

Appendix 2

Habitat Assessment

Kilkenny Local Area Plan Habitat Assessments 2010

PILTOWN



Hatchet's Well on the bank of the west branch of the Pil River

Report prepared for Kilkenny County Council

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Executive Summary

This report contains the results and interpretation of a habitat mapping study which was carried out in Piltown to inform the Local Area Plan. It builds on a descriptive account of biodiversity which was prepared for the Local Area Plan in 2003 by CAAS Ltd.

A Green Infrastructure approach was taken to describing biodiversity, based on the identification of habitats and their relationship within ecological networks. Green Infrastructure highlights the provision of ecosystem services by biodiversity. These include food/timber production, mitigation of climate effects (e.g flooding), quality of life and supporting services to agriculture. Fieldwork took place in January 2010 to map habitats to level III, following Heritage Council guidelines. Hedgerows were also assessed using a combination of structural and biodiversity criteria. This provided a numerical value for each hedgerow. Using an approach developed by the NRA, the relative value of habitats was also identified. To inform the account of Green Infrastructure further interpretation of the habitat map was carried out to identify “ecological networks”. Ecological networks are based on the core/corridor/buffer principle and emphasise the importance of linkages between habitats to maintain ecosystem functioning. Cores are areas/features of key biodiversity importance/ecosystem functioning, while corridors are land/watercourses which allows linkages between key areas or their expansion. Buffers comprise land adjacent to the key area whose management influences its quality. These networks were identified to assist the identification of functions provided by Green Infrastructure.

An annotated aerial photo shows the location of ecological networks in the Piltown area (Map 2). The habitat map accompanying the report (Map 1) shows the habitats present within them. Digital files which have been provided to Kilkenny County Council will allow habitat information to be imported into the council’s Geographic Information System (GIS).

All hedgerows are numbered on Map 1 and their value for biodiversity is summarised in Table 2. This report contains a summary account and evaluation of biodiversity and its value as Green Infrastructure.

One main ecological network was identified in Piltown: the Pil river including the east and west branches upstream of the main street. This has been divided into three sections in this report: the tidal section downstream of the bridges, which is of international importance as it lies within the Lower River Suir cSAC; and the west and east branches, both of county importance as they support

salmonids and riparian habitats. The habitats within the whole river network warrant special management and protection. Also, any development adjacent to this ecological network which could affect water quality or riparian habitats should be screened, by Appropriate Assessment, for its potential impact on the cSAC. Linking features/corridors associated with this network comprise hedgerows, scrub and semi-natural grassland.

As a Green Infrastructure feature the most important characteristic of the river is that it provides for flood attenuation. It is an important visual amenity which has potential for further development for active recreation and has potential to reduce pollution in the river.

Hedgerow evaluation revealed that four-fifths of the hedgerows surveyed were of moderate value, while the remainder were of high value. As Green Infrastructure features they are important for local biodiversity, form a link between the village centre and the river corridor and hinterland, provide cultural and visual amenities, support farming by providing reservoirs for species which support pollination of commercial crops and shelter for animals. Current management as stock proof barriers or for biodiversity is poor. There is potential for improved management in the countryside and adjacent to the village. The hedgerows of high value warrant protection from future development. Development should seek to ensure the maintenance of hedgerows and other habitats by integrating them into future developments, where feasible.

Other features of biodiversity interest include semi-natural grassland, scrub, stone buildings and stone walls. They are of local value, particularly as habitat for birds, invertebrates and mammals. They provide important visual amenities and enhance cultural values.

1 Introduction

1.1 Study brief

Kilkenny County Council is reviewing and preparing local area plans (LAPs) for settlements throughout the county. As part of this process, habitat assessments were undertaken as a source of information on local biodiversity, and to help assess future planning applications.

1.2 Approach

This habitat assessment uses a Green Infrastructure approach to identify the most important ecological features of the area and their functions.

