

## Northern Ireland Priority Habitat Guide: Parkland and wood pasture

### What is Parkland and wood pasture?

Parkland and wood pasture are mosaic habitats valued for their open-grown trees, particularly veteran and ancient trees, and the species they support. Grazing animals are fundamental to the existence of these habitats, creating open space around individual trees and preventing successional changes which would result in a closed canopy woodland. The open-grown trees have large girths, hollow trunks and significant amounts of standing and fallen dead wood. This, combined with higher light levels found in parklands and wood pastures compared with closed canopy woodlands provides habitat for a wide range of lichens, fungi and invertebrates, including many rare and specialist species.

**Table 1: Linking Habitat types with Annex 1, ASSI features and NI Priority Habitats and Species**

Northern Ireland Priority Habitat: Parkland and wood pasture		
Habitat Directive Annex 1 habitats (SAC Features)	ASSI features	NI priority species
None	Wood pasture and parkland	Red Squirrel, bat species, Song Thrush, Spotted Flycatcher, Tree Sparrow, Starling, Barn Owl.



## Definitions

Parkland and wood pasture in Northern Ireland is defined as:

- Wood pastures and parklands with open-grown ancient or veteran trees, often associated with long-established woodland sites.
- Sites that have been converted to other land uses such as arable farming, commercial forestry and amenity land, but where the surviving open-grown ancient or veteran trees are of nature conservation interest.

Parklands tend to be formal, designed landscapes and often contain a mixture of native and non-native, open-grown, ancient and veteran trees. The individual parkland trees are usually scattered within an expanse of grassland which can be unimproved, semi-improved or improved and is interspersed with occasional patches of mature native scrub and/or individual mature, native scrub bushes.

Wood pastures tend to be less formal landscapes, dominated by open-grown, native, veteran and ancient trees occurring at a much higher density than in parklands. A high density of native scrub is also present in a complex mosaic with grassland, which can be unimproved or semi-improved.

The National Vegetation Classification (NVC) codes are not readily used for Parkland and wood pasture.

## Ancient trees

Ancient trees often have very large girths compared to surrounding trees of a similar species, a short squat appearance and a hollow trunk. Hollowing trunks are a natural part of the ageing process and are caused by fungi slowly decaying the central trunk of the tree. The large girth, hollow trunk and loss of the upper canopy help ancient trees to withstand high winds. Many ancient trees also have large amounts of dead wood which remain attached to the tree or may fall to the ground. This dead wood provides a unique habitat for rare species of invertebrates, fungi, and lichens; some of which are found in no other habitat.

Most ancient trees are usually found in parklands and wood pastures and tend to be rare or absent from closed-canopy woodlands. This is because as trees age, their upper canopy starts to die back and they take on a 'stag-horn' appearance. If the tree is in a closed-canopy woodland, it will not survive long as it will quickly become shaded out by surrounding trees. However, in a more open habitat such as a wood pasture or parkland, ancient trees can compensate for the loss of their upper canopy by spreading out and developing their lower branches. Essentially the ancient tree produces a canopy at a lower level which increases stability and requires less energy to survive, enabling it to survive for many centuries.

## Veteran trees

The term Veteran tree refers to the tree's physical state, not its age. Unlike an ancient tree, a veteran tree can be any age, but it will have some of the characteristics of an ancient tree described above e.g. large amounts of deadwood, hollowing, fallen limbs etc. These may not be due to age, but could result from natural damage, management, or the tree's environment. Therefore, ancient trees are all veterans, but not all veterans are ancient.

## Distinguishing between Parklands and wood pasture

Parkland which is still managed by grazing is usually relatively straightforward to identify in the field, due to the presence of scattered veteran and ancient open-grown trees. However, sometimes due to historical changes in management practices, individual veteran and ancient parkland trees can be enclosed in plantation woodland. These former parkland trees can be distinguished by their open-grown canopy shape in comparison to surrounding plantation trees. Without intervention, these trees will eventually be shaded out by the surrounding plantation trees. They may therefore benefit from a process known as “haloing” which involves the careful removal of any trees growing through or touching their canopy. This needs to be very carefully carried out to avoid damaging the open-grown tree and to prevent shocking it by exposing it to too much light too quickly.

Wood pasture which is still managed by grazing is also relatively straightforward to identify due to the high density of veteran and ancient open-grown trees occurring as a mosaic with scrub and grassland. However, it can be difficult to distinguish when management by grazing has ceased and it has started to succeed to closed-canopy woodland. In this situation, the presence of large numbers of open-grown veteran and ancient trees is an indicator that the site was once a wood pasture. These former wood pasture trees can be distinguished by their open-grown canopy shape in comparison to surrounding naturally regenerating woodland. Without intervention, these trees will eventually be shaded out by the naturally regenerating woodland trees. They may also benefit from haloing as described above. Reintroduction of appropriate levels of grazing is fundamental to the long-term survival of the veteran and ancient trees in wood pasture.

