

The Wilderness concept, Ireland, native woodlands and Woodlands of Ireland

Introduction

In recent years the concept of 'Rewilding' has been raised by interested native woodland stakeholders and indeed, promoted by others in Ireland. Woodlands of Ireland (WoI) was asked to develop the concept within its own mission of advancing the appropriate, sustainable management and expansion of native woodlands in Ireland. The following outlines how Rewilding fits within the native woodland model, its definition and related definitions, and how the concept could be applied within the remit of Woodlands of Ireland. Other habitats and related species are not discussed in detail, however on a practical level the concept should be envisaged within a mosaic of other habitats.

WoI since its inception in 1998 has been involved in key native woodland projects to advance the sustainable management and expansion of the native woodland resource. WoI was instrumental in the development and implementation of the People's Millennium Forests project (PMF) in partnership with Coillte (see <http://www.millenniumforests.com/>) and the project sponsors. It primarily involved the restoration of over 500 hectares of native woodland at fourteen sites in Ireland (including two in Northern Ireland) and was the largest environmental project of its kind at that time, i.e. 2000 to 2002, worth over €5m. Appreciable technical input has and is provided by WoI to the development and implementation of the Forest Service 'Native Woodland Scheme' (NWS) launched in 2001 (see <https://www.agriculture.gov.ie/forests-service/grants-and-premium-schemes/2014-2020/>). WoI has also been involved in other native woodland-related projects such as the EU Kerry Life project on Freshwater Pearl Mussels (see <http://kerrylife.ie/>) and a recent proposal on creating native woodland on cutaway raised bogs.

Currently WoI assists the Forest Service in the roll out of the NWS, specifically by visiting potential landowners interested in the Scheme and who want to know if their site(s) are suitable. This service is currently provided free-of-charge to landowners and forest companies. As the NWS has biodiversity enhancement as its primary objective, it is the closest measure on offer that provides significant financial support to restore existing – and create new native woodlands. Therefore, the Rewilding concept is addressed within the context of the NWS. (**Note:** This does not preclude the creation of native woodland wilderness areas using other projects, schemes and/or funding mechanisms).

Definitions

Wilderness (or wildland) is a natural environment on Earth that has not been significantly modified by human activity. It may also be defined as: "The most intact, undisturbed wild natural areas left on our planet – those last truly wild places that humans do not control and have not developed with roads, pipelines or other industrial infrastructure." ^[1]. In Ireland, it could be argued that no wilderness areas persist as Ireland is a 'cultural landscape' where people have influenced ecosystem process for over five millennia and most of the landscape has been tamed. Many ecological specialists would argue that most of our semi-natural habitats and ecosystems are degraded and Ireland's reporting mechanism to the EU conducted by

the National Parks and Wildlife Service (NPWS) would support this view (see <https://www.npws.ie/article-17-reports-0>). Currently, areas that are considered 'wild' such as the blanket bog and uplands along the western seaboard, are utilised for grazing sheep. Much of the Irish landscape - including many blanket bog landscapes - did support wildwood before human influence really took hold some 5,500 years ago with the advent of agriculture. Most of the wildwood cover was removed and/or modified substantially so that by 1900 only 1% of the land area supported 'semi-natural' woodland^[2].

'Wilderness areas' internationally are generally found in State Nature Reserves (NR), Special Areas of Conservation (SAC), Natural Heritage Areas (NHA), National Forests, National Parks and even in urban areas along rivers or undeveloped areas. These areas are considered important for the survival of certain species, biodiversity, ecological studies, conservation, solitude, and recreation. Wilderness is deeply valued for cultural, spiritual, moral, and aesthetic reasons. Some nature writers believe wilderness areas are vital for the human spirit and creativity.^[2] They may also preserve historic genetic traits and provide habitat for wild flora and fauna that may be difficult to recreate in zoos, arboretums or laboratories.

The word *wilderness* derives from the notion of "wildness" – in other words, that which is not controlled by humans. The mere presence or activity of people does not disqualify an area from being "wilderness." Many ecosystems that are, or have been, inhabited or influenced by activities of people may still be considered "wild." This way of looking at wilderness includes areas within which natural processes operate without human interference.

The rise of 'Wilderness' in Europe

Recent developments have led to new opportunities for wilderness protection in Europe, including

- the fall of the iron curtain, which revealed large, relatively intact areas in central and Eastern Europe, and created significant opportunities for government-protected areas. Subsequent EU membership by eastern bloc countries requires restitution of public land to former owners, many of whom want to sell their land. The restitution process specifically prohibits resale of land for logging, creating a significant opportunity for conservation for private investors.
- changes in Europe's Common Agricultural Policy (CAP) and a decrease in farming subsidies, which made farming in marginal areas economically non-viable is also a factor. As a result, in some areas there has been significant rural depopulation, followed by falling land prices. This has led to natural Rewilding in some places, and has created a significant, but probably short-lived opportunity for conservation.
- these political and economic developments have been accompanied by growing interest in wilderness conservation throughout the continent, driven by factors such as awareness that very few biologically intact areas remain in

Europe, heightened concern over climate change, and expanding wildlife populations.

Wilderness, native woodlands and Ireland

A growing body of literature emphasises the need for novel, process-oriented approaches to restoring ecosystems in our rapidly changing world. Dynamic and process-oriented approaches focus on the adaptive capacity of ecosystems and the restoration of ecosystem processes promoting biodiversity, rather than aiming to maintain or restore particular ecosystem states characterised by pre-defined species compositions or particular bundles of ecosystem services. Such approaches recognise ecosystems as dynamic systems whose future development cannot always be predicted. Rewilding is one such approach to restoration. This strategy aims to restore self-sustaining and complex ecosystems, with interlinked ecological processes that promote and support one another while minimising or gradually reducing human interventions. Rewilding also emphasises the emotional experience and perception of wild nature and wild ecosystems without human intervention ^[4]. WoI concurs with the view that Rewilding should be based on concepts derived from resilience and complexity theory of social-ecological systems, identifying trophic complexity, stochastic disturbances, and dispersal as three critical components of natural ecosystem dynamics^[4]. In other words bio-geo-physical systems that are complex and adaptive that are self-sustaining with abundant nutrition, species and structural complexity. There should be a random probability distribution of organisms that are resilient and adaptive to disease and climate change, if possible, and should require minimal intervention to combat specific threats. The restoration of these processes, and their interactions, can lead to increased self-sustainability of ecosystems and should be at the core of Rewilding actions in Ireland. A structured approach to Rewilding projects should include assessment of the contributions of nature to people and the social-ecological constraints on restoration ^[4].

It is widely accepted that most of the land area of Ireland supported a woodland mosaic some 6,000 years ago before the onset of agriculture with consequent woodland clearance, primarily for pasture ^[2]. Woodland clearance continued unabated since around 5,500 BP, though some areas developed secondary woodland where land was abandoned and/or population diminished ^[3]. After the Great Famine in 1848 land was divided into numerous, distinct parcels of ownership which was further imprinted with a dense hedgerow network, which is relevant to biodiversity connectivity in the landscape. It is also relevant *vis a vis* land holding size as there are few very large private land holdings in Ireland, excepting the State sector. The average farm holding is only 32.5 hectares (see <http://www.askaboutireland.ie/reading-room/life-society/farming/farming-in-ireland-overvi/land-use-in-ireland/>).

Most of the land area is suitable for woodland re-establishment. Exceptions are where other habitats now persist such as blanket and raised bog, freshwater habitats, alpine ecotones and scree slopes. There are also other habitats that have evolved with extensive human agricultural practises such as in the Burren, Co. Clare, where it is appropriate to maintain those habitats and control the development and spread of woodland into these habitats. It is worth mentioning that one of the criteria of the Forest Service Native Woodland Scheme – a primary measure that Woodlands of Ireland supports and promotes - is not to replace other habitats with woodlands as they have their own specific biodiversity elements and value and in some cases (i.e. deep blanket bog) are not suitable for native woodland. Therefore, the Rewilding concept in Ireland must allow for the conservation of a range of surviving semi-natural habitats from blanket and raised bogs to woodlands and wetlands.

Potential for Rewilding using native woodlands

Despite the potential for Rewilding to address pressing restoration challenges, critics have pointed out several shortcomings that have as yet hampered the application of Rewilding principles. Criticism includes a lack of a consistent definition of Rewilding and insufficient knowledge about the possible outcomes of Rewilding endeavours. In addition, concerns have been raised about Rewilding activities being planned in a manner that excludes people from landscapes rather than being designed with local support^[4]. This is particularly relevant in Ireland where human activities have modified the landscape for millennia and continue to do so today.

Certainly, within the State sector there may be opportunities to ‘rewild’ with minimal human involvement but in the private sector where land holdings are relatively small in the context of Rewilding landscapes (in addition to commonages), due regard to including local communities is imperative. In Ireland, the only example where Rewilding is the core objective is the Wild Nephin project in Co. Mayo (see <https://www.youtube.com/watch?v=GMIhbbN5JAw>). Here the intention is to rewild 4,600 ha of conifer plantations adjoining the Ballycroy National Park, which is dominated by low level and montane blanket bog. However, this is more akin to ecological restoration as opposed to Rewilding if the the definition of Wilderness outlined above is strictly observed since it is a highly modified landscape. The outcome is almost certainly to be mixed conifer and native woodland which is a long way from the original blanket bog-dominated ecosystem that preceded the current conifer plantations. It will also require ongoing management in future of naturally regenerating lodgepole pine and rhododendron control if ecological integrity is to be maintained.

It is important that a structured and participatory ‘buy in’ approach to Rewilding is adopted at the outset to ensure that all stakeholders have a clear understanding of the goals, management options, desirable outcomes, and associated risks. The first step of a Rewilding project should be an analysis of the ecological status of the focus area, by identifying missing and/or degraded components. Paleoecological data – for example, on past vegetation change, megafauna presence, or fire dynamics – as well as information on land-use histories should be considered in such analyses ^[4].

In this context, the NWS addresses:

- A structured ecological approach to establishing the most suitable native woodland type for the site in question where the creation of new woodlands is concerned.
- Biodiversity enhancement is the primary objective and, in many cases, no other objective applies, i.e. recreation or wood production.
- It also insists on a 'close-to-nature' Continuous Cover Forestry (CCF) management approach and addresses the social and economic values as a secondary objective, where feasible and applicable.
- Quality wood production is a secondary objective, where feasible and where the owner wishes to follow this objective. If addressed, it must comply with ecological functioning and processes, i.e. manual thinning that mimics natural self-thinning and not at the expense of biodiversity.
- Degraded ecosystems that once supported woodlands in marginal upland areas – due to leaching of soils and consequent podzolisation – may be afforested with pioneer woodland communities to encourage and accelerate natural restoration. This may reverse or slow down degradation and enhance biodiversity values.
- Recreation (and education) may be incorporated by using the Neighbourwood/NWS measure which facilitates access to the public and incorporates pathways and signage.

Though the NWS is in general complimentary to ecological restoration and Rewilding as outlined above, there are a number of limitations that affect desirable outcomes and associated risks:

- Scale is generally small with the average size of NWS sites at around 5 hectares. This results in a fragmented 'scatter gun' woodland mosaic in the landscape. (The extensive hedgerow network may alleviate this problem to some degree, by providing ecological corridors and connectivity to other woodlands in the landscape).
- Intervention management is essential to control invasive, exotic species such as rhododendron (*Rhododendron ponticum*), laurel (*Prunus laurocerasus*), Sika and fallow deer (*Cervus nippon* & *Dama dama*) to name but a few (see www.woodlandsofireland.com/publications). Unless controlled, these species can have serious negative impacts on woodland (and other habitats) biodiversity and compromise the future viability of native woodland ecosystems^[5].
- The NWS Establishment measure to create new native woodlands primarily relies on planting to establish a basic native woodland template that reflects the requirements of the site. This is because natural regeneration – which is encouraged – cannot be relied upon to achieve the required stocking density of the site within the 5-year timeframe of the scheme. (**Note:** NWS

Conservation of existing woodlands relies more on natural regeneration in addition to enhancement planting).

- Future new native woodlands in uplands could be at risk of fire damage if allowed to develop freely once the Forest Service NWS criteria are met. This is due to the frequency of fires deliberately set in the spring season to 'clean up' marginal grazing upland areas and produce rough pasture.
- Beyond establishing the foundations for new native woodlands (and restoring existing old and scrub woodlands), there is little prospect of addressing the full complement of flora and fauna, especially the latter in the short or medium term. For example, re-introduction of wolf or lynx would be seriously constrained by social and ecological factors such as (primarily) rural community resistance and the critical size of woodland area required. However, the restoration of natural processes and habitat diversity within native woodlands has great potential to increase the diversity of flora and invertebrate fauna. Re-introduction of these should not be necessary if the habitat is sufficiently large and diverse.

Conclusion

Numerous concepts of Rewilding prevail currently but in the Irish context there are considerable limitations with respect to critical mass and scale, especially due to multiple land ownership and the unavailability of large tracts of land. Nonetheless, seen within the context of the NWS, ecological restoration and Rewilding is possible at a modest scale, primarily in the publicly-owned lands, which would have multiple benefits in the presence of other habitats in a landscape matrix.

Connectivity in the landscape, especially via the extant extensive hedgerow network, is very relevant in Ireland in the context of dispersal and shelter, and given the very low native woodland cover present in Ireland, promotion of the NWS is important to arrest and reverse degradation, expand the resource and enhance woodland biodiversity.

Ongoing management, especially to control invasive species, reduce overgrazing and deliver specific ecosystem services is also a factor that must be part of 'minimum intervention management' of 'wilderness' in the Irish context, as it is a key requirement to ensure woodland viability and resilience. Given the cultural history and impacts on landscape development, habitat and soil degradation, intervention at the initial stages of rewilding may be required at some locations to ensure successful establishment. Indeed, strictly speaking, ecological restoration – defined as '*the process of repairing damage caused by humans to the diversity and dynamics of indigenous ecosystems*' is probably more relevant than Rewilding in the Irish context^[6]. In addition to fencing out grazing animals, consideration to direct seeding and the application of organic amendments/compost in very degraded soils should not be ruled out at planting. Species resilience and adaptation to climate change are factors that should not be ignored and good sources of scientific data should be accessed in future to inform Rewilding projects. Ongoing management is also required to ensure

that the restoration process achieves maximum biodiversity and structural complexity.

References

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