A working definition of Green Infrastructure (GI), developed by a research project currently being undertaken for Comhar Sustainable Development Council, DOEHLG (Compass Informatics et al, 2010, in prep.) states that GI is a “strategically planned and managed network featuring areas with high quality biodiversity (uplands, wetlands, peatlands, rivers and coast), farmed and wooded lands and other green spaces that conserve ecosystem values which provide essential services to society”. Ecosystem services include *provisioning*, such as the production of food and water; *regulating*, such as the control of climate and disease; *supporting*, such as nutrient cycles and crop pollination; and *cultural*, such as spiritual and recreational benefits. Practical examples of services provided by Green Infrastructure include: the provision of food and wood through farming and forestry, water from rivers or aquifers; flood attenuation by rivers and natural wetlands, waste decomposition; transport routes, pollination of crops, interesting green spaces for recreation; air filtering and noise attenuation by vegetation and environmental education opportunities. A Green Infrastructure approach to spatial planning is being promoted by the Biodiversity Unit, DG Environment of the European Commission (2006) to support biodiversity management post 2010 as it allows for greater integration between biodiversity and development. This approach is supported by the numerous guidelines such as the Green City guidelines (Brennan and O’Connor, 2008). The study being undertaken for Comhar SDC explains the concept illustrated by case studies, describes a Green Infrastructure planning process and provides recommendations for its elaboration and promotion by Comhar SDC and DOEHLG.

Habitat mapping is at the core of Green Infrastructure assessment as it provides an account of almost all the features in the landscape which are responsible for ecosystem functioning. Habitat mapping following the Heritage Council’s *Best*

Practice Guidance for Habitat Survey and Mapping (2010) allows for the identification of each example of a habitat type. It also allows for the evaluation of biodiversity outside designated areas using an ecological evaluation technology developed by the National Roads Authority (NRA), based on criteria such as rarity, naturalness and statutory requirements for protection of particular species (NRA, 2008). As ecosystem services are rarely provided by individual examples of habitats but by groups of similar or related habitats, the Green Infrastructure approach requires that habitat mapping is further interpreted to identify “ecological networks”. Ecological networks consist of “cores” (habitats/features of key importance for biodiversity and ecosystem functioning), “buffers or nature rehabilitation areas” (habitats adjacent to the key area whose management influences its quality and require more appropriate management) and “corridors” habitats which allow for the movement of species, particularly those associated with the core habitats. Rivers provide obvious examples of ecological networks where buffer or nature rehabilitation areas comprise their margins which have been drained and no longer function as wetlands. Core areas are surviving good quality habitats and corridors which allow for the movement of key species, probably salmon, otter, bats associated with them. Not all of these features will necessarily be found in any one area.

Ecological networks support the implementation of the EU Habitats Directive, as Article 10 stresses the importance of ecological corridors linking designated sites. It also highlights the maintenance of biodiversity throughout the wider landscape, not just in areas which are protected for nature conservation designations. It highlights linking features such as hedgerows, streams or small examples of semi-natural habitats. Identification of ecological networks allows consideration of the possible impacts of development on important nature conservation areas, which are outside the survey area but are linked to it through ecological networks. In areas where proposals may have an impact on EU designated nature conservation sites the Planning Authority has an obligation to ensure that adequate screening takes place and, if necessary, that an appropriate assessments under Article 6 of the Habitats Directive is carried out. The identification of ecological networks can be of significant assistance in identifying any features in the LAP areas, outside designated areas that might trigger screening and risk pathways that could suggest the need for full appropriate assessment.

Information on hydrology, geology and soils are all important factors underpinning the quality of ecological networks and Green Infrastructure. As well as human management, these are the main features that explain why a particular habitat occurs in an area. Their consideration is important when

examining Green Infrastructure as it allows a more robust analysis of the quality of current ecological networks, threats and opportunities for enhancement.

Habitat identification and assessment is at the core of ecological networks and Green Infrastructure. Greater connectivity increases the value of individual habitats, the value of the network and ecosystem functioning. The more natural and connected a habitat, the more important it is as Green Infrastructure.

2 Methodology

2.1 Introduction

Preparation of this report can be broken down into three main parts: (i) consultations and desk study; (ii) field survey; and (iii) report writing and database compilation. In practice these phases all overlap to some extent.

Field survey and report-writing was carried out by Mary Tubridy, Mieke Muyllaert, Betsy Hickey and Michelle O'Neill. Mapping and GIS was carried out by Richard Jennings of Kilkenny Archaeology.

