



22-10-2021

Biodiversity Survey Report for Candlefield Community Woodland, Derrendorra, Castlerea October 2021

This report relates to a Native Woodland Biodiversity Survey education workshop conducted on October 15th 2021, for the managers, to assess the biodiversity status and the silvicultural condition of the community woodland. To include hedgerows, field plants, and birds, with recommendations towards future management to improve the biodiversity and overall health of the woodland into the future.

Site Details :

This is an old farmland of approximately dominated by wet rushy grassland with poor soil aeration and acidic soils, a legacy of previous farming practices. It was planted with six hectares of mixed woodland in 2013 leaving open spaces for other activities and wildlife.

Date of Survey :

15th October 2021.

Weather Report :

The day was a bright sunny dry day with unusually high temperature for this time of year.

Introduction :

The townland name, Derreendorra tells us that this area was once wooded with oak forest, Derreen translates to small wood and dorra possibly relating to Doire meaning oak. And in time it can become a thriving Native woodland habitat dominated by an oak and scots pine canopy.

Site Orientation and Layout :

The land and planted woodland areas have a good south to south westerly orientation providing excellent light conditions for the woodland development especially for oak which needs an abundance of light. The lower part is wetter with poorer rushy land and less species, such as Sorrel, Red shank, some bracken ferns and Grass sedge all acid liking plants with some additions, the higher land is better drained and has more species present such as Ragged robin, Thistle, Bramble, etc.

A series of pathways are present and these have been sensitively mowed at approximately one metre wide, leaving surrounding areas to nature, this allows for a graduated stepping from ground layer to field layer to shrub layer and on to canopy layer.

This is excellent for allowing a range of herbs, birds, mammals and insects to inhabit niches and to move between the different layers which is ideal for biodiversity enhancement. A series of mowed footpaths and wooden footbridges to cross drains and wetland areas allows for gentle access to the different woodland areas.

Plant Species :

A range of plant species were observed on the day, including buttercups, brambles, dandelions, woodbine, Ivy in flower, Nettles, Foxglove, Clovers, Figwort, Broom and Gorse in the higher well drained area. And in the wetter lower area we came across Archangel, Bracken, Common Sorrel, Grass sedges, Red shank, and a variety of old Grass types, Bilberry, Purple moor grass, Bog mosses in places, Tormentil, Devils bit scabious, Chickweed, and Plantain.

To finish we looked at the laneway entrance with a westerly orientation and found a number of interesting plant species such as Lady fern, Hard fern, Star mosses, Bilberry, Plantain, Heather, Wild strawberry, John's wort, Primrose and Privet hedging.

Bird Species :

On the day we had Blackbird, Robin, Hooded crow, Wood pigeon, Sparrowhawk, Swallows. The owners of the site, Con and Niamh have also recorded Pheasant, a Barn owl, Woodcock, Crows, Raven's, Chaffinches and Jay's.

Tree Species :

We have naturally occurring Goat willow, Holly, Hawthorn, Blackthorn, Rowan and Birch and planted areas with Hybrid oaks, Ash, Sycamore, Larch, Red Cedar, Holm oak, Yew, Scots Pine, Lodgepole pine, Hazel, Bird cherry, Spanish chestnut, Rowan, and Guelder rose.

Hedgerows :

These are mostly the original farm hedgerows with Ash, Hawthorn and Willow mostly, and are the main ecological corridors on the site; some planting of oak standards has occurred. Ash dieback is prevalent on site and should be monitored and perhaps coppiced to see if the shock of the cutting will improve the trees defences and therefore it's resilience.

Hedgerow Recommendations :

Introduce underplanting with shade tolerant native shrubs, such as, Blackthorn, Hazel, Guelder rose, Elder and Holly, and add more Oak, Scots Pine standards into the gaps. With Spindle, Wild cherry, and Rowan as options to stitch in where the soil is more alkaline in the upper parts of the land.

Woodland Management Recommendations :

It is evident that the tree planting to date has improved the Biodiversity of the area, the soil and drainage has improved when compared to the areas left in the condition of when the land was farmed, poor rushy fields. The continuation of the good care, good practices, and restructuring will over time ensure that a very valuable permanent Native Woodland habitat develops here, with multiple benefits for wildlife, the local community, and carbon sequestration with flood mitigation and water management/filtration. New planting will need protection from the main pressure on trees which is deer browsing, this means fencing mostly, which can be done cost effectively by creating small fenced coupes with fencing posts and chicken wire. Use of

brambles can also be trialled to protect Oaks as proposed can be trialled but would need year round monitoring as well as hardy minimum one metre high saplings.

We would recommend that the woodland areas are all connected and diversified in a plan to transition the whole to Native Woodland for Biodiversity, EcoSystem Services with Water and Soil protection and enhancement as main objectives, in collaboration with the local community engagement with training for use as an outdoor classroom. With useful non native species for timber production, charcoal making, firewood as well as using thinnings and coppicing materials from the Native trees. All of the riparian areas including drains can be planted with Alder, Birch, Aspen and Willow.

