

**Lower River Shannon SAC (site code 2165)
Conservation objectives supporting document-
woodland habitats**

Version 1

March 2012

Introduction

The Lower River Shannon SAC lies mostly within an intensively managed agricultural region and it contains only a small amount of woodland. This occurs principally along the banks of the River Shannon upstream of Limerick and in the uplands, mostly in the upper reaches of deeply incised tributaries on the Limerick/Tipperary border and in a few smaller areas along the River Feale and its tributaries in North Kerry/West Limerick. In most cases the individual woodlands are small.

Alluvial woodlands occur along the Shannon, in the valley bottoms of the tributaries and on seepage zones on valley sides. The uplands consist largely of shales and slates which typically produce poorly-drained soils. Steep, relatively dry slopes favour sessile oak woodlands. However, these frequently contain seepages and springs (locally petrifying) while colluviation and flushing enriches the soils on the lower slopes. In these situations relatively species-rich oak woodland (mostly *Quercus petraea* but also *Q. robur*) with ash (*Fraxinus excelsior*) and hazel (*Corylus avellana*) have developed (*Blechno-Quercetum* sub-association *Coryletosum*), sometimes merging into ash and hazel woodlands (*Corylo-Fraxinetum*).

Woodland types

There are five principal woodland types present within the SAC: alluvial woodland; old oak woodland (*Blechno-Quercetum*); ash/hazel woodland (*Corylo-Fraxinetum*); mixed deciduous woodland, usually with abundant beech and/or sycamore; conifer plantations.

This SAC has been selected for one woodland type listed in Annex I of the Habitats Directive:

- 91EO Alluvial forests with alder (*Alnus glutinosa*) and ash (*Fraxinus excelsior*) (*Alno-Padion*, *Alnion incanae*, *Salicion albae*).

Some surveyed woodlands also conform to a second habitat listed in Annex I of the Habitats Directive, although the SAC is not selected for this woodland type:

- 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles.

91EO Alluvial woodland

This is a generic term for a number of different woodlands. The principal communities within the SAC are:

- Gallery woodland (*Salicion albae*) (classified as WN5 by Fossitt (2000)) dominated by tree willows forming small, narrow stands on the river banks and islands where the trees are subject to frequent flooding and/or have their roots permanently in water. They occur principally upstream of Limerick.
- Wet willow-alder-ash woodland (WN6) in valley bottoms and locally in flushed areas on the side of steep valleys in the upper reaches of the tributaries.

Area

Within the SAC, five sites surveyed as part of the National Survey of Native Woodlands (Perrin et al., 2008) contain discrete areas of alluvial woodlands (see appendix 1 for list of sites). These are small stands, restricted to narrow bands where the ground is subject to flooding or flushing. The total area of these is only c.8.5ha but another site, Gortnageragh River Valley (NSNW code 1284) covering 56.4ha, is a complex of old oak woodland, alluvial woodland and ash/hazel woodland. While the total extent within the SAC is likely to be somewhat greater there is an absence of suitable terrain for the occurrence of extensive alluvial woodland. Continuity of woodland cover is provided by oak woodlands, ash woodlands and conifer plantations.

Ancient woodland

All but one of the five alluvial woodland sites surveyed within the SAC are recorded as having been present in part or full on the 1st edition OS maps (1840s). These may therefore be considered as potentially ancient or long-established woodlands.

Structure and functions

The structure varies between the different woodland types. Gallery woodland is typically rather low (<10m) and open. However, the trees tend to fall over forming a dense tangle of interwoven branches and this, together with a tall and luxuriant growth of herbs often bound together by bindweed (*Calystegia sepium*), makes access difficult. Regeneration is principally vegetative. Wet willow-alder-ash woodland is typically c.10m tall, locally up to 19m, with a well-developed but thin canopy, relatively open shrub layer and well-developed field layer. Most of the trees in these woodland types are small in diameter, the largest recorded being a white willow (*Salix alba*), 65cm dbh. Regeneration of native species is generally poor, apart from ash, which is often frequent, and locally oak. Sycamore (*Acer pseudoplatanus*) regenerates abundantly in some sites.

Species composition

Details of the characteristic species composition can be found in Perrin et al. (2008). The average number of species per woodland type, on a national basis, is as follows:

- Gallery woodlands: vascular plants 21, bryophytes 8
- Alder-meadowsweet: vascular plants 26, bryophytes 11

The canopy within gallery woodland is dominated by white willow (*Salix alba*) with occasional alder (*Alnus glutinosa*). The shrub layer consists of various willow species with grey willow (*Salix cinerea* ssp. *oleifolia*) and what appear to be hybrids of *S. alba* x *S. viminalis*. The herbaceous layer consists of tall perennial herbs with creeping bent (*Agrostis stolonifera*), bindweed, goosegrass (*Galium aparine*), canary reed-grass (*Phalaris arundinacea*), nettle (*Urtica dioica*) and the invasive annual Himalayan balsam (*Impatiens glandulifera*) being the most important. Other species include yellow flag (*Iris pseudacorus*), pendulous sedge (*Carex pendula*) and meadowsweet (*Filipendula ulmaria*). A fringe of reedmace (*Typha* sp.) occurs on the riverside of some of the woodland.

Alder-meadowsweet woodland is dominated by alder and grey willow accompanied by ash on flushed slopes. The field layer is species-rich with species such as remote

sedge (*Carex remota*), creeping buttercup (*Ranunculus repens*), herb-robert (*Geranium robertianum*), meadowsweet, water mint (*Mentha aquatica*), wood avens (*Geum urbanum*), enchanter's nightshade (*Circaeae lutetiana*) and various ferns, e.g. *Dryopteris dilatata*, *Athyrium filix-femina*.

The relatively rare purging buckthorn (*Rhamnus catharticus*) was recorded in one site on the Shannon.

Dead wood

The amount of dead wood varies depending on age structure and management. Older woods and those hard of access, such as alluvial islands, naturally tend to have more coarse woody debris, although the amount depends on management, which varies with the landowner and factors such as accessibility, theft. There are no figures for the amount of dead wood present within the woodlands within the SAC. However, most of the surveyed sites contain occasional to abundant amounts of dead wood of all types and sizes, although standing dead timber was rare. Guidelines as to the amount that is desirable vary according to sources (e.g. Cavalli and Mason (2003)) but a minimum of 30m³/ha of fallen timber > 10cm diameter and 30 snags/ ha should be considered; both categories should include stems greater than 40cm diameter (greater than 20cm diameter in the case of alder).

Future Prospects

Hydrology

Periodic flooding or constant flushing is essential for the maintenance of alluvial woodland.

Invasive alien species

Sycamore is the principal invasive alien tree species present but locally horse chestnut (*Aesculus hippocastanum*) regenerates freely. Himalayan balsam and giant hogweed (*Heracleum mantegazzianum*) occur along the River Shannon.

Grazing

Grazing animals are a normal part of a woodland ecosystem and appropriate grazing pressure is beneficial, promoting biodiversity. Where grazing pressure is too high it can damage the herb layer and prevent regeneration; where too low it allows vigorous species to dominate the herb layer, reducing biodiversity and sometimes preventing regeneration. The most common grazers in alluvial woodlands are deer and cattle but the latter are largely confined to the drier sites.

Grazing is more or less absent from most of the sites surveyed in this SAC, although locally there are cattle and sheep in some of the headwater streams.

Forest Management

The woodland stands are mostly in private ownership. Few sites have the potential for timber production and many sites have been neglected or are only occasionally 'picked over' for timber.

The priority for most sites is the control of invasive alien species, especially sycamore, which is locally abundant.

Conservation and timber production are not mutually exclusive. The principal constraint is that clear-felling is undesirable. Ideally, continuous canopy forestry should be practised where practical but coupe felling or, if the tradition exists, coppicing, are acceptable. Timber production is more likely on drier soils, especially the ash-dominated woodlands, but also locally in alder woods. Many of the very wet sites, e.g. gallery forests, do not appear to be managed at all and some are inaccessible.

Impact of Agriculture

Threats from agriculture may be direct or indirect. The principal direct threat is clearance and uprooting resulting in destruction of the woodland, although these woodlands, which are either subject to frequent flooding or on steep slopes, are probably not attractive for agricultural reclamation. Indirect threats include fertiliser drift and water pollution, which may increase the trophic status of the wood leading to the stronger growth of nitrophilous species and loss of less vigorous species. However, as these are naturally eutrophic systems the impact is likely to be minimal. Herbicide drift may kill vegetation on the woodland edge.

Urban development

This is a threat principally around Limerick city where some damage has occurred in the recent past. Alluvial woodland is more likely to be damaged by infilling, although new planning legislation will hopefully make this less of a threat. Infrastructural development is likely to be localised and restricted in its impact.

Discharges

Discharge of sewage effluent and slurry will pollute the water and have an indirect impact on the woodlands. Rubbish washed downstream is mostly aesthetically unattractive, although it may impact on animal life. Garden refuse may lead to the introduction of non-native and potentially invasive species.

References

- Cavalli, R. and Mason, F. (Eds) (2003) Techniques for re-establishment of dead wood for saproxylic fauna conservation. National Centre for the Study and Conservation of Forest Biodiversity. Verona - Bosco della Fontana
- Peterken, G. (1993) Woodland conservation and management. Chapman and Hall. London.
- 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. Botanical, Environmental & Conservation Consultants Ltd. Dublin.
- Perrin and Daly. (2009). A provisional inventory of ancient and long-established woodland in Ireland.
- Perrin, P.M. and Daly, O.H. (2010) A provisional inventory of ancient and long-established woodland in Ireland. Irish Wildlife Manual No. 46. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.

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Appendix 1

Sites included in the National Survey of Native Woodlands (Perrin et al., 2008), which contain the Annex I woodland habitat and are entirely or partly within the Lower River Shannon SAC (site code 2165)

91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)

NSNW Site Code	County	Name	Area (ha) within SAC	Possible ancient or long established woodland
1286 ¹	Limerick	Clare Glen	1.5	Yes
1577	Clare	Doonass Demesne	1.1	Yes
1857	Limerick	Newgarden North	3.4	No
1861	Tipperary	Knockanavar	c.1.8 ²	Yes
1995	Limerick	Gortnaskehys	0.7	Yes
Total area			c.8.5	

¹ Most of the woodland in this NSNW site is within another adjoining SAC- Clare Glen (site code 930).

² The alluvial woodland was not mapped separately, hence the area is estimated.