



A Review of the Native Woodland Scheme Emergent Woodland measure

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1. Introduction: The Emergent Woodland sub measure of the NWS was introduced to the Forestry Programme 2014-2020, during 2015. It was in part to provide an alternative to scrub clearance for landowners, as there had been significant loss of this and similar habitat types in previous years (FoE 2010)(NFI 2017), resulting from ‘mixed coherence’ in how the EU Common Agriculture Policy was being interpreted here (Alliance Environnement 2019)

Although 360 hectares of funding was allocated for this, as a sub-measure of the Native Woodland Conservation Scheme, up to the end of 2020, only c.5 hectares has been approved for grant aid so far (FS pers.com. 2020). Woodlands of Ireland facilitated this review, which also had the aim of producing a new Information Note on Emergent Woodland to add to the series of existing Native Woodland Information Notes which are shortly due for re-publication.

Emergent Woodlands which are defined as early woodland habitats (Machtinger 2007) can be an important part of the tool kit for both woodland creation and conservation in conjunction with current and future Grant and Premium Categories (GPCs) in the Forestry Programme or/and as an Agri-Environment measure of the CAP post 2020. This Review of the Native Woodland Scheme Emergent Woodland endeavours to clarify why the uptake of the sub-measure is so poor and suggests some changes which may improve the incentives for stakeholders to use the opportunity it presents to them.

The Review briefly outlines the historical context and how these young growth woodland habitats (Fuller et al 2012) emerge, where and why they may occur, the potential extent of them, the relationship to other ‘retained habitats’ and Areas of Biodiversity Enhancement (ABEs), Aquatic Buffer Zone (ABZ), plus their contribution to structural diversity within a stand and to reducing habitat fragmentation in the landscape generally.

For a brief description of scrub/emergent woodland in an Irish landscape context visit <http://www.eco-landscapes.com/habitats/scrub>

In the most recent Native Woodland Survey- *‘The frequency of scrub (21.0% in recorded adjacent land use classes) is a good indicator that woodland is expanding at a number of the sites surveyed’* (Perrin et al Vol.1 2008 p.35)

‘Younger woods are likely to be in a state of flux due to continuing succession, especially where disturbance is still an influence, and still have not attained their full potential complement of species’.(Perrin et al Vol.1 2008 p.52)

Three case studies of sites in Clare, Roscommon and Offaly where field trip/workshops have taken place, are explored below and recommendations, references and further reading lists are given.

1.1 Summary of key findings: Emergent Woodland Conservation measures provided by DAFM could be designed for use in both forestry (as a distinct Grant Premium Category) and in Agri-environment schemes for a multiple of biodiversity and climate change mitigation benefits, but the financial incentive applied to it must be compatible and on a par with other alternative options available to landowners. In addition there needs to be a more balanced reflection of all woodland successional stages in how semi-natural woodland conservation and afforestation measures are implemented.

2. Historical context of Emergent Woodland in Ireland:

‘Teóra h-uaire do cuir Eire, Teóra monga, agus teóra maola dhí.’

‘Three times Ireland was cultivated: thrice wooded and thrice bare’ (Duffy et al 2001)

In *An outline and map of the potential natural vegetation of Ireland* (Cross 1997) it is evident that most of the island of Ireland would eventually revert to woodland, if left un-grazed or un-cultivated. As the sean fhocal above (old Gaelic saying) states: woodland expansion and contraction has occurred before and will occur again. This phenomenon is not unique to Ireland and has occurred for a variety of reasons around the world, over the centuries.

For example in Nova Scotia, in eastern Atlantic Canada, settlers mainly from Scotland cleared forest in the eighteenth and nineteenth century, in order to create farmland. Much of this farmland was subsequently abandoned and a variety of woodland types have emerged (through a process of natural regeneration and plant succession) over the mapped grid system of privately held plots of land (Canada/ Nova Scotia Gov. 1980).

Another more recent example of emergent woodland on a significant scale, has occurred in the exclusion zone of 2,600 square kilometres, created around the site of the Chernobyl nuclear power plant in the Ukraine since 1986 (Live Science 2019)

Kenneth Nicholls (Duffy et al 2001) description below, of the period of woodland expansion in Ireland in the late medieval period, may be worth repeating in the context of the current Climate Emergency coupled with the Covid 19 Pandemic:

‘The collapse of the intensive colonial economy of the thirteenth century and of the population of Ireland as a whole, following on the climatic deterioration which began in the early fourteenth century and the series of recurrent epidemics which commenced in 1348 and continued at short intervals down to the sixteenth century, meant a considerable regrowth of woodland on the abandoned lands and especially in the ‘fásaigh’, the ‘wastes’ or no-man’s lands which lay on the frontier between the contracting colony and its Gaelic neighbours.’

Emmett Byrnes (2007) in **Information Note No. 2 Woodland Management History** describes how from the late sixteenth century onwards, this expansion was reversed through woodland exploitation for industry and renewed agriculture.

In *‘Ireland’s Woodland Heritage –a guide to Ireland’s Native Woodlands’*, Dr John Cross describes the remaining native woodland, it’s conservation requirements and the need to expand them by planting, but also notes that

‘At the same time, native woodland is expanding naturally, both on former agricultural land, especially in the uplands, and on abandoned cutaway bog.’ (Cross, 2012)

3. Emergent Woodland, the National Forest Inventory (NFI 2018) and the CAP: The loss rates of key 'feedstocks' such as scrub and hedges, that generate emergent woodland, are examined.

