NATIVE WOODLAND SCHEME MANUAL

Forest Service

Department of Agriculture, Fisheries and Food
An Roinn Talmhaíochta, Iascaigh agus Bia

NDP
National Development Plan 2007 - 2013

IMPORTANT NOTE (31st August 2011)

This manual, published in May 2008, is no longer current, and is now made available for background information purposes only. For current details (including current grant and premium rates) on the Native Woodland Scheme, please see Forest Service Circular 11/2011 and document entitled *Native Woodland Scheme – Establishment* (August 2011).

Forest Service
Department of Agriculture, Fisheries & Food
Johnstown Castle Estate
Co. Wexford
Tel. 053-9163400 / LoCall 1890 200 223
E-mail forestservice@agriculture.gov.ie
Website www.agriculture.gov.ie/forestservice

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Foreword

As Minister of State with special responsibility for forestry, I am delighted to announce the launch of the revised Native Woodland Scheme under the National Development Plan 2007-2013.

Native woodlands are a key part of Ireland's biodiversity and represent diverse vibrant ecosystems that are significant at a national, European and international level. Native woodlands also provide us with a glimpse back through time to our prehistory, when much of the island of Ireland was shrouded in primeval natural woodland. They form part of our historical, cultural and folklore heritage, as generation upon generation shaped, and were shaped by, woodland within their surroundings. Native woodlands also represent a source of income for their owners, through the realisation of quality timber using close-to-nature silvicultural techniques that reflect natural woodland cycles and processes. This creates an economically sustainable basis for native woodlands, without compromising their priority biodiversity function.

The Native Woodland Scheme aims to provide landowners with the resources needed to enable them to protect and enhance existing native woodlands, and to develop new native woodlands. The scheme, first available in 2001, has evolved over time, and I am delighted to highlight the improvements contained in this latest version. I particularly welcome the focus on the use of the scheme to develop sensitively designed native riparian woodland, not only for the intrinsic value of this habitat type, but also in terms of the significant benefits afforded to water quality and aquatic life, through the creation of a natural protective buffer.

The scheme is the culmination of years of commitment, support and input from individual landowners, foresters and ecologists, and from Woodlands of Ireland, the National Parks & Wildlife Service, the Heritage Council, Coillte, Regional Fisheries Boards, COFORD, and other key bodies. The protection and expansion of native woodlands is a vision shared by all, and the Native Woodland Scheme has provided a focal point for cooperation and synergies in this area. The scheme also complements other related initiatives, such as the ongoing management of the People's Millennium Forests, Coillte's EU-LIFE Woodland Restoration Project, and the National Survey of Native Woodlands undertaken by the National Parks & Wildlife Service, jointly funded by my Department. The Native Woodland Scheme integrates seamlessly with these initiatives, by providing a mechanism to allow individual landowners to become involved in this national effort to protect and expand our native woodlands.

Conserving and enhancing forest biodiversity is a key component of Sustainable Forest Management. In this context, the Native Woodland Scheme is central to the national forest programme, and is also part of the forest sector's contribution towards fulfilling European and international commitments, including the UN Convention on Biological Diversity.

Despite its decline through the centuries, we have inherited a native woodland resource that has a profound natural, historical and cultural value. The Native Woodland Scheme provides us with the opportunity to work together to consolidate and expand this resource, thereby securing a future for our native woodlands as a vibrant and sustainable part of Ireland's biodiversity, rural economy and heritage.

Tony Killeen, TD
Minister of State at the Department of Agriculture, Fisheries & Food

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Section 1
An Overview of the Native Woodland Scheme

1.1 About this manual

The Native Woodland Scheme (NWS) provides support for landowners in Ireland to protect and enhance existing native woodlands, and to establish new native woodlands.

The NWS is funded by the Irish Government under the National Development Plan, 2007-2013. It is implemented by the Forest Service of the Department of Agriculture, Fisheries & Food, in partnership with Woodlands of Ireland, the National Parks & Wildlife Service (NPWS), Coillte, Regional Fisheries Boards, the Heritage Council, COFORD and others.

This *Native Woodland Scheme Manual* sets out the procedures and standards specific to the NWS. Where overlap occurs, readers are directed to the Forest Service *Forestry Schemes Manual*[1].

The *Native Woodland Scheme Manual* (available online at www.agriculture.gov.ie/forestservice) includes refinements to the NWS arising from experiences to date. It replaces all earlier versions of the manual and applies to all NWS applications submitted from early 2008 onwards[2]. ***Those involved in the NWS should***

[1] All references to the *Forestry Schemes Manual* refer to the current version, and any updates, applying at the time of grant approval, unless otherwise agreed with the Forest Service.

[2] This manual should be read in conjunction with the separate Scheme Document (also available from the Forest Service), which represents the administrative provision for the implementation of the Native Woodland Scheme in Ireland, as approved under the National Development Plan 2007-2013.

familiarise themselves fully with the contents of this manual. Further amendments to the manual are likely as the scheme develops.

The Forest Service welcomes comments and suggestions on the NWS and this manual. Please direct feedback to Kevin Collins, Forestry Inspector, Forest Service, Department of Agriculture, Fisheries & Food, Kildare Street, Dublin 2 (e-mail Kevin.Collins@agriculture.gov.ie).

1.2 Features of the Native Woodland Scheme

Landowners should inform themselves fully of the implications involved before applying under the NWS, and should be aware that other Forest Service schemes may be more appropriate.

The NWS differs from other Forest Service schemes in ways that reflect its specific aims and underlying ecological principles. Some of its key features are outlined below.

Aim

The NWS is aimed specifically at protecting and expanding Ireland's native woodland resource and associated biodiversity, through the use of appropriate close-to-nature silviculture.

Structure

The NWS includes two separate elements.

- **Element 1: Conservation** provides funding for the protection and enhancement of *existing* native woodland, and (where appropriate) the conversion of non-native forest to native woodland.
- **Element 2: Establishment** provides funding for the establishment of *new* native woodland on open sites, through planting and/or natural regeneration.

Grants and premiums

Depending on the applicant's status:

- Element 1 includes a Conservation Grant and a Conservation Premium;
- Element 2 includes an Establishment Grant and an Establishment Premium (and, where eligible, an additional premium under the Forestry Environment Protection Scheme (FEPS)).

Native woodland type

Each project under the NWS must promote the native woodland type or types identified (based on soil, vegetation, elevation, etc.) as being the most appropriate for that particular site.

Species

All planting and natural regeneration under the NWS is limited to species deemed native to the island of Ireland.

Seed source

In order to conserve native genetic biodiversity, all planting material used under the NWS must originate from seed collected from suitable sources within the island of Ireland. Further restrictions apply to woodlands designated as candidate Special Areas of Conservation (cSACs) and Natural Heritage Areas (NHAs, pNHAs).

Native Woodland Plan

NWS applications involve a site-specific Native Woodland Plan prepared jointly by an ecologist and a forester in consultation with the applicant. This plan is key, setting out the specific ecological priorities (including the most appropriate native woodland type(s)) for the site, and the proposed management objectives and operations.

NWS Participating Ecologists and Foresters

Ecologists and foresters working with the NWS must satisfy the Forest Service that they have the necessary knowledge and expertise to undertake the type of work involved. In this regard, individuals must fulfil certain criteria before being added to the list of NWS Participating Ecologists and NWS Participating Foresters.

Designated areas

Projects within designated areas (cSACs, NHAs, pNHAs, SPAs) may be eligible for funding under the NWS where, following consultation with NPWS, they are deemed to be ecologically compatible with the particular designation.

Close-to-nature silviculture

All woodlands under the NWS must be managed into the future using close-to-nature silviculture, based on single tree / group felling and restocking *via* planting and/or natural regenerating. The scheme creates opportunities for implementing traditional and historic forms of woodland management that form part of our countryside heritage, including coppicing and woodland pasture systems.

Wood and non-wood products and services

The realisation of wood and non-wood products and services is encouraged under the NWS, where compatible. Realising such opportunities forms the basis for the long-term sustainability of Ireland's native woodlands beyond the NWS. For further information, see *Realising Quality Wood from Ireland's Native Woodlands: Silvicultural Guidelines for Wood Production in the Context of the Native Woodland Scheme*[3].

[3] Contact Woodlands of Ireland (e-mail woodsofireland@iol.ie / web www.woodlandsofireland.com) for further information.

Partnership

The NWS is under constant review and development by the Forest Service, in partnership with Woodlands of Ireland, NPWS, Coillte, Regional Fisheries Boards, the Heritage Council, COFORD and other stakeholders.

Training

The implementation of the NWS is supported by an extensive training programme run by the Forest Service in association with Woodlands of Ireland, and the production by Woodlands of Ireland, with Forest Service funding, of a series of NWS Information Notes on different topics relevant to the scheme.

1.3 Targeting the Native Woodland Scheme

The NWS is a key biodiversity measure within Ireland's national forest policy framework. The Forest Service encourages its strategic use, particularly in relation to the enhancement, expansion and amalgamation of existing native woodlands, and the development of native riparian woodland (see below). This approach creates wider benefits, linking up fragmented habitats and creating wildlife corridors at a landscape level.

The NWS and native riparian woodland

The NWS has a particular role in the development of native riparian woodland along streams, rivers and lakes. Element 1 can be used to enhance existing native riparian woodland or (where appropriate) to convert non-native forest to native riparian woodland. Element 2 can be used to establish new native riparian woodland on open sites, through planting and/or natural regeneration.

With careful design and management based on input from the relevant statutory bodies (Regional Fisheries Boards, NPWS), these woodlands can enhance the aquatic habitat and water quality in a number of ways. They provide direct benefits such as selective shading and cooling, the interception of sediment loads, riverbank stabilisation and the input of food into the aquatic system, and help to reinstate natural hydrological dynamics between land and water. Native riparian woodlands also provide a permanent buffer against runoff and other negative impacts from surrounding landuses. These functions can be enhanced further by adopting a strategic approach, whereby native riparian woodland is developed at key locations within a particular catchment. This application of the NWS is highly relevant in relation to the Freshwater Pearl Mussel and the Water Framework Directive.

Appendix 1 sets out a general framework outlining how the NWS can be applied on sites adjoining waterbodies. Further detailed guidance is contained in the NWS Information Note entitled *Native Riparian Woodlands: A Guide to Identification, Design, Establishment & Management*[4].

[4] Contact Woodlands of Ireland (e-mail woodsofireland@iol.ie / web www.woodlandsofireland.com) for further information.

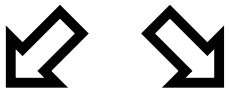
In addition to the above, the Forest Service may also place greater emphasis on the following when assessing applications:

- sites that are free of severe and persistent threats that would otherwise undermine the long-term sustainability of the woodland (e.g. sites within an area infested with rhododendron or overrun with deer may not be accepted);
- projects that rely less on oak (e.g. projects promoting non-oak native woodland types, projects involving natural regeneration, projects in which other species within the planting mix can be increased), in order to make the best use of the limited supply of suitable oak planting material; and
- projects that enable a regional spread and a balanced uptake between applicants.

Section 2

How the Native Woodland Scheme operates

Applicants can apply under
Element 1 or Element 2 of the NWS



Element 1: Conservation…

…is aimed at protecting and enhancing *existing* native woodland, and (where appropriate) converting non-native forest to native woodland.

Depending on the applicant's status, Element 1 includes a Conservation Grant and a Conservation Premium.

See Section 3 for full details.

Element 2: Establishment…

…is aimed at establishing *new* native woodland on open sites, through planting and/or natural regeneration.

Depending on the applicant's status, Element 2 includes an Establishment Grant and an Establishment Premium (and, where eligible, an additional FEPS premium).

See Section 4 for full details.

Element 1 and Element 2 must be applied for separately, and not as part of the same application. See Section 6.4 in relation to decisions regarding which element to select.

Projects previously grant-aided for improvement or establishment under any other Forest Service scheme may not be eligible under the NWS for similar works, unless significant ecological benefits will be realised.

The following flow chart summaries the application process under both Element 1 *and* Element 2.

APPLICATION

The applicant contacts a NWS Participating Forester and Participating Ecologist. A list of both is available from the Forest Service.

(To become a Participating Forester or a Participating Ecologist, individuals must meet certain criteria. See Appendices 2 and 3 for details.)

Working together and in consultation with the applicant (see Appendix 4), the Participating Ecologist and Participating Forester prepare the Native Woodland Plan, adhering to the template in Appendix 5. This document is submitted to the Forest Service along with a NWS Form 1 and maps (see Section 5 for full details regarding what is required).

Applicants must be fully aware of the requirements (including site requirements) of the NWS, to avoid applications being developed for unsuitable projects, the cost of which will not be recoupable.

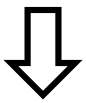
Note that incomplete applications (including incomplete Native Woodland Plans and mapping) will result in delays and/or applications being returned.

APPROVAL

The Forest Service assesses the application, consulting with prescribed bodies (NPWS, Regional Fisheries Boards, Local Authorities) and with the general public, as set out in the *Forestry Schemes Manual*. Standard Environmental Impact Assessment provisions apply.

If accepted, the Forest Service issues a Letter of Approval (with conditions) to the applicant, with copies sent to both the Participating Forester *and* the Participating Ecologist.

Work can only commence after receipt of this letter.



1st INSTALMENT	On completion of initial works, the applicant submits a NWS Form 2 plus the necessary maps and documentation (statement of costs, tax clearance certificates, Supplier's Document / Provenance Declaration Form, ownership details, evidence of farmer status (if relevant), etc. – see the *Forestry Schemes Manual*). The site is inspected to confirm that those operations listed in the Native Woodland Plan for completion by Form 2 submission, have indeed been completed to the required standard. The relevant 1st Instalment and premium(s) are then paid.

2nd INSTALMENT	Four years (i.e. 48 months) after the date of completion of initial works, the 2nd Instalment becomes payable. The applicant submits a NWS Form 3. The site is inspected to confirm that those operations listed in the Native Woodland Plan for completion by Form 3 submission, have indeed been completed to the required standard, and that the overall short-term objectives have been achieved. The relevant 2nd Instalment is then paid. The 2nd Instalment can be delayed if necessary, e.g. to allow a longer period for natural regeneration (see Section 6.12).

ONGOING INSPECTION	All NWS sites are subject to ongoing inspection by the Forest Service, to ensure the continued implementation of the approved Native Woodland Plan and continued compliance with the NWS requirements. Failure in this regard may result in the recouping of grant aid and/or the cessation of premium payments. The standard Forest Service penalty system applies.

Section 3
Element 1: Conservation

3.1 What is the scope of Element 1?

Element 1: Conservation provides funding for the protection and enhancement of existing native woodland, and (where appropriate) the conversion of existing non-native forest to native woodland. The following rules apply.

Element 1 is limited to woodlands where *two-thirds or more* of the existing overstorey stocking comprises native species.

Woodlands where native species account for less than two-thirds of the existing overstorey stocking may still be eligible under Element 1 in the following situations:

- where the site is a woodland designated as a cSAC, NHA, pNHA or SPA;
- where it can be demonstrated that the site is an Old Woodland Site, whereby original 6 inch Ordnance Survey maps show continuous woodland/forest cover since the 1830s;
- where conversion to native woodland would impart key benefits, in terms of the aquatic habitat and water quality, to an adjoining strategic waterbody; or
- where the site is strategically located, whereby its conversion to native woodland would expand and/or amalgamate existing native woodlands within the locality.

Other cases may also be acceptable, where the Forest Service is satisfied that

significant ecological benefits will be realised.

The primary focus of Element 1 is to promote the most appropriate native woodland type (or types) for the site, as identified in the Native Woodland Plan. This often necessitates **the removal of non-native species** (e.g. beech, sycamore, fir, spruce) that may be present as individuals, groups or stands, and their replacement with appropriate native species through planting and/or natural regeneration.

Depending on ecological and silvicultural considerations, operational issues and other factors, the ideal rate of removal of non-natives will vary from site to site, from immediate removal (through selective felling or clearfell) to a more gradual removal over a number of years.

Generally, non-native species must be removed from the site by the 2nd Instalment, unless clear ecological, silvicultural or other reasons presented in the Native Woodland Plan justify a more gradual approach. The Forest Service will carry out spot inspections into the future to ensure that the process of gradual removal, where approved, continues after the 2nd Instalment.

In all cases:

- **NWS approval must be secured *before* any felling operations take place** on the site.
- Due to their biodiversity, cultural and landscape value, **non-native veteran trees can be retained indefinitely**. However, the position of these trees must be marked on a Native Woodland Plan Map (see Appendix 5) as small features of biodiversity value, and all associated natural regeneration controlled.
- Where **marketable quantities of valuable timber** are realised from thinning and felling carried out as part of an approved Native Woodland Plan, the Forest Service may reduce the level of grant payable, taking account, for example, of the normal costs involved in fulfilling replanting obligations.
- Where proposed, applicants should take full account of possible future health and safety considerations arising from stem injection and ring-barking.

NWS applications must adhere to the 1946 Forestry Act. Applications for a Felling Licence should be made prior to or in tandem with the NWS application, to avoid delays after NWS approval.

Applicants wishing to retain significant numbers of non-native species, or to manage their woodland on a predominantly commercial basis, are directed towards the **Woodland Improvement Scheme**.

3.2 What operations are eligible under Element 1?

Eligible operations under Element 1 include the following.

- Preparation of the Native Woodland Plan
- Purchase of suitable planting stock
- Ground preparation, where appropriate
- Forest protection (fencing and other measures)
- Clearance of invasive species such as laurel and rhododendron
- Tree felling, where appropriate
- Woodland rejuvenation (including planting, natural regeneration works and filling-in)
- Maintenance (including vegetation management)
- Woodland edge management
- Maintenance of open spaces
- Respacing
- Coppice restoration
- Other appropriate operations, where agreed in advance with the Forest Service

3.3 What is the grant rate under Element 1, and how is it paid?

The grant payable under Element 1 is based on approved direct costs subject to the maximum rate of €5,000 / ha. If the applicant is registered for VAT, the grant is exclusive of VAT (and *vice versa*). The grant is paid on the following basis.

At Form 2 submission, the applicant submits details of management costs incurred up to that point **and** anticipated costs for the next 4 years. Subject to the eligibility of the submitted costs, 75% of these costs **or** 75% of the maximum grant is paid, whichever is the lesser amount. This represents the 1st Instalment.

The 2nd Instalment becomes payable 4 years (i.e. 48 months) after the date of completion of the initial works, based on the submission of a Form 3 and assessment. The payment will be 25% of the approved costs presented at Form 2 stage **or** 25% of the maximum grant, whichever is the lesser amount.

3.4 Is there a premium available under Element 1?

Private landowners under Element 1 may be eligible for an annual Conservation Premium of €350 / ha, payable for a period of 7 years, subject to the ongoing implementation of the approved Native Woodland Plan. ***This Conservation Premium is only available to private landowners, and commences with the 1st Instalment.***

3.5 Large sites and coppice restoration projects

Under Element 1, a multi-annual mechanism is potentially available for large (40 ha+) sites and sites involving coppice restoration. See Appendix 6 for details.

Section 4
Element 2: Establishment

4.1 What is the scope of Element 2?

Element 2: Establishment provides funding for the establishment (through planting and/or natural regeneration) of new native woodland on open sites that have not been under forest cover in recent times.

4.2 What operations are eligible under Element 2?

Eligible operations under Element 2 include the following.

- Preparation of the Native Woodland Plan
- Purchase of suitable planting stock
- Ground preparation, where appropriate
- Forest protection (fencing and other measures)
- Clearance of invasive exotic species and other woody growth, where ecologically appropriate
- Planting, natural regeneration works and filling-in
- Maintenance (including vegetation management)
- Other appropriate operations, where agreed in advance with the Forest Service

4.3 What is the grant rate under Element 2, and how is it paid?

The grant payable under Element 2 corresponds to the Grant / Premium Category 6 (GPC6) of the general Afforestation Scheme, but applies to *all species* acceptable under the NWS. The grant is paid in two fixed rate instalments (see below), *plus* an additional allowance for fencing. Contact the Forest Service for further details.

1st Instalment ***€ / ha***	***2nd Instalment*** ***€ / ha***	***Total grant*** ***€ / ha***
4,809.25	1,660.82	6,470.07

The 2nd Instalment becomes payable 4 years (i.e. 48 months) after the date of completion of the initial works, based on Form 3 submission and the satisfactory maintenance of the woodland.

4.4 Is there a premium available under Element 2?

Depending on status, applicants under Element 2 may be eligible for an Establishment Premium for up to 20 years, commencing with the 1st Instalment of the grant. This premium corresponds to the GPC6 of the general Afforestation Scheme, but applies to *all species* acceptable under the NWS. Terms and conditions set out in the *Forestry Schemes Manual* apply.

The relevant premium rates are as follows:

Farmer Premium (€ / ha) *Annual payment for 20 years*			***Non-farmer premium (€ / ha)*** ***Annual payment for 15 years***
Site area			
< 6 ha	***≥6 ha to <12 ha***	***≥ 12 ha***	
€544.65	€559.26	€573.86	€211.73

The 5-year premium available under the Forestry Environment Protection Scheme (FEPS) may also be available to applicants who fulfil the requirements of that scheme. See FEPS documentation for details.

Section 5
Applying under the Native Woodland Scheme

Applications under the NWS must include the following.

NWS Form 1 (copies available from the Forest Service)

- This form includes applicant, site location and ownership details, and environmental information required for consultation purposes. It also includes information on the basic site details and the operations and species proposed, summarised from the Native Woodland Plan.
- The Form 1 is signed by the applicant and the Participating Forester.

Native Woodland Plan and accompanying mapping

- The Native Woodland Plan sets out the specific ecological priorities (including the most appropriate native woodland type(s)) for the site, and the proposed management objectives and operations.
- The Native Woodland Plan must adhere strictly to the template in Appendix 5.
- The Native Woodland Plan is jointly prepared by the Participating Forester and the Participating Ecologist in consultation with the applicant. See Appendix 4 for an overview of this process.
- As set out in Appendix 5, various maps are required as part of the Native Woodland Plan to illustrate soil types, existing habitats and small features of biodiversity value, native woodland types to be promoted, and operational areas.

Certified Grant Map

- A Certified Grant Map showing the site and plot boundaries is required for grant and premium calculation.
- An original 6 inch OS map is required. The standard mapping conventions (including legend) set out in the *Forestry Schemes Manual* apply.
- Regarding plot information and the "Grant / Premium Category" (GPC) column on the Certified Grant Map legend:
    - A single GPC applies under Element 1, i.e. 'NWS E1 GPC'.
    - A single GPC applies under Element 2, i.e. 'NWS E2 GPC'.
- Areas of Biodiversity Enhancement (ABEs) greater than 40 m in width must be mapped as plots.

Site Location Map

A site location map is required, based on a Discovery Series 1:50,000 map, as set out in the *Forestry Schemes Manual*.

Fire plan

A fire plan is required, as set out in the *Forestry Schemes Manual* and the *Forest Protection Guidelines*.

NOTES

- ***Element 1 and Element 2 must be applied for separately, and not as part of the same application.*** See Section 6.4 in relation to decisions regarding which element to select.
- ***Incomplete applications (including incomplete Native Woodland Plans and mapping) will result in delays and/or applications being returned.***
- A Biodiversity Map and Cultivation Map are not required under the NWS, as the relevant information will appear on one or more of the maps required as part of the Native Woodland Plan.
- The NWS Form 1 and Native Woodland Plan must both be signed by the same Participating Forester. This individual must also be directly involved in overseeing the subsequent work, and is also required to sign the NWS Form 2.

Section 6
Native Woodland Scheme Standards

6.1 Overview

This section sets out the standards specific to the NWS, and are in addition to standards set out in the *Forestry Schemes Manual*.

Each NWS project will have a unique Native Woodland Plan setting out the specific ecological priorities for the site (including the most appropriate native woodland type(s)), and the proposed management objectives and operations. ***All operations must be carefully tailored in order to achieve the objectives with the minimum site disturbance possible*.**

Note that the Forest Service *Code of Best Forest Practice – Ireland* and suite of environmental guidelines apply to the NWS. These guidelines include:

Forestry & Water Quality Guidelines
Forest Biodiversity Guidelines
Forestry & Archaeology Guidelines
Forest Protection Guidelines
Forestry & The Landscape Guidelines
Forest Harvesting & The Environment Guidelines

All woodlands and woodland activities are subject to the provisions of the Forestry Act 1946, as may, from time to time, be amended or replaced.

6.2 Site requirements

The following site requirements apply under the NWS. These are in addition to standard requirements under cross-compliance, etc.

- ***The site must be capable of supporting the vigorous growth and sustainable development of the proposed native woodland type(s).***
- High elevation sites and severely exposed sites are excluded from the NWS, as are sites with rock outcrops over 25% of the area, and sites with a shell marl within 50 cm of the soil surface.
- Sites where woodland development is deemed ecologically inappropriate, due to the presence of an existing non-woodland habitat of ecological significance, are excluded. This may apply to designated *and* undesignated sites.
- The site must be at least 0.1 ha in area.
- The minimum average width acceptable under the scheme is 20 m 'tree-to-tree' (i.e. *excluding* open spaces such as aquatic buffer zones, public road setbacks and archaeological exclusion zones).
- Where a farm is under REPS, an application may be made under the NWS, but the NWS area must be excluded from the REPS claim area.
- The protocol for the determination of the acid sensitivity of surface water, as detailed in the *Forestry Schemes Manual*, applies to Element 2 applications within acid sensitive areas.