### Where are they found?

Parkland and wood pasture is scattered throughout Northern Ireland and generally within a lowland setting. Many sites are owned and /or managed by government and environmental non-government organisations, e.g. Belvoir Park, Crom, Florence Court, Castle Coole, Castle Archdale and Castle Ward. Many other sites remain in private ownership. Location and ownership details are found in the Register of Historic Parks, Gardens and Demesnes.

DAERA hold priority habitat and species data on the NIEA Natural Environment Map Viewer. See <https://apps.dera-ni.gov.uk/nedmapviewer/> (and link to video tutorial). Note that the Map Viewer indicates areas which hold NIEA records of habitat / species data, but does not infer the complete coverage of these environmental assets in Northern Ireland.

### Why are Parkland and wood pastures important for wildlife?

Parkland and wood pasture is valued for its trees, especially veteran and ancient trees; the specialised and varied habitats provide a home for a wide range of species, many of which are only found in this habitat.

They are important for specialist invertebrates which are associated with decaying and dead wood. Flowering trees and shrubs, such as Hawthorn *Crataegus monogyna*, Elder *Sambucus nigra* can provide a rich source of nectar and pollen for pollinating insects such as bumblebees, hoverflies, butterflies and moths. For further information on habitat management for pollinators, refer to the All-Ireland Pollinator Plan resources: [www.pollinators.ie](http://www.pollinators.ie).

The open aspect of parkland enables abundant light to fall on ancient trees which are ideal conditions for lichen growth on tree bark. In addition, as trees age the acidity of the bark changes which enables a greater diversity of lichens to colonise.

Specialist fungi are associated with ancient trees. These include bracket fungi which grow on the bark and actively decay the tree from inside the trunk. A range of fungi, known as mycorrhizal fungi, are associated with tree roots forming symbiotic relationships that help in the uptake of nutrients. Colourful waxcaps can thrive on areas of unimproved, nutrient poor grassland associated with parkland.

All of Northern Ireland's eight bat species depend on trees to some extent. Ancient trees provide important roost sites and habitat for the invertebrate prey of bats throughout the year. Nesting birds are attracted to the holes and crevices of ancient trees and the open aspect of parkland.

The majority of these designed landscapes have taken hundreds of years to develop and are therefore of high historic and cultural value.

### **Pressures & Threats**

A lack of awareness of the importance of old and veteran trees in Parkland and wood pastures in Northern Ireland has led to the loss of, or damage to, key sites. The main factors that directly or indirectly affect the status and distribution of Parkland and wood pastures are considered to be as follows:

#### Agricultural management

- Inappropriate grazing levels. Undergrazing or abandonment leading to high levels of natural regeneration of tree seedlings which will eventually shade out the veteran and ancient trees. Overgrazing leading to soil compaction and poaching. On wood pastures overgrazing can lead to a lack of natural regeneration.
- Damage to trees. High stocking rates and inappropriately sited supplementary feeding stations accelerates the death rate of trees through damage to tree roots. Horses and deer can strip bark and eventually kill trees. Use of machinery too close to trees can damage roots directly and indirectly through soil compaction.
- Use of fertilisers, herbicides and pesticides - this can cause damage to the fungi associated with tree roots, accelerating the death rate of trees.

#### Tree management

- Under-planting of parkland - with conifers or broadleaved species which will eventually shade out veteran and ancient trees. Neglect, loss of traditional tree management expertise and abandonment - leading to loss of old and veteran trees through disease, collapse and cutting/removal.
- Lack of replacement planting - producing a skewed age structure that can lead to breaks in the continuity of deadwood and loss of specialist species.
- Replacement trees being planted in close proximity to existing veteran trees, eventually shading them out.
- The felling of veteran and ancient trees and the removal of standing and lying dead timber, particularly where sites are used for amenity purposes.

#### Other issues

- Non-native invasive shrub species. Non-native invasive shrub species such as Laurel and Rhododendron can shade out the lower branches and trunks of veteran and ancient trees, negatively impacting on lichen and invertebrate communities.

- Development - inappropriate building can cause loss or damage to parkland. Parklands are often favoured for leisure developments, such as new golf courses because of their open landscape value.
- Disease - such as Sudden Oak Death caused by the fungus-like *Phytophthora ramorum*, which invades susceptible trees through the bark, killing portions of the tree.
- Nitrogen Deposition - excess nitrogen deposition can favour the growth of competitive plants and lead to changes in ecosystem structure or function and to a reduction in biodiversity.
- Air pollution – derived remotely from vehicle and industry emissions could potentially cause premature death of ancient and veteran trees.
- Climate change - potentially resulting in changes in the tree communities.

### **Favourable management of Parkland and wood pasture**

The 6 key priorities for Parkland and wood pasture management in Northern Ireland:

#### **1 – Avoid root damage and application of fertiliser/chemicals**

The greatest priority is to keep the Parkland and wood pasture trees and shrubs alive and healthy. Trees have relatively shallow root systems which can extend a considerable distance beyond their canopy. Avoid compaction under and beyond tree canopies by machinery and livestock. Particular types of fungi are associated with tree roots and help the tree take up minerals and water. These fungi can be harmed by the application of nutrients such as artificial fertiliser, manure and slurry, or chemicals such as lime and fungicides. Harming these fungi can make trees more vulnerable to drought or other stressful events.

#### **2 – Maintain age structure of tree and shrub populations**

It is important that there are younger trees available to replace veteran and ancient parkland trees and shrubs, when they eventually die. On parkland sites, replacement trees will normally need to be planted. On a wood pasture site, enough new trees may be provided through natural regeneration. However, if the naturally regenerating species are different to the dominant tree species present e.g. there are lots of regenerating ash seedlings on a site dominated by veteran and ancient Oak trees, then it may be desirable to plant Oak trees to provide continuity of habitat for the specialist lichens, fungi and invertebrates associated with these veteran and ancient Oak trees. Allow enough spacing between existing Parkland and wood pasture trees and newly planted trees to enable full crown development e.g. Oak should be planted at 30m intervals to facilitate full crown development at maturity. Closer intervals may be acceptable when replacement planting within parkland landscape features such as tree clumps, avenues etc.

#### **3 – Leave fallen and dead wood *in situ***

A greater variety of invertebrate, fungi and lichen species are associated with veteran and ancient trees, due, in part, to the large amounts of standing and fallen dead wood that are associated with them. Dead wood is not just a habitat for specialist wildlife; it is part of natural recycling and its removal deprives the trees and shrubs of a valuable resource. In specific areas of parkland it may be desirable to remove dead wood in order to maintain the historic character. This may be applicable in the more formal designed landscapes, where views or avenues would have been kept clear.

#### **4 – Maintain livestock grazing**

Grazing animals are fundamental to the existence of Parkland and wood pasture; animal dung contributes to invertebrate and fungal diversity and grazing controls tree and shrub regeneration, maintaining a semi-open habitat. Grazing should be at an appropriate intensity to prevent bark stripping or poaching damage to tree roots.

## **5 – Avoid removing boughs from parkland trees**

Trees left to develop naturally will develop outspread lower boughs, some of which will tend to touch the ground in places. Lower branches on parkland trees can be important for specialist invertebrates due to the higher amount of humidity present.

## **6- Remove invasive non-native shrub species**

Parklands and wood pastures can have issues with non-native invasive shrub species such as Laurel and Rhododendron which were historically planted as game cover. These species can shade out the lower branches and trunks of veteran and ancient trees, negatively impacting on lichen and invertebrate communities.

Optimal management aims to maintain these important habitats through addressing many of the above priorities. For Wood Pasture sites, the standard management practices for Grazed Woodland should be used.

## **How do we determine the “health” or condition of Parkland and woodland Pasture?**

The conservation status can be determined by the condition of the habitat. Favourable condition is defined by setting targets or target ranges for a series of different attributes. These are components or characteristics of the vegetation that are relatively easy to measure, but which are reliable indicators of the “health” of the habitat.

NIEA has developed Rapid Condition Assessments for several broad habitat types (grassland, moorland, woodland, coastal and wetlands). These will be made available online in the future. In the interim copies can be requested by contacting NIEA by E-mail: [NIEA.EFSHigher@daera-ni.gov.uk](mailto:NIEA.EFSHigher@daera-ni.gov.uk).

## Appendix 1: Potential negative indicator species on Parkland sites

Species that may be	Willowherb species
<i>Galium aparine</i>	Cleavers / Robin-run-the-
<i>Graminoid spp.</i>	Non-woodland grass species
<i>Heracleum spp.</i>	Hogweed species
<i>Rumex obtusifolius</i>	Broad-leaved Dock
<i>Urtica dioica</i>	Stinging Nettle

Non-native invasive tree/shrub species:

<i>Fallopia japonica</i>	Japanese Knotweed
<i>Leycesteria formosa</i>	Himalayan Honeysuckle
<i>Prunus laurocerasus</i>	Cherry Laurel
<i>Prunus leucitanica</i>	Portugal Laurel
<i>Rhododendron spp.</i>	Rhododendron species
<i>Rubus spectabilis</i>	Salmonberry
<i>Symphoricarpos albus</i>	Snowberry

Non-native invasive ground flora species:

<i>Acaena novae-zelandiae</i>	Pirri-pirri-bur
<i>Hyacinthoides hispanica</i>	Spanish Bluebell
<i>Impatiens glandulifera</i>	Indian Balsam

References:

Keith N. Alexander, Joe C. E. Hope, Alan Lucas, John P. Smith, and Mark A. Wright (2007). Wood Pasture and Parkland Scoping Study. Northern Ireland Environment Agency. Research and Development Series. No. 08/01