All of the paths/glades to be managed with graduating eco zones mimicking the 4 layers of a native forest, the ground layer, the field layer, the shrub layer and canopy layer. More berry and nut bearing shrubs such as Hazel, Rowan, Guelder rose, Elder, Blackthorn and Hawthorn can be spread throughout the site and into the Hedgerows to enhance bird life and insects.

There is an area/field below the wind turbine, this should be allowed to regenerate naturally as this gives the optimum Right Tree in the Right Place, this process could be enhanced by planting in approximately 40 to 60 Birch trees, these are pioneer species which will improve the soil and instigate beneficial mycelium/fungi to assist the regeneration. There is an opportunity to plant a few oaks into the centre of brambles in this field and observe How this evolves vis a vis natural protection from deer browsing.

Close to the Urn field there are Willows planted which are shading out planted oaks in the hedgerow stunting their growth, coppice and manage the Willows to allow light for the Oaks. There is an unusual grouping of Broom with Gorse, seed from both should be collected and cast into corners of the site to enhance Biodiversity via their flowering, especially for Bees and Insects they also improve soil via Nitrogen fixing abilities.

Adjacent to this area there are a mixture of non native Red cedars, Larch and Holm oaks, we would recommend planting Scots pine, Birch, Aspen and Alder to add native trees and diversity to this area, with some underplanting with shade tolerant, bird and insect friendly shrubs such as Hazel, Hawthorn, and Holly.

Towards the bottom we have a wet woodland area of mostly Alder, this needs thinning, removing approximately 30% all of the spindly poorly trees and opening up the canopy to plant Oaks 5% with a mixture of Birch, Hazel and Aspen making up 25%. Aspen is an excellent canopy tree and can replace Ash for this purpose, it is fast growing, produces good timber and likes wet areas, good for insects and it should also be considered for other wet areas of the site. Aspen can also be planted into Hedgerows as standards.

The westerly area with mixed planting and failed Scots pines near Bridge 3 needs Approximately 30% thinning and restructuring, with a mix of Oak 5%, Scots pine 5%, Hazel 4%,

Holly 3%, Rowan 3% and Birch 10%. Fenced off circular coupes for protection will work here using the 50m roll of 4 to 6 ft high chicken wire and 3 inch stakes.

The main fenced off Oak mixed woodland is doing very well and does not need much intervention, other than to introduce Scots pines one per five Oaks to act as a nurse tree and a timber tree in time, there is room for this as well as some underplanting with shade tolerant native trees for tree species diversity and Biodiversity, these will strengthen the woodland community and bring many benefits to the whole, no harm to plant in some more Birch where there are gaps to add more Nitrogen fixing and mycelium connectivity. The fencing provides an opportunity for growing some food via climbers such as peas, this will also aid the wind protection inside the area as well as providing more insulation from the wind chill factor..

Native woodlands are the most valuable land based habitat for biodiversity. With their deeply penetrating heart-roots, they can evapo-transpire c. 38% of rainwater back into the atmosphere during the growing season and store water and moisture in the deep litter during the dormant season, this sponge effect is called seepage and this alleviates flooding pressures.

Additional Information on the Importance of Native trees for Biodiversity :

Here are the associated volume of insect species for different native trees

Oak 284	Willow 266	Birch 229
Hawthorn 149	Aspen 97	Scots Pine 91
Alder 90	Hazel 83	Rowan

In a UK Woodland Trust publication of 2001 we discover that in one acre of native woodland there are:

Bacteria	4 tons
Fungi	1.5 tons
Field Plants	0.5 tons
Earthworms	500lbs
Protozoa	340lbs
Slugs and snails	90lbs
Spiders	50lbs
Beetles	9lbs

All the above organisms are made from carbon and so are contributing to Carbon sequestration as well as enhancing and supporting local biodiversity, these are the building blocks.

Sustainable Forest Management :

“Properly managed woodland is an infinitely renewable resource” Ref: Oliver Rackham 1990

Sustainable Forest Management, according to the definition offered at the 1993 Rio Convention on Biological Diversity, includes the use of resources ‘in a way and at a rate that does not lead to the long-term decline of biodiversity. Selective felling using continuous cover canopy, close to nature systems and coppice management alongside generous areas and margins left for their own evolution under a management that remains people- based and locally sourced is the only way to achieve these objectives. This is how we would envisage the long term sustainable management of the site with biodiversity enhancement, soil fertility protection, well being and ecological education for people, wild edible food, woodcraft material, carbon sequestration and small scale charcoal production, as achievable objectives. This would show albeit on a small scale, Environmental, Social and Economic benefits in balance which is ultimately what the UN principles of Sustainable Forest Management agreed by 172 Nations at the Earth Summit in Rio 1992 are actually about. It is embodying the Agenda 21 message of Acting Locally and Thinking Globally.

<http://www.un.org/documents/ga/conf151/aconf15126-3annex3.htm>

Finally, we wish Con and Niamh every success with this very worthwhile local Community Biodiversity Action with Education Initiative and convey our thanks to Roscommon County Council Heritage Officer Nollaig Feeney for the funding to conduct the Woodland Biodiversity Survey and Produce this Report.

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