2.2 Consultations and desk study

An initial steering meeting was held with Kilkenny County Council Forward Planning and the County Heritage Officer to agree the approach to the assessment and the data sources to be used. Working maps were then produced to facilitate the desk study. An outline map was prepared using a combination of vector maps, aerial photographs, historic first edition Ordnance Survey maps, and a review of existing information.

Consultations were held with the local National Parks & Wildlife Service conservation ranger, the Southern Regional Fisheries Board, the county botanical recorder, and Kilkenny branch of BirdWatch Ireland, as well as local authority staff. Desk sources consulted included:

- Piltown Local Area Plan 2003
- Ecological Survey of Piltown to inform the local area plan (CAAS, 2003).
- National Parks & Wildlife Service online data (www.npws.ie)
- Site file for the nearest designated site: Lower River Suir cSAC No. 2137 inspected in NPWS, Ely Place, Dublin.
- Environmental Protection Agency data on soils and water quality <http://maps.epa.ie/InternetMapView/mapviewer.aspx> - Land/Soils;

Land/Subsoils; Water Quality/Current River Data; Water Quality/Coastal and Estuarine Waters

- Geological Survey of Ireland geological data on geology, subsoils and hydrology. http://spatial.dcenr.gov.ie/imf/imf.jsp?site=GSI_Simple – Bedrock datasets/Bedrock 100k Solid Geology; Bedrock datasets/Faults 500k; Groundwater/Karst features; Groundwater/ National Draft Bedrock Aquifer Map; Groundwater/National Draft Gravel Aquifer Map; Groundwater/Irish Interim Vulnerability.
- County Kilkenny Groundwater Assessment (Kilkenny County Council and Geological Survey 2002)
- Kilkenny County Development Plan 2008-2014 (www.kilkennycoco.ie/cdp/index.html)
- Draft County Kilkenny Biodiversity Action Plan 2008

An information leaflet was produced explaining the project (Appendix 1). This was sent out to interested individuals and local groups e.g. Tidy Towns groups, in advance of fieldwork. It was also used in conjunction with a letter of introduction provided by Kilkenny County Council when approaching landowners to seek access.

2.3 Fieldwork

Following Heritage Council guidelines all habitats within the study area were mapped, the boundary of which is based on the development boundary of the 2003 Piltown Local Area Plan. Some areas outside the study area boundary were mapped where they supported important semi-natural habitats or were constituents of an ecological network whose core lay within the study area LAP boundary.

Standardised field survey and hedgerow recording cards (Appendix 2) were used to gather information on habitats and hedgerows. Wherever possible land was surveyed by direct inspection of the habitats. No land was entered without prior permission of the landowner. Where access was not possible, habitats were viewed from the nearest public road or other public land, and mapped and described using results of desk research.

In the case of habitats previously surveyed in detail for ecological reports for the 2003 LAP, it was sufficient in most cases to ground-truth the habitats to ensure that the new mapping is accurate, and draw on the previous work to complete the habitat descriptions. Previous reports were particularly useful to describe sites with difficult access.

'Target notes' were compiled for ecological networks of particular value. These are notes entered into record cards during the field survey and consisted of lists of species and notes on habitat features (Appendix 3). These were used to inform descriptions contained in this report. Photographs were taken of habitats within these areas.

2.4 Habitat mapping

The methodology followed the latest guidance produced by the Heritage Council (2010). Habitats were mapped according to Fossitt (2000).

Habitats are areas defined particularly by their flora. They may also have particular environmental characteristics, fauna, vegetation structure or management history. For example a hedgerow is a habitat which must have native shrubs growing in a linear pattern. It may or may not have a dry bank or wet ditch.

Habitats vary in value for biodiversity depending on factors such as naturalness and habitat and species rarity. Habitats of high value are usually less modified by man. They may be associated with land, freshwaters or marine environments

The Fossitt classification system (summarised in Appendix 5) provides a hierarchal classification of habitats from Levels One to Three. Level one provides a gross classification, Level Two is intermediate, and Level Three is the most detailed. Habitats in Piltown were mapped to Level Three.