6.3 Areas of Biodiversity Enhancement (ABEs)

Under the NWS, between 18% and 20% of the site must comprise Areas of Biodiversity Enhancement (ABEs). ABEs include open spaces and retained habitats, as described in the Forest Service *Forestry & Biodiversity Guidelines*.

Where localised areas unsuitable for planting (e.g. due to silvicultural or ecological reasons) exceed the 20% ABE allowance, the net area approach can be applied. Such areas can be retained within the overall project area, but excluded for the purpose of grant and premium payment.

6.4 Element 1 or Element 2?

The following general rule applies in relation to decisions regarding whether to apply under Element 1: Conservation or Element 2: Establishment.

Sites containing both open space and tree cover may need to be divided into two separate applications under Element 1 and Element 2. However, the following tolerances are allowed, subject to Forest Service agreement.

- *Sites submitted under Element 1: Conservation can initially comprise up to one-third existing open space*. Within the Native Woodland Plan, these existing open spaces can be subsequently treated as a combination of open habitats to be retained and areas for planting / natural regeneration.
- *Sites submitted under Element 2: Establishment can initially comprise up to one-third existing tree cover*. Within the Native Woodland Plan, this existing tree cover can be subsequently treated as woody habitats to be retained (e.g. hedgerows), or simply incorporated into the future woodland cover.
- Separate Element 1 and Element 2 applications may still be required in various situations, for example, where the above portions are exceeded or where, on very large sites, they represent sizeable areas. The Forest Service will assess borderline situations on a case-by-case basis.
- Where an individual submits Element 1 and Element 2 applications for two adjoining areas, the Forest Service will recognise that fencing along the conjoining boundary may not be necessary.

6.5 Treatment of non-native species

Generally, under both Element 1 and Element 2, non-native species must be removed from the site by the 2nd Instalment, unless clear ecological, silvicultural or other reasons presented in the Native Woodland Plan justify a more gradual approach.

Due to their biodiversity, cultural and landscape value, non-native veteran trees can be retained indefinitely. However, the position of these trees must be marked on a Native Woodland Plan Map as small features of biodiversity value, and all associated natural regeneration controlled.

6.6 Native woodland type

Each project under the NWS must promote the native woodland type or types identified as being the most appropriate for that particular site. This identification is made during the development of the Native Woodland Plan (see Appendix 5), based on soil, ground vegetation, existing tree cover, climate, elevation, etc. and using the NWS Classification System (see Appendix 7).

Promoting the most appropriate native woodland type(s) for the site (e.g. A1. Species-poor oak woodland on drier sites; C1. Wet pedunculate oak-ash woodland rich in species) becomes the principle management objective and will influence operations. For example, under Element 1, it will have a direct bearing on which species to favour within an existing woodland, through thinning, coupe planting, etc. Under Element 2, it will have a direct bearing on species selection and planting mixtures.

6.7 Acceptable species

All species proposed for planting and natural regeneration under both elements of the NWS must be:

- acceptable under the scheme (see Table 1 below), *and*
- representative of the native woodland type or types being promoted, as described in the NWS Classification System, Appendix 7.

Other native species not listed in Table 1 may be acceptable (e.g. species with a restricted natural range). If proposed, provide full details in the Native Woodland Plan.

For all planting under both Element 1 and Element 2, initial stocking should typically comprise 85% overstorey species and 15% understorey and minor species (see Table 1). (In all cases, the species selected must reflect the particular native woodland type being promoted.) A higher percentage of understorey and minor species may be acceptable where such species dominate the native woodland type being promoted, e.g. hazelwood on limestone, wet woodland dominated by willow. Where proposed, provide full details in the Native Woodland Plan.

Table 1 Acceptable species under the NWS.

Overstorey and major species	
Alder	*Alnus glutinosa*
Silver birch	*Betula pendula*
Downy birch	*Betula pubescens*
Ash	*Fraxinus excelsior*
Sessile oak	*Quercus petraea*
Pedunculate oak	*Quercus robur*
Scots pine	*Pinus sylvestris*
Understorey and minor species	
Hazel	*Corylus avellana*
Hawthorn	*Crataegus monogyna*
Spindle-tree	*Euonymus europaeus*
Holly	*Ilex aquifolium*
Crab apple	*Malus sylvestris*
Aspen	*Populus tremula*
Wild cherry	*Prunus avium*
Blackthorn, sloe	*Prunus spinosa*
Eared willow	*Salix aurita*
Goat willow	*Salix caprea*
Rusty willow	*Salix cinerea* subspp. *oleifolia*
Elder	*Sambucus nigra*
Rowan	*Sorbus aucuparia*
Yew	*Taxus baccata*
Guelder rose	*Viburnum opulus*

6.8 Planting material

In order to promote the conservation of genetic biodiversity, all planting material used under the NWS must be: (i) ***derived from suitable seed sources from within Ireland***; and (ii) ***fully traceable*** from seed collection to the planting site.

All planting material used under the NWS[5] is subject to the requirements of the EU Council Directive 1999/105/EC on the marketing of forestry reproductive material, and to specific Forest Service grant scheme requirements.

[5] Including planting material collected from a site for eventual planting back into that same site, regardless of where the material is grown on.

In practice, the following apply.

- As set out in Table 2, planting material for different species must come from specific sources. The tick mark (✓) indicates which source is acceptable for each species. **All sources must be within the island of Ireland**.

Table 2 Acceptable sources for planting material under the NWS.

	Pedunculate & sessile oak	Scots pine	All other species
A registered seed stand included in the National List of Basic Material in the category 'Selected', and *regarded* as being indigenous	✓		✓
A registered seed stand included in the National List of Basic Material for gene conservation	✓	✓	✓
A registered seed stand included in the National List of Basic Material in the category 'Selected', and of Scottish origin		✓	
A seed orchard included in the National List of Basic Material in the category 'Qualified', and of Scottish origin		✓	
A seed source or stand included in the National List of Basic Material in the category 'Selected' or 'Source Identified' (including forests, hedgerow trees and individual trees), and regarded as being indigenous and heterogenous			✓

- Furthermore, all planting material used within a woodland designated as a NHA, pNHA or cSAC must originate from seed collected from within that area, or from an alternative site acceptable to both the Forest Service and NPWS.
- All seed collectors must be registered with the Forest Service before any collection takes place.
- An application for a seed collection permit must be made to the Forest Service in advance of any proposed seed collection. The collection is subject to an audit inspection. Following the collection, a Master Certificate

of Provenance is normally issued. This document is retained by the registered seed collector.

- All suppliers of planting material (nurseries, plant brokers) must be registered with the Forest Service.
- For traceability purposes, a Supplier's Document / Provenance Declaration Form incorporating the unique number of the Master Certificate of Provenance must then accompany the seed or plant material through the nursery cycle to the final planting site, and must be produced by the applicant for grant payment purposes.
- Seed collectors should note that where seed of regulated tree species is marketed, specific seed testing data must also be included on the Supplier's Document / Provenance Declaration Form.

Related notes

- The following relevant 'categories' of seed or planting material are listed in Council Directive 1999/105/EC:
    - ***Source Identified*** This category is the basic standard. In relation to the seed collected, the geographic location of the seed source or stand is known.
    - ***Selected*** This category is seed or planting material derived from a stand that has been specifically phenotypically selected and delineated.

    - ***Qualified*** This is seed or planting material derived from seed orchards.
- ***National Register of Basic Material / National List of Basic Material*** These official documents, as specified in Council Directive 1999/105/EC, are essentially the same. The National Register of Basic Material (commonly referred to as the

National Register of Seed Stands) incorporates all approved seed sources, seed stands, seed orchards, seed categories, ownership details, current status and maps. The National List of Basic Material, publicly available at www.agriculture.gov.ie/forestservice, is a summary of the National Register presented in a common standardised EU-wide format.

- The National Register of Basic Material is maintained by COFORD[6] on behalf of the Forest Service. ***Landowners who wish to have stands considered for inclusion in the National Register should apply to the Forest Service (contact FRM@agriculture.gov.ie) or COFORD (the registration of stands for understorey and minor species is particularly welcome). Of particular relevance to the NWS is the fact that stands can now be registered for the purpose of gene conservation.***

6.9 Pest and diseases

Irish forests are recognised under the EU Plant Health Directive as being among the healthiest in Europe, with relatively few serious forest pests or diseases. This is mainly due to Ireland's island status, the relative newness of the forest estate, and the enforcement of forest plant health regulations. However, the increasing movement of forest plants and wood products between countries increases the risk of potentially very damaging forest pests and diseases spreading to Ireland.

Forest Service policy is to maintain a healthy forest environment by ensuring good management, identifying risks and maintaining a sustained commitment to measures that prevent the entry and establishment of destructive forest pests and diseases. Measures include strict controls under the EU Plant Health Directive to prevent the entry of exotic insect pests and diseases, and ongoing surveys for quarantine forest pests and diseases, to enable early detection and action.

The Forest Service encourages all those involved in the NWS, or in any other tree- or forest-related activity, to immediately contact the local Forest Service Inspector if any unusual pest or disease is observed.

[6] COFORD, The National Council for Forest Research & Development, Arena Road, Sandyford, Dublin 18 (tel. 01-213 0725 / e-mail info@coford.ie).

Information note: *Phytophthora ramorum* causal agent of Sudden Oak Death Disease

Since first reported in the mid-1990s, significant numbers of oak trees and other plant species have been damaged or killed in California and other parts of the western United States by a newly described disease, commonly known as Sudden Oak Death. The disease is caused by a species of fungus named *Phytophthora ramorum*. The same fungus had also been found in many EU countries, mainly on the shrub species *Rhododendron* and *Viburnum*.

Under the EU Plant Health Directive, emergency legislation was introduced in 2002 to prevent the introduction into and the spread within the EU of *Phytophthora ramorum*.

Since 2003, annual surveys have been carried out throughout the EU including Ireland. *Phytophthora ramorum* has been found in many EU Member States. The vast majority of findings have been on plants of *Rhododendron* and *Viburnum* species. In relation to tree species, the fungus has been found in Britain on a range of tree species including a number of oak species, beech, ash, sycamore, Spanish chestnut and horse chestnut. In the Netherlands, the fungus has been found on beech and red oak.

In Ireland, the fungus has been found on *Rhododendron* at three forest locations, and containment/eradication measures have been implemented. The fungus has also been detected in garden centres and nurseries on *Rhododendron* and *Viburnum*. To date, there have been no findings on any tree species in Ireland. However, the concern is that if more *Rhododendron* becomes infected, the fungus could spread to susceptible tree species.

Forest owners are encouraged to report unusual symptoms of disease on *Rhododendron*, such as wilting, to their local Forest Service Inspector.

Further advice is available from Forest Protection & FRM Section, Forest Service (tel. 1890-200510 (LoCall) or 01-607 2651 / e-mail forestprotection@agriculture.gov.ie).

Plant Passports

In the context of the EU Internal Market, Ireland has been granted a special Protected Zone status with regard to 11 harmful forest pests and diseases. A Protected Zone is essentially an area in the EU where a pest of quarantine significance, established in other parts of the EU, is not present despite favourable conditions for it to establish.

Plants of those species acceptable under the NWS and listed in Table 3 below should only be purchased from nurseries registered under the EU Plant Health Directive. Furthermore, the plants must be accompanied by a valid EU Plant Passport to certify freedom from the relevant pests and diseases.

Plants of Scots pine, rowan, hawthorn and crab apple require a special Protected Zone (abbreviated ZP, *Zona Protecta*) Plant Passport valid for the island of Ireland. This is

normally issued using the codes indicated in Table 3. These details are found on the delivery note and/or accompanying label issued by the registered nursery and also on the Supplier's Document / Provenance Declaration Form.

Table 3 NWS species requiring an EU Plant Passport.

Species	**Protected Zone Code**
Scots pine (*Pinus sylvestris*)	ZP Conf.
Rowan (*Sorbus aucuparia*)	ZP B2
Whitebeam (*Sorbus aria*)	ZP B2
Crab apple (*Malus sylvestris*)	ZP B2
Hawthorn (*Crataegus monogyna*)	ZP B2
Wild cherry (*Prunus avium*)	Protected Zone Code not applicable, but a standard Plant Passport is required
Blackthorn, sloe (*Prunus spinosa*)	Protected Zone Code not applicable, but a standard Plant Passport is required

The following is an example of a valid Plant Passport for rowan:

EU Plant Passport
IRL/DAFF/1234
Sorbus aucuparia ZP B2

- 'DAFF' is an abbreviation for the statutory authority for plant health, the Department of Agriculture, Fisheries & Food
- '1234' is a unique registration number for the nursery
- 'ZP B2' is the coding to indicate that the plants are free of fireblight disease and are free to move into or within Ireland
- The quantity and a unique batch number must also be supplied

Note that, as specified above, all planting material under the NWS must derive from suitable sources from within the island of Ireland.

6.10 Planting density and spacing

The standard planting density and spacing for all planting under both Element 1: Conservation and Element 2: Establishment is 3,300 trees / ha and 2.0 m x 1.5 m, respectively. These specifications are aimed at promoting rapid establishment and the development of a vibrant emerging canopy in areas planted under both elements.

Under both Element 1 and Element 2:

- As described in Section 6.7 and Table 1, for all planting under both elements, initial stocking should typically comprise 85% overstorey species and 15% understorey and minor species. In all cases, the species selected must reflect the particular native woodland type being promoted.
- Wider spacing may be acceptable in localised areas for conservation purposes. Closer spacing is also acceptable, for example, to promote good stem formation in areas where the long-term production of quality oak timber is an objective. If wider or closer spacing is proposed, provide full details in the Native Woodland Plan.

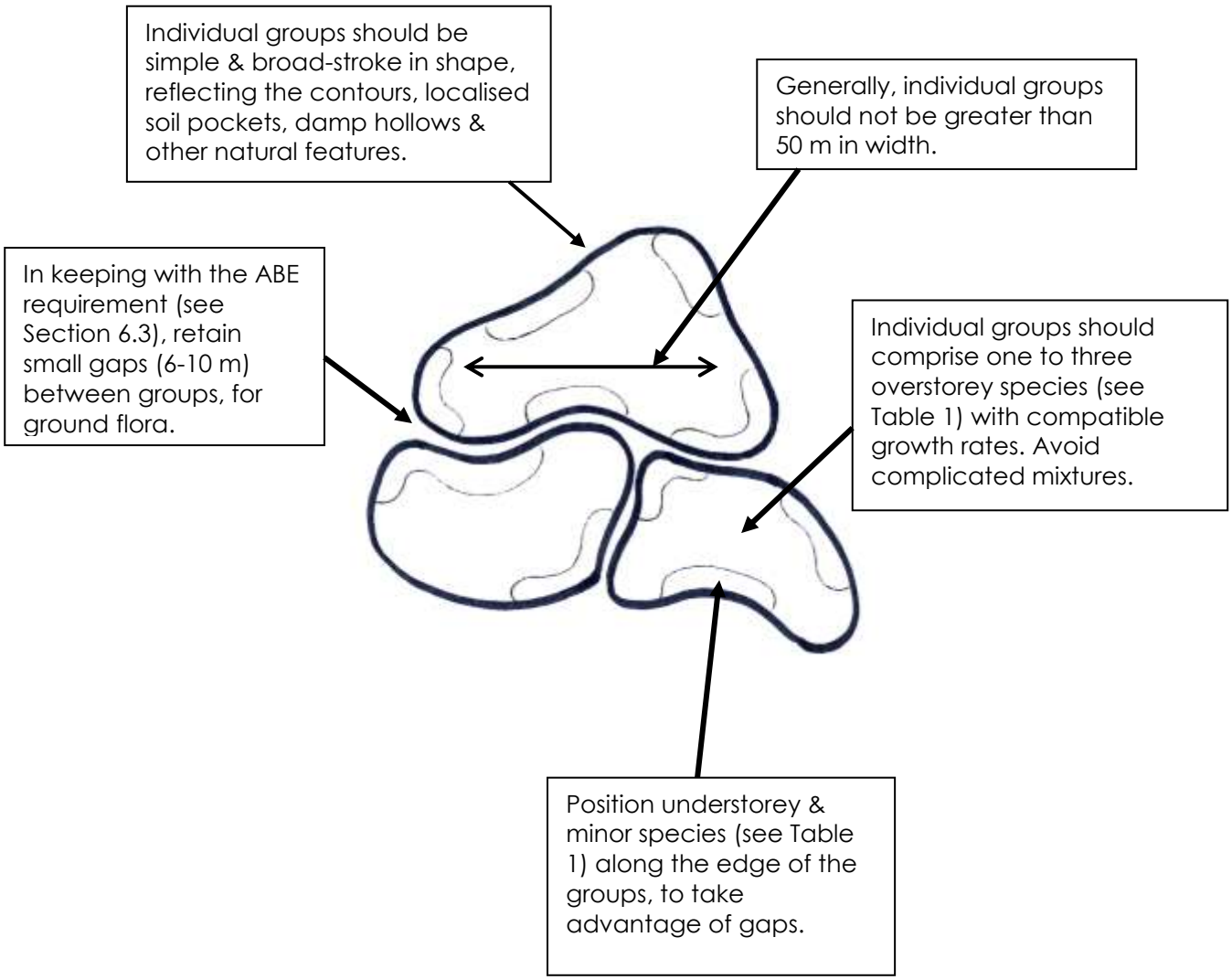
6.11 Group planting

Group planting is acceptable under both Element 1 and Element 2 of the NWS, to allow for a more natural planting pattern that reflects the micro-conditions of the site. However, if proposed, full details must be provided in the Native Woodland Plan.

Figure 1 illustrates the main principles for group planting. A future NWS Information Note[7] will provide further information on group planting within the context of the NWS.

[7] Contact Woodlands of Ireland (e-mail woodsofireland@iol.ie / web www.woodlandsofireland.com) for further information.

Figure 1 Principles for group planting under the NWS.



6.12 Natural regeneration

Natural regeneration (NR) is the establishment of new trees from seed arriving naturally (by animals, wind, water, etc.) onto the site from overhead, adjoining or nearby seed sources.

Within the context of the NWS, NR has many advantages over planting (e.g. conservation of the local genetic biodiversity, lower site input, reduced pressure on limited planting stock). However, it is difficult to predict whether or not NR will be successful on a given site, particularly within the available timeframe of the NWS.

NR is eligible under both Element 1 and Element 2 of the NWS, subject to the following rules:

- Areas on the site where NR is to be actively pursued are to be clearly identified on a Native Woodland Plan Map, and relevant operations described.
- Such areas must be limited to where there is a realistic expectation of success within the timeframe of the NWS (see below). This assessment should be based on, for example, evidence of advanced regeneration or the distance from suitable parent trees in the overhead canopy or adjoining hedgerows. (A typical approach on a particular site would involve a mixture of planting and NR, the latter focused in areas nearest to adjoining seed sources.)
- Preparatory operations associated with these NR areas (scarification, fencing, vegetation control) must be completed before the 1st Instalment can be paid.
- An emerging woodland cover of the required species, comprising 75% of the standard planting density, must be secured before the 2nd instalment can be paid. (Supplementary planting should be carried out, where NR proves

insufficient.) This standard should be reached 4 years (i.e. 48 months) after the completion date of the initial operations. Longer periods may be acceptable on application to the Forest Service.

Where pursued, plan to optimise NR, taking account of likely mast years, wind direction, etc.

6.13 Ground preparation, drainage and fertiliser application

Under the NWS, the focus is on retaining natural site conditions and on selecting native species suited to those conditions. This consideration influences ground preparation, drainage and fertiliser application.

The following methods of **ground preparation** are acceptable under the NWS, as they create minimal site disturbance while facilitating establishment:

- inverted and scrap mounding (photo)
- shallow ripping
- scarification (to assist NR)
- windrowing / piling of lop-and-top
- other forms of light cultivation, where appropriate

Drainage is generally unacceptable under the NWS. The blocking of existing drains may be acceptable, to reinstate natural wet conditions.

Fertiliser application may be acceptable in limited circumstances, for example, to boost growth or to improve artificially impoverished sites. In such cases, the appropriate fertiliser must be applied by hand around the base of each tree.

6.14 Protection

Where necessary, sites must be protected from deer, goats, livestock, rabbits and hares, to prevent damage to newly planted trees, natural regeneration and woodland flora. Such protection may be required on an ongoing basis. All protective measures must adhere to the standards and specifications set out in the *Forestry Schemes Manual*.

Tree guards for protection against rabbit, hare and deer should be used where appropriate, e.g. small sites, low-density planting within aquatic buffer zones, understorey or coupe planting.

Alternative types of fencing (including moveable A-frame fencing), dead hedging (see Section 6.15), stonewall repair and hedge laying may be considered for grant aid, on a case-by-case basis.

Consider access for desirable mammals, e.g. badger gates or otter runs along riverbanks.

All protective measures should be inspected on a regular basis, with maintenance carried out, as needed.

6.15 Vegetation management

For health & safety and environmental reasons, all herbicide use must adhere to the *Forestry & Water Quality Guidelines* and *Forest Protection Guidelines*, and to the *Guidelines for the Use of Herbicides in Forestry*[8].

Under the *Forestry & Water Quality Guidelines*, herbicide use is generally not permitted inside the aquatic buffer zone. However, circumstances may exist where the limited use of herbicides in this zone may be acceptable to the Forest Service, Regional Fisheries Board and (where relevant) NPWS, e.g. the stem injection of large diameter rhododendron.

Establishment

The control of grass, broadleaf herbaceous plants, bramble, bracken, etc. is essential for the rapid establishment and growth of young trees. This consideration applies to both Element 1 and Element 2 of the NWS, and also to both planted and naturally regenerating trees. Poor vegetation management will result in mortality, loss of growth and vigour, and the need for greater input later on (e.g. beating up).

Non-herbicide control (trampling, mulches, mats) is generally only realistic on smaller sites and in highly sensitive areas (e.g. aquatic buffer zones). Otherwise, herbicide application represents the most effective and economical method of vegetation management.

Where used, herbicide application must be kept to the minimum required to ensure success, and should be used in combination with other methods, e.g. scrap mounding (to provide a vegetation-free planting position) and the use of larger stock. Herbicide application should be carried out using a knapsack sprayer, with the aim of maintaining a 1-metre wide control area around the base of each tree, until that tree is free of competition.

[8] Available from Coillte, Dublin Road, Newtownmountkennedy, Co. Wicklow.

Invasive species

A number of invasive species can represent a serious threat to native woodlands on various sites. These include rhododendron, laurel (photo), red osier dogwood, Japanese knotweed, snowberry, and also tree species such as sycamore and beech. Under the NWS, such species must be effectively controlled and removed, through the application of best practice appropriate to the site (cutting and stump treatment, stem injection, foliar spray, mechanical flaying or uprooting, etc.). A long-term strategic approach is required under the NWS, based on initial treatment, follow-up treatment, control (where possible) on adjoining sites, and ongoing monitoring.

Rhododendron represents a significant threat, and treatment includes cutting and stump treatment, the spraying of regrowth, stem injection and mechanical uprooting and removal. NWS Information Note No. 3, entitled *The Control of Rhododendron in Native Woodlands*, sets out current best practice[9].

Cut woody material should be piled neatly onsite or removed, to allow clear access for planting, the spraying of regrowth, etc. Dead hedging may also be an option, where the material is used to create exclosures around planted areas, in order to protect young trees from deer grazing.

Note that heavily infested sites or sites within a heavily infested area may not be accepted under the NWS, as native woodland restoration / establishment may not be a realistic proposition in these cases.

[9] Contact Woodlands of Ireland (e-mail woodsofireland@iol.ie / web www.woodlandsofireland.com) for further information.

6.16 Formative shaping

In projects where timber production is a compatible objective, the formative shaping of selected stems should be applied. See the *Forestry Schemes Manual* for further details.

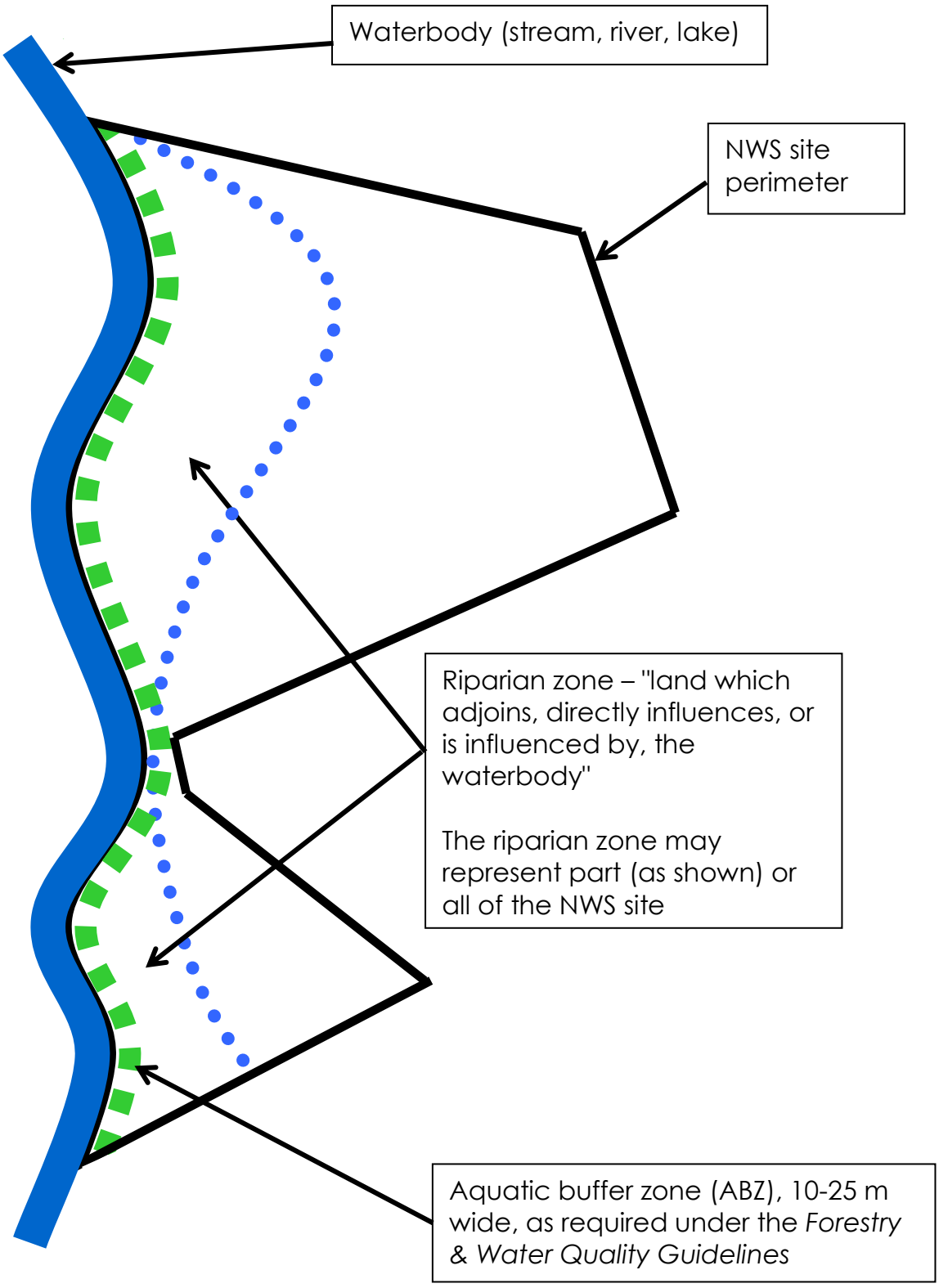
Appendix 1

Sites adjoining waterbodies

As outlined in Section 1.3, the NWS can be used to develop native riparian woodland along streams, rivers and lakes. With careful design and management, such woodlands can enhance the aquatic habitat and water quality through direct benefits such as selective shading and cooling, and by providing a permanent buffer against runoff and other negative impacts from surrounding landuses. This function is further enhanced by adopting a strategic approach, whereby native riparian woodland cover is developed at key locations within a particular catchment.

Within this context, the following is a framework outlining how the NWS can be applied on sites adjoining waterbodies. **Note that variations may be required by the Forest Service in relation to individual projects, based on on-the-ground considerations.**

In setting out the framework, the following diagram represents a 'typical' NWS site adjoining a waterbody.



The general approach regarding the treatment of the riparian zone and the ABZ will depend on the specific site scenario.

Scenario A

Element 1 application involving ***existing native woodland***

Within the riparian zone:

- Maintain existing native tree cover
- Remove non-natives (beech, sycamore, etc.) & invasive exotics (rhododendron, laurel, etc.)
- If necessary, promote the most appropriate native woodland type / woodland structure *via* understorey planting, coupe planting, natural regeneration
- Consider the potential for future wood production

Within the ABZ:

- Maintain the existing native tree cover
- Additional operations, where appropriate, e.g. the removal of non-natives & invasive exotics, or the selective removal of native trees, to counteract tunnelling

Scenario B

Element 1 application involving *the conversion (where appropriate) of non-native forest to native woodland*

Within the riparian zone:

- Sensitive removal of non-natives
- Restock with the most appropriate native riparian woodland type (*via* planting and/or natural regeneration)
- Consider the potential for future wood production

Within the ABZ:

- Sensitive removal of non-natives
- Encourage natural ground vegetation
- Where appropriate, develop approximately 20% native tree cover to deliver direct benefits to the aquatic habitat (interception of sediment loads, selective shading and cooling, riverbank stabilisation and the input of food into the aquatic system). Achieve this through strategic group planting and/or the natural regeneration of suitable species.

Scenario C

Element 2 application involving the establishment of ***new native woodland on an open site***

Within the riparian zone:

- Establish the most appropriate native riparian woodland type (*via* planting and/or natural regeneration)
- Consider the potential for future wood production

Within the ABZ:

- Encourage natural ground vegetation
- Where appropriate, develop approximately 20% native tree cover to deliver direct benefits to the aquatic habitat (interception of sediment loads, selective shading and cooling, riverbank stabilisation and the input of food into the aquatic system). Achieve this through strategic group planting and/or the natural regeneration of suitable species.

In all cases:

- Across the entire site, all planting and natural regeneration must reflect the most appropriate native woodland type(s) for that site. Typically, this will involve a native riparian woodland type (e.g. C1. Wet pedunculate oak-ash woodland – see Appendix 7) within the riparian zone, phasing into anther native woodland type (e.g. B1. Oak-ash-hazel woodland) upslope, as soil, drainage and exposure change.
- The Forest Service *Forestry & Water Quality Guidelines* apply. Protection against runoff, sedimentation, debris entering the waterbody, etc. is paramount. Within the ABZ, all machine operations and herbicide applications are excluded or limited to essential work (such as the removal of existing conifers or the stem injection of large rhododendron).
- Sites subject to the Forest Service *Forestry & Freshwater Pearl Mussel Requirements* may be eligible under the NWS. If Scenario B or C above applies, a 25 m ABZ is stipulated. This ABZ is to include five lines of native broadleaves planted to form a 10 m wide band on the section furthest from the waterbody, site permitting.
- Details regarding design, establishment and management are to be site-specific and set out in the Native Woodland Plan. Detailed guidance is contained in the NWS Information Note entitled *Native Riparian Woodlands: A Guide to Identification, Design, Establishment and Management*[10].
- The design should take account of preferred flowpaths (i.e. small streams and natural depressions that water gravitates towards as it approaches the receiving waterbody) in order to maximise the protection afforded against sedimentation and nutrient runoff from upslope landuses entering the water.
- All activities within the ABZ are subject to the agreement of the Regional Fisheries Board and (where relevant) the National Parks & Wildlife Service.
- Where required, maintain access for anglers.
- Open habitats within the ABZ are to be included within the 18-20% Areas of Biodiversity Enhancement (ABE) requirement of the overall site (see Section 6.3).

[10] Contact Woodlands of Ireland (e-mail woodsofireland@iol.ie / web www.woodlandsofireland.com) for further information.

Appendix 2

Native Woodland Scheme Participating Foresters

As set out in Section 2, a NWS Participating Forester is required to prepare the NWS Form 1 and associated maps, and to work with a NWS Participating Ecologist in drawing up the necessary Native Woodland Plan, in consultation with the owner. NWS Participating Forester status is indicated on the Forest Service list of Registered Foresters, held by the Forest Service, Department of Agriculture, Fisheries & Food, Johnstown Castle Estate, Co. Wexford (tel. 053-9160200 / LoCall 1890 200 223).

Individuals wishing to be listed as a NWS Participating Forester must fulfil both of the criteria set out below.

1. Inclusion on the Forest Service list of Registered Foresters

The individual must already be included on the Forest Service list of Registered Foresters, having fulfilled the respective criteria (regarding qualifications and insurance) required for that list.

2. Completion of the 3-day NWS Training Course

These courses are held periodically by the Forest Service in association with Woodlands of Ireland. Individuals can add their name to the notification list for future courses by contacting Kevin Collins, Forest Service (tel. 01-607 2502 / Kevin.Collins@agriculture.gov.ie).

Appendix 3

Native Woodland Scheme Participating Ecologists

A NWS Participating Ecologist is required to work alongside a NWS Participating Forester to draw up the necessary Native Woodland Plan, in consultation with the owner.

Individuals wishing to be included on the list of NWS Participating Ecologists must satisfy the Forest Service that they are suitably qualified and experienced to undertake the type of work in the area of Irish native woodland ecology involved under the scheme. As such, they must fulfil three criteria.

1. Assessment of qualifications and experience

Individuals wishing to be included on the list of NWS Participating Ecologists are invited to make a submission to the Forest Service setting out their ecological qualifications and experience relevant to the type of work involved under the NWS. This submission should be presented using the following headings:

(i) academic qualification(s) (including the full title of the qualification and of any relevant theses, dissertations, etc. cited);

(ii) relevant work experience, with special emphasis on work involving woodlands; and

(iii) a career timeline clearly illustrating months / years spent working in the relevant field.

The submission must also include an example of recent and relevant work authored by the applicant. This can include, for example, an ecological report, an academic thesis or a scientific publication, and should be photocopy-friendly (e.g. A4, unbound, black & white maps).

Throughout their submission, applicants should in particular highlight their knowledge of woodland botany, their experience in undertaking botanical survey work following clear scientific methodology, and their experience in identifying ecological priorities for the purpose of guiding habitat restoration and management.

Submissions are assessed confidentially by a panel of experts, based on academic qualifications, relevant work experience, years spent working in the relevant field, and the example of work. Once the assessment is completed, the applicant is informed whether or not his/her submission has been successful.

Submissions should be sent for the attention of Dr Orla Fahy, Forest Ecologist, Forest Service, Department of Agriculture, Fisheries & Food, Davitt House, Castlebar, Co. Mayo (tel. 094-9042925 / Orla.Fahy@agriculture.gov.ie).

2. Completion of the 3-day NWS Training Course

These courses are held periodically by the Forest Service in association with Woodlands of Ireland. Individuals can add their name to the notification list for future courses by contacting Kevin Collins, Forest Service (tel. 01-607 2502 / Kevin.Collins@agriculture.gov.ie).

3. Submission of proof of Professional Indemnity Insurance cover for a minimum of €320,000

Given the cost involved, applicants can defer taking out this insurance cover until they have fulfilled either or both of the above criteria. Several insurance providers offer this cover – contact Woodlands of Ireland for further information.

Variations to this requirement for insurance cover apply in relation to NPWS personnel and to ecologists working with Coillte. Contact Dr Orla Fahy, Forest Service (tel. 094-9042925 / Orla.Fahy@agriculture.gov.ie) for further information.

Once all three of the above criteria have been fulfilled, the applicant's name and details are added to the list of NWS Participating Ecologists for general circulation purposes. A copy of the current list of NWS Participating Ecologists is available from Dr Orla Fahy, Forest Service (tel. 094-9042925 / Orla.Fahy@agriculture.gov.ie).

Appendix 4
A guide to developing the Native Woodland Plan

The Native Woodland Plan is prepared jointly by a NWS Participating Forester and a NWS Participating Ecologist (lists available from the Forest Service) in close consultation with the owner. How this works out on-the-ground will vary greatly from project to project, but the following are key considerations that should be noted.

- The initial point of contact varies. The owner might contact the forester who will then bring in the ecologist, often someone they have worked with in the past. Alternatively, the owner might contact the ecologist, who will then bring in the forester. In most cases, the forester tends to play the coordinating role, particularly given his/her likely experience with the Forest Service grant system and contacts with woodland contractors.
- The Native Woodland Plan is an agreed document prepared and signed off by the forester and the ecologist. The input of both professionals should not be treated as separate components. Typically, the ecologist will focus on ecological issues and the forester on management issues, but considerable overlap should occur as knowledge and expertise are exchanged to achieve a workable plan. Details should be specific (i.e. what *will* be done, as opposed to what *might* be done) and details inputted by one party should not contradict details inputted by the other. Also, details inputted by one party should not be altered by the other, unless agreed.
- The input of the owner is vital. Her or his objectives and available resources need to be brought centre-stage into the plan alongside the ecological priorities, to form the basis for management. The owner will also have an intimate knowledge of the site, as well as local history and sources of information, all of which will be relevant to various sections of the plan. S/he should also be kept fully informed and involved as the plan develops. Given the nature of the scheme, some owners will have an active interest and may wish to be present during site visits and discussion. This should be facilitated as far as possible. Finally, the owner is required to sign off on the Native Woodland Plan (in addition to the NWS Form 1).
- At an early stage, the forester, ecologist and owner should walk the site together. Starting with a blank copy of the Native Woodland Plan template, they should develop an overview of the site and the likely issues involved,

including the owner's objectives. A separate visit by the ecologist is also invariably required, to undertake the ecological survey, habitat identification, etc. This should occur early on in the process, as ecological information will form the starting point for most of the decisions in the plan. The ecological fieldwork involved is detailed and may take more than one day to complete, depending on the size and complexity of the site. Further joint site visits should also take place to review the draft plan as it develops, in order to ensure a smooth consistency between ecological (and other) priorities and management operations, and to find solutions to any issues that arise.

- It is highly recommended that the woodland contractor who will ultimately be involved in the actual operations is also involved in the development of the plan from the outset. This input is vital, as the practicalities of what is being proposed can be examined, and alternatives suggested, if needed.
- During the development of the plan, the ecologist will often seek to retain an existing natural habitat as open space, due to its ecological value. This sometimes leads to conflict with the forester and/or the owner. It is important to note that the primary objective of the NWS is to promote native woodland biodiversity, including a mosaic of related open habitats. Therefore, the retention of the habitat as open space, as recommended by the ecologist, should be incorporated within the project's 18-20% ABE. As described in Section 6.3, this ABE can be exceeded, if required.
- Once completed, the plan is signed off by the ecologist, the forester and the owner, before being submitted to the Forest Service along with the NWS Form 1 and other documentation and maps (see Section 5). Each party should be supplied with a copy of the final submitted plan.
- Ecologists very often operate as sole traders. Also, their involvement in the NWS is often their only interaction with forestry schemes, and does not represent a mainstream activity for which payments are incoming on a rolling basis. Therefore, most ecologists will expect to be paid for their input on completion of the Native Woodland Plan, and will be unable to wait until the 1st Instalment under the scheme is paid. The exact details of when the ecologist is paid should be worked out at the very start of the process, to prevent any misunderstanding.
- The Forest Service letter of approval is issued to the owner, with copies sent to the forester and the ecologist. Once approval has been received, work can commence on site. It is vital that all operations are in keeping with the conditions and standards of the NWS, the approved Native Woodland Plan, and

any additional conditions attached to the letter of approval – failure to do so will result in the withholding of grant and premium payments.

- As work proceeds onsite, it is highly recommended that the ecologist, forester and owner meet onsite to review progress.
- *If it becomes apparent that changes to the plan (e.g. operations, areas) are required as work progresses, prior approval must be secured from the Forest Service and full details provided on the NWS Form 2 (including the Form 2 map).*

For further information on how to complete any aspect of the Native Woodland Plan, contact Kevin Collins, Forestry Inspector (kevin.collins@agriculture.gov.ie) or Dr Orla Fahy, Forest Ecologist (orla.fahy@agriculture.gov.ie).

Appendix 5
Native Woodland Plan Template

Introductory notes

The Native Woodland Plan is a key part of the NWS application (see Section 5). This document sets out the specific ecological priorities for the site, and the proposed management objectives and operations.

When completing the Native Woodland Plan, please note the following.

- The Native Woodland Plan is submitted as part of the initial application process alongside a NWS Form 1 and Certified Grant Map. See Section 5 for details.
- **The Native Woodland Plan is jointly prepared by a Participating Ecologist and a Participating Forester, in consultation with the applicant**. All three individuals must sign off on the document. See Appendix 4 for an overview of this process.
- **The Native Woodland Plan must fully adhere to the template below, addressing each part in turn.** Smaller italic text included in the template is designed to provide direction, and should not be included in the submitted plan. An electronic version is available on the Forest Service website (www.agriculture.gov.ie/forestservice).
- **Note that incomplete Native Woodland Plans and accompanying maps, or incoherence and discrepancies** (for example, where serious threats to the woodland identified in the Site Overview section are not being reflected in Objectives or Operations sections) **may result in delays and/or applications being returned to the applicant.**
- At various points throughout the Native Woodland Plan template, maps are required to illustrate the following information:
    - **soil types** (map required only if more than one soil type is present);
    - **existing habitats and small features of biodiversity value**;
    - **native woodland types to be promoted** (map required only if more than one native woodland type is to be promoted); and
    - **operational areas in relation to operations to be completed by Form 2 submission**.

- Native Woodland Plan Maps must adhere to the following conventions:
  - Maps must be based on a 6 inch OS map, with the site perimeter outlined in red. Enlarge, if necessary.
  - Maps must be appropriately titled using the bolded text above, to reflect the information being illustrated. Features and attributes must be clearly indicated using symbols, colours, letters, text-and-arrows and a concise legend. Linear features (e.g. waterways, hedgerows) should be indicated using colour-coding, and individual features (e.g. badger setts) by letters or symbols.
  - Clearly cross-reference the map with the relevant text in the body of the Native Woodland Plan.
  - Each map should accurately represent the information being illustrated, and be legible.
- The inclusion of captioned photographs in the Native Woodland Plan is encouraged, but should be limited to those illustrating the general site character and any unique or unusual features present. The location and orientation of each photograph should be indicated on one of the above Native Woodland Plan Maps.
- Consider using aerial photographs, as these can provide information on site details, and can give reference points to fix the location of features, habitat boundaries, etc. on the various Native Woodland Plan Maps.
- The Native Woodland Plan must be submitted in a photocopy-friendly A4 format, avoiding permanent binding.
- Note that the Native Woodland Plan template is designed specifically as part of the application process for the NWS. Woodland owners should consider developing a comprehensive long-term plan for their woodland, using the NWS Native Woodland Plan as an initial step.

Native Woodland Scheme
Native Woodland Plan
TEMPLATE

Contract No.

PART 1: GENERAL INFORMATION

NWS Element (tick as relevant)

Element 1: Conservation [ ] **OR**

Element 2: Establishment [ ]

Contact details

Participating Forester (name, address, tel., e-mail plus dates of the NWS Training Course completed)

Participating Ecologist (name, address, tel., e-mail plus dates of the NWS Training Course completed)

Site location and area

County

DED

Townland(s)

6 inch OS map number(s)

Site area (ha)

PART 2: SITE OVERVIEW

Site parameters

1. State the **elevation range** (m) for the site.
2. Describe the overall **slope**, noting any local variations.
3. Describe the overall **aspect**, noting any local variations.
4. Describe the overall **degree of exposure** (sheltered, moderate, exposed, severe), noting any local variations.

Soil assessment

1. Using a rudimentary soil survey, identify the soil type or types (brown earth, podzol, gley) on the site, and describe drainage and approximate fertility (i.e. base-poor/rich, acid, calcareous, etc.).
2. If more than one soil type is present, use a **Native Woodland Plan Map** to illustrate the approximate extent of each.

Adjacent habitat types and land uses

What are the general habitat types and land uses adjoining the site?

For habitat types, use the 2nd level classification codes listed in pages 14-15 of the Heritage Council's A Guide to Habitats in Ireland *(Fossitt, 2000). E.g. "GA Improved Grassland to the north, with dairy farming; WD Highly Modified / Non-Native Woodland to the east, commercially managed conifer plantation…"*

Conservation status / designations

1. Is the site within, adjoining or less than 3 km upstream of a NHA, pNHA, cSAC, SPA or pSPA?
2. If yes, state the relevant NPWS Site Code and Site Name.

Special habitats and species

1. Are any of the habitats and species listed in Annex I or Annex II of the EU Habitats Directive, or in Annex I of the EU Birds Directive, known to occur on the site? If so, specify, and where appropriate, show location.
2. Are there any known protected species or Red Data Book species present? If so, specify, and where appropriate, show location.
3. Are you aware of any other species on the site that may be considered rare, either regionally or nationally? If so, specify, and where appropriate, show location.

Site history

Describe the known history of the site up to the present time, including the origin of existing woodland cover (for Element 1), evidence of previous woodland cover (for Element 2), and land use changes down through the centuries, and note any archaeological or historic features.

Sources include local knowledge, management records, plans and inventories, old aerial photographs, historical records and maps, old historic landscape paintings and references in historical writings. Features on the ground can also yield vital information about previous management.

For further guidance, see NWS Information Note No. 1 Cartographic and Historical Sources for Native Woodlands *and NWS Information Note No. 2* A History of Woodland Management in Ireland: An Overview, available from Woodlands of Ireland (see www.woodlandsofireland.com).

Note that full adherence to the Forest Service Forestry & Archaeology Guidelines *and to any special conditions attached to the letter of approval, is required in relation to archaeological features on the site.*

Current use(s)

What are the current uses on the site?

E.g. abandoned woodland, commercial timber production, pheasant shooting, tillage, intensive grazing, extensive grazing, occasional grazing.

Weaknesses and threats

Describe the nature and severity of existing or potential weaknesses or threats that need to be addressed in the project to ensure successful woodland development.

E.g. grazing pressure, invasive species, over-mature / senescent canopy, poor understorey and inadequate recruitment, windblow, adjoining development, dumping and burning, recreational pressure. The presence of invasive species in the surrounding area should also be noted.

PART 3: ECOLOGICAL SURVEY

Timing of ecological fieldwork

On what date(s) was the ecological fieldwork carried out?

Note that the ecological fieldwork should only be carried out from mid-March to the end of September. Dates outside of this period may be acceptable in limited circumstances, and only with the prior approval of the Forest Service.

General ecological overview

Provide an overview of the general ecology of the site.

Main existing habitats

Using the 3rd level classification codes on pages 14-15 of the Heritage Council's *A Guide to Habitats in Ireland* (Fossitt, 2000), identify the *main existing habitats* on the site.

E.g. GA1 Improved agricultural grassland; WD2 Mixed broadleaved / conifer woodland; HD1 Dense bracken.

For *each* main existing habitat:

- illustrate its extent on a **Native Woodland Plan Map** *(note that habitats too small or narrow to map clearly may be included as small features of biodiversity value – see below)*
- provide a short description
- using the DAFOR Scale, record in table format the relative abundance of its flora community
- note other species known to be present but not observed during the survey

Small features of biodiversity value

Identify small features of biodiversity value to be retained.

E.g. veteran trees (incl. non-native), damp hollows, rocky outcrops, important animal sites (nests, setts, burrows, bat roosts, etc.), large standing or fallen deadwood, Red Data Book species, regionally or locally rare species, stone walls

For *each* small feature of biodiversity value:

- using points, illustrate its location on a **Native Woodland Plan Map**
- provide a short description (including primary species)

Native woodland type(s)

This section is critical, as it identifies the most appropriate native woodland type or types to be promoted on the site. This selection is highly significant, as promoting the most appropriate native woodland type and associated community becomes a key objective, dictating many management decisions, including species selection for planting.

Based on soil, ground vegetation, existing tree cover, elevation, climate and other relevant factors:

- Which of the native woodland type/types described in the NWS Classification System (see Appendix 7) is/are to be promoted on the site?
- What is the basis of this decision?
- If more than one type is to be promoted, use a **Native Woodland Plan Map** to illustrate the approximate extent of each.

PART 4: OBJECTIVES

Part 4 sets out the long-term vision and the short-term objectives for the site.

Note that Part 4 must take into account all factors identified in earlier parts of the Native Woodland Plan, including the most appropriate native woodland type(s) to be promoted, weaknesses and threats, and the retention and protection of existing habitats and small biodiversity features.

The following **must** be included:

- the applicant's overall objectives for the site; and
- ecological priorities, including the native woodland type(s) to be promoted, existing habitats and small biodiversity features to be retained and protected, and how weaknesses & threats are to be dealt with.

Other issues may also be included, if and where relevant, e.g.

- opportunities for compatible wood and non-wood products and services, e.g. hardwood production, coppice production, foliage, berry and mushroom collection, woodcraft, eco-tourism enterprises; and
- additional considerations, e.g. public access and amenity, interest among local schools in using the woodland as an 'outdoor classroom', woodland research.

Medium- to long-term vision

What is the medium- to long-term vision for the site up to year 50?

Short-term objectives

In order of priority, describe the short-term objectives to be achieved by Form 3 submission, typically covering a 5-year period. Note that grant payment will depend on these short-term objectives being met.

Specific details are required, for example:

- *"To clear rhododendron from 4 ha in the northwest corner of the site"*
- *"To remove existing sycamore scattered throughout the site"*
- *"To establish 7 ha of new woodland on the site, using appropriate species namely…"*
- *"To establish natural regeneration on 3 ha of the site"*
- *"To create four 0.3 ha planting coupes"*

PART 5: OPERATIONS

Part 5 sets out proposed management, based on the short-term objectives in Part 4.

Form 2 operations

- Describe and cost the operations to be completed ***before Form 2 submission***. *Note that specific details are required, including areas, species to be planted, planting ratios, specifications, application rates, etc.*
- Where practical, illustrate relevant operational areas on a **Native Woodland Plan Map**, e.g. areas for rhododendron clearance, proposed felling/replanting coupes, areas designated for planting, areas designated for natural regeneration.
- On the same **Native Woodland Plan Map**, illustrate any non-woodland habitats to be retained as part of the 18-20% ABE requirement.

Form 3 operations

- Using a yearly schedule, describe and cost the operations to be completed ***after Form 2 submission and before Form 3 submission***. Note that specific details are required (as above).
- Illustrate relevant operational areas on a **Native Woodland Plan Map**, if these differ significantly from those relating to Form 2 submission.

Medium- to long-term operations

In general terms, describe management operations envisaged up to year 50.

References

Fully reference any documents referred to in this Native Woodland Plan.

E.g. botanical guides, old land use records, estate plans, historical maps, previous biodiversity surveys and management plans, references in research literature.

PART 6: DECLARATION

We, the undersigned, declare that we have jointly prepared this Native Woodland Plan as part of the application for this site under the Native Woodland Scheme, in accordance with the terms and condition of the scheme.

Participating Forester

Signature _____ Date _____

Participating Ecologist

Signature _____ Date _____

Applicant

Signature _____ Date _____

A REMINDER As specified in the above template, various maps are required as part of the Native Woodland Plan, illustrating soil types, existing habitats and small features of biodiversity values, native woodland types to be promoted, and operational areas.

Appendix 6

Large Element 1 sites and coppice restoration projects

Large Element 1 sites

In the case of large Element 1 and Element 2 sites, applicants should consider subdividing the site into smaller areas, and submitting and completing each as a separate stand-alone application.

However, a multi-annual mechanism is potentially available under the NWS, limited to *privately-owned Element 1 sites greater than 40 ha in area*. This mechanism is described below.

Step 1: The applicant submits a standard application under the NWS, together with a statement setting out why the project should be treated on a multi-annual basis. The application is then assessed and approval issued. ***Note that whether or not an application is treated on a multi-annual basis is at the discretion of the Forest Service.***

Step 2: At the start of a 12-month period, the applicant submits written details to the Forest Service setting out the ***exact area*** s/he intends to complete during that year, following the corresponding operations for that area set out in the approved Native Woodland Plan. In this submission, the area must be clearly demarcated on an original 6 inch OS map, and the operations listed with clear cross-referencing to the approved Native Woodland Plan.

Step 3: Approval for the year's programme is then granted and work can commence in the area involved. On completion of the work, the applicant submits a Form 2, as normal, to draw down the 1st Instalment for the area involved. Four years (48 months) after the completion date of the initial operations, the area in question becomes eligible for the 2nd Instalment.

Step 4: The following year, the applicant submits a new area, and so on. In this way, work gradually proceeds through the entire site in discrete blocks. Note that operations within a particular area must be completed satisfactorily before approval will be issued for a subsequent area.

Upfront operations involving the entire site (e.g. completion of the Native Woodland Plan, perimeter fencing) can be included in the first Form 2 submitted. However, the grant available for subsequent yearly areas will be reduced on a *pro rata* basis by the cost of these upfront operations, to ensure that the maximum grant level over the entire site is not exceeded.

The above mechanism will enable the completion of necessary operations on larger Element 1 sites on a phased basis over several years. This approach has several advantages:

- The area submitted at the beginning of the year can vary in size, depending on what the applicant regards as being achievable for that year. However, note that ***the minimum acceptable area submitted each year is 5 ha.***
- The mechanism facilitates cash flow, as payment is made as work progresses over the entire site.
- Although broken down into discrete areas, all operations are carried out based on a common Native Woodland Plan covering the entire site.

Coppice restoration projects

The above multi-annual mechanism is potentially available for *privately-owned Element 1 projects involving the restoration of 8 ha or more of former coppice or coppice-with-standards woodland to active coppice management*. Such projects involve the application of a restoration cut to specific areas over sequential years, for the purpose of reinstating a rolling production cycle. The same overall approach set out above applies, although areas submitted for each 12-month period can be less than 5 ha. The timing of the restoration cut must reflect best coppice practice, to promote vigorous regrowth and the quality of the produce being realised.

Note that the 18-20% ABE requirement applies to coppice restoration projects, and that areas of woodland should be retained uncut, to provide a permanent overstorey habitat onsite.

The application of the multi-annual approach to facilitate coppice restoration projects is a new feature of the NWS, and will be applied on a pilot basis, based on the merit of individual projects and the level of knowledge and expertise demonstrated. Whether or not such projects will be treated on a multi-annual basis will be at the discretion of the Forest Service.

Appendix 7

Native Woodland Scheme Classification System[11]

Introduction

This classification system is designed specifically for use during the development of the Native Woodland Plan for both *Element 1* and *Element 2* sites under the Native Woodland Scheme. Its purpose is:

- to aid in the identification of the most appropriate native woodland type(s) for the site, to be promoted or reinstated by management (see Part 3 of the Native Woodland Plan Template (Appendix 5)); and
- to guide the selection of appropriate species and mixtures for planting and/or natural regeneration on the site.

This classification system is based on existing knowledge that, in the absence of a completed national survey of Irish woodlands, must be considered as preliminary[12]. The author has used the habitat classification in the Heritage Council's *A Guide to Habitats in Ireland* (Fossitt, 2000) as a framework and has drawn largely on Kelly & Iremonger (1997) and Cross (1998). The former is a detailed account of wet woodlands. The latter has taken account of all the major woodland research over the last 25 years. However, as the objective of that paper was the production of a small-scale map, the units are broad and ignore most of the small-scale wet woodland types. Further surveys will almost certainly reveal the existence of previously unrecognised woodland types, although they are likely to be subunits of the main units described here.

Former old woodland sites that have been replaced or underplanted with conifers or non-native broadleaves, often retain elements of the former flora, thus giving an indication of the type of woodland which previously existed. In order to identify these, it will be necessary to look for scattered trees and shrubs from the earlier stand and to examine the field layer, where it is still present. The amount of native vegetation which survives will depend on the species planted: the native flora often persists more or less unchanged under Scots pine and larch; only fragments or individual plants may remain under Sitka spruce and other heavy shade-casting trees.

The woodland vegetation is divided into two major groups: high forest and scrub. The dividing line between these two categories is frequently not sharp, particularly as scrub is often a precursor to high forest so that one may merge imperceptibly into the other. Traditionally, however, the height of the vegetation is used to separate the two groups, with 5 m being taken as the upper limit for scrub on dry sites, and 4 m for scrub on wet sites.

Woodlands are typically characterised by well-developed layers traditionally referred to as the tree or canopy layer, the shrub layer, the dwarf shrub layer, the herb or field layer, and the ground or moss (bryophyte) layer. These layers may sometimes be sub-divided into additional layers, e.g. the field layer may have a tall layer of bracken above a lower layer of short herbs. Trees and shrubs may occur in several layers depending on their stage of development, while lianes (climbers), such as ivy, may also be present in a number of layers.

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[11] Prepared by Dr John Cross, National Parks & Wildlife Service, 7 Ely Place, Dublin 2.
[12] This system may be restructured on completion of the National Survey of Native Woodlands, overseen by the National Parks & Wildlife Service with joint funding from the Forest Service.

Notes regarding beech woodland and sycamore woodland

Beech woodland is found mostly within old estate woodlands, usually occurring on sites that would naturally carry A3 (oak woodland with hazel and ash) or B1 (oak-ash woodland on relatively deep soils). The shrub and field layers are often poorly developed because of the heavy shade but include typical species of A3 or B1. A variety of introduced species may also be present.

Sycamore occurs on a wide variety of sites, and can be invasive, particularly on wetter sites. Although not examined in any great detail, woodland dominated by sycamore probably falls into groups B (pedunculate oak-ash woodland with hazel), C (mixed alder-oak-ash woodland with willow) or E3 (other wet woodlands), although it is possible that stands with a distinctive flora occur.

High forest (vegetation dominated by trees greater than 5 m in height)

A. Oak-birch-holly woodland

(Corresponds to WN1 in Fossitt (2000).) Woodland on acid soils, dominated mostly by sessile oak (*Quercus petraea*) (but occasionally pedunculate oak (*Q. robur*) and their hybrids), with downy birch (*Betula pubescens*) and sometimes silver birch (*B. pendula*) often intermixed. Rowan (*Sorbus aucuparia*) is frequent and ash (*Fraxinus excelsior*) occurs locally on better soils. The introduced beech (*Fagus sylvatica*) and Scots pine (*Pinus sylvestris*) may be present locally. The shrub layer is dominated by holly (*Ilex aquifolium*) with hazel (*Corylus avellana*) on better soils, usually in association with ash. The dwarf shrub layer comprises ling heather (*Calluna vulgaris*) and frochan/bilberry (*Vaccinium myrtillus*). The herb layer is typically dominated by wood-rush (*Luzula sylvatica*) with a variety of ferns, especially bracken (*Pteridium aquilinum*), hard fern (*Blechnum spicant*), buckler ferns (*Dryopteris* species) and grasses. Ivy (*Hedera helix*) and honeysuckle (*Lonicera periclymenum*) are common both in the field layer and as lianes. These woodlands fall within the annexed habitat 'Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles' under the EU Habitats Directive.

A1. Species-poor oak woodland on drier sites (Photo 1): Characterised by a dominance of sessile oak with holly in the shrub layer and a species-poor field and moss flora, often with frochan, ling heather or woodrush dominating the woodland floor. Typical on the lower slopes of uplands in drier areas of the country, e.g. Wicklow, but also elsewhere on dry sites on brown podzolic and podzol soils.

A2. Moss- and lichen-rich oak woodland (Photo 2): Characteristic in areas of high rainfall or, locally, in shady, moist valleys. Sessile oak and holly are the dominant trees but the woods are richer in species than A1, with (e.g.) saxifrage species and an abundance of ferns, mostly *Dryopteris* species (buckler fern) and bracken. Mosses, liverworts, lichens, filmy ferns (*Hymenophyllum* species) and polypody (*Polypodium* species) are abundant on rocks, fallen timber and as epiphytes. These woodlands are often invaded by *Rhododendron ponticum*. This woodland type occurs in the uplands in the west, e.g. Killarney and Glenveigh National Parks, and locally in very damp locations elsewhere.

A3. Oak woodland with hazel and ash (Photo 3): These woodlands are typically dominated by sessile oak but with some ash and hazel in addition to holly in the shrub layer. Gean or wild cherry (*Prunus avium*) may be abundant locally. Dwarf shrubs are largely absent. Bluebell (*Hyacinthoides non-scripta*) is sometimes dominant (most visible in spring), with stitchwort (*Stellaria holostea*), Yorkshire fog (*Holcus lanatus*) and locally, red campion (*Silene dioica*), also characteristic in the herb layer. Bracken and/or bramble (*Rubus fruticosus* agg.) are locally dominant later in the season. Mosses and lichens are less abundant than A2. Occurs throughout the country on relatively deep, well drained, acidic but more fertile soils than A1 or A2.

Photo 1 Species-poor oak woodland on drier sites (A1), showing vernal aspect with ling heather and frochan and dead bracken in the foreground. (Photo J. Cross)

Photo 2 Moss- and lichen-rich oak woodland (A2) with moss- and filmy fern-covered boulders and rhododendron in the background. (Photo J. Cross)

Photo 3 Oak woodland with hazel and ash (A3), showing vernal aspect with a ground flora of bluebell, stichwort (white spots) and grasses. (Photo J. Cross)

B. Pedunculate oak-ash woodland with hazel

(Corresponds to WN2 in Fossitt (2000).) Species-rich woodland on well-drained, base-rich, calcareous soils (e.g. calcareous brown earths), usually dominated by a mixture of pedunculate oak (*Q. robur*) and ash. The relative abundance of these two species depends to some extent on past management. Other tree species include birch, rowan, elm (*Ulmus glabra*) (now often only as a shrub), whitebeam (*Sorbus aria* agg.), cherry (*Prunus avium*), crab apple (*Malus sylvestris*) and locally yew (*Taxus baccata*). Beech (*Fagus sylvatica*) is often planted and regenerates freely. The species-rich shrub layer is dominated by hazel with, in addition, holly, hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), spindle (*Euonymus europaeus*), guelder rose (*Viburnum opulus*), etc. The herb layer is often species-rich but mostly without dominants, except occasionally for ivy (*Hedera helix*).

B1. Oak-ash-hazel woodland on relatively deep soils (Photo 4): These woods are often characterised by a well-developed vernal display of flowers. Typical species in the herb layer include: wood speedwell (*Veronica montana*), bluebell, anemone (*Anemone nemorosa*), violet (*Viola riviniana, V. reichenbachiana*), primrose (*Primula vulgaris*), pignut (*Conopodium majus*), wild arum (*Arum maculatum*), wild garlic (*Allium ursinum*), enchanter's nightshade (*Circaea lutietiana*), wild strawberry (*Fragaria vesca*), false brome (*Brachypodium sylvaticum*) and ferns, e.g. hart's tongue (*Phyllitis scolopendrium*), lady fern (*Athyrium filix-femina*), male fern (*Dryopteris filix-mas*). Wild garlic and anemone tend to be more common on moist soils. Brambles may be an important component, sometimes forming a distinct layer. These woodlands occur mostly in the Midlands on boulder clays and well-drained glacial gravels, e.g. esker ridges, as well as on fertile, calcareous soils elsewhere.

B2. Oak-ash-hazel woodland on shallow, often rocky, soils over limestone (Photo 5): Similar to B1 but often with hazel dominant and ash occurring as 'emergents'. Oak is rare. The herb layer is often rather poorly developed due to the dense shade cast by hazel, but it may still be species-rich. Blue moor-grass (*Sesleria caerulea*), slender St. John's-wort (*Hypericum pulchrum*), golden rod (*Solidago virgaurea*) and wood sage (*Teucrium scorodonia*) are characteristic species and some of the species mentioned in B1 (oak-ash-hazel woodland on relatively deep soils) may be absent, e.g. bluebell, wood speedwell, lady fern. Bryophytes are abundant on the rock outcrops. Restricted to shallow soils principally in the west of the Midland plain and in the Burren. Limestone pavement is a priority habitat under the Habitats Directive.

B3. Yew woodland (Photo 6): (Corresponds to WN3 in Fossitt (2000).) Woodland dominated by yew, with a flora similar to B2 but typically poorer both in species and their abundance, due to the heavy shade. This is a rare community confined to limestone rock outcrops or pavement. A priority habitat under the EU Habitats Directive.

Photo 4 Ash-hazel woodland (B1), showing vernal aspect with a mixed herb layer of bluebell and pignut. (Photo D. Kelly)

Photo 5 Ash-hazel woodland on rocky limestone soil (B2), showing moss-covered boulders and herb layer with wood sanicle. (Photo D. Kelly)

Photo 6 Yew woodland (B3) in Muckross, Co. Kerry, with an understorey of holly and moss-covered limestone boulders. (Photo National Parks & Wildlife Service)

C. Mixed alder-oak-ash woodland with willow

(Corresponds to WN4 in Fossitt (2000).) Woodlands growing on nutrient-rich wet soils either as a result of intermittent flooding or a permanently high water table. They are typically characterised by pedunculate oak (*Quercus robur*), ash and alder in the canopy, with a shrub layer predominantly of willows and hazel. The field layer is often species-rich, well developed and is dominated by species characteristic of wet soils, such as sedges, meadow sweet and, where flooding occurs, nitrogen-loving species such as nettles.

C1. Wet pedunculate oak-ash woodland rich in species (Photo 7): These woodlands occur on soils which are wet for much of the year but dry out in the summer. They are not subject to flooding. They are dominated by a mixture of ash, oak (*Q. robur*), alder (*Alnus glutinosa*) and birch, often with introduced sycamore (*Acer pseudoplatanus*). The shrub layer is typically dominated by sally (*Salix cinerea* ssp. *oleifolia*) with hazel, holly, hawthorn and sometimes bird cherry (*Prunus padus*). The ground layer is characterised by species of wet soils, e.g. creeping bent (*Agrostic stolonifera*), meadow sweet (*Filipendula ulmaria*), primrose, sedges (*Carex remota, C. sylvatica,* locally *C. strigosa*), tufted hair-grass (*Deschampsia cespitosa*), golden saxifrage (*Chrysosplenium oppositifolia*), wood avens (*Geum urbanum*), water avens (*G. rivale*) and wild garlic. They are characteristic of heavy gleyed soils such as those occurring on drumlins and shale plateaux, e.g. Leitrim, southwest Clare.

C2. Woodland of floodplains subject to intermittent flooding: These are often very similar to C1, although, despite being flooded, the soil tends to be better drained. Hazel tends to be more abundant and alder less common or confined to wet hollows. They are often characterised by the presence of water dropwort (*Oenanthe crocata*) and other nitrophilous species such as nettle (*Urtica dioica*). Wild garlic may dominate the vernal aspect. They are frequently associated with Gallery Woodlands (D). This is a rare community of lowland river valleys with most stands being small; the largest example is the Gearagh in Co. Cork. As a priority habitat under the EU Habitats Directive, it should be clearly distinguished from C1, although the physical situation rather than the species composition may be the determining feature.

Photo 7 Wet pedunculate oak-ash woodland (C1) in June, with ground flora of meadowsweet, bugle (blue flowers), celendine (leaves dying back) and tufted hair-grass. (Photo J. Cross)

D. Willow woodland alongside river channels (gallery or riparian woodland) (Photo 8)

(Corresponds to WN5 in Fossitt (2000).) Stands of willows within the zone of frequent flooding. These include tree willows (e.g. *Salix alba, S. cinerea* ssp. *oleifolia, S. fragilis*) and shrub willows (e.g. *S. purpurea, S. triandra*). Alder is occasional. Eutrophic species, such as nettle (*Urtica dioica*), goose-grass (*Galium aparine*), water dropwort (*Oenantha crocata*) and bindweed (*Calystegia sepium*), are common. Other herbs include meadow-sweet, creeping buttercup (*Ranunculus repens*), angelica (*Angelica sylvestris*), yellow flag (*Iris pseudacorus*), reed grass (*Phalaris arundinacea*) and the introduced Indian balsam (*Impatiens glandulifera*). Some stands represent former osier beds. These woodlands are confined to the edges of rivers or to river islands which are frequently inundated (e.g. Fiddown Island, Co. Kilkenny, Boyne River Islands), and may form a margin to stands of C2. As such, they fall within the priority habitat 'Residual alluvial forests' under the EU Habitats Directive.

Photo 8 Willow woodland subject to intermittent flooding (D) alongside a small stream, with leaning sallies, water dropwort and celendine. (Photo J. Cross)

E. Other wetland woods

(Corresponds to WN6 in Fossitt (2000).)

E1. Willow-alder carr on fen peat (Photo 9): Low woodland or scrub of sallies (*Salix cinerea* ssp. *oleifolia*) and alder growing on fen peat which is flooded in winter. The trees form a tangle of leaning or fallen stems. When the waters recede, a black peat smelling of anaerobic decay is exposed, with mosses both on the ground and on tree bases. Meadow-sweet, marsh bedstraw and the creeping bent (*Agrostis stolonifera*) are frequently present, often with loosestrife (*Lythrum salicaria*), sedges, flags, and, more rarely, skull cap (*Scutellaria galericulata*). Small stands of this community occur principally around lake shores, where they are influenced by the rise and fall of the lake levels, and occasionally elsewhere in depressions where there is a fluctuating watertable.

E2. Alder carr with tussock sedge (*Carex paniculata*) (Photo 10): A rare community characterised by the dominance of sally and alder with tussock sedge. The tussocks, which produce treacherous terrain, provide habitat for a variety of plants such as mint *(Mentha aquatica*), wood avens and hard fern. Occurs principally on peat influenced by calcareous springs.

E3. Ash-alder-remote sedge woodland (Photo 11): Woodland on waterlogged, but not normally flooded, sites dominated by alder and ash, sometimes with sycamore, with a 'grassy' field layer, typically dominated by remote sedge (*Carex remota*) and creeping bent. Bramble, creeping buttercup, meadow sweet, marsh bedstraw (*Galium palustre*), lady fern (*Athyrium filix-femina*) and yellow pimpernel (*Lysimachia nemorum*) are frequent. The bryophyte flora is rich and well developed. A widespread and heterogeneous community occurring on mineral soils and peats in seepage areas and spring-fed sites. In some places, seepage areas carrying this type of vegetation occur within the zone of flooding of river- of lake-sides and it is therefore difficult to decide into which category the woodland belongs.

Note regarding lowland and upland riparian woodland

Along mountain streams, small, usually narrow stands of montane alluvial woodland occur. These differ considerably from those of lowland rivers, as the substrate is usually more acidic and less fertile. Also, the flooding regime is characteristically spatey, i.e. the water level rises and falls rapidly over the course of a few hours, with flood waters persisting for a few days at the most. These stands are typically characterised by alder, ash, shrub willows and perhaps sessile oak rather than pedunculate oak.

Photo 9 Common sally swamp woodland (E1) in early spring, showing extensive bare mud and emerging sedges and flags. (Photo D. Kelly)

Photo 10 Alder carr with tussock sedge (E2) in early spring. (Photo J. Cross)

Photo 11 Ash-alder-remote sedge woodland (E3) showing a typical 'grassy' field layer. (Photo D. Kelly)

F. Birch woodland

(Corresponds to WN7 in Fossitt (2000).)

F1. Dry birch woodland (Photo 12): Woodland of birch, mostly downy birch (*Betula pubescens*) but with some silver birch (*B. pendula*), with holly, rowan and small amounts of oak and occasional Scots pine. Typically the canopy and shrub layers comprise the same species. Two sub-types can be recognised: (i) Woodland of cut-away and/or drained peat which has dried out on the surface. Scots pine may be present. The field layer is commonly dominated by bramble, other common species being ivy, honeysuckle (*Lonicera periclymenum*), bracken, purple moor-grass (*Molinia caerulea*) and buckler fern (*Dryopteris dilatata*). Ling heather and frochan may also be present. The moss cover is high but often species-poor. Wet pools are often present in old cutaway. This community is widespread throughout the country on former bogs. (ii) Birch stands representing early stages in the development of oak-holly-birch woodland. The associated flora will vary depending on the soil type, the presence of adjacent woodland and other vegetation. Conifers, especially Scots pine, may be present and regenerating freely.

F2. Wet birch woodland with sphagnum (Photo 13): Low, species-poor birch woodland on wet peat with occasional rowan, Scots pine and oak. The trees are often short and stunted and older specimens may be moribund. Sally is often present in the shrub layer with a little holly. A dwarf shrub layer of ling and frochan may be present. The field layer is typically poorly developed, the commonest species being grasses (*Molinia caerulea, Anthoxanthum odoratum*), sedges (e.g. *Carex echinata*), rushes (*Juncus* spp.) and ferns (*Dryopteris dilatata, Blechnum spicant*). The most characteristic feature, however, is the dominance of *Sphagnum* species, which form a soft carpet on the woodland floor, often with patches of *Polytrichum* moss. These woodlands occur as scattered stands in peaty hollows within upland oak woodlands, on old cutaway peats where the ground-water influence is slight, in fen carrs at the transition stage to raised bog development and, rarely, on flushes in raised bogs. This is a priority habitat under the EU Habitats Directive.

Photo 12 Dry birch woodland (F1) on dried-out peat with a dense growth of bracken. (Photo S. Bosbeer)

Photo 13 Wet birch woodland with a thick carpet of *Sphagnum* (F2) and other mosses, *Molinia* and cotton grass. (Photo J. Cross)

Scrub (vegetation dominated by woody plants less than 5 m in height, or 4 m in the case of wetland woods)

(Corresponds to WS1 and WS2 in Fossitt (2000).) Scrub may represent: (i) the 'climax' vegetation on a site, as a result of limiting soil conditions or exposure affecting the site; or (ii) a successional stage leading to a particular high forest native woodland type. Coppice regrowth following clearfelling of broadleaf stands is not considered under scrub, but should be referred to the appropriate high forest woodland type.

G. Hazel scrub

G1. Early phase in the development of A3 or B1 following abandonment of farmland: Typically there will be numerous grassland species, hawthorn, blackthorn, roses and bramble with some oak, ash and holly. Characteristic species of the woodland field layer may be present if they occur nearby, e.g. bluebell, stitchwort, and bracken may be dominant.

G2. Hazel scrub on limestone pavement: Basically a dwarf version of B2, in which the development of trees is prevented because of the shallow soils and/or exposure, although the occasional ash, yew and whitebeam may be present. Principally in the Burren and similar sites elsewhere.

H. Birch scrub

H1. Early phase in the development of A1 and A2: Dominated by birch but often accompanied by rowan, holly, shrub willows and possibly hawthorn and oak. Species such as gorse (*Ulex europaea*) and broom (*Cytisus scoparius*) are common on drier sites, with frochan, ling and heather, and woodrush in the field layer.

H2. Birch scrub, often with willow, on old cutaway bog: This is usually a precursor to F1 or F2 but in the early stages presents a mosaic of communities with scrub, heath and wet depressions, with a variety of vegetation types depending on the chemical composition of the soil and ground water, and the soil water regime.

I. Willow scrub

Scrub dominated by shrub willows, especially *Salix aurita* and *S. cinerea*, with a variety of wetland species. They occur on both base-rich soils, in which case they may be precursors of E1 (e.g. lake shores), and on relatively base-poor soils around flushes in heaths and blanket bogs. The distinction between this community and low-growing stands of E1 may be difficult to define.

J. Ash/hawthorn scrub

Ash and hawthorn may invade abandoned pasture and other land if there are seed trees in the neighbourhood. The associated flora is heavily dependent on the previous land use but associated species include holly, blackthorn, bramble and roses. These stands would probably develop into either B1 or C1.

K. Juniper scrub

A rare type usually characterised by heath vegetation with ling heather, bell heather, grasses and herbs. Juniper gives the vegetation a distinctive character, especially if it is present in its erect form. It occurs on both limestone and acidic rocks.

L. Blackthorn scrub (Photo 14)

Thickets of *Prunus spinosa*, which, on account of their dense and thorny nature, are virtually impenetrable. Ash trees may be emergent and bramble may also be present, but the field and moss layers appear to be very poorly developed due to the dense shade.

Photo 14 Scrub dominated by blackthorn (L), with some hazel and alder in a small valley. Gorse scrub present on the distant hillside. (Photo J. Cross)

M. Other woodland and scrub types

Some vegetation types may not fall readily into the above categories. This may reflect the inadequacies of the classification system or they may represent previously unrecorded types. For example, there is some evidence that ravines may carry a distinctive woodland vegetation type. In such cases the vegetation should be characterised in as much detail as possible so that an attempt can be made to assign it to an existing type or to facilitate the description of a new type.

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