due to safety, over management such as clearance of deadwood and removal of ivy.