3.1 Scrub removal: The quantity of land use change that is occurring that can be classified as Emergent Woodland (potentially a subset of both scrub and forest categories) in the Republic of Ireland area is not clearly discernible in the NFI figures in the period 2006 to 2017. This is in part because the area of 82,606 hectares of 'scrub' (NFI 2012) has been removed as a land use category and partially redefined as hedgerow, forest and 'Other Wooded Land' (de Foresta et al 2013), in order to conform more closely with UN Food and Agriculture Organisations' (FAO) tree cover definitions: '*Other Wooded Land is land with a canopy cover of 5-10 percent of trees able to reach a height of 5 m in situ; or a canopy cover of more than 10 percent when smaller trees, shrubs and bushes are included.*' <http://www.fao.org/3/ad665e/ad665e03.htm>

However the NFI may not currently be the best way to monitor the extent of scrub removal accurately as most of the changes in interpretation in the 2012-2017 period are as a result of the use of better quality imagery (Bing) and not actual scrub removal (John Redmond NFI pers.com 2020) as illustrated in Figure 2 below.

Scrub to bog & heath



Scrub to Grassland (Definitive change – Removal)



Figure 2 Comparisons between the quality of aerial photography and Bing imagery (NFI 2020)

For example, in the EPA Report 221 (Devaney et al 2017) on Deforestation in Ireland between 2000 and 2012: *'Following a comprehensive accuracy assessment, the national deforestation map area was error adjusted from 5457.1ha to 7465.63ha (± 785.67 ha). This area is below the lower 95% confidence interval of the National Forest Inventory (NFI) deforestation estimate for the same period (10,669ha), suggesting that the NFI may have overestimated deforestation areas'*. This indicates an accuracy of c.70% regarding deforestation calculations in the NFI.

12 plots surveyed in the most recent inventory were considered to be actual scrub clearance, where each NFI plot represents an area of 400ha. Therefore a more realistic figure for scrub clearance may be c.70% of 4,800ha = 3,360ha or c.**672ha/annum** for the 5 year period 2012-2017.

A note of concern arising from the same EPA Report 221 is with reference to broadleaf forest removal (parts of which are often categorised as scrub) *'The rate of deforestation of broadleaf forests was considerably higher than for mixed and conifer-dominated forests. Broadleaf-dominated forests constitute only 25% of the national forest area. Indeed, semi-natural broadleaf forests are rare in the Irish landscape, accounting for just 2% of the national forest area (Perrin et al., 2008)'*.

'From a conservation prospective, the high rate of deforestation of broadleaf forests is of concern, particularly in the context of habitat protection legislation such as the EU Habitats Directive (92/43/EEC). Additional analysis indicated that, between 2000 and 2012, 52 deforestation events took place in ancient or long-established woodland, a particular rarity among Ireland's forest types (Perrin and Daly, 2010)'.

The anticipation by landowners of an 'Area Aid' payment system in the EU Common Agriculture Package (CAP) for 2014-2020, led to the physical removal of numerous hectares of emerging woodland on farms, to avoid penalties or having land parcels excluded from payments (Alliance Environnement 2019). As a consequence, some of these recently cleared areas can be interpreted as deforestation in the ground sampling for the NFI (NFI 2020 pers.com)

As we approach the conclusion of the formulation of the next round of CAP, it is important that the incentives to retain and conserve emerging woodland/scrub are sufficient to match 'Area Aid' or are compatible with any new variations in payment structure, for example relating to Greenhouse Gases (GHGs) or permanent mitigation measures and Climate Change, in Agri-Environment measures.

Regarding Greenhouse gas calculations and the issue of rough grazing to scrub conversion and vice versa, the EPA Report 198 (2017) states:

There are no current guidelines for the estimation of biomass carbon stock changes following transitions to and from rough grazing/scrubland. The default methods all assume a zero net change. However, a review of the literature suggests that rough grazing/ scrubland can contain a significant amount of aboveground biomass, ranging from 21 to 32t biomass/ha (Woodcock and Stephens, 2012). This would equate to a peak biomass value of approximately 13.5t carbon/ ha over a 25-year period, which could represent a significant emission or carbon gain following transition, and is not currently estimated in the Irish national GHG inventory (EPA, 2013).p.46 and comments later:

... any external land use policy that may incentivise the clearing of scrubland for agricultural production may result in an emission from these lands.p.51

The EPA Report 198 concludes: *However, significant improvements to satellite-derived classifications, or the post classification of these products, are required to better characterise grassland– scrub–forest transitions. The inclusion of the scrubland category in the land cover classification makes a significant impact on the GHG emission/reduction profile for the LULUCF sector.*

While incentives invested in conserving Emergent Woodland may not in general contribute to the net increase in perceived forest cover, they do reduce the estimated extent of deforestation, as recorded between one NFI cycle and the next.

3.2 Hedge removal: According to the Irish Farmers Journal more than 230 farmers lost Basic Payment Scheme money for breaches of rules on landscape features such as hedgerows and habitats in 2016 and 2017 <https://www.farmersjournal.ie/hedgerow-removal-costs-farmers-in-bps-penalties-452459>

In addition, the EPA Report 305 on Biomass Retrieval in Ireland using Active Remote sensing (BRIAR) (Green et al 2019) states

*‘The estimated net removal rate of between 0.16% and 0.3% per year is significant, suggesting that hundreds of km of hedgerow have been removed a year, compared with the approximately 250–1050 km of hedgerow removal granted permission under the EIA over 6 years. Taking a mid-range estimate of 0.2% hedgerow removal per annum based on the current stock, this is equivalent to 1378 km, with an average width of 2.7 m, which equates to an area of **372 ha/per annum**’.*

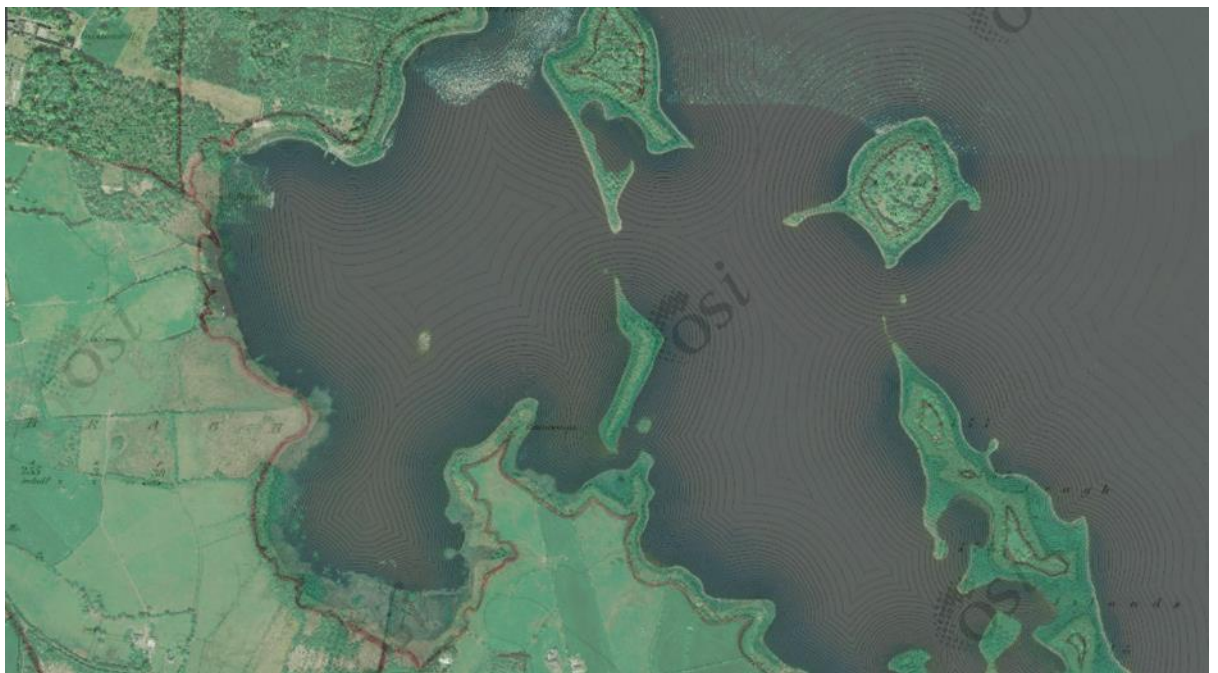


Figure 3: A recent aerial photograph of a section of Lough Conn, Co. Mayo, overlain on the 1st Edition OS map, illustrates that the shoreline and area of the offshore islands has expanded. This expansion has largely become Emergent Woodland, where Alder, Willow and Birch are dominant. (Geohive.ie)

3. How Emergent Woodland originates:

Emergent Woodland occurs in Ireland for a number of reasons:

- On cutover bog lands WS1, WN7 (Fossitt 2000). Bord na Móna (2016) estimates that 25-30,000 hectares of its' c.80,000 hectares estate will develop without assistance into semi-natural woodland and scrub composed primarily of native species.
- Abandoned or marginal agricultural land, where grazing by farm stock or deer is for extended periods of time low or nil.
- Exclosures: small areas fenced to exclude Deer and Sheep, where subsequent tree growth is largely derived from natural regeneration. For example at Tomies Wood, Killarney National Park and at Glenveagh National Park.
- On the margins of forested land.

The following origin scenarios are relevant to the NWS grant specification:

4.1. The role of hedges in generating emergent woodland

4.2. Riparian and wetland tree cover

4.3. Areas of Biodiversity Enhancement reviewed

4.4. Following clear felling of coniferous crops

4.5. For a combination of the reasons outlined above and 'Other'.

4.1. The role of Hedges in generating Emergent Woodland: Hedges, and their often associated banks and drains (hedge habitat zones), have been used as traditional agricultural field boundaries (agroforestry) for more than a thousand years in Ireland (Gowran 2017). Hedges are broadly classified as a sub set of Linear Woodland/ Scrub Habitat in the standard guide to habitats in Ireland by Fossitt (2000) and identified with the code WL1.

Species and structural diversity can increase over time in hedge habitat zones.(Hooper 1981) Many include some woodland indicator species in the ground flora (Foulkes et al 2014) and some lengths of hedge banks, particularly townland boundaries, may have been formally the boundaries of ancient woodland (Duffy 2009, MacCotter 2008, McCann et al 2017, Clutterbuck 2015)

It should be noted that: *'These older boundaries may support relic woodland species, slow-to-establish species and species of old grasslands that have escaped the ploughing (sic) and other farming activities in adjacent fields, and therefore may be of greatest importance in schemes aimed at the conservation of natural biodiversity'*.(McCourt and Kelly 2007) and more commonly where *'under managed and infrequently managed hedges in areas of lower intensity land use exhibiting the greatest diversity of woodland species.'* McCourt 2011

Once the pressure of grazing declines in adjacent pasture or tillage land, hedges can provide sources of seed, runner and sucker growth for expansion and colonisation, as illustrated in Figure 4 below.

Because hedges are frequently composed of thorny species such as hawthorn, blackthorn, holly, gorse and bramble, they tend to be unpalatable to most intermittent grazers on marginal lands. Occasional grazing events can provide patches of hoof disturbed bare ground and the embedding of seasonal windblown tree seed of a variety of species such as Birch, Alder, Willow and Ash can occur.

Consequently, within a few years, the woody vegetation begins to form thickets, which in turn form increased cover and habitat for birds and mammals. The birds and mammals then transport in seed from species such as holly, oak and hazel, which can also cope with the additional shade and competition begun from the earlier colonisation and hedge habitat expansion. Some of the shade tolerant ground flora of the former hedge habitat may gradually expand their range underneath the evolving thicket.

‘From an ecological perspective, where these new trees and shrubs are native, genetically diverse and representative of the native woodland type appropriate to the site, natural regeneration is far preferable to planting. Often, however, some level of intervention is required to facilitate the process.’ (Cross and Collins 2017)

4.2 Riparian and wetland tree cover: Riparian woodland and scrub can develop due to reduced water levels in rivers and lakes, related to ESB and OPW activity. These tend to be dominated by Alder and Willow for example on the shores of Lough Conn Castlehill, Co, Mayo (Cloonamoyne 2020) as shown at Figure 3 above and as referred to on p.16 of Woodlands of Ireland Information Note No. 4 Riparian Woodland. (Little et al 2008)

Woody species regeneration as a result of agri-environment management schemes: set back and aquatic buffer zones (ABZ) intended to filter and reduce run off from fertiliser, chemical and effluent spreading. In ABZs ,to reduce siltation from forestry and agricultural ground disturbance activity *‘The water setback must be left largely undisturbed, to enable it to develop into a well-vegetated area comprising a mosaic of natural ground vegetation and (potentially) pockets of native scrub. It is a permanent feature to be left in situ throughout the rotation and into the next. Its purpose is to filter out sediment and nutrients from overland flow off the site, and to create distance between receiving waters and the various forestry operations and inputs that may potentially impact on that natural resource.’* DAFM 2018.



Figure 4: In the foreground, Blackthorn and Hawthorn expand their area out from both a hedge habitat zone and a forest plantation edge, following the partial colonisation by bramble of former grazing land, Co. Leitrim.

4.3. Areas of Biodiversity Enhancement (ABEs) reviewed: Emergent woodland develops in Areas of Biodiversity Enhancement (ABE) composing a proportion of c. 5-10% of each afforestation and re-afforestation site. See Forest Service Biodiversity Guidelines (2000)p.7 and Environmental Requirements for Afforestation 2016. The concept of ABEs should be reviewed, with a consideration of extending the application of ABEs to 15% of all agricultural lands, in order to increase protection of Other Wooded Lands, Hedges and associated Semi-woodland habitats (Peterken 2002) beyond land defined as forest, in order to prevent further habitat fragmentation at a landscape level.

4.4. Following clear felling of coniferous crops: where restocking has been delayed or a decision to restock via natural regeneration (of predominantly windblown pioneer native species such as Birch,

Willow and Alder) has been taken. Some good examples may be seen in the People's Millennium Forests as shown in Figure 5 below. See also 'Section 10 Conversion' in Cross and Collins (2017).

Public Sector clear felling is averaging around 7,000ha per annum currently, while licences for private sector clear fells are averaging around 3,000 hectare per annum (DAFM 2019). Some of these lands will not be restocked with conifer crops, because they were on deep peat or in Hen Harrier SPAs, or land owners have procrastinated about restocking. On others, the ABEs will now be applied and there should be buffer zones along riparian zones, which may include bands of native species restock of around 20m minimum width. A 15% restock with broadleaves requirement currently applies, but it is not clear that it is universally applied (Foulkes pers.com 2020). Because broadleaves tend to be retained standing in many clear fell sites, ground conditions can be conducive to natural regeneration occurring from these parent stock. Natural regeneration leading to patches of emergent woodland may also occur in setbacks from buildings, roads and archaeological sites and retained habitats.

Figure 1. Fixed-point photography from individual plots along the People's Millennium Forest monitoring transects providing a visual record of vegetation change over time. These photographs were taken from the exact same position during the surveys of 2003, 2009 and 2019.



Figure 5: Screen grab of Figure 1, from the report on the monitoring of a number of People's Millennium Project sites illustrates the benefits of long term monitoring in tracking changes in structure and species.(BEC 2019)

4.5. For a combination of the reasons outlined above and Other: Railway embankments, Coastal cliffs, post Industrial Sites at Mines or Quarries, Land Banks for potential future development in both Urban and Rural locations plus in 'Rewilding' projects.

'In a nutshell:

- *Naturally occurring, early-successional ecosystems on forest sites have distinctive characteristics, including high species diversity, as well as complex food webs and ecosystem processes*
- *This high species diversity is made up of survivors, opportunists, and habitat specialists that require the distinctive conditions present there*
- *Organic structures, such as live and dead trees, create habitat for surviving and colonizing organisms on many types of recently disturbed sites*
- *Traditional forestry activities (eg clearcutting or post-disturbance logging) reduce the species richness and key ecological processes associated with early-successional ecosystems; other activities, such as tree planting, can limit the duration (eg by plantation establishment) of this important successional stage'. (Swanson et al 2010)*

Incentives for conservation: Private landowners have the option of availing of incentives to conserve and develop such early woodland habitats through a sub measure of the Native Woodland Scheme known as Emergent Woodland. The key criteria currently are:

- must be composed predominantly of native species
- must have an average canopy height of at least 4 metres
- must be situated on mineral soil
- can initially comprise up to one-third open space

For all of the current specifications of the scheme see

<https://www.agriculture.gov.ie/media/migration/forestry/grantandpremiumschemes/2016/NativeWoodlandConservationSchemeSept15050117.pdf>

<https://www.agriculture.gov.ie/media/migration/forestry/grantandpremiumschemes/2016/EnvironmentalRequirementsAfforestationDecember121216.pdf>

3. The Classification of Scrub and Emergent Woodland.

Two levels of classification are in use in Ireland. Fossitts (2000) 'Guide to Habitats in Ireland' describes the fundamental broad range of habitats on the island. This is the level used in the NFI.

In Information Note 6 (Cross et al 2010) the more specific Woodland Classification system is based on the results of the Native Woodland Survey (Perrin et al 2008). The type of scrub and woodland that can emerge from the thicket stage described above, on a range of soil types are outlined within.

An Emergent Woodland community of species may, through a natural succession process, transition from the Fossitt (2000) habitat types WS1, WS2, WS5, WL1, WL2 towards the Semi-natural Woodland types (and subtypes) classified as (Cross et al 2010):

QL Sessile oak-woodrush (*Quercus petraea*-*Luzula sylvatica*)

FH Ash-Ivy (*Fraxinus excelsior*-*Hedera helix*)

AF Alder-meadowsweet (*Alnus glutinosa*-*Filipendula ulmaria*)

BM Birch-purple moor-grass (*Betula pubescens*-*Molinia caerulea*)

However as this colonisation process is considered to be Secondary Succession* and unstable due to 'the proximity of seed sources, the circumstances in which succession was initiated, and chance variation in colonisation' (Peterken 1985), the species mix that defines the semi-natural woodland types may not be fully evident in the 'scrub' (seral) stage on the same site type.

'The random element in scrub composition is not the only complication in the relationship between stand types. Another is the inability of certain species to colonise, at least in the early stages of succession... A third is the existence of certain scrub types which never develop into woodland' (Peterken 1985)

These scrub types that never develop into woodland are described in the recent classification (Cross et al 2010) as LW Low woodland/scrub vegetation:

LW1 Blackthorn (*Prunus spinosa*) scrub

LW2 Hazel (*Corylus avellana*) scrub- extensive in the Burren, Co. Clare.

LW3 Juniper (*Juniperus communis*) scrub- relatively rare.

These 3 scrub habitat types are worthy of conservation in their own right, for many of the ecosystem services and carbon storage benefits that apply to other woody vegetation habitats, but they are beyond the scope of the Native Woodland Conservation Scheme as it is currently defined, as canopy height in them generally does not exceed an average of 4m. Their conservation may be facilitated by new Agri-environment measures in the CAP post 2020.

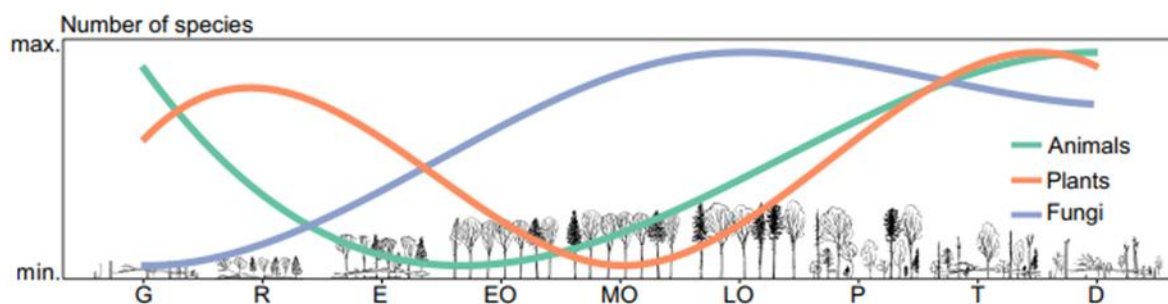


Figure 6: letters represent Stages: G, gap; R, regeneration; E, establishment; EO, early optimum; MO, mid-optimum; LO, late optimum; P, plenter (variable/multi-aged); T, terminal; D, decay (Hilmers et al. 2018) Emergent woodland is occurring between G and E, which is during a high phase of plant species diversity.

The successional stages with highest diversity (early and late successional stages) are currently strongly underrepresented in the forests of Central Europe. We thus recommend that conservation strategies aim at a more balanced representation of all successional stages. (Hilmers et al. 2018)

*The Secondary Succession definition used by Peterken (1985) is by Horn (1974): *‘the process of re-establishment of a reasonable facsimile of the original community after a temporary disturbance’*

7. Case Studies:

Three case studies of past or present emergent woodland sites, with a geographic spread and variation in soil type and topography, are described below, following field trip/workshops at each during October 2018 and September and December 2019 respectively. The preparation of sites and the running of the workshop/field trips were done by Joe Gowran with the assistance of Wesley Seery MSIF.

Issues included:

- The defining of what qualifies as being Emerging Woodland (EW) and the presentation of supporting evidence for specific sites: e.g maps and aerial/ satellite images, ground flora, archaeology and cultural heritage features.
- The appropriate level of intervention, if any, that should take place from both an ecological and silvicultural perspective and the implications for the rate of forestry grant or agro-environment incentive offered.
- The significance of conservation of the site in its’ local landscape/catchment context.
- The appropriate level of financial support from the NWS or other schemes (GLAS)
- Assessing and comparing the land owners’ options with other schemes and market incentives.
- Whether the sub-measure could equally be a component of both Conservation or Afforestation applications, or an addition to next round of GLAS

7.1 Case Study One: Dangan, Tulla, Co. Clare. This site was the first and only site to date (FS pers.com 2020) approved for grant aid under EW.

Description: predominantly Hazel woodland (LW2 succeeding towards FH) over rocky outcrop of limestone, with stone wall field boundaries and remnants of Demesne Era tree planting (A line of veteran Beech). Private site of area: c.4.8 -7ha. See figure 6 below.



Figure 6: the structure of Dangan emergent woodland includes hazel stools of greater than 5m in height, small diameter Ash in the canopy at intervals plus a lush ground flora of bluebell and primrose seasonally. (photo credit C. McInerney)

The first field trip was held here in October 2018. The general consensus of the participants was that:

- The site was suitable for developing a 'coppice with standards' silvicultural system but would require in excess of the 50% of the full NWS Conservation rate currently offered by FS, in order to establish this system.
- The grant rate awarded should be based on a defined table of costs for implementing tasks as described in the submitted NWS plan, up to the maximum allowable for the NWS Conservation measure generally.

The plot to the right outlined in orange in Figure 7 below was originally excluded from the NWS grant application by the contractor, because of the presence of a line of veteran Beech and this decision was queried by those in attendance.

- It should be emphasised more to applicants/contractors that Veteran trees of all species are to be retained, but NWS plans should provide for control of natural regeneration of non-native species.
- The 'emergent woodland' category is a subsection of the NWS Conservation measure and therefore can be included in an application together with older woodland compartments.

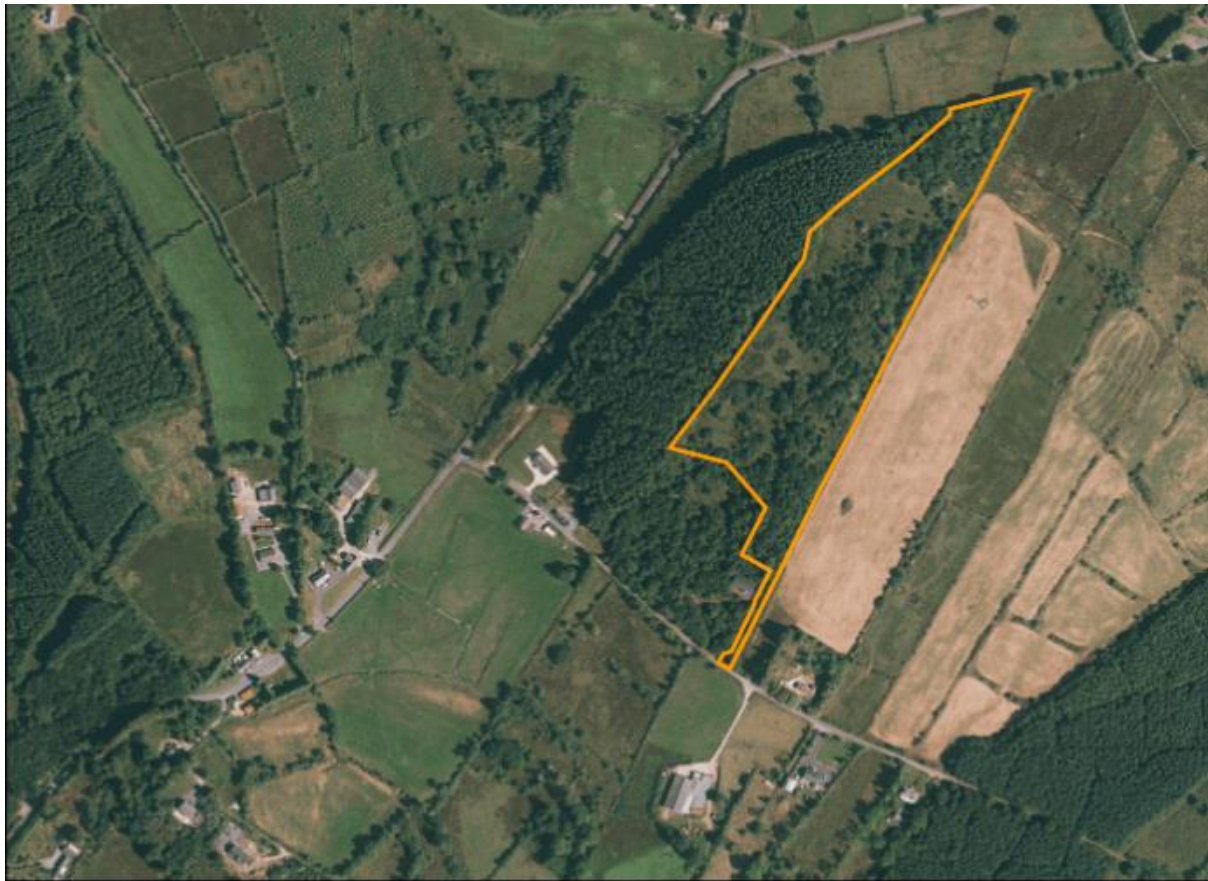


Figure 7: Dangan site, Co. Clare –the plot on the left shows the EW NWS grant approved area, while the contiguous owned plot to the right is also suitable for NWS Conservation.

7.2 Case Study Two: Cornacarta, Boyle, Co. Roscommon. Private site of area: 3.66ha.

Description: Alder/Ash (AF/FH) woodland on boulder clay drumlin, with species rich meadow with orchids and remnant hedges and stonewalls, adjacent to newly clear-felled plantation in heavily forested landscape on one side and intensifying agriculture on the other. See figure 8 below

The second field trip, in the series of 3, was held here in September 2019. The owner, who lives in Co. Meath, had purchased the site in 1996, but does not own other lands in the district. The site is now partly emerging woodland (c.55%), partly open field (c.35%), partly early succession to woodland (c.10%), with young alder and gorse (See figure 9 below).



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Figure 8: image in orange of site 2 at Cornacarta, Co. Roscommon

The site had not been formally grazed since 1996, but there is evidence of sheep and cattle browsing from neighbouring farmer's stock. The grassland is of a quality, in terms of species diversity, to be included as an area of High Nature Value Farmland (HNVF), but managing owner's stock on this subdivision for grazing looks impractical.

There was some agreement from the field trip participants that it could be worthwhile to find a way to recognise and rate the importance of this type of site for its' structural and species diversity, because of its landscape position given the intensity of agriculture and commercial forestry surrounding it.

The owner wishes to do the best for the site, from an ecological perspective but would also like to get some income from it, by way of premium, if possible.

The participants discussed whether it would be possible to combine NWS Conservation or/and NWS Establishment measures and enhanced Agro-forestry measures/ GLAS, in order to incentivise the protection of small niche sites such as this, from being degraded or destroyed.



Figure 9: View from an open grove in Cornacarta, Co. Roscommon. Note young Ash showing signs of Dieback in the middle foreground of the image.

7.3 Case Study Three: Ballydermot, Clonbullogue, Co. Offaly

Description: Oak/Ash/Hazel (FH) and Birch/Rowan/Holly (BM) bog shore woodland. This site is on the edge of Ballydermot Bog and has a Bord na Mona rail line cutting through on one end. It illustrates what happens with EW on a longer timescale.

This site was visited for a Field Trip regarding EW and related matters in early December 2019. It is a privately owned site of currently c. 8ha adjacent to other semi-natural woodland and NWS afforestation. See figure 10 below.

Compartments of the site were clearly what we now call EW when they were grant aided under the 'Scrub Clearance/ Afforestation' scheme in the period 1995-99 (pers. obs. 1995-99). A small degree of cattle browsing was still evident up to that time. Varying periods of active management, including coppicing and restock with Oak, have occurred in the 25 years since then.

The future potential of EW sites for biodiversity and wood production: The Ballydermot site history provides evidence that occasional harvests of small dimension hardwoods for a variety of traditional crafts and fuel can follow decisions to conserve and manage emergent woodland. Naturally regenerated Ash has become more dominant in the canopy since 1995 and thinning the canopy

would provide more opportunity for Oak and Wild Cherry to be recruited for potential saw log. The location of species and structural diversity within the site consequently has shifted to some extent over periods of decades (pers. obs.2019). Birch is significantly less dominant than it was in 1995. A number of ground flora and woody species quadrats were recorded in the wood in 2005 (Natura Consultants 2005). The intention is (via a NWS conservation measure application) to carry out a new flora survey, to establish data for long term monitoring of species change and shift.



Figure 10 and 11 (below): Open fields (3.146, 1.423, 1.861, 2.570 acres) adjacent to Ballydermot Bog, Co. Offaly shown on the 2nd edition OS map (1888-1913), overlain on a recent aerial image (Geohive.ie), were becoming emergent woodland by 1995.



Figure 11: a recent image of Ballydermot woodland showing the fields referred to in Figure 10 above

7.4 Aspects that the 3 Case study sites have in common:

1. Land parcel is of limited agriculture use due to terrain, soil type, location and size.
2. Site is not environmentally designated under EU law and is not adjacent to a designated site.
3. Generally open to some degree of grazing until the decision to place it in a forestry scheme was made.
4. Shown as open field on the 2nd edition OS maps and may not be shown as woodland on the OS Discovery Series maps.
5. On the boundary of or peripheral to the owners core farming activity.
6. Adjacent to similar wooded habitats owned by neighbours.
7. Partially or fully ineligible for Area Aid under EU Schemes (DAFM 2015) *A Guide to Land Eligibility-Direct Payment Schemes*
8. These sites would have been generally classified as 'Scrub' before the 2017 National Forest Inventory (NFI), when they were reclassified as 'Other Wooded Lands' or 'Forest' or into other land uses. See Appendix 1
9. The land use has been in slow transition from agriculture to native woodland, composed mainly of species derived from natural regeneration from hedges or adjacent woodland.

Similar land parcels elsewhere, which farmers previously received payments for under REPS and AEOS are now excluded from GLAS. Anecdotal evidence from a GLAS advisor, covering Donegal and Leitrim, would suggest that many farmers have c.2ha each of similar land in small parcels.



Figure 12: Hedge widths defined from remote sensing by FERS Ltd for NPWS in 2014. (Geohive.ie)

8. Key recommendations

8. 1: The decision by a landowner to go with the process of transition from agricultural land use to native woodland conservation /forestry is in effect conclusively taking land out of the agricultural (area aid) option and converting to (permanent climate mitigation) Continuous Cover Forest, therefore **the higher premium rate and the longer duration applied to afforestation should be considered here, in order to strengthen the incentive and increase uptake.**

8. 2: Consider creating a new separate Grant and Premium Category for Emergent/Transitional Woodland and associated habitats GPC13? (Seery 2019 pers.com), which could also cover the active management of existing **Hedge Habitat Zone (see Section 9 below)**, which are frequently an integral part of afforestation applications. This might extend to include contiguous Heritage Hedges (Foulkes et al 2014), radiating out from a NWS site, in order to reduce habitat fragmentation, on a case by case basis. The Areas of Biodiversity Enhancement would then be considered in addition to parcels included in the new GPC. A similar approach could be taken with the main NWS Conservation measure, which is currently described in the Forest Service Literature as if it didn't have a GPC attributed to it (DAFM2019). The benefit is that any NWS GPC can then be combined with any another GPC, in the same application thus reducing rigid compartmentalisation and hopefully leading to more structural and species diversity and better habitat protection.

8. 3: The grant rate awarded should be based on a defined table of costs for implementing tasks as described in the submitted NWS/Agro-environment plan, up to the maximum allowable for the NWS Conservation/ Agri-environment measure generally.

This is a matter for the Forest Service Inspectorate in conjunction with Teagasc Farm Forestry Advisors, NPWS and Private Sector contractors and consultants to determine. Woodlands of Ireland are prepared to facilitate discussion and teasing out issues via our Technical Advisory Panel.

8. 4: Limit the need for an Ecological Survey: In many cases for Emergent Woodland sites, there is little need for the degree of Ecological Survey undertaken in older woodlands for NWS Conservation, because generally there will tend to be relatively few ground flora species in the early years transitioning mainly from grazing land to woodland. There will be exceptions to that. We recommend detailed survey in Environmentally Designated sites and adjacent buffer zones, within defined limits. In many cases, the approach to site classification based on soil type, as used in NWS afforestation, should be sufficient.

8. 5: Broaden the application of ABEs to 15% of all agricultural lands to increase protection of Other Wooded Lands, Hedges and associated Semi-woodland habitats beyond land defined as forest, in order to prevent further habitat fragmentation at a landscape level.

8. 6: We recommend continued stakeholder engagement using a similar workshop/field trip approach on new site scenarios, with a view to continuing refinement of this component of the NWS, or to explore conservation support through Agri-environment schemes. The 3 workshop/ field trips in this review, which were targeted mainly towards land use advisors in both public and private sector, involved c.60 people in total. They were followed by requests for more similar outdoor focused events. See figure 11 below.

8. 7 Promote natural regeneration of native species on clear fell sites as part of incentivising a transition to CCF.

8. 8 Pioneer species which occur more abundantly in the early stages of succession in the development of emergent semi-natural woodland, should be more strongly represented in the species mix for Native Woodland Afforestation. This would, for example, increase the initial proportion of Birch, Hawthorn and Willow while reducing the demand for Oak, therefore resolving some of the stock supply issues in the NWS.



Figure 11: Workshop/ field trip for a green wood working club in a planned emergent woodland on former peatland near Carrowdore on the Ards Peninsula, Co. Down (photo credit Alexey Janes 2020)

Section 9: A Hedge Habitat Zone is defined here as the band width in which the hedge and associated features of bank and drain exert the most amount of influence on species and structural diversity, in comparison to adjacent land use.

The band width, which may have a variable centre point, depending on the structure, age and complexity of the hedge, could include up to one third open space, (reflecting the current emergent woodland specification in the NWS) to incorporate field margins and other associated micro habitats. This should aid the classification and development of a measurement protocol in the field, for inventory and mapping for Agriculture or Forestry Schemes. For example, the analysis of linear features from remote sensing of land use in the Hen Harrier SPAs (NPWS 2015), give hedges 4 band widths, as can be seen in Figure 11 above.

The Hedge Habitat Zone (HHZ) concept (with sustainable management guidelines) could be applied in Agri-environment, Agroforestry and Forestry measures generally when incorporating existing or new hedges within them. Further discussion about the detail of this is required with DAFM and stakeholders.

10. Conclusion: Emergent Woodland is wide spread throughout the landscape, often cropping up in places where it is unwanted. The interpretations of CAP regulations have influenced the expansion and contraction of this habitat in recent decades. Due to the Biodiversity and Climate Crisis's ongoing, the conserving and active encouragement of Emergent Woodland, derived from natural regeneration of predominantly but not exclusively native species, is essential.

Existing and new measures which influence the fate of these habitats, following CAP post 2020 regulations, whether they are under forestry or agri-environment administration or both, must incentivise conservation over destruction.

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Figure 1: Cover image taken by Sean O'Gaoithín 2020 at Blue Stack Mountains, Co. Donegal

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