At Level One eleven habitats are differentiated. These are Freshwater, Grassland and Marsh, Heath and Dense Bracken, Peatlands, Woodland and Scrub, Exposed Rock and Disturbed Ground, Cultivated and Built Land, Coastland, Littoral, Sub littoral and Marine Water Body.

Level Two allows for a more detailed classification of the Level One types. For example Level One Freshwater habitats can be distinguished as either lakes, ponds, watercourses, springs or swamps and so on for all other Level One habitats.

Level Three allows for further differentiation of these types. For example there are eight different lake habitats; four types of watercourses, two types of springs and two different kinds of swamps.

In Piltown habitat classification followed Fossitt conventions with the following modifications which have been developed through experience of habitat mapping studies elsewhere (Dublin, Laois and Kildare):

1. Hedgerows consisting of non-native shrubs, usually surrounding housing were identified as WS3A. This is a sub type of WS3 (Ornamental /non native shrubs) according to Fossitt 2000).
2. The Fossitt habitat category BL1 (Stone buildings) was subdivided into BL1A (stone walls) and BL1B (stone buildings).
3. Land under development (i.e. a building site) transitional between habitat types, was mapped as BL3D.
4. Due to the difficulty of describing habitats in gardens three additional habitat types were identified in semi-urban areas to describe the characteristic biodiversity associated with houses and gardens. Gardens were observed from outside except where permission was obtained to enter them. These habitat types were developed from experience of fieldwork in Dublin where the recommended habitat type BC4 (Flower beds and borders) did not usefully describe habitat diversity. These new habitats were subsets of the habitat category BL3 (Buildings and built surfaces) and were BL3 1; BL3 2 and BL3 3. The three types are distinguished by size of garden; areas mapped as BL3 1 have houses and gardens occupying an area > 500 m². BL3 2 have gardens between 250 and 500 m² usually associated with semi-detached houses. The third category BL3 3 describes areas dominated by small gardens < 250 m². Experience elsewhere suggests that the largest gardens support a diversity of habitats often featuring mature trees. Medium size gardens usually have areas with ornamental non native shrubbery and smaller gardens have a smaller number of habitats dominated by amenity grassland (GA2).

2.5 Hedgerow survey

A hedgerow survey methodology was devised for this project which enabled a ranking of hedgerows tailored to the rural/peri-urban focus of this study. The methodology is based on hedgerow assessments by Lyons & Tubridy (2006), Murray & Foulkes (2005) and Clements and Tofts (1992).

Where permission was given hedgerows were inspected along their entire length. Each was numbered. Data was collected on their average height and width, gappiness, biodiversity value (number of native tree and shrub species), number of layers (herb, shrub, trees), structural features (bank, ditch, water), connections to other hedgerows, age (whether the hedgerow existed in the 1840s and whether it was a townland boundary), management and other features of biodiversity interest (rare plants, badger sett etc).

The data was used to score the surveyed hedgerows so that the most important ones could be identified. Details of the scoring system for each characteristic are shown on the Hedgerow Record Card (Appendix 2). Scores under each characteristic were added to give an overall score for each hedgerow.

Under this system, the minimum possible score for any one hedgerow is 5; the maximum is 30. Following careful examination of the results from several settlements, each hedgerow was then allocated to one of the categories shown on Table 1. On the habitat map surveyed hedgerows can be identified by number. Unsurveyed hedgerows, whose identity was confirmed are not numbered.

Table 1. Hedgerow rating system

Score	Rating	Description
5-10	1 *	Low value – least important
11-19	2 **	Moderate value - of moderate importance
20-30	3 ***	High value – most important

2.6 Map digitisation and database compilation

Clean hard copy maps were marked up clearly with habitat polygons and line features and handed over to the GIS specialist for digitisation. Each feature was marked as being surveyed (S) where it was directly inspected in the field; validated (V) where it was checked from a distance if access was not possible, or assigned a habitat code based on the desk study (D), where no visual confirmation was possible. This information is contained in the GIS database.

Information relating to each habitat area and hedgerow is stored in a separate Microsoft Access Database, allowing this information to be linked to Kilkenny County Council's GIS system. This allows the maps to be queried for information.

A standard hatching and map layout was agreed for final presentation. A hardcopy habitat map and ecological features map accompany this report. Ecological networks described in the report are given a unique identifier number on the map so that readers can easily find the feature in question.

2.7 Reporting and data presentation

This written report, a set of photographs, along with the maps and GIS database, gather together the information collected during the survey, desk study and consultations. The main body of this report contains descriptive accounts of habitats and ecological networks. This is based on species lists compiled for principal habitats within these networks (Appendix 3 , Target Notes). The assessment of the habitat networks is based on that developed by the NRA.

2.8 Study constraints

The timeframe for carrying out the assessment required that fieldwork takes place over a short time outside the optimum period for fieldwork which is late spring/summer. Accordingly, the list of plant species recorded from the habitats is incomplete. Seasonality did not affect the principal objectives of the study: to map, assess the significance of the habitats present, identify ecological networks and comment on their significance as Green Infrastructure. These principal objective was met despite the seasonal constraints, by using previous reports particularly CAAS, (2003), studies located for this project, targeted consultations, field survey and professional judgement.

3 Results

3.1 Geodiversity

The Piltown study area is underlain by limestone rocks laid down c. 350 million years ago. Waulsortian limestone predominates. This is a pale grey fine-grained clean unbedded fossiliferous limestone which formed in mound structures and is widely dolomitised, particularly at the top and along faults. The other types of oolitic limestones, Ballysteen formation limestone, shale and Bullockpark Bay Member are found to the east and south of the centre of the village. The rocks are faulted north-south through Kildalton.

Till cover is generally shallow and outcrops are visible at several locations in the Piltown area. Locations include north and south of the west branch of the river either side of the R698, at west end around the tower, along Tibberaghney road, at Wilmount House and at the Waste Water Treatment Plant. Quarries (now no longer in use) are shown on the 1st edition map on the Tibberaghney road and south of the treatment plant. The treatment plant itself appears to be sited within an old quarry which must have been exploited later as it does not appear on the 1st edition map.

Within the rocks is a regionally important karstified aquifer. The south east corner of the village is underlain by a locally important aquifer. Because of the shallow cover of till these aquifers are considered mostly high to extreme vulnerability especially near bedrock. Their hinterland is moderately vulnerable. Groundwater comes to the surface at two springs in the Piltown study area. A spring is present 20m upstream of the bridge in Main St., on the left bank of the west branch of river. A second is found 200m downstream on the left bank of the river at Wilmount House.

Ice movement has led to the deposition of sandstone till over these limestone rocks. This has been cut into by two branches of the Pil river which is tidal below the Main Street. North of the river the sandstone is of lower Palaeozoic/Devonian age. South of the river the till is Devonian. The undifferentiated alluvium which is found along the river indicates the location of the original floodplain. As the tidal river below Main St has been embanked the natural flooding pattern has been modified.

Because of its topography and shallow soil covering, drainage is good in the Piltown study area. Productive soils have developed from these tills. In well-drained areas they include acid brown earths and brown podzolics. Pockets of

acidic gleys are only found in small depressions. Rendzinas/lithosols are associated with outcrops. Alluvial soils are found on the margins of the river.

3.2 Ecological networks

Pil River corridor

The core green infrastructure feature in Piltown is the corridor of the Pil River, including the east and west freshwater branches that meet in the town, and the tidal section below this. As well as being the core feature of the village, the river clearly has a corridor function, allowing for movement of protected species such as salmon. The Fisheries Board have confirmed (F. O'Donoghue, Southern Regional Fisheries Board, *pers. comm*), that the Pil River is significant in terms of salmonid habitat. The SRFB recommends that areas of established riparian habitat in the vicinity of Piltown should be protected, and that further areas should be established to improve connectivity.

There is no information available on water quality in the Pil river upstream or downstream of Piltown as water quality is not monitored on this river by the EPA. According to Kilkenny Birdwatch (Pat Durkan, *pers.com*) the little egret, mute swan, grey heron, kingfisher and dipper are present in the river in the vicinity of Piltown.

In this report, the river network is divided into three main sections – the tidal section downstream of the main street, and the two freshwater branches upstream of this. These ecological networks are shown on Map 2. Survey work by CAAS (2003) has provided additional accounts of habitats along the river.

PL1 Pil River corridor downstream of main street

The most important part of the river network in Piltown is the tidal section below the main street bridges, as this lies within a designated site of international importance, the Lower River Suir cSAC (no. 2137). Habitats within this ecological network (shown on Map 1) include tidal river (CW2), a short section of freshwater river (FW2), riparian woodland (WN5), reed swamp (FS1), wet grassland (GS4), dry meadow grassland (GS2), scrub (WS1), dry neutral grassland (GS1), spring (FP1), mixed woodland (WD1), and recolonising bare ground (ED3).

Of particular significance to biodiversity is the presence of wet woodland. Associated wet woodlands around rivers are rare in Ireland. Wet woodland is

among the rarer types of wetland in the country and corresponds to a priority type (alluvial forests with *Alnus glutinosa* (alder) and ash, *Fraxinus excelsior* (91E0)) listed in the Habitats Directive.

The Pil river becomes tidal a short distance below the town bridge. This is characterised by both the physical infrastructure of embankment on the west bank, which was constructed to contain tidal movement, and the vegetation dominated by reed swamp and riparian willow woodland, as well as the typical exposed mud habitat visible at low tide. From the bridge downstream, the river corridor lies within the Lower River Suir SAC and so is protected under the EU Habitats Directive. The main species are willow, including grey, crack and white willows, and alder, with reed canary-grass underneath. Much of the willow is sparse and scrubby and in places this habitat is more like reed swamp than riparian woodland. It appears as if some of the willow has been cut back in recent times. Additional species recorded by CAAS (2003) include hemlock water dropwort, marsh marigold, marsh ragwort, marsh bedstraw, wild angelica, water forget-me-not, brooklime and fool's watercress.



Fig. 1 Tidal section of the Pil River looking upstream from Piltown waste water treatment plant; and semi-improved grassland in front of Wilmount House overlooking the confluence of east and west branches of the river.

At the upper end of this section of the river, semi-natural wet and dry grassland is found at Wilmount House. The wet grassland is a species-poor inundation grassland typical of tidal river plains. It has been semi-improved and is dominated by creeping bent-grass and Yorkshire fog. This grades into a tussocky dry meadow vegetation with cock's-foot grass. In front of the house is a small pocket of neutral grassland. In addition there are mature parkland trees and a spring-fed pond beside the river.

Scrub woodland around the Waste Water Treatment Plant is dominated by ash and sycamore with bramble and hawthorn as well as many non-native shrubs,

such as rhododendron and Wilson's honeysuckle. Some of the grassland habitat associated with the church grounds contains a moderate diversity of species and can be classified as dry neutral grassland.

Green infrastructure assessment – PL1

The habitat complex of the Pil River (CW2/FW2), riparian woodland (WN5), wet and dry grassland (GS4, GS1, GS2), spring (FP1) and recolonising ground (ED3) is of international ecological value, as it lies within the lower River Suir cSAC and contains an example of an EU Annex I habitat type (alluvial woodland). It is the key green infrastructure feature in Piltown.

The scrub (WS1), other wet and dry grassland (GS4, GS1), and mixed woodland (WD1) are of high local ecological value and act as a buffer linked directly to the internationally important habitat complex along the river.

The ecological network provides several services to society. It is an important reservoir of biodiversity, part of an internationally important cSAC, the Lower River Suir. It contains a habitat of international significance, wet woodland, listed in the Habitats Directive. As the Pil river floods periodically (see OPW flood hazard maps <http://www.floodmaps.ie/View/Default.aspx>) the river and its adjacent wetlands perform a regulatory function as they absorb floodwaters. Thus they act as a natural attenuation area reducing the risk of flooding elsewhere in the catchment. The wetland ecosystem can also act to reduce pollution in the river. The wet woodland is a carbon sink, mitigating for climate change. Parts of the river corridor are used as an amenity.

The biodiversity of this area adds value to features of cultural importance such as stone buildings, walls and bridges, former mill buildings and features associated with the original landscaping of Wilmount House.

Any proposals for development which could impact on EU listed habitats or species found in the Lower River Suir cSAC will require to at least be screