Newbridge Demesne, Donabate, Co. Dublin

Woodland Inventory & Management Plan, 2022 – 2041



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1. Introduction

1.1 Background

Faith Wilson Ecological Consultant and Purser Tarleton Russell Ltd (PTR) were appointed by Fingal County Council to prepare a woodland management plan for Newbridge Demesne in Donabate, Co. Dublin.

Fingal County Council have commissioned a detailed woodland management plan for Newbridge Demesne to address the ecological, historical, educational and recreational issues present on the site. This management plan forms part of Action 47 of the draft Fingal Biodiversity Plan 2022-2030 which is to 'Prepare and implement woodland management plans in Fingal Demesnes and Parks'.

The plan will guide the woodland management efforts of the Council over the next 20 years to ensure the rejuvenation of woodlands whilst protecting and ensuring longevity of the existing woodlands.

Following some preparatory mapping and background research, a number of site visits were made by the project team (Faith Wilson, Paddy Purser & Niall O'Neill (PTR)). The overall management objectives of Fingal County Council were discussed and a site survey of the existing woodland compartments, habitats and potential areas for additional native woodland establishment were examined.

A vision for the woodlands in Newbridge Demesne was developed following an online workshop with representatives from Operations, Heritage, Parks and Green Infrastructure, Biodiversity and Climate Change in Fingal County Council and Alec Cobbe from the Cobbe Estate.

There are approximately 150 Hectares of parkland at Newbridge House, of which 45Ha is comprised of woodlands, located primarily towards the boundaries of the property. This has been sub divided, as part of this plan, across 18 Compartments which are illustrated on the attached maps.

The woods are largely deciduous in nature with some individual diverse conifers within Compartments, mainly Silver fir, European larch & a variety of pine species. There are a high number of individual "parkland" trees and small island plots of mixed deciduous species which were not recorded or mapped for this exercise as they are small and sporadic in nature and the management of these areas will be similar to the recommendations of the larger recorded Compartments.

All woods are characterised by generally flat topography on mineral soils, there are a wide range of species planted throughout which are broken into different structures and age classifications across each Compartment. A breakdown of this information can be found in the inventory and plan section. There has been very little by way of woodland management within Newbridge Demesne apart from expanding the area under woodland, arboricultural works driven by health and safety requirements and some recent cherry laurel clearance.

This plan sets out proposals for woodland management, which will help to restore the woodlands to a more sustainable structure for management over the next 20 years (2021-2040). It is the intention, that the woodlands should be managed using continuous cover forestry (CCF) silviculture, to ensure permanent forest cover and enhanced biodiversity.

This plan presents an overview of the woodlands with a generalised assessment of their ecological condition and related issues. This plan then sets out the woodland management objectives for Newbridge House and briefly describes the methodology used in preparing the plan. A number of high-level management notes and recommendations are then discussed. Maps of the proposed 18 woodland Plots are then presented. These are followed by the Woodland Inventory and Plan (**Appendix A**) presented in two stages, 2021 – 2030 and then 2031 -2040.

This plan has been developed for the woodland areas only and does not address any management requirements associated with individual parkland type trees, boundary trees or avenue trees.

1.2 Objectives

The overall woodland management objectives at Newbridge House are as follows:

- 1. Protect and enhance the existing landscape.
- 2. Protect and enhance woodland biodiversity.
- 3. Enhance the public amenity associated with the public park and recreation area.
- 4. Protect the privacy of the property and surrounds.
- 5. Identify and draw down funds available through government grant schemes that are compatible with the above forest management objectives and that support the management plan.
- 6. Generate revenues from timber sales associated with any harvests required to support the above forest management objectives.
- 7. Respect the historic and heritage value of old demesne woodland and tree planting.
- 8. Ensure that the structure and functions of the woodland from the perspective of woodland fauna (including bats, birds, non-volant mammals and butterflies) are met.
- 9. Improve the ground flora within the woodland.

In order to achieve these objectives it is proposed to implement a "continuous cover¹" management system using "close to nature²" management techniques resulting in a sustainable long term woodland ecosystem.

¹ A Continuous cover woodland management system is one in which the woodland canopy is maintained at all times and there is no requirement for clear felling and subsequent replanting.

² Close to nature management techniques involve either the use or mimicking of natural processes. Examples of this include encouragement of natural regeneration, succession, retention of standing deadwood, and the use of compatible shade tolerant and light demanding species.

1.3 Methodology

- 1. A new forest map has been prepared based on a stratification of woodlands into 18 separate Compartments. These have been digitised on QGIS and an area calculated for each.
- 2. An assessment of the overall forest area was made in the context of designated conservation and protection areas and other factors influencing forest management planning and practice.
- 3. An assessment of the current status of each Compartment was made in terms of woodland type and species.
- 4. For each Compartment, a 20-year management plan was prepared setting out an annual schedule of operations and identifying where grant assistance is available from the Forest Service in the Department of Agriculture, Food and the Marine.
- 5. Additional forest management notes and recommendations that are not specific to any individual Compartment were also prepared. These cover the following issues:
 - A vision for the Newbridge Demesne Woodlands
 - The Implications of Nature Conservation Designations
 - A proposed Deadwood Policy
 - Ash Dieback Disease
 - o Invasive Species
 - Felling Licencing & General Thinning Policy
 - Enrichment Planting
 - Humans Dogs & Impacts on Biodiversity
 - Control of Grey Squirrel
 - Forest Service Schemes
 - Specific Biodiversity Prescriptions
- 6. Three sample plots were taken in which detailed assessments were made of woodland structure, species composition, health, regeneration, deadwood, ground flora and other baseline sustainability indicators. The results of these sample plots are presented in **Appendix B**.

2. Receiving Environment

2.1 Site Information

Newbridge Demesne is located on the edge of Donabate Village in north County Dublin. The extent of Newbridge Demesne under the ownership of Fingal County Council is shown by the yellow line boundary on **Figure 1**.



Figure 1. Newbridge Demesne is bounded to the north, west and south by local roads lands under agricultural use (including a former pitch and putt course) and to the north east and east by Donabate village and associated housing developments.

2.2 History of the Demesne

Newbridge House was built by the Cobbe family in the mid-1700s. In 1717, Charles Cobbe (1686-1765) came to Ireland as private secretary and chaplain to his kinsman Charles Paulet, 2nd Duke of Bolton and Lord Lieutenant of Ireland. Cobbe began purchasing lands on the Donabate peninsula in 1736 and commissioned the celebrated architect James Gibbs in 1744 to design a plan for the rebuilding of Newbridge House. Work began in 1747 and Newbridge is Gibbs's only executed work in Ireland.

After passing through the Cobbe family throughout the centuries, the family gave the house and sold the demesne to Dublin County Council (now Fingal County Council) in 1985, entering into a rare agreement under which the historic family-owned pictures, furniture, chattels and documents, are kept *in situ* whilst the Cobbe family remains in residence. As a result of this agreement, the interiors of Newbridge House are remarkably complete and amongst the best preserved in Ireland.

The entire property extends to approximately 400 acres and includes the main house, outbuildings and yards, a walled garden, the ruins of Lanistown castle, an old lime kiln, the River Pill and an extensive area of parkland and mature woodland.

The Newbridge House and Demesne Conservation Plan prepared by Fingal County Council and CONSARC Conservation Consultants in 2019 reported the following in relation to landscape and ecology:

2.1.1 Landscape and Ecological Significance

The landscape at Newbridge was laid out in the mid-18th century and is one of the earliest examples of the naturalised landscape that was fashionable from 1750 to 1790. It is a genuine and very important 18th-century designed landscape.

The scale of the demesne is that of the gentry rather than the aristocracy. The house is at the centre of the designed landscape. Many of the original features remain intact, including woodland, parkland, deer park (reinstated), ornamental water feature, bridge, lime kiln, entrance gates and boundaries. Other features include the River Pill and Lanistown Castle, a ruined tower house. The original boundaries remain intact and almost unchanged since it was first laid out.

While other designed landscapes may have been more important in terms of design and scale, they have lost their significance due to alterations and loss of integrity. Newbridge is the only intact example of an 18th-century designed landscape to survive unaltered in Dublin and is only one of a small number remaining in the country. Its significance is further increased because of the fact that there are maps and surveys surviving of the demesne, including: the survey for James Ford in 1705, showing the previous formal landscape; a survey by Kendrick in 1747, before the designed landscape was laid out; and a survey by Charles Frizell of the completed designed landscape in 1776.

The demesne has changed little over its lifetime. It remained in the ownership and management of the Cobbe family and was not let or leased to others.

The land was reclaimed and so not of particularly high quality, especially as it is subject to flooding, so it was not particularly profitable for tillage. Neither was the estate subject to improvements, due most likely to declining wealth from the late 19th century into the 20th century. This helped to keep it intact.

'Newbridge now survives as the only truly intact & unaltered example of a large 18th-century designed landscape in the county of Dublin – it is wonderful to think that for over 230 years this landscape has hardly changed.'

The walled garden is contemporary to the designed landscape and is impressive at five acres. It is one of the largest intact walled gardens in the country and while underutilised at present has immense potential. It retains its enclosing walls and contributes to the story of the demesne. It would merit the reestablishment of a plant collection.

Built features in the landscape that form part of its use as pleasure grounds in the 18th century, such as the lake, hermitage, ha-ha and avenues, are worthy of repair, restoration and interpretation for the public.

The tree collection on the estate is also of significance, with some trees even predating the designed landscape. There are a number of particularly significant trees, including the *Quercus ilex* (holm oak). The ongoing development of the collection would enhance its significance.

The ecology of the estate, in particular the meadow grassland, is of substantial ecological importance and was judged to be in the top twenty of over 800 semi-natural grassland sites surveyed in a 2010 study for the National Parks and Wildlife Service'.

2.3 Nature Conservation Designations

Newbridge Demesne is not currently designated for any nature conservation purposes under either international or national conservation legislation.

Newbridge Demesne is located between the Rogerstown Estuary SAC/SPA, which is located 670m to the north of the demesne and the Malahide Estuary SAC/SPA, which is hydrologically connected to the demesne by the Pill River and is located 750m south east of the demesne as shown on **Figure 2**.



Figure 2. Designated sites in close proximity to Newbridge Demesne (indicated by the red arrow).

2.4 Soils and Geology

The soils of Newbridge Demesne are described as a fine loamy drift with siliceous stones, and are underlain in the northern and western parts by Argillaceous dark-grey bioclastic limestone, subsidiary shale and in the southern and eastern parts by Sandstone, conglomerate & siltstone (in places extends into the Carboniferous) – see **Figure 3**. This bedrock of Argillaceous bioclastic limestone and shales is known as the Malahide Formation.





Figure 3. Underlying geology of Newbridge Demesne (Source: Geological Survey Ireland).

2.5 Watercourses and Hydrology

Newbridge House and Demesne is located within the Nanny-Delvin catchment in Hydrometric Area 08 and in the Ballough [Stream] Sub-Catchment (SC_010). The Pill River (Turvey 0_10) flows through the Demesne. Water samples are taken from the river just below the main vehicular bridge entering the demesne as shown on **Figure 4** and water quality within this watercourse is currently classified as 'Poor' (i.e. Q 3).



Newbridge Demesne, Woodland Management Plan - 2022 - 2041

Figure 4. Water quality within the Pill River is currently 'Poor'.

The Pill River is listed as a watercourse 'At Risk' of not achieving 'Good Water Status' under the Water framework Directive. The Pill River links the demesne to the Malahide Estuary, which is designated as an SAC and SPA. A series of drainage ditches which run through the woodlands and shelterbelts drain to this watercourse. The modelled extent of land that might be flooded by the Pill River in the demesne is shown on **Figure 5** and there has been reoccurring flooding on Cobbe's Lane along the western side of the demesne.



Figure 5. Indicative flood zone of the Pill River within Newbridge Demesne (Source: www.floodinfo.ie).

2.6 History of Woodland on the Site

The park is surrounded by shelterbelts of mixed woodland with Beech, Pedunculate Oak, Elm, Sycamore, Scots Pine, Yew, Horse Chestnut, Sliver Fir, Lime, Alder, Holly, Birch, Ash, Grey Willow, Field maple, Hornbeam, Wild cherry and Hazel. These were established as Demesne Woodland with the primary objectives of providing privacy for the property, beautifying the landscape and providing an amenity for the owners as is indicated by the network of old woodland paths and ponds shown in **Figures 6, 7 & 8**. While timber harvesting will have taken place over the years, it would not have been significant and there is no obvious indication of an organised forest management system. Significant drainage / cultivation was used to improve the options for a broader range of species, particularly in the areas along the River Pill and its flood zone (Figure 5). It is unclear whether these were established at the time the Estate was laid out or if they were added later. The Pill River itself, which flows through Newbridge Demesne, has been modified / canalised slightly as part of the 17th century landscaping works.

A number of fine specimen trees occur in the open parkland. The general layout of the demesne remains generally unchanged since the First Edition of the Ordnance Survey of Ireland 6" mapping as shown on **Figures 6 & 7** with some recent additional planting completed by the Parks Department of new shelterbelts – primarily along the southern, western and north western boundaries – this can be seen on **Figure 10**.



Figure 6. Parkland and woodland at Newbridge Demesne in the 1840s (Source: OSI 6" Mapping First Edition).



Figure 7. Parkland and woodland at Newbridge Demesne in the 1840s (Source: OSI 6" Mapping First Edition – colour version).



Figure 8. Parkland and woodland at Newbridge Demesne in the early 1900s (Source: OSI 6" Mapping Second Edition) – note the network of paths throughout the woodlands.



Figure 9. Parkland and woodland at Newbridge Demesne in the early 1900s (Source: OSI 25" Mapping).



Figure 10. Areas of new planting within the demesne (Source: Google Maps Imagery)

2.7 Previous Woodland Surveys

2.7.1 Fingal Woodland Study by Kelly and McCourt 2008

The woodlands in Newbridge Demesne were previously surveyed as part of a wider study of woodlands in Fingal County by Kelly and Mc Court (2008). They reported the following:

2.5.1 Newbridge (Donabate)

The canopy of Newbridge woodlands is generally dominated by Ash and Sycamore, but Ash sometimes also occurs with Beech and the occasional Pedunculate Oak (Q. robur) in older parts of the wood in concurrence with a few other native and non-native trees. In the south-eastern corner, in particular, are some very large old Ash, Pedunculate Oak and Beech; some of the Beeches measure greater than 5 metres in circumference. Understory trees include Wych Elm and abundant saplings of Beech and Sycamore. Holly is infrequent and local, while planted Yews are found mainly in the woodland nearest to the estate house. Invasive Cherry-laurel and Snowberry, also found mainly near the house, may dominate areas of the shrub layer to the exclusion of all else. In common with Ardgillan, other laurel-leaved evergreens have been planted along paths in the wood, with Aucuba japonica being the most widespread. The field layer is very poor, with abundant Ivy and Bramble, as well as nutrient-loving species such as Urtica dioica, Heracleum sphondylium, and Rumex sanguineus. Ferns (Polystichum setiferum, Phyllitis scolopendrium, Dryopteris spp.) are also common, while a few woodland species such as Primrose (Primula vulgaris), Herb-robert (Geranium robertianum), Lesser Celandine (Ranunculus ficaria), Enchanter's Nightshade (Circaea lutetiana), Lords-and Ladies (Arum maculatum) and Wild Garlic (Allium ursinum) are also found scattered throughout the wood where evergreen shrub and ivy cover are thin.

In the western part of the demesne, where the ground is often saturated at any month of the year and standing water is so frequent that drainage channels have been cut in the past, species typical of saturated soils occur with lower densities of Ash and Sycamore. These flood-tolerant species include Alder (Alnus glutinosa), Yellow-flag (Iris pseudacorus), Water-Cress (Rorippa nasturtium-aquatica), Wild Angelica (Angelica sylvestris) and Carices (Carex pendula, C. remota). The most commonly encountered bryophyte at Newbridge is Thamnobryum alopecurum which, as elsewhere over limestone-derived soils in Fingal, forms dense mats on the woodland floor. Due to the abundance of old timber, deadwood is frequent in the woodland and supports a diverse population of fungi, including some uncommon species (H. Fox, pers. comm)'.

In their individual site discussions and recommendations Kelly and Mc Court (2008) set out the following:

5.9 Newbridge Demesne

As at Malahide, the woodland at Newbridge is a long and relatively narrow, ornamental wood planted to serve both as adornment and the boundary of the demesne. Also like Malahide, the demesne is frequently visited by the public and woodland paths often see heavy use. Unlike Malahide however, the trails do not make a circuit through all of the wooded areas of the demesne, and some harder-toaccess areas are seldom visited. Relevé placement within the wood was therefore easier than at Malahide. With the exception of a few apparently self-sown Ashes, nearly all of the trees at Newbridge have been planted, including some Beeches and Pedunculate Oaks (Q. robur) of great size and antiquity. The shrub layer is planted in the wood near the main house, but natural at the perimeters, with Elder and lvy being the most common species. The abundance of Elder may also be indicative of nutrient-rich soils. The herbaceous woodland flora at Newbridge is rather impoverished, with few woodland specialists. Failed attempts have been made in the past to introduce (or re-introduce?) some common woodland herbs such Anemone nemorosa and Hyacinthoides non-scripta to enhance the beauty and biodiversity of the woodland (Murphy, P., Tiernan, D. pers. comm.). The reason for failure is probably the result of too much shading by the abundant evergreen shrubs and trees and the dense woodland canopy. In spite of the artificiality of the woodland and the relative poverty of its herbaceous flora, it is worth protecting for the many types of fungi found in the woods as well for its abundant birds and mammals. While current plans to restore the grounds and woodlands to their original 18th century layout (Murphy, P. pers.comm.) might preclude any recommendations for woodland alteration, some measures to enhance woodland plant biodiversity can be added. These include coppicing parts of the woodland, using native plants in any new plantings, thinning dense stands and removing all exotic evergreens. Cherry-Laurel, in particular, should be removed completely.

Further recommendations are listed below.

- Removal of all Cherry-Laurel, Cotoneaster, Snowberry and other exotic and potentially invasive shrubs (especially evergreen shrubs) from woodland areas.
- Explore possibility of coppicing younger areas of the wood as a means for future management of the wood and maximising its biodiversity potential.
- Allow the natural expansion of woodland and margins by leaving wide, unmown areas adjacent to the wood or hedge (at least 1.5 times as wide as the height of the surrounding trees) or creating gaps within the wood for succession by shade-intolerant species to occur. The circular and moated island wood in the central part of the demesne may benefit most from this treatment as wind-throw appears to be problem and well-developed wood margin would reduce wind shear'.

2.7.2 National Parks and Wildlife Service National Native Woodland Survey

Some of the areas of woodland present on the site in the 1840s have been mapped by National Parks and Wildlife Service in the National Native Woodland Survey (See **Figure 11**) and have been included in the Ancient and Long Established Woodland dataset (see **Figure 12**).

The results of the National Native Woodland Survey of Ireland conducted by National Parks and Wildlife Service (Site Code: 0916 and 0917) in Newbridge Demesne are presented on **Figures 13** and **14**.



Figure 11. Woodland areas in Newbridge Demesne surveyed as part of the National Native Woodland Survey of Ireland conducted by National Parks and Wildlife Service.



Figure 12. Woodland in Newbridge Demesne mapped as Ancient and Long Established Woodland by National Parks and Wildlife Service.

Site no. 0916 FIPS no. 40940	Site no. 0917 FIPS no. 05385				
Date surveyed 24/06/2005	Date surveyed 28/06/2005				
Woodland name Newbridge Demesne Townland name Newbridge Demesne	Woodland name Pumphouse Wood Townland name Newbridge demesne				
Conservation rating and score Moderate 42 Threat rating and score High 42	Conservation rating and score Poor 36 Threat rating and score Moderate 33				
Disco. map 50 Grid ref. 0210499 6 inch sheet DU 12 County Dublin	Disco, map 50 Grid ref. 0223498 6 inch sheet DU 12 County Dublin				
NPWS region North Eastern NHA code - SAC code - SPA Code -	NPWS region North Eastern NHA code - SAC code - SPA Code -				
National Park Nature Reserve Woodland present in the 1840s Yes	National Park Nature Reserve Woodland present in the 1840s Yes				
Ownership Local Authority Area (ha) 11.3 Max. alt. (m) 9 Min. alt. (m) 5	Ownership Local Authority Area (ha) 4.4 Max. alt. (m) 7 Min. alt. (m) 5				
Sub-soil A/TLs Soil AlluvMIN/BminDW/BminPD	Sub-soil A/TLs Soil AlluvMIN/BminDW/BminPD				
Geography Woodland habitats Grazing Hydrological features	Geography Woodland habitats Grazing Hydrological features				
Esker WN1 0% Deer Seasonal flooding	Esker WN1 0% Deer Seasonal flooding				
Drumlin WN2 0% Cattle Springs	Drumlin WN2 0% Cattle Springs				
Valley WN3 0% Sheep Lakes	Valley Va				
Lakeside WN4 0% Rabbits Rivers/streams	Lakeside WN4 0% Rabbits Rivers/streams				
Bogland WN5 0% Hares Damp clefts/ravines D	Bonland D MNIS Dog Hares D Damp defts/ravines				
Hill WN8 0% Goats Other Ditch	Hill D MNR Dog Goats Other Drainage ditch				
Plain/Lowlands V WN7 0% Horses					
Island WS1 0% Other	Island D with Day Other				
Riverside/Floodplain WD1 100% Grazing level 0	Biverside/Eloodolain				
Coastal/Estuary WD2 0%					
Other habitate	Coastairestuary WD2 U%				
	Other habitats				
Field notes External data source: not all data recorded	Field notes External data source: not all data recorded				
Ince or modified woodland 2 km west or Donabate. Ine canopy is dominated by pedunculate oak (Quercus robur), ash (Fraxinus excelsior) and sycamore (Acer pseudoplatanus) with hawthom (Crataegus monogyna), wych elm (Ulmus glabra) and elder (Sambucus nigra) beneath. Beech (Fagus sylvatica) is occasional and there are some regenerating confiers present: largely European silver-fir (Abies alba). The field layer is dominated by Publus frutioosus. Filipendula ulmaria, Hedera helix and Polystichum setferum. The soil is slightly gleyed. There are several exotic shrubs present but none are currently problematic. Despite its modified nature the site is one of the most native stands in Fingal County Council, which would benefit from some minor management.					
igure 13. National Native Woodland Survey of Ireland site report for lewbridge Demesne (0916) Figure 14. National Native Woodland Survey of Ireland site report for Newbridge Demesne (0917)					

2.7.3 Consarc, Conservation Consultants (2019). Newbridge House and Demesne – Conservation Plan.

The Newbridge House and Demesne – Conservation Plan prepared by Consarc Conservation Consultants in 2019 for Fingal County Council included several observations and comments in relation to the Brownian designed landscape, varieties of trees planted, locations and additional plantings. These are summarised below with the appropriate page number of the plan and were duly considered in the development of this woodland management plan.

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A number of inappropriate commemorative trees have been introduced into the landscape on the fringes of the woodland. They are inappropriate in that they are historically incorrect species or varieties, they do not form part of the original designed landscape and would not have been available at the time of planting. The presence of such trees is a distraction from the designed landscape and may create confusion in interpretation. Such trees, if allowed to continue to grow in these locations, will be a corruption of the Brownian designed landscape. An audit of the recently introduced trees and plants should be undertaken. Where practicable, they should be transplanted in the dormant season to another location or replaced with a different type of tree.

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Landscape

- Remove unwanted vegetation and ivy from trees.
- Clear vegetation from River Pill.
- Clear overgrown vegetation from the pond and island to make the area accessible.
- Thin out coppices where seedlings have grown.
- Relocate inappropriate tree species recently planted.

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2.7.4 Landscape and Ecological Significance

The landscape at Newbridge was laid out in the mid-18th century and is one of the earliest examples of the naturalised landscape that was fashionable from 1750 to 1790. It is a genuine and very important 18th-century designed landscape.

The scale of the demesne is that of the gentry rather than the aristocracy. The house is at the centre of the designed landscape. Many of the original features remain intact, including woodland, parkland, deer park (reinstated), ornamental water feature, bridge, lime kiln, entrance gates and boundaries. Other features include the River Pill and Lanistown Castle, a ruined tower house. The original boundaries remain intact and almost unchanged since it was first laid out.

While other designed landscapes may have been more important in terms of design and scale, they have lost their significance due to alterations and loss of integrity. Newbridge is the only intact example of an 18th-century designed landscape to survive unaltered in Dublin and is only one of a small number remaining in the country. Its significance is further increased because of the fact that there are maps and surveys surviving of the demesne, including: the survey for James Ford in 1705, showing the previous formal landscape; a survey by Kendrick in 1747, before the designed landscape was laid out; and a survey by Charles Frizell of the completed designed landscape in 1776.

The demesne has changed little over its lifetime. It remained in the ownership and management of the Cobbe family and was not let or leased to others.

The land was reclaimed and so not of particularly high quality, especially as it is subject to flooding, so it was not particularly profitable for tillage. Neither was the estate subject to improvements, due most likely to declining wealth from the late 19th century into the 20th century. This helped to keep it intact.

'Newbridge now survives as the only truly intact & unaltered example of a large 18th-century designed landscape in the county of Dublin – it is wonderful to think that for over 230 years this landscape has hardly changed.'

The walled garden is contemporary to the designed landscape and is impressive at five acres. It is one of the largest intact walled gardens in the country and while underutilised at present has immense potential. It retains its enclosing walls and contributes to the story of the demesne. It would merit the reestablishment of a plant collection.

Built features in the landscape that form part of its use as pleasure grounds in the 18th century, such as the lake, hermitage, ha-ha and avenues, are worthy of repair, restoration and interpretation for the public.

The tree collection on the estate is also of significance, with some trees even predating the designed landscape. There are a number of particularly significant trees, including the *Quercus ilex* (holm oak). The ongoing development of the collection would enhance its significance.

The ecology of the estate, in particular the meadow grassland, is of substantial ecological importance and was judged to be in the top twenty of over 800 semi-natural grassland sites surveyed in a 2010 study for the National Parks and Wildlife Service.

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The trees and shrubs in the area of screen or shrubbery ('Srubery' on Frizell) inside the south boundary have a large amount of unwanted seedling growth and unattractive and damaging ivy growth. There is evidence on the Frizell map that a perimeter path existed close to the boundary wall through this area. Re-establishment of the path would augment walking routes for the public.

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Botanical Collection

No up-to-date tree survey appears to be available and there does not seem to be a programme of annual and bi-annual arboricultural maintenance. Most tree work seems to be as a consequence of storm damage or for health and safety reasons.

No programme of replacement trees of the correct species exists.

An undesirable practice of planting inappropriate tree species in inappropriate locations has developed.

Some areas of woodland and coppice trees are in decline'.

2.7.4 Newbridge Demesne, Donabate, Co. Dublin – 2021 Ecological Study

As described by Wilson et al. (2022) and mapped on Figure 15 the woodlands of Newbridge demesne consist of the following:

'Treelines, Shelterbelts and Woodlands WL2/WD1/WD2

As is characteristic of the large estates established in the 18th and 19th centuries, a mixture of planted woodland and shelter belts, in the form of Treelines WL2, are common features. In some cases existing areas of native woodland or scrub had been under planted with both native and exotic trees or/and open areas of low scrub and grassland had been planted. In time, most of these areas would have been invaded by native herbaceous species and in places, alien species originally planted for garden purposes. An example of this is seen in the extensive occurrence of Pendulous sedge and Sycamore. Consequently, the woodland can be characterised as a mixture of native species planted and natural, exotic species of trees and shrubs and weedy species of an alien nature. The current condition of these areas of woodland on the estate has been very much dependent on the management - if any - and the level of disturbance these have been subjected to.

For example, the areas nearest to the house and the car park are the most heavily used in terms of people pressure and so are crisscrossed with tracks throughout. To a degree this has resulted in the spread of a number of aliens such as Snowberry and Pendulous sedge. To this must be added the planting of non-native species such as Daffodils and Spanish bluebells. The result is a very mixed woodland of Hornbeam, Horse chestnut, Wild cherry, Beech, some very large; shrubs of Snowberry & Elder. The control or elimination of the exotics here is desirable.

Elsewhere in the Demesne, the alien elements are less in evidence and native species such as Silver birch, Wild cherry and Alder with Hairy brome, Common bent and Ivy are more dominant. The more planted areas of Pedunculate oak, Rowan and Beech with Dog rose are more recent but the Beech is not thriving. In places the presence of Cherry laurel is a feature and its spread should be contained and if possible the trees removed'.



Figure 15. Woodland habitats were mapped as part of the wider ecological survey of Newbridge Demesne in 2021 Wilson *et al.* (2022).

This study also noted the presence of several invasive species as follows:

'Invasive Species

Several species listed under the Birds and Natural Habitats Regulations 2011 were recorded in the wider environs of the demesne. These included Rhododendron (Rhododendron ponticum), Giant hogweed (Heracleum mantegazzianum), Spanish bluebell (Hyacinthoides hispanica) and Japanese knotweed (Fallopia japonica).

Species recorded within the demesne (outside of the gardens) which are threatening (or have the potential to if unchecked) the biodiversity of the woodland habitats include Cherry laurel (Prunus laurocerasus), Snowberry bush (Symphoricarpos alba), Winter heliotrope (Petasites fragrans), Red osier-dogwood (Cornus sericea), Buddleia bush (Buddleia davidii), Himalayan honeysuckle (Lonicera nitida), Blackcurrant (Ribes nigrum), Gooseberry (Ribes uva-crispa), Pendulous sedge (Carex pendula), Ground elder (Aegopodium podagraria), and Mock orange (Philadelphus coronarius).

These species are often widespread within the woodlands and would be considered to be negatively impacting these wooded areas and in need of a dedicated eradication/control strategy'.

Fungi

A detailed survey of the fungal diversity of Newbridge Demesne was completed in 2006 (Cullen & Fox, 2006), which recorded 134 species of fungi, 40 lichens and 3 lichen parasites, with 348 records were made in total. The study mostly focused on the woodland habitats noting that important host tree species included Oak, Beech, Willow, Horse Chestnut, and Walnut. The study also noted that the sense of continuity from the eighteenth century of parkland and its management is important in the diversity of the site.

Birds

The woodlands of Newbridge Demesne were surveyed in 2006 as part of a wider survey of woodland birds in Fingal (Merne & Roe, 2006). This survey recorded 34 species within the demesne as shown on **Table 1** below. These species are all associated with the woodland habitats of the demesne and the majority of them breed within same (the little egret and heron being associated with the trees surrounding the pond in front of the main house).

Table 1. Woodland Birds of Newbridge Demesne (Merne & Roe, 2006).

Grey Heron	Wren	Goldcrest	Rook
Little Egret	Dunnock	Long-tailed Tit	Hooded Crow
Sparrowhawk	Robin	Coal Tit	Starling
Buzzard	Blackbird	Blue Tit	Chaffinch
Kestrel	Mistle Thrush	Great Tit	Greenfinch
Pheasant	Song Thrush	Treecreeper	Goldfinch

Stock Dove	Blackcap	Jay	Bullfinch
Wood Pigeon	Chiffchaff	Magpie	
Long-eared Owl	Willow Warbler	Jackdaw	

More recent surveys have confirmed the presence of barn owl within the demesne (Wilson, Curtis, Keeley & Mullen 2022).

Bats

The woodlands at Newbridge House Demesne support a series of mammals and recent studies indicate that they are of high importance for bats in particular with five species of bats recorded to date (Wilson, Curtis, Keeley & Mullen 2022).

These are as follows:

- Soprano pipistrelle Pipistrellus pygmaeus
- Common pipistrelle *Pipistrellus pipistrellus*
- Leisler's bat Nyctalus leisleri
- Brown long eared bat Plecotus auritus
- Daubenton's bat Myotis daubentonii

All of these species are known to roost in trees so the retention of large mature trees with standing deadwood, hollows, crevices, cracks and dense ivy is of importance for their conservation.

Other Mammals

A variety of mammals have been recorded from the woodlands within Newbridge Demesne (Wilson, Curtis, Keeley & Mullen 2022). These include; Grey squirrel (*Sciurus carolinensis*), Brown rat (*Rattus norvegicus*), House mouse (*Mus musculus*), Badger (*Meles meles*), Fox (*Vulpes vulpes*), and Rabbit (*Oryctolagus cuniculus*) with Stoat (*Mustela erminea hibernica*), Hedgehog (*Erinaceus europaeus*), Wood mouse (*Apodemus sylvaticus*) and Pygmy shrew (*Sorex minutus*) also likely (Wilson, Curtis, Keeley & Mullen 2022). There does not appear to be any badger setts within the demesne.

2.8 Current Survey

The current surveys coupled with those previously conducted (Kelly and Mc Court (2008) and Wilson, Curtis, Keeley & Mullen (2022) have reconfirmed the man-made origin of the woodlands within the demesne. As noted by Kelly and Mc Court (2008) estates such as Newbridge were constructed during the heyday of the 18th century fashion for wooded demesnes and were probably planted on lands that had been

formerly cleared of woodland. Whilst a natural component of native species are present in the woodlands in terms of canopy species this is not reflected in the ground flora which is extremely poor and lacking many woodland specialist species.

The locations of relevés, which were previously made by Kelly and Mc Court (2008) (N E W $_$ W 0 1, N E W $_$ W 0 2, N E W $_$ W 0 3, and N E W $_$ W 0 40) are not detailed in the report and were unavailable. It was therefore not possible to compare/review the results of this survey directly with them but a cursory look at the species listed for them found no significant differences in species composition since that survey was completed. Those relevés pointed to the depauperate nature of the woodland flora in Newbridge as shown in **Table 2** below.

Table 2.	Species richnes	s for Newbridge	Demesne. (Kelly	y and Mc Court (2008)).
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Woodland Site	Area of Woodland (km²)	No. of relevés	Mean no. of species per relevé (100m ²)	Mean no. of woody species per relevé (100m ²)	Mean no. of herb species per relevé (100m²)	Mean no. of alien species per relevé (100m²)	Mean no. of native species per relevé (100m ²)	Mean no. 'ancient woodland' species (per 100m ²)* (based on Woodland Trust data)
Newbridge Demesne	0.267	4	12.75	7.5	5.25	2.75	10	2

A woodland of natural origin would contain a number of woodland indicator/specialist species such as Toothwort (*Lathraea squamaria*), Wood Millet (*Milium effusum*), Wood Melick (*Melica uniflora*), Thin-spiked Wood Sedge (*Carex strigosa*), Ivy Broomrape (*Orobanche hederae*), and woodland species associated with woodland margins, rides or coppice rotations such as Bugle (*Ajuga reptans*), Wood anemone (*Anemone nemorosa*), Ground ivy (*Glechoma hederacea*), Bluebells (*Hyacinthoides non-scripta*), or Wood sanicle (*Sanicula europaea*).

Previous Management Recommendations for the Woodlands

There are currently no specific management recommendations in place for the various blocks of woodlands in Newbridge Demesne apart from those general recommendations outlined in the previous studies (Kelly and Mc Court (2008), CONSARC (2019) and Wilson, Curtis, Keeley & Mullen (2022).

To date any active woodland management on the ground has been generally driven by health and safety requirements. Trees within the demesne in the vicinity of roads and public areas are subject to regular assessments by a qualified arborist on the basis of which tree surgery/remediation works are conducted.

3. General Recommendations

3.1 Vision for the Newbridge Demesne Woodlands

The vision for the woodlands in Newbridge Demesne is that they are rich in wildlife, protected, healthy and resilient to climate change and managed in a way which upholds the historic, heritage and ecological value of the original demesne woodland so they can be safely enjoyed by the present and future generations.

3.2 Implications of Nature Conservation Designations

Newbridge Demesne is located within the 3km referral layer for the National Parks & Wildlife Service (NPWS) to assess any proposed forestry operations and is hydrologically connected to the Malahide Estuary. Therefore any forestry operations in Newbridge must be carried out with the potential for downstream impact of the estuary in mind, particularly in the Compartments which the Pill River flows through.

Both SPAs and SACs in Ireland are counted as Natura 2000 sites, a European network of important habitats. This means that all woodland plans, including Native Woodland plans, are subject to a Natura Impact Assessment to be carried out by a qualified ecologist. It is recommended that a single Natura Impact Statement (NIS) be prepared for this forest management plan which can then be repeatedly used with any individual applications for felling, native woodland planting etc.

All Natura Impact Statements are expected to assess the cumulative or combination effect of plans / operations occurring within a 15km radius of the SAC/SPA in question. By conducting a Natura Impact Statement, it allows for a more rigorous assessment of the potential for ecological degradation due to operations individually or collectively. This information provides the basis for implementing an operational plan, including mitigation measures to ensure good practice and protection of important habitats and species.



Figure 16: Malahide Estuary Special Protection Area (SPA) / Special Area of Conservation (SAC) in pink/blue overlapped hatching (Site Code 004025) to the south. Rogerstown Estuary SPA/SAC to the north (Site code 000208) in pink/blue overlapped hatching. Blue line indicating aquatic zone flowing south easterly through the estate towards the Malahide SPA/SAC.

3.3 Proposed Deadwood Policy

At Newbridge Demesne there are several areas which host individual or clusters of standing deadwood within each Compartment (See Plate 1). It is recommended to retain these features of high ecological value. Deadwood is an essential multifunctional and structural component of the forest ecosystem and is an important habitat for many species (mammals, birds, amphibians, insects, fungi, moss and lichen communities). Deadwood increases the structural and biological diversity of the ecosystem at Newbridge since many organisms are adapted to utilise its resource. Fallen deadwood is also another important micro-habitat that is present at Newbridge and it is recommended that a policy be implemented to maintain as much fallen deadwood as possible *in-situ*. Note that these objectives can be achieved without compromising safety concerns on the estate as there is no issue with making safe standing or fallen trees in the vicinity of paths or public areas.

Plate 1: Standing deadwood exists throughout the woodlands


3.4 Ash Dieback Disease

Ash dieback is a serious disease of ash trees caused by the invasive fungal pathogen *Hymenoscyphus fraxineus* (previously known as *Chalara fraxinea*), which originated in Asia and was brought to Europe in the 1990's. The pathogen has now spread across most of the natural range of ash in Europe causing high mortality rates of ash trees. Ash dieback was first detected in 2012 in Ireland on plants imported from continental Europe. The disease is now prevalent across Ireland and will likely cause the death of over 90% of ash tree's here in the next decade. The disease can affect ash trees of any age and in any setting. The disease can be fatal, particularly among younger trees. There are a high number of ash trees within the property at Newbridge Demesne, individually and in groups. The level of infection and progression of the disease varies throughout and a plan for the management of ash dieback and the resulting consequences are expanded in the general thinning policy and enrichment planting sections. Some of this ash could also be allowed to transition naturally to standing deadwood. In the three sample plots (**Appendix B**) taken as part of this project, the level of ash dieback was assessed as follows:

Compartment	No. of Ash Trees	No. of Diseased Ash Trees	% Diseased
1	6	6	100%
3	19	12	63%
7	3	3	100%

It is recommended that a bi-annual summer survey of healthy ash trees not displaying ash dieback symptoms be carried out and that these are recorded and mapped and protected in any thinning operations.



Plate 2: Dying ash tree, with depleted crown due to ash dieback disease and oak waiting to fill space.

3.5 Invasive Species

There are several invasive and non-native species which threaten the biodiversity and ecological function within the woodlands at Newbridge Demesne. Some of these are species listed under the EU Birds and Natural Habitat Regulations 2011. The control and eradication of these should be tackled as part of the woodland management plan and recommendations for same are set out in **Appendix F**. A summary table of the occurrence of invasive species at Newbridge Demesne is presented below:

		Compartment																
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Rhododendron																		
(Rhododendron ponticum)																		
Spanish bluebell																		
(Hyacinthoides hispanica)																		
Snowberry																		
(Symphoricarpos alba)																		
Wilson's honeysuckle																		
(Lonicera nitida)																		
Cherry laurel																		
(Prunus laurocerasus)																		
Winter heliotrope																		
(Petasites fragrans)																		
Red osier-dogwood																		
(Cornus sericea)																		
Blackcurrant																		
(Ribes nigrum)																		
Gooseberry																		
(Ribes uva-crispa)																		
Pendulous sedge																		
(Carex pendula)																		
Mock orange																		
(Philadelphus coronarius)																		
Pheasant berry																		
(Leycesteria formosa)																		
Spotted laurel																		
(Aucuba japonica)																		

In addition to the above species:

- Japanese knotweed has been recorded in the vicinity of three Compartments (3, 12 and 14) so there is a risk of inadvertent spreading of this species during any woodland management works so any operatives working in the area should be advised of same.
- **Giant hogweed**, whilst not recorded in any of the woodland Compartments was recorded in the area adjacent to Compartment 14. Care will need to be taken during any works in this area to ensure the species is not spread and the safety of operatives is highlighted. All personnel engaged in control should be made aware of the health, safety and environmental risks associated with the plant and provided with complete protective clothing
- **Sycamore** is a tree species which is found throughout the property. While it is often considered as an invasive species, given the extent of its presence throughout the property, its propensity to colonise areas, the ongoing situation with regard ash-dieback and its integral role in woodland structure at Newbridge, it is not recommended to pursue an eradication policy. Sycamore is rapidly occupying the understorey of a number of compartments. Due to its relative shade tolerance, this means that over time, without intervention, it could become dominant at the expense of other diverse species, particularly those that are light demanding such as oak. It is therefore recommended that a policy of positively favouring other species should be pursued whereby:
 - Where mature sycamore are dominating the canopy, they are selectively felled or ring-barked to create favourable conditions for regeneration of more light demanding species. Ring barking involves the removal of bark from the tree for approximately 5cm-10cm around the entire tree. This stems the flow of water and nutrients from the crown to the roots and will result in the death of the tree over several years.
 - Where semi-mature sycamore are co-dominant with other species, that they are selectively felled or ring-barked to allow crown development of the other species.
 - Where dominating natural regeneration, that they are selectively removed by manual cutting or breaking, in favour of competing other species.



Plate 3: Example of sycamore rapidly colonising the entire understorey of the forest. This will result in low levels of light reaching the forest floor, impacting on the potential for regeneration of other, more desirable species.

3.6 Felling Licencing & General Thinning Policy

Selective thinning of some compartments at Newbridge Demesne is recommended in order to maintain and improve structure and diversity. This will require a ten year felling licence from the Forest Service in the Department of Agriculture, Food and Marine. There is an application

process for this which involves setting out thinning and felling areas, years and intensities. This can be made based on the maps and prescriptions prepared in this plan.

This process currently can take up to two years and it is therefore recommended that an application is made immediately upon agreement of this plan. Due to the hydrological connectivity of Newbridge House and Farm to the Malahide Estuary SAC/SPA any application to the Forest Service is likely to require the submission of a Natura Impact Statement (NIS) prepared by an ecologist to support the licence application. A second 10-year felling licence will be required for the period 2032-2041.

However, many of the proposed measures can be commenced without a felling licence (e.g. invasive species management) and even some of the thinning can commence as it will be of low intensity and therefore sub-threshold (<15m³ of timber per annum) in terms of the requirement for a felling licence.

All felling and thinning works should be conducted between 1st September to 28th February to avoid the bird breeding season.

3.6.1 Professional Marking

It is recommended that professional marking is carried out by a suitably qualified and experienced forester ahead of operations to:

- 1. Select the appropriate trees for felling in favour of others or to create opportunities for diverse regeneration or enrichment planting.
- 2. Ensure the appropriate intensity of thinning is achieved
- 3. Select trees for ring-barking where appropriate
- 4. Facilitate harvesting contractors in pricing work

This is an important step in ensuring the long term stability and species composition of the woods. It is recommended that the ProSilva Ireland Marking Protocol be followed when carrying out this work.

3.6.2 Halo thinning & Group thinning

While specific harvest plans will be required for each compartment in advance of operations, the general silvicultural principals that will apply for thinning of all woodlands are listed as follows:

- Long term native broadleaves such as Oak must be favoured for retention throughout.
- Halo thinning This is the identification of a tree which has been selected for long term retention and crown development based on its species or particular biodiversity features. The thinning policy for this is to remove competitor(s) from around this tree gradually over time to ensure its survival and release of its crown from competition. This will both improve it's stability and longevity.
- Group thinning This is the removal of a number of trees within one specific area or coupe. The removal of a group of trees could be for a variety of reasons such as ash dieback disease which is mentioned above, or to remove dominant trees (e.g. sycamore) to create opportunities for more diverse regeneration or enrichment planting of a more desirable species within the woodland composition.

- Marking and thinning operations will seek to retain stable, native and biodiverse trees.
- Thinnings will aim to improve woodland structure, particularly in the context of the onset of ash dieback disease and the rise to dominance of sycamore by transferring vitality and growth on to desired species for long term retention. This will continue on a regular cycle to be determined for each compartment during the professional marking process.
- Other trees of high ecological value such as standing deadwood or large veterans will also be favoured and retained.

3.6.3 Timber Harvesting Operations

Timber harvesting should be carried out "motor-manually" using skilled chainsaw operators and traditional large scale forestry machinery such as a harvester and forwarder will not be required.

Thinning will be at a scale where extraction of timber is not considered necessary given:

- 1. The overriding ecological objectives for the property;
- 2. The small volume of timber to be harvested;
- 3. The need to develop greater levels of standing and fallen deadwood in some compartments;
- 4. The additional "non-selective" nature of harvesting for access development that would be required if extracting timber;
- 5. The protection of soil from compaction for regenerative purposes is important.

Current access in Newcastle Demesne will be adequate to facilitate the management of the property and the small volumes of wood which will require felling through silvicultural interventions.

3.7 Enrichment Planting

Enrichment planting is an artificial regeneration technique designed to improve the proportion of a desired species within a woodland. This method is most often used in conjunction with certain harvesting methods, such as group selection or single tree selection. Enrichment planting beneath existing canopy cover typically increases the probability of successful establishment of a desired species. These desired species may not exist in the forest currently or have suitable conditions to regenerate naturally. Sites where invasive species dominate as outlined in the invasive species section above can have a significant impact on the woodlands ability to naturally regenerate due to competition for light and nutrients. Enrichment planting can ensure that some desired species suitable to the conditions available have a chance to outcompete surrounding vegetation and allow adequate establishment. Enrichment planting is prescribed in a number of the compartments.

3.8 Humans, Dogs & Impacts on Biodiversity

The issue of disturbance of wildlife from people and dogs and the trampling impacts of human use within the woodlands in Newbridge is currently relatively low when compared to other properties under the ownership of Fingal Council such as Malahide Castle. However this is

likely to change as the population of Donabate is rapidly increasing. The main areas where trampling pressure is high with established pathways throughout each compartment which appear to still be in regular usage are:

- Compartment 1,
- Compartment 3,
- Compartment 6,
- Compartment 7,
- Compartment 8,
- Compartment 9,
- Compartment 15, and
- Compartment 16.

There is recent digging activity in Compartment 3 just south of the access road from Cobbe's Lane.

A forest shelter/hut made from branches was found in Compartment 6.

Potential restoration of hydrological function through blocking of drains and rewetting of the ground in Compartment 1 would reduce access to this area as ground conditions become wetter. If this option is not favoured it may be possible to allow continued access to the woodland which is limited by fencing in appropriate areas to direct and corral visitors, providing defined tracks using tree bark mulch. The consequences of uncontrolled access are the trampling of the vegetation, leading to large areas of bare ground which become mud during wet periods and the spread of invasive species such as pendulous sedge on footwear and clothing.

The rerouting and removal of the public pathway from the northern pedestrian entrance gate from its current route through the woodland in Compartment 15 is recommended. It is recommended to utilise the route bounded by the treelines of Giant sequoia which lead to the house or to divert the path along the edge of the ha-ha on the southern boundary of Compartment 15. This would restore the functionality of the shelterbelt woodland here and would reduce risk of potential health and safety impacts and hence the ongoing need for removal of trees as ash die back continues to impact the trees in this area which is already very narrow in nature.

Elsewhere in the demesne it is recommended that where paths are mown for the public to walk through the grassland areas that a buffer zone of 3-5m from the existing woodland edge is left unmown and naturalised as the current mowing regime is affecting the diversity of the woodland margins and preventing the development of a natural woodland edge.

3.9 Control of Grey Squirrel

The grey squirrel is commonly seen within the woodland at Newbridge and is a species listed under EU Regulation 1143/2014 on Invasive Alien Species. Grey squirrel are particularly damaging to semi-mature broadleaves, sycamore, beech and oak in particular. While damage to sycamore is not considered problematic (see Section 3.5.8), damage to oak and beech crowns will negatively affect woodland structure and

therefore some control of the grey squirrel population is required. It is unlikely that sufficient scale or connectivity exists to accommodate a breeding population of pine martens which might otherwise exercise control of this situation. Therefore professional trapping is considered appropriate and services to assist with this should be procured by Fingal County Council.

3.10 Forest Service Schemes

There are 2 Schemes operated by the Forest Service in the Department of Agriculture, Food & Marine which could be utilised by Fingal County Council to assist funding the management of the woodlands at Newbridge. These are as follows:

3.10.1 Continuous Cover Forestry Scheme

This element two of the Woodland Improvement Scheme (WIS) will provide funding for conversion of existing forests to Continuous Cover Forestry (CCF) over a 12-year transitional period. Successful applicants are eligible for three WIS payments (\in 750 / ha.) for three separate interventions. The WIS scheme is available to forest owners who wish to pursue transformation from the conventional clearfell / replant silvicultural system, to CCF. A "Transformation Management Plan" must accompany the application to the Forest Service in the Department of Agriculture, Food and Marine. This plan could be used as a basis for such an application.

3.10.2 Afforestation on Public Lands Scheme - Native Woodland Categories

There are opportunities at Newbridge Demesne to expand the area under native woodland. Three potential areas have been identified in the plan and on the woodland map and are recorded as Compartments 11, 13 & 17.

These areas have been selected based on the ideas of:

- 1. completing an entire wooded demesne boundary (Compartments 13 & 17) as was done in the past with Compartment 16;
- 2. Strengthening a weak part of the existing boundary (Compartment 11), as was done in the past in Compartment 8.

These areas combined could produce an additional 2.65Ha of new native woodland. No other type of woodland would be considered appropriate given the biodiversity goals and the importance of aesthetics around the house and farm. These areas would be eligible for grant aid support under the Forest Service's afforestation on public lands scheme which provides up to $\leq 6,220$ /Ha towards planting new woodlands. There is also an additional grant available in support of recreational facilities within the newly planted woodlands.

Those facilities eligible under Element 3 include new walking trails, seating and signage, such as information boards, interpretive aids and waymarkers.

Facilities eligible under Element 4 include playground equipment and fitness training equipment appropriate to the woodland setting

Recreation Elements	Facilities funded	Grant Rate
Element 3	Trails, Seats & Signage (i.e. general)	Up to €3,800/ha, capped at €45,600 per application. Payable from Year 4
Element 4	Forest Playground Equipment	Up to €10,000 per application Payable from Year 4

3.11 Potential outlets and markets for any timber produced

Thinning will be at a scale where extraction of timber is not considered necessary given:

- 1. The overriding ecological objectives for the property;
- 2. The small volume of timber to be harvested;
- 3. The need to develop greater levels of standing and fallen deadwood in some compartments;
- 4. The additional "non-selective" nature of harvesting for access development that would be required if extracting timber;
- 5. The protection of soil from compaction for regenerative purposes is important.

Current access in Newbridge Demesne will be adequate to facilitate the management of the property and the small volumes of wood which will require felling through silvicultural interventions. Therefore the question of outlets and markets for timber harvested does not arise, unless for very small scale wood turning or craft uses that do not require access for timber lorries and heavy harvesting machinery.

3.12 Specific Biodiversity Prescriptions

The measures proposed in this plan that will benefit woodland birds, bats and Invertebrates include:

Birds

- management of the existing woodlands to improve the structure of the woods and recreate an understorey, promote native species and natural regeneration;
- restructuring of the woodland to create open glades and increase woodland edge achieved through professional marking and selective felling;
- reduction of mowing along woodland edges to allow bramble/scrub develop and to provide cover for breeding birds and foraging habitat;
- management of dead wood (both standing and fallen within the woods) to improve woodland invertebrate diversity and hence foraging for birds.

Specific measures proposed in this plan for woodland and scrub birds include:

• provision of artificial nesting opportunities within the woodlands through the provision of a variety of nest boxes for species such as tits, robin, flycatcher, etc.

Bats

- management of the existing woodlands to improve the structure of the woods and recreate an understorey, promote native species and natural regeneration;
- restructuring of the woodland to create open glades and increase woodland edge to improve foraging areas for bats achieved through professional marking and selective felling;
- management of dead wood (both standing and fallen within the woods) to improve woodland invertebrate diversity and hence foraging for bats.

Specific measures proposed in this plan for bats include:

- the erection of bat boxes 'Schwegler' woodcrete bat boxes (of varying designs as detailed below) are recommended. These are available for purchase online from www.nhbs.com or www.nhbs.com"/www.nhbs.com or <a href="http://ww
- the following numbers of bat boxes are recommended:
 - Schwegler 1FF bat box design x 8 No. units;
 - Schwegler 2FN bat box design recommended x 8 No. units;
 - Schwegler 1F with front panel bat box design recommended x 6 No. units.

Invertebrates

- management of the existing woodlands to improve the structure of the woods and recreate an understorey, promote native species and natural regeneration;
- restructuring of the woodland to create open glades and increase woodland edge;
- reduction of mowing along woodland edges to allow bramble/scrub develop providing suitable habitat for breeding butterflies such as Speckled wood which breed on bramble and cover and other foraging habitat for invertebrates;
- management of dead wood (both standing and fallen within the woods) to improve woodland invertebrate diversity.

3.13 Climate Change Resilience

Climate change is likely to impact on woodlands through a variety of ways, such as:

- Changes in the seasonality of rainfall
- Increased intensity of rainfall events

- Increasing periods of drought (not only in summer)
- Increased storms, severe winds and wind throw events
- Increased threat of tree pests and diseases
- A longer growing season
- Potential increases in temperature

The woodlands of Newbridge Demesne need to be resilient, resistant and adaptable if future generations are to derive the goods and services that we currently enjoy from them today.

Best practice for improving resilience of our woodlands to climate change recommends:

- the adoption of continuous cover woodland management,
- the promotion of species able to tolerate future predicted climate conditions,
- the planting of the right tree in the right place,
- the restoration of suitable conditions for certain species in certain locations in relation to hydrology/species diversity
- encouragement of natural regeneration to improve genetic diversity and tree quality,
- the use of tree mixtures that mutually benefit one another and are compatible with growth rate and shade tolerance, and
- the use of appropriate provenance of any new tree material with the implementation of high biosecurity standards

The removal of invasive species and thinning of the woodlands to stabilise younger stands and allow more light and natural regeneration should all assist in helping the woodlands at Newbridge become more resilient to climate change impacts.

By relocating existing pathways from woodland shelterbelts the risk of falling trees to visitors is reduced and pressures to remove trees for health and safety reasons also reduced.



Figure 17: Overall Compartment Map 1:7,000



Figure 18: Compartment Map A 1:5,000

Faith Wilson & Purser Tarleton Russell Ltd.



Figure 19: Compartment Map B 1:5,000



Figure 20: Compartment Map C 1:5,000

Faith Wilson & Purser Tarleton Russell Ltd.

Appendix A: Woodland Inventory and Plan

Compartment	Area (Ha)	Status	Description	Prescription (2022-2031)	Prescription (2032-2041)
Compartment	(Ha)	Status	 (Mixed) broadleaved woodland WD1 with Mature Pedunculate Oak / Ash / Sycamore / Silver fir with understorey of Sycamore / Wych Elm / Yew / Elder / Holly. Hornbeam, Horse chestnut, Wild cherry and Beech are found in the drier areas. One notable multi stemmed veteran alder and Grey Willow point to the potential natural woodland type for this area (Wet willow alder ash woodland WN6) if the hydrology was restored. Area of Ornamental shrubs WS3 consisting of Invasive species/garden escapes including Pendulous sedge, Himalayan honeysuckle, 	Control of exotics and invasives. Cease the planting of ornamental species such as daffodils and Spanish bluebells in this area and remove same. It is recommended that the internal and boundary drains and culvert draining here to the Pill River should be blocked to restore hydrological function in this area and allow the wet woodland habitats in the	Professional Marking of thinnings. Thinning of Selected Trees
1	3.13	Mature	Snowberry, Red-osier dogwood, Gooseberry and a dense thicket of Mock-orange in a damp hollow. Cherry laurel and planted daffodils and Spanish bluebells were also recorded. All of these species are growing rapidly as a result of being somewhat released by ash dieback.	outhern part of the woodland to acrease. control public access to this rea through fencing and a efine path or exclude public completely.	
			Native species within the herb layer include Ivy, Bramble, Soft-shield fern, Enchanter's nightshade, Hogweed, Hart's tongue fern, Bramble, Remote sedge, Wood avens, Cuckoo pint, Bluebells, Cow parsley & Hedge garlic. Species such as Meadow buttercup, Pendulous sedge, Cleavers and Broad- leaved dock are being spread through this woodland as a result of public access and disturbance.	Professional Marking of thinnings. Thinning of Selected Trees Enrichment Planting (alder / birch & oak) Maintenance of Enrichment Planting	
			Historic drainage ditches run through and along the western boundary of this woodland. The Pill River forms the southern boundary of the wood.		

Compartment	Area (Ha)	Status	Description	Prescription (2022-2031)	Prescription (2032-2041)
2	0.05	New Planting	Small compartment of new planting Oak / Beech / Rowan	Maintenance of New Planting Required (Grass cleaning) 2022, 2023 & 2024.	
3	6.36	Mature	This area was surveyed and mapped in the National Native Woodland Survey as (Mixed) broadleaved woodland (WD1) – Site No. 0916. Mature Oak / Ash /Silver fir (<i>Abies alba</i>) and some Beech and Sycamore with understorey of Silver fir / Hazel / Sycamore / Ash / Holly / Elm and Beech. Ground flora consists of Ivy, Elder, Cleavers and Hogweed with Meadowsweet common in the northern section. Ferns included Hart's tongue fern, Broad buckler-fern, Soft shield fern and Male fern. Note old cultivation ridges still evident. Some invasive Himalayan honeysuckle and Ribes (in northern section) and snowberry (southern section). Good structure generally and good deadwood (both standing and fallen). There is an area of dumped soil material adjoining this woodland with a weedy element and Japanese knotweed present. A population of the legally protected plant Meadow barley (<i>Hordeum secalinum</i>) in recorded along the materian of the legally protected plant Meadow	Need to watch silver fir and sycamore regeneration as it is likely to become dominant. Treat invasive species. Ensure protection of the nearby Meadow barley population during any works. Ensure nearby Japanese knotweed location is advised to any contractor near working here. Professional Marking of Thinnings – including some group thinning of Sycamore Thinning of Selected Trees Enrichment Planting (Oak) Maintenance of Enrichment Planting	Professional Marking of thinnings. Thinning of Selected Trees
4	0.6	Semi mature	Area of remnants of Wet willow-alder-ash woodland WN6 of Ash / Grey willow / Alder / Ash / Birch under and adjacent to which planting (c. 20 years old) consisting of Maple / Birch and Hazel has occurred adjoining the Pill River FW2. Below this are remnants of Reed and large sedge swamps FS1 and Tall herb swamps FS2	Objective here should be restoration of hydrology and wet woodland in this area through drain blocking to favour the expansion of wet woodland and associated ground flora. Control of exotics and invasive species.	

Compartment	Area (Ha)	Status	Description	Prescription (2022-2031)	Prescription (2032-2041)
			Large stands of Lesser pond-sedge occur here along with Meadowsweet, Reed canary-grass, Golden saxifrage, and Wild angelica forming natural stands of reedswamp and indicating the potential former extent of wet woodland habitat in this area. Invasive species such as Snowberry, Privet, Gooseberry and Buddleja are found on the northern side of the watercourse. The adjoining wet meadows to the south have a significant population of the legally protected plant Meadow barley (<i>Hordeum secalinum</i>)	Favour the willow, alder, birch and hazel. Ensure protection of the nearby Meadow barley populations during any works.	
5	2.97	Mature	This area was surveyed and mapped in the National Native Woodland Survey as (Mixed) broadleaved woodland (WD1) – Site No. 0916. Mature Sycamore / Ash / Larch / Beech (on southern boundary) with understorey of Sycamore / Elm / Holly / Elder. Sycamore is dominant. The ground flora is poor with an understorey of Ivy, Elder, Cleavers and Hogweed. There is an old pond in this Compartment – silted over. An area of oak dominated woodland outside the estate boundary wall is included in this Compartment and has been much interfered with and sanitised including the removal of the understorey and shrub layer and planting of exotics including Spanish bluebells and Daffodils. A healthy population of wild garlic and the locally scarce milk thistle was recorded here. The contractors working on the estate wall used this area for parking their work vehicles, storing building material, etc. with subsequent impacts on the root zone of the trees in	Barn owl site nearby so any works conducted here should avoid the bird breeding season. Control and removal of exotic and invasive species Professional Marking of Thinnings – including some group thinning of Sycamore Thinning of Selected Trees Enrichment Planting (Oak) Maintenance of Enrichment Planting No future vehicle access to the area of woodland outside the estate wall – area to be fenced (approx 400m) to protect from same	Professional Marking of Thinnings – including some group thinning of Sycamore Thinning of Selected Trees

Compartment	Area (Ha)	Status	Description	Prescription (2022-2031)	Prescription (2032-2041)
			this area.		
6	5.4	Mature/Semi mature edge	The old woodland area is very similar to Compartment 5 with mature Sycamore / Ash / Beech & Horse chestnut. There are a few Holm oak and Aspen in the narrow section at the eastern end adjoining the River Pill. The new expanded footprint widening planting (immature woodland WS2) is very diverse and includes Field Maple, Hazel, Sycamore, Spindle, Ash (has dieback), Hawthorn, Cherry, Spanish Chestnut, Rowan, Willow, Beech, Horse Chestnut, Oak, Birch and Scots pine, The ground flora is typically poor and limited to bramble and ivy with occasional Pendulous sedge, Wood false brome, and more rarely lesser celandine. Some small woodland huts/shelters have been made in this woodland Old wire from protective tree guards needs to be removed from the semi-mature trees. There is an area where oak and beech planting that had initially be outgrown and dominated by ash is now recovering and growing through the ash dieback.	Professional Marking of Thinnings – including some halo thinning around occasional oaks that are being dominated by birch would be appropriate in semi-mature area and group thinning of Sycamore and Diseased Ash Thinning of Selected Trees Enrichment Planting (Oak) Maintenance of Enrichment Planting Removal of old wire from protective tree guards on semi- mature trees	Professional Marking of Thinnings – including some halo thinning and some group thinning Thinning of Selected Trees
7	5.8	Mature	This area was surveyed and mapped in the National Native Woodland Survey as (Mixed) broadleaved woodland (WD1) – Site No. 0917. Mature Oak / Ash / Sycamore / Horse chestnut / Beech & Elm with Understorey of Hazel / Beech / Holly / Sycamore / Horse chestnut & Hawthorn. There is good structure evident and thinning can wait until the second planning period (2032-2041) Ground flora here is dominated by ivy, bramble and hogweed with occasional lords and ladies, with	Control of invasives Retain standing and fallen deadwood	Professional Marking of Thinnings – including some halo thinning and some group thinning Thinning of Selected Trees

Compartment	Area (Ha)	Status	Description	Prescription (2022-2031)	Prescription (2032-2041)
			many seedlings of sycamore, horse chestnut, and beech, and more rarely lesser celandine, wood avens, cleavers, nettle and enchanters nightshade. The ferns broad buckler-fern, male fern, hart's tongue fern, and soft shield fern were recorded.		
			Invasive species noted here include gooseberry and Rhododendron.		
			A series of informal tracks cross through the northern part of this wood.		
			Excellent component of deadwood in the southern part of the wood both standing (mature dead elm) and fallen		
		ſ	This is one of the few locations in the demesne where the underlying bedrock outcrops		
			This Compartment is bisected by an old ha ha, which runs north south through the woodland and the deer enclosure is found to the east of this north of the wood		
			Immature woodland WS2. This is a recent (approximately 20 year old) extension of Compartment 7 and contains Red oak / Ash / Cherry / Beech / Birch / Sycamore / Horse chestnut / Maple / Hawthorn.	Professional Marking of Thinnings – including some halo thinning around occasional oaks and group thinning of Diseased Ash	Professional Marking of Thinnings – including some halo thinning and some group thinning Thinning of Selected Trees
8	1.66	Semi mature		Enrichment Planting (Oak,	
		ſ		Hazel, Birch)	
				Maintenance of Enrichment Planting	
			Mixed broadleaved/conifer woodland WD2	Control invasives	
9	2.87	Mature	Mature Sycamore / Ash / Beech / Scots pine with understorey of elm / sycamore / hazel / holly / elder.	Reduce intensity of mowing along the margins of the wood	

Compartment	Area (Ha)	Status	Description	Prescription (2022-2031)	Prescription (2032-2041)
			The ground flora is dominated by ivy, bramble, cleavers and hogweed.	and allow the areas of wet grassland/marsh with stands of	
			Some notable dead elm as standing deadwood.	Iris and Carex acutiformis to	
			There is also a problem with invasive snowberry and Himalayan honeysuckle.		
			(Mixed) broadleaved woodland (WD1)	Control invasives	
			Beside public car park.		
10	1.95	Mature	Mature Ash / Sycamore / Beech with understorey of Holly / Sycamore /Hawthorn and Elder.		
			Some notable dead elm.		
			Problem with invasive laurel & Himalayan honeysuckle		
11	0.79	Potential New Planting	Area identified as suitable for additional planting due to the narrow nature of the adjoining woodland currently and would complement the adjacent stand	New woodland establishment potentially using afforestation on public lands scheme - use of native species and provenance essential.	Maintenance of New Woodland
			(Mixed) broadleaved woodland (WD1)	Control invasives	
			Mature Ash / Semi mature Sycamore / Cherry / Hawthorn / Elder		
12	2.03	Mature	The ground flora is dominated by ivy, hogweed, bramble, nettle and occasional cleavers, lords and ladies, soft shield fern.		
			Invasive species noted here include Rhododendron, Snowberry bush and ground elder. There are populations of Japanese knotweed, Giant hogweed and winter heliotrope nearby.		
		Potential	Area identified as suitable for additional planting as demesne boundary woodland	New woodland establishment potentially using afforestation on	Maintenance of New Woodland
13	0.63	New Planting	Ground is very compacted and would need to be improved prior to planting – particularly for bigger tree's and non-pioneer species	public lands scheme - use of native species and provenance essential.	

Compartment	Area (Ha)	Status	Description	Prescription (2022-2031)	Prescription (2032-2041)
14	0.37	Semi mature	Wet Willow – Alder – Ash Woodland WN6 Wet woodland around old drain – with large specimen Crack willow & Grey willow Japanese knotweed & heliotrope to be controlled	Control invasives	
15	6.8	Mature	 (Mixed) broadleaved woodland (WD1) Pedunculate Oak / Holm Oak / Sycamore /Corsican pine / Ash / Yew / Elm Long eared owls are reported to have bred here in the past Invasive species include Laurel, Spotted laurel and Pendulous sedge. Much of the laurel dominated understorey has been chipped <i>in situ</i> with negative consequences for ground flora. Other invasives include Carex and Snowberry. Ground flora very poor and limited to ivy in many places Ash die back in evidence Tarmacadam walkway through this linear wood 	Control invasives, including control of regrowth from previously cut laurel. Works to take place outside of the bird breeding season Re-route path onto cut grass outside of wood, taking up tarmacadam path in wood. (Approx 650m) Enrichment planting in old path area.	
16	2.67		 (Mixed) broadleaved woodland (WD1) and Immature Woodland WS2 along demesne boundary (Turvey Road). Species recorded include Silver birch, Field maple, Beech, Mountain Ash, Ash & Alder with Elder and Hawthorn in the shrub layer. Ground flora of Softshield fern, Hart's-tongue fern, Enchanter's nightshade, Herb robert, Remote sedge, Broadleaved willowherb & Wood dock. Boundary planting more recent – Beech / Ash / Field Maple / Oak / Horse chestnut / Hawthorn / Birch / Hornbeam / Cherry / Lime. Ash dieback is changing the dynamic hazel elder and hawthorn starting to form understorey. 	Control invasives Professional Marking of Thinnings – focused on halo thinning around oaks Thinning of Selected Trees	Professional Marking of Thinnings – focused on halo thinning around oaks Thinning of Selected Trees

Compartment	Area (Ha)	Status	Description	Prescription (2022-2031)	Prescription (2032-2041)
			Invasive species recorded includes Winter heliotrope, Spotted laurel and Pendulous sedge in SW corner		
		Detential	(Mixed) broadleaved woodland (WD1) and Immature Woodland WS2 Mature Pedunculate oak, Grey willow, Wych elm, Beech and Ash and Hawthorn along the road; Area identified as suitable for additional planting as	New woodland establishment potentially using afforestation on public lands scheme - use of native species and provenance essential.	Maintenance of New Woodland
17	1.23	Potential New Planting	demesne boundary woodland. This will provide an improved wildlife corridor across the western boundary of the site.	Leave a wider margin of grassland un-cut out from ditches.	
			Herbaceous species include Nettle, Silver weed, Hairy willowherb, Lesser stitchwort. Common reed, Wild angelica and Meadowsweet. Spiked sedge in border to dog run.		
18	0.86	Mature	Woodland around old pond	Remove goats which are damaging the habitat here and allow vegetation to recover	
Overall				Trees within the demesne in the vicinity of roads and public areas should be subject to regular assessments by a qualified arborist on the basis of which tree surgery/remediation works are conducted.	Trees within the demesne in the vicinity of roads and public areas should be subject to regular assessments by a qualified arborist on the basis of which tree surgery/remediation works are conducted.
Total	47.46				

Appendix B: Plot Data

Three monitoring plots were taken representatively in Compartments 1, 3 and 7 in order to assess the woodland structure, i.e. species and tree size composition and abundancy for each layer (tree, shrub, and seedlings), and deadwood composition. Each plot size was 20m x 20m (0.04 ha.) and the following data were recorded per plot:

- 1. Every tree greater than 7cm in diameter was recorded in terms of its:
 - a. Species;
 - b. Diameter at breast height (cm);
 - c. Social position (dominant / co-dominant / sub-dominant / understorey).
 - d. Health (Alive/ Dying Back / Dead)
- 2. A diagonal transect was taken from one corner of the plot to the opposite corner (i.e. 28.28m) on which all fallen deadwood was recorded in terms of its:
 - a. Species;
 - b. Diameter (cm);
 - c. Contact with the ground or not;
 - d. Degree of composition:
 - i. 1 = fresh and firm
 - ii. 2 = turned brittle
 - iii. 3. = soft but intact
 - iv. 4 = soft and disintegrating
 - v. 5 = integrated with soil
- 3. At three equally spaced points along the diagonal transect (i.e. at 7m, 14m and 21m) a circular sub-plot of 1m radius was taken in which all regeneration was recorded per species in one of three of the following categories:
 - a. Class 1: < 50cm
 - b. Class 2: 51cm 1.5m
 - c. Class 3: >50cm
- 4. Height of largest tree per species (m)

The full set of data for these plots is provided in a separate spreadsheet but the summary results and interpretation of same are presented below:



Opportunity for enrichment planting of oak (with subsequent maintenance)		Beech regeneration also present in compartment but not picked up in sample plots		
Deadwood:	Deadwood:	Deadwood:		
 Very little standing deadwood although most of the ash will fall into this category over the next decade 24m3 fallen deadwood / ha. recorded (moderate) 	 Very little standing deadwood although most of the ash will fall into this category over the next decade 76m3 fallen deadwood / ha. recorded (v. high) Decay categories limited 	 Significant standing deadwood consisting mainly of Elm that has succumbed to Dutch Elm Disease but also includes beech 86m3 fallen deadwood / ha. recorded (v. high) Reasonable distribution of decay categories 		
Reasonable distribution of decay categories				
Fallen Deadwood	Fallen Deadwood	Fallen Deadwood		
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	0 <u> </u>	۳ 0 – – – – – – – – – – – – – – – – – – –		
E 0	1 2 3 4 5	1 2 3 4 5		
1 2 3 4 5	Degree of Decay	Degree of Decay		
Degree of Decay				
Top Heights:	Top Heights:	Top Heights:		
ASII 37III Oak 39m	Sycamore 17.1m Beech 27.3m	Oak:44.1m		
	Elm 19.7m			
Botanical Notes:	Botanical Notes:	Botanical Notes:		
This area is subject to flooding and the drainage	A notable feature of this plot is the old cultivation	The canopy is dominated by Beech (<i>Fagus</i>		
ditches crossing through here should be blocked	ridge on the woodland floor, which are still	sylvatica) with a sub-canopy of Elm (Ulmus		
to restore the hydrology of this area making it	extant, and are associated with the previous	procera) and Sycamore (Acer pseudoplatanus).		
havourable for wet woodland. This will over time	establishment of Sliver fir (Ables alba) in the	I here are large volumes of standing deadwood		
dieback continues to have an impact in the Irish		induding some large standing beech shags.		
landscape.	The canopy is dominated by Oak (), with an	The understorey is dominated by Holly (<i>llex</i>		
	understorey of regenerating Silver fir (Abies	aquifolium), Wych Elm (Ulmus glabra), Elder		
The canopy of this plot which was taken in the	alba), Hawthorn (Crataegus monogyna), Hazel	(Sambuccus nigra), Hawthorn (Crataegus		
vicinity of the large multi-stemmed alder is	(Corylus avellana), and Ash (Fraxinus	monogyna) and Yew (Taxus baccata). Many of		
dominated by Alder (Alnus glutinosa) and	excelsior).	the trees here are covered in very dense ivy.		

Sycamore (Acer pseudoplatanus).		Approximately 80% of the standing mature elms
, (,	The ground flora has damp areas with abundant	are dead.
In the sub-canopy of the plot was occasional	Meadowsweet (Filipendula ulmaria) and Ribes	
Elder (Sambuccus nigra) and Holly (llex	currant (red/black currants) which has escaped	The ground flora is dominated by dense lyv
aquifolium) and more rarely Hawthorn	from the gardens and should be controlled	(Hedera helix) and Cleavers (Galium aparine)
(Crataequs monogyna) Alder (Alnus glutinosa)	nom the galache and chedia be controlled.	with frequent Nettle (<i>Littica dioica</i>) and more
Wych Elm (<i>I llmus glabra</i>), Poplar (<i>Populus</i> sp.)	lvv (Hedera helix) dominates the ground flora	rarely Creeping buttercup (Ranunculus repens)
and Ash (Fravinus excelsion)	and elsewhere more rarely within the ground	Broad buckler-fern (Drvonteris dilatata)
	laver are regenerating Horse chestnut (Aesculus	Bramble (Rubus fruticosus and) Enchanter's
There are a number of invasive species within	hippocastanum) Sycamore (Acer	nightshade (Circaea lutetiana) Lords and ladies
and adjoining this plot – notably Pendulous	nseudonlatanus) and seedlings of Silver fir	(Arum maculatum) Wood avens (Geum
and adjoining this plot – hotably Pendulous	(Abias alba)	(Arum maculatum), wood avens (Geum
(Lonicora pitida), Maak orango (Dhiladalphus	(Ables alba).	and Lesser celandine (<i>Licana verna</i>
(Lonicera milda), Mock of ange (Prinadelphus	Violate (Viala on) and the forme (Male form	ssp verna). The male tern (Dryoptens mix-mas)
sp.), and Snowberry bush (Symphonicarpos	(Druge to rie fility maps) Dread buylden form	was occasional.
abus). These are currently reducing the natural	(Dryopteris IIIX-mas), Broad bucklet-lem	There is very little human disturbance on this
regeneration of alder and willow in this area.	(Dryopteris dilatata) and Hart's tongue term	There is very little numan disturbance on this
Scattered leaf litter covers c.20% of the plot and	(Pnyllitis scolopendrium)), were rarely	part of the wood with a lot of natural windblow
litter from the public was also noted.	encountered whilst Bramble (Rubus fruticosus	and decaying fallen stems.
	.agg) and Cleavers (Galium aparine) was	
In drier parts of the plot the ground flora consists	frequent. Ivy (Hedera helix) is occasional. Leaf	There is natural regeneration of Sycamore (Acer
of occasional ivy (Hedera helix), Hogweed	litter is about 10%.	pseudoplatanus), Hawthorn (Crataegus
(Heracleum sphondylium), Pendulous sedge		monogyna) and Ash (Fraxinus excelsior), all of
(Carex pendula), Bramble (Rubus fruticosus	The drainage ditch at the western woodland	which are relatively rare. I hamnobryum
.agg), Himalayan honeysuckle (<i>Lonicera nitida</i>),	edge of this plot could be blocked and the Pill	alopecurum is the main moss species present
and more rarely the ferns Broad buckler-fern	River flows through this woodland block.	on the ground floor.
(Dryopteris dilatata) and Hart's tongue fern		
(Phyllitis scolopendrium), Nettle (Urtica dioica),		There are patches of <i>Ribes</i> currant (red/black
Violet (<i>Viola</i> sp.), and Creeping buttercup		currants) which should be controlled.
(Ranunculus repens).		
		There is a rookery here in the trees located near
The wetter part of the plot (in the damp hollow)		the road edge.
is occasional Elder (Sambuccus nigra), and		
more rarely Hawthorn (Crataegus monogyna)		
and Ash (<i>Fraxinus excelsior</i>). Below this is		
occasional Creeping buttercup (Ranunculus		
<i>repens</i>), Cleavers (<i>Galium aparine</i>) and		
Hogweed (Heracleum sphondylium), while		
Hart's tongue fern (Phyllitis scolopendrium),		

Broad-leaved dock (<i>Rumex obtusifolius</i>) and Ivy (<i>Hedera helix</i>) were rare.	
In the drier parts there is some natural regeneration of Sycamore (<i>Acer</i> <i>pseudoplatanus</i>), which is occasional and Horse chestnut (<i>Aesculus hippocastanum</i>) and Silver fir (<i>Abies alba</i>) which are rare.	

Appendix C: Costings

An assessment of the cost of implementing this plan has been made making the following cost assumptions for operations that are prescribed in the plan. The costs are nominal costs and are provided in a spreadsheet where they can be adjusted if required:

Operation	Nominal Cost / ha.		
Invasive Species Control	€500.00	per annum	
Blocking of Drains and Hydrological			
Restoration	€1,000.00		
Control Public Access (with fixed path / fence)	€500.00		
Professional Marking of Thinnings	€150.00		
Thinning of Selected Trees	€500.00		
Enrichment Planting	€250.00		
Maintenance of Planting	€100.00	per annum	
Fencing	€12.00	per m	
Wire guard Removal	€100.00		
New Woodland Establishment	€6,000.00		
Maintenance of New Woodland	€1,000.00	per annum	
Re-Route Path	€30.00	per m	
Bird Box Supply & Erection	€2,000.00	one off	
Bat Box Supply & Erection	€2,760.00	one off	
Ash Dieback Survey	€1,000.00	every 2 years	

			Cost (2022-	Cost (2024-	Cost (2026-	Cost (2028-	Cost (2030-
Plot	Area	Prescriptions (2022-2031)	2023)	2025)	2027)	2029)	2031)
1	3.13	Invasive Species Control	€3,130	€1,565			
		Blocking of Drains and Hydrological					
1	3.13	Restoration		€3,130			
1	3.13	Control Public Access (with fixed path / fence)			€1,565		
1	3.13	Professional Marking of Thinnings	€470				
1	3.13	Thinning of Selected Trees	€1,565				
1	3.13	Enrichment Planting	€783				
1	3.13	Maintenance of Planting	€626	€313			
2	0.05	Maintenance of Planting	€10	€5			
3	6.36	Invasive Species Control (20% of area)	€1,272	€636			
3	6.36	Professional Marking of Thinnings		€954			
3	6.36	Thinning of Selected Trees		€3,180			
3	6.36	Enrichment Planting		€1,590			
3	6.36	Maintenance of Planting		€1,272	€636		
		Blocking of Drains and Hydrological					
4	0.6	Restoration		€600			
4	0.6	Invasive Species Control	€600	€300			
5	2.97	Invasive Species Control (40% of area)	€1,188	€594			
5	2.97	Fencing	€4,800				
5	2.97	Professional Marking of Thinnings		€446			
5	2.97	Thinning of Selected Trees		€1,485			
5	2.97	Enrichment Planting		€743			
5	2.97	Maintenance of Planting		€594	€297		
6	5.4	Removal of old Wire guards (40% of area)	€216				
6	5.4	Professional Marking of Thinnings	€810				
6	5.4	Thinning of Selected Trees	€2,700				

With the above cost assumptions, the cost of implementing the plan is presented as follows:

Plot	Aroa	Proscriptions (2022, 2021)	Cost (2022-	Cost (2024-	Cost (2026-	Cost (2028-	Cost (2030-
6	5 /	Enrichment Planting	£1 350	2023)	2027)	2029)	2031)
6	5.4	Maintenance of Planting	£1,330	£540			
7	5.4	Invasive Species Control (40% of area)	£1,080	£1 160			
2	1 66	Professional Marking of Thinnings	£2,520	£1,100			
8	1.00	Thinning of Selected Trees	£830				
8	1.66	Enrichment Planting	£415				
8	1.66	Maintenance of Planting	£332	£166			
9	2.87	Invasive Species Control (50% of area)	£1.435	£718			
10	1.95	Invasive Species Control	£1,455	£975			
11	0.79	New Woodland Establishment	€1,550 €4,740				
11	0.79	Maintenance of New Woodland		€1 580	€790		
12	2.03	Invasive Species Control (50% of area)	£1 015	£508	0,00		
13	0.63	New Woodland Establishment	€1,015 €3,780				
13	0.63	Maintenance of New Woodland		€1.260	€630		
14	0.37	Invasive Species Control	€370	€185			
15	6.8	Invasive Species Control (50% of area)	€3.400	€1.700			
15	6.8	Re-route Path		€19,500			
15	6.8	Enrichment Planting		€1.700			
15	6.8	Maintenance of Planting		€1,360	€680		
16	2.67	Invasive Species Control (20% of area)	€534	€267			
16	2.67	Professional Marking of Thinnings	€401				
16	2.67	Thinning of Selected Trees	€1,335				
17	1.23	New Woodland Establishment	€7,380				
17	1.23	Maintenance of New Woodland		€2,460	€1,230		
18							
All		Ash Dieback Survey	€1,000	€1,000	€1,000	€1,000	€1,000
All		Birdbox Supply and Erection	€2,000				
All		Batbox Supply and Erection	€2,760				

Plot	Area	Prescriptions (2022-2031)	Cost (2022- 2023)	Cost (2024- 2025)	Cost (2026- 2027)	Cost (2028- 2029)	Cost (2030- 2031)
		Totals	€56,845	€52,484	€6,828	€1,000	€1,000

Note that these costs do not include management costs. Also, no cost assumptions are provided for the second planning period of 2032-2041 as this is too distant for prices to be meaningful.

Appendix D: Additional Photo's



Plate 4: Area of dense briars which should be cleared and replaced with enrichment planting.

Faith Wilson & Purser Tarleton Russell Ltd.



Plate 5: Oak seedling regenerating where there is adequate light and favourable conditions



Plate 6: Silver fir naturally regenerating in suitable conditions.



Plate 7: Area of beech with good structure and range of tree sizes, no invasive species in the understorey


Plate 8: Compartment 1, Multi-stemmed Alder tree with high biodiversity value – note trampling pressure.



Plate 9: Tree guard which needs to be removed from the base of the tree, there are several trees with these, mainly found in Compartment 6

Appendix E: Submissions to Vision Statement for the Woodlands

FCC OPERATIONS

1. Key concern is safety: Safety regarding dangerous trees, in particular near roads and pathways Safety perception when walking on pathways

- 2. There are many trees of old age in the Demesne and over the next couple of decades they are likely to start dying off, thereby increasing the risk of trees falling over or losing limbs. Climate change may make this issue worse due to increased storm events but also by putting these older trees under more stress due to long periods of drought and/or high temperatures. Areas should be zoned in accordance with the risk the surrounding trees may pose to the public. There are no known accidents of the public being hit by falling limbs or trees and Operations is keen to keep it that way. However, visitors must also respect that these are older trees and are a major part of the landscape. The operations department will be retaining as many of these trees as possible. Signage may be required in areas to make people aware of these risks.
- Procedures need to be developed on how to deal with storm events, similar to the OPW e.g. who makes the call to open or close the woodland walks. This would require staff training to allow for woodland safety assessments to be undertaken following heavy storm events.
- 4. The cherry laurel along the pathways is leading to a more enclosed and less safe atmosphere. It should be noted that there are no reports of any assaults, so it is a perceived safety issue instead of a real safety issue. Removing the Cherry Laurel will help to open up the woods from a visual safety perspective.
- 5. From a financial perspective, a minimum intervention woodland management approach would be the preferred management option
- 6. If and where tree planting is proposed to diversity the woodland, a planting spec should be provided
- 7. No large spreading tree species should be planted within 10-12m of the boundary wall of the demesne to prevent future problems.
- 8. The focus of the woodland should be amenity and biodiversity. It is not recommended that a commercial element be incorporated in the planting and management of the woods

- 9. The woodland edge can be developed to provide for a gradual transition between the woodland and the grassland in the demesne. This will increase the biodiversity value of the woods and it helps to maintain the desired environmental conditions in the woods.
- 10. A woodland management training day should be provided to indoor and outdoor staff to increase the understanding of staff on the works proposed in Newbridge and other demesnes in the years to come.

FCC HERITAGE

- 1. Protection of historical demesne landscape should be primary driver for woodland management plan. It is acknowledged that the woodland is a living landscape feature that is naturally subject to change.
- 2. Provide reasoning for any changes to the woodland and describe how it might affect the historic landscape
- 3. The development of a gradual transition between grassland and woodland habitat should not have a detrimental impact
- 4. Don't create large bare areas when carrying out management works, the transition should be gradual
- 5. Avoid and protect areas of archaeological interest when undertaking woodland management works and planning any new planting areas
- 6. Potential impact of large trees falling on Lanistown castle should be considered

FCC PARKS & GI

- 1. Integrity of the historical landscape should be primary driver for woodland management plan
- 2. Include a description of the historical development and management of the woodland in Newbridge Demesne in the woodland management plan
- 3. Protect views and vistas

- 4. Carry out field studies to determine best range of tree species to make woodlands more climate change resilient
- 5. Safety zone of 3-4 meters along pathways should be sufficient for visual safety perspective
- 6. Old trees should be kept as long as possible and woodland may have to be closed during and after heavy storms

ALEC COBBE

Integrity of the historical landscape should be primary driver for woodland management plan

BIODIVERSITY AND CLIMATE CHANGE

- Manage the woods for a diverse structure in terms of vertical layers and age of the trees & shrubs,
- Include both standing and fallen deadwood (target 2-4% of woodland timber volume of various dhb
- Enhance the woodland edge by creating a gradual transition between trees and grassland.
- Stimulate natural rejuvenation of the woodland as much as possible and plant new trees if required.
- Climate change proof the woodland by providing a diverse species composition and provide a diverse structure in terms of vertical layers and age of the trees & shrubs

Appendix F: Invasive Species Management

3.5.1 Rhododendron

Rhododendron was recorded in Compartments 7 and 12.

The recommended removal and control methodology for Rhododendron is the same as for Cherry Laurel – see below.

3.5.2 Spanish Bluebell

Recorded in Compartments 1 and 5.

This species can hybridise with and outcompete the native bluebell and hence threatens the diversity of native woodlands or other habitats of conservation value as it tends to form dense thickets and outcompetes native vegetation.

Mechanical removal/control of Spanish bluebell

Hand removal of smaller clumps may be possible (this should be done after flowering, with leaves and bulbs intact, followed by thorough drying), but for larger infestations this may be impractical.

Chemical control of Spanish bluebell

Before any kind of control is attempted, the effects on the surrounding flora must be carefully evaluated. Relatively difficult to control with herbicides, although hormone weedkillers such as 2,4-D or MCPA would probably be effective (although these would also kill non-target species); alternatively glyphosate with additional 'wetters' for spot treatment.

3.5.3 Himalayan Honeysuckle

Himalayan honeysuckle is a non-native invasive plant species and is native to the forest land of the Himalayas and southwestern China. It can grow in a variety of conditions, such as wet or dry soil, sun or shade. It develops into a multi-stemmed bush with hollow branches and can be very difficult to control when established. Himalayan honeysuckle was recorded in Compartment 1. The most effective control methodology is to cut the base of each stem, below the first leaves and spray a small amount of 14% glyphosate herbicide mix of Roundup Bioactive with a non-toxic colouring dye directly onto the cuts, repeated annually until the stem has died.

3.5.4 Snowberry

Snowberry shrubs bloom in spring, with small but dense clusters of bell-shaped, white flowers at the ends of the branches. In the autumn, the flowers are replaced by clusters of white berries. Like Himalayan honeysuckle, which is also an invasive found at Newbridge, snowberry is generally used in modern landscaping. Snowberry has colonised several areas within the estate (Compartments 1, 3, 9, 10, 12 and 15) and will need to undergo a similar treatment to control as Himalayan honeysuckle.

Snowberry is common in woodlands within the site where it outcompetes native flora and suppresses natural regeneration thereby reducing functionality within the woodlands.

Its main method of spread is by means of its vigorous suckering habit; it does not appear to propagate much by seed. It can be spread from garden waste containing plant fragments. Therefore, any prunings should be destroyed by incineration, or thorough shredding into small fragments. Do not discard around the property.

3.5.5 Cherry Laurel

Cherry laurel threatens the diversity of native woodlands or other habitats of conservation value as it tends to form dense thickets and outcompetes native vegetation. It is an unpalatable species and is likely to be toxic to mammals and invertebrates due to the presence of cyanide in the leaves, stem and bark of the plant. Cherry laurel was recorded in some quantity in Compartments 10 and 15 and may occur elsewhere in small numbers.

Eradication/management of cherry laurel

Cut and remove stems by hand or chainsaw, cutting as close to the ground as possible to remove above ground growth. Chip or remove the cut material from the area to allow for effective follow-up work and prevent regrowth but the chippings must be removed. Chipped material can provide good weed barrier around ornamental garden areas elsewhere in the Demesne.

The removal of above ground growth will not prevent regrowth as Cherry laurel will regrow from cut stems and stumps. There are four recommended methods to achieve successful management after the initial cut and removal:

- 1. Digging the stumps out. The effectiveness of this technique is increased by removing all viable roots. This can be done manually or with a digger. To avoid regrowth, stumps should be turned upside down and soil should be brushed off roots. Note that this method is unlikely to be appropriate in Newbridge.
- 2. Direct stump treatment by painting or spot spraying freshly cut low stumps with a herbicide immediately after been cut. Glyphosate (20% solution), tryclopyr (8% solution) or ammonium sulphate (40% solution) are known to be effective during suitable weather conditions i.e. dry weather. The herbicide concentrations used and timings of applications vary according to which chemical is used. Use of a vegetable dye is recommended to mark treated stumps and all stumps should be targeted. A handheld applicator will help

avoid spray drift onto surrounding non-target species. Always read the label and follow the manufacturer's guidelines when using herbicides.

- 3. A variation on the stump treatment method is stem injection, using a 'drill and drop' methodology, whereby, if the main stem is cut and is large enough for a hole to be drilled into it, the hole can be used to facilitate the targeted application of glyphosate (25% solution).
- 4. Stump regrowth and seedlings can be effectively killed by spraying regrowth with a suitable herbicide, usually glyphosate. Best practice spraying protocols should be carefully followed. General broadcast spraying is not as effective as stump spot treatment and has the potential to impact on surrounding non-target species. The leaves are thick and waxy. For herbicide treatment to be effective each individual leaf needs be thoroughly wetted with herbicide to kill the plant.

Plyphosate J F M A M J J A S O N Tryclopyr* J* F* M* A* M* J* J* A* S* O* N* Ammonium sulphate J F M A M J J A S* O* N*
Tryclopyr* J* F* M* A* M* J* J* A* S* O* N* Ammonium sulphate J F M A M J J A S O N
Ammonium sulphate J F M A M J J A S O N

The previous methodology used for the treatment of laurel at Newbridge (Compartment 15) which involved chipping and significant soil compaction and disturbance and removal of all vegetation should not be repeated.

3.5.6 Winter Heliotrope

Winter heliotrope was recorded in woodland Compartments 14 & 16.

The NRA Guidelines recommend the following:

'Due to the extensive rhizome network, physical removal of winter heliotrope is really only practical on a limited scale. Where mechanical means can be employed, it should be possible to deal with larger infestations but due to the potential for regeneration from fragments of roots, it may be best to tackle its control using a combination of excavation with follow-up treatment by herbicides. As with other plants with the potential to spread from small root fragments, disposal of material should be undertaken with due caution to prevent accidental spread of the plant. Other means of disposal include burial of material at a depth of at least 2m, incineration or disposal to licensed landfill. There is no evidence that the material would withstand composting though this approach would probably only be suitable for limited infestations.

An application of a Glyphosate-based herbicide after flowering in February to March is recommended by Cornwall Nature Reserves (2008), though the Royal Horticultural Society (2008b) recommends spraying in midsummer or later but before the foliage begins to die back'.



3.5.7 Other Invasive Species

Other invasive species within the woodlands which require elimination/control include Red osier-dogwood (*Cornus sericea*), Buddleia bush (*Buddleia davidii*), Blackcurrant (*Ribes nigrum*), Gooseberry (*Ribes uva-crispa*), Pendulous sedge (*Carex pendula*), Ground elder (*Aegopodium podagraria*), and Mock orange (*Philadelphus coronarius*).

In general the same treatment methodology for the above listed species applies for the shrubby species. The most effective method of control is to cut the base of each stem, below the first leaves and spray a small amount of 14% glyphosate herbicide mix of Roundup Bioactive with a non-toxic colouring dye directly onto the cuts, repeated annually until the stem has died.

Pendulous sedge (*Carex pendula*), could be removed through digging the individual plants out. The effectiveness of this technique is increased by removing all viable roots. This should generally be done manually. To avoid any regrowth, the clumps should be turned upside down and the soil should be brushed off roots. To avoid digging out, the above cut and spray treatment could also apply.

Appendix G: References

BirdWatch Ireland (2011). Action Plan for Woodland and Scrub Birds in Ireland 2011-2020. BirdWatch Ireland's Group Action Plans for Irish Birds. BirdWatch Ireland, Kilcoole, Co. Wicklow.

Consarc, Conservation Consultants (2019). Newbridge House and Demesne – Conservation Plan. Report prepared for Fingal County Council.

Cullen, M. and H. Fox (2006). *Ecological Study of the Countryside Habitats in County Fingal. Phase III – Woodland Fungi.* November 2006. Unpublished report for Fingal County Council.

Curtis, T.G.F. and J. Parnell (2012). Webb's An Irish Flora. Cork University Press.

Doogue D, Nash, D., Parnell, J., Reynolds S., & Wyse Jackson P. (1998). *Flora of County Dublin.* Dublin Naturalists' Field Club. Dublin.

Fingal County Council (2010). Fingal Biodiversity Action Plan 2010-2015.

Flora (Protection) Order (2015). Government of Ireland.

Fossitt, J. (2000). A Guide to Habitats in Ireland. Heritage Council, Kilkenny.

Gilbert G, Stanbury A and Lewis L.J. (2021). Birds of Conservation Concern in Ireland 2020 – 2026. Irish Birds 43, 1-22.

Keely, B. (2005). The Mammals Of Newbridge House, Donabate, Fingal, Co. Dublin. December 2005. Unpublished report for Fingal County Council.

King, J.L., Marnell, F., Kingston, N., Rosell, R., Boylan, P., Caffrey, J.M., FitzPatrick, Ú., Gargan, P.G., Kelly, F.L., O'Grady, M.F., Poole, R., Roche, W.K. & Cassidy, D. (2011). *Ireland Red List No. 5: Amphibians, Reptiles & Freshwater Fish.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

Marnell, F., Looney, D. & Lawton, C. (2019). *Ireland Red List No. 12: Terrestrial Mammals*. National Parks and Wildlife Service, Department of the Culture, Heritage and the Gaeltacht, Dublin, Ireland.

McCourt, S. and D. Kelly (2008). *Fingal Woodland Flora Survey*. Report prepared for Fingal County Council Comhairle Contae Fhine Gall: Parks Division 2007-08.

Merne, O. J. and J. Roe (2006). *Ecological Study of the Countryside Habitats in County Fingal Phase III – Woodland Birds*. November 2006. Unpublished report for Fingal County Council.

ProSilva Ireland (2021). Irish CCF Tree Marking Protocol. April 2021. ProSilva Ireland Technical Note.

Regan, E.C., Nelson, B., Aldwell, B., Bertrand, C., Bond, K., Harding, J., Nash, D., Nixon, D., & Wilson, C.J. (2010). *Ireland Red List No. 4 Butterflies.* National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Ireland.

Scannell, M.J.P. and Synnott, D.M. (1987). Census Catalogue of the Flora of Ireland – Clár de Phlandaí na hÉireann. The Stationary Office, Dublin.

S.I. No. 477 of 2011. The European Communities (Birds and Natural Habitats) Regulations 2011. Irish Government, Government Publications Office, Molesworth Street, Dublin 2.

Wildlife Act, 1976 including all other amendments 1976–2010 Number 39 of 1976 and Number 38 of 2000. Dublin: Office of the Attorney General. Wildlife (Amendment) Act (2000). Government of Ireland.

Wilson, F., Curtis, T., Keely, B and D. Mullen (2022). Newbridge Demesne, Donabate, Co. Dublin - Ecological Study. Unpublished report for Fingal Count Council.

Wyse Jackson, M., FitzPatrick, Ú., Cole, E., Jebb, M., McFerran, D., Sheehy Skeffington, M. & Wright, M. (2016) *Ireland Red List No. 10: Vascular Plants*. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Dublin, Ireland.