Tionscadal Soláthair Uisce
Water Supply Project

Environmental Impact Assessment Report (EIAR)

Volume 6 of 6: Appendices

(Appendix 8.2) Assessment of the Woodland Near Parteen Weir

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Uisce Éireann
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TOBIN

Water Supply Project
Assessment of the Woodland near Parteen Weir

Final Report

I visited the site of the proposed water supply project on 27th October 2016 in the company of Brian Deegan, Irish Water, and Chris Walsh and Alan Booth, ecologists with TOBIN Consulting Engineers. The site lies in the townland of Garrynatineel, Co. Tipperary, R699702, on the shores of the reservoir created when the Shannon was dammed at Parteen (Parteen Basin). Two sites have been selected as possible extraction points. The principal site of interest is RWA 2.2 but RWA 2.1 was also visited for comparison. A detailed ecological survey of the sites was not undertaken as this had already been done by Peter Foss, Wetland Surveys Ireland Ltd., in June 2016.

Site RWA 2.2.
This area is an old conifer plantation, largely wind-thrown, in which native species have become established. The land is elevated about 1m above the height of the adjacent reservoir and is more or less level but uneven, with cultivation ridges, probably dating from the time of planting of the conifers. The conifers are probably about 40 years old. The principal species in the canopy are Sitka spruce (*Picea sitchensis*)[1] and sally (*Salix cinerea*) with occasional ash (*Fraxinus excelsior*) and, rarely, alder (*Alnus glutinosa*). The thin shrub layer consists of hazel (*Corylus avellana*) with a little hawthorn (*Crataegus monogyna*). The ground flora is poorly developed with wood sorrel (*Oxalis acetosella*) and locally bracken (*Pteridium aquilinum*) being the principal species.

Site RWA 2.1
This area was examined as a comparison to RWA 2.2. It is topographically diverse with banks up to 2m high on the eastern and western side, the latter possibly a result of the development of the dam and hydroelectric scheme built in the 1920's. Between the banks is a broad, low-lying area subject to impeded drainage, with small areas of standing water and a small, ill-defined stream.

This is an excellent example of mixed ash-hazel woodland (Fossitt (2000) category WN2). Ash is the dominant canopy species, with sally, pedunculate oak (*Quercus robur*), sycamore (*Acer pseudoplatanus*) and locally alder. The understorey consists of hazel, hawthorn and regenerating ash. There is a rich and diverse field layer reflecting the variety of wet and dry substrates. The relevé provided by Foss accurately reflects the vegetation.

Characteristics of alluvial woodland in Ireland
Alluvial woodland in Ireland is not well defined and this poses difficulties in site evaluation and in assessing the impacts of developments. Part of the problem lies in the fact that the term is more geographical than botanical in that alluvial woodland is subject to, and influenced and determined by, periodic inundation. Further, the Habitats Directive is very much focussed on mainland Europe that has habitats and species that are absent from Ireland, while Ireland has habitats that do not fit easily into the Habitats Directive definitions, e.g. lake-side woodlands.

[1] Nomenclature follows Preston *et al* 2002

Alluvial woodlands in Ireland occur principally in areas of deposition in the lower reaches of rivers and around lakes (and locally elsewhere) and their character is determined by a number of factors: duration, height and periodicity of floods; the substrate (usually alluvium but sometimes sands and gravels); and the height of the groundwater. Flooding may occur frequently and at least annually, or infrequently at intervals of several years but the inundation will nonetheless determine the vegetation. The duration of flooding can vary from a few hours (in the case of tidal flooding) to days, weeks or even months. Given the highly irregular rainfall patterns in Ireland flooding can occur at any time of the year, although it is more common in the autumn and winter.

Alluvial woodlands in Ireland are assigned to the Habitats Directive category 91EO 'Alluvial forests with alder (*Alnus glutinosa*) and ash (*Fraxinus excelsior*)'.

As defined in the Interpretation Manual, 91EO includes 2 principal types in Ireland:

1. *'Riparian forests of ash (*Fraxinus excelsior*) and alder (*Alnus glutinosa*) of temperate and Boreal Europe lowland and hill watercourses* (Alno-Padion)
2. *Arborescent galleries of tall willows (*Salix alba, S, fragilis*) and black poplar (*Populus nigra*), along medio-European lowland, hill or sub-montane rivers* (Salicion albae)'.

All types occur on heavy soils (generally rich in alluvial deposits) periodically inundated by the annual rise of the river (or brook) level, but otherwise well-drained and aerated during low-water. The herbaceous layer invariably includes many large species (meadowsweet, angelica, cuckoo flower, wood dock, sedges) and various vernal geophytes can occur, e.g. celandine, wood anemone'.

*This habitat includes several sub-types: ash-alder woods of springs and their rivers (*Carici remotae-Fraxinetum*); ash-alder woods of fast-flowing rivers (*Stellario-alnetum glutinosae*); white willow gallery forests (*Salicion albae*).'*

Based on the National Survey of Native Woodlands (Perrin *et al* 2008) five alluvial woodland vegetation types have been identified in lowland situations within Ireland:

1. Woodlands of alder and ash, often with sally, along lowland reaches of slow flowing rivers.
2. Woodlands of alder, ash and sally around lake shores.
3. Woodlands of alder, ash and sally around springs and seepage areas associated with river or lakes.
4. Woodlands of (narrow-leaved) tree willows alongside slow-flowing reaches of large rivers, often in reaches subject to tidal influence.
5. Woodlands of pedunculate oak and ash sometimes with alder.

Further details of these woodland types are given in Annex 1.

Assessment of the sites

The woodland in Site RWA 2.2 might be expected to fall into the Habitats Directive type *'Riparian forests of ash (*Fraxinus excelsior*) and alder (*Alnus glutinosa*) of temperate and Boreal Europe lowland and hill watercourses* and types 1 or 2 listed above. However, the water level in the reservoir is controlled by the dam and only fluctuates by about 45 cm. The water level on the day of the survey was c. 33.27 m. This is c.0.13 m lower than at Killaloe on the same day and 0.93 m below the highest level recorded at Killaloe since 1932.

Consequently, given the height of the woodland above the water level it would not appear to be subject to flooding even at times of highest flood. This is confirmed by the vegetation, which does not conform to any of the vegetation types above, even allowing for the dominance of Sitka spruce, as well as by the absence of detritus, which is characteristically left by high water. Further, the National Flood Hazard Map shows no record of flooding in this area since 1954, despite extensive flooding along the Shannon in recent years.

I therefore agree with the opinion of Peter Foss, that the vegetation of the site is not alluvial woodland but conforms to mixed deciduous conifer woodland (Fossitt category WD2) that is gradually reverting to ash-hazel woodland.

RWA 2.1 contains a wet depression with vegetation which in places has similarities to alluvial woodland. However, it appears likely that the area is influenced by seepage or run-off from the land to the east rather than by flooding from the river/reservoir. Consequently, I conclude that, although it is of high ecological value, it also does not conform to alluvial woodland.

John Cross BSc. Ph.D.
28 March 2017

References

Fossitt, J. (2000). A guide to habitats in Ireland. The Heritage Council. Kilkenny.
Perrin, P., Martin, J., Barron, S., O'Neill, F., McNutt, K. & Delaney, A. (2008). National Survey of Native Woodlands 2003–2008. A report submitted to the National Parks & Wildlife Service. Department of the Environment, Heritage & Local Government, Dublin.
Preston, C.D., Pearman, A. & Dines, T.D. (2002). New atlas of the British and Irish flora. Oxford University Press.

Annex 1

The following alluvial woodland types can be found in lowland Ireland:

1. Woodlands of alder and ash, often with sally, along lowland reaches of slow flowing rivers, subject to prolonged periods of flooding, i.e. several weeks or even months. The soils are often poorly drained and may remain wet for long periods. Alder and ash form the canopy with an abundance of sally. Sometimes sally may dominate forming a tangle of fallen stems. Hawthorn (*Crataegus monogyna*) is often abundant. The herb layer is luxuriant with species such as meadowsweet (*Filipendula ulmaria*), marsh marigold (*Caltha palustris*), canary reed-grass (*Phalaris arundinacea*), water mint (*Mentha aquatica*), marsh bedstraw (*Galium palustre*), yellow flag (*Iris pseudacorus*) and valerian (*Valeriana officinalis*). Bramble (*Rubus fruticosus* agg.) may dominate in drier locations.

2. Woodlands of alder, ash and sally, sometimes with purging buckthorn (*Rhamnus cathartica*) around lake shores subject to prolonged flooding, i.e. several weeks or even months, following a rise in lake level or ground-water level. The soils may be poorly- to well-drained. The vegetation is similar to 1. above but is typically more species-rich with, e.g. purple loosestrife (*Lythrum salicaria*), yellow loosestrife (*Lysimachia vulgaris*) and tussock-forming sedges, e.g. *Carex elata*.

3. Woodlands of alder, ash and sally around springs and seepage areas associated with river or lakes. The soils are poorly drained and remain wet throughout the year. Species-rich woodland typically dominated by ash, alder and occasional pedunculate oak (*Quercus robur*) with hawthorn and hazel (*Corylus avellana*). The field layer includes remote sedge (*Carex remota*), lady fern (*Athyrium filix-femina*), creeping buttercup (*Ranunculus repens*), herb-Robert (*Geranium robertianum*), enchanter's nightshade (*Circaea lutetiana*), opposite-leaved saxifrage (*Chrysosplenium oppositifolia*). Locally there may be stands of tussock sedge (*Carex paniculata*).

4. Woodlands of (narrow-leaved) tree willows (e.g. *Salix alba, S. viminalis, S. fragilis*) alongside slow-flowing reaches of large rivers, often in reaches subject to tidal influence. The soils are permanently wet and the trees are subject to frequent inundation. These so- called 'gallery forests' form a distinctive landscape feature alongside the larger rivers, mostly in the south and east. Tree willows predominate but sally and alder are rare. The field layer is characteristically a dense tangle of nettle (*Urtica dioica*), canary reed-grass, water dropwort (*Oenanthe crocata*), angelica (*Angelica sylvestris*), meadowsweet and hedge bindweed (*Calystegia sepium*).

5. Woodlands of pedunculate oak, ash and sometimes alder, subject to periods of flooding of variable length on lowland rivers. The soils are well-drained to wet. These woodlands are much closer in appearance and character to the mixed ash-oak high forests of non-alluvial sites. They are dominated by tall (20m +) oak and ash with a shrub layer of hazel, hawthorn, holly (*Ilex aquifolium*) and guelder rose (*Viburnum opulus*). The herb layer contains ivy (*Hedera helix*), lady fern, sanicle (*Sanicula europaea*), primrose (*Primula vulgaris*), meadowsweet, wood speedwell (*Veronica montana*) and, in spring, wild garlic (*Allium ursinum*), celandine (*Ranunculus ficaria*), wood anemone (*Anemone nemorosa*) and bluebell (*Hyacinthoides non-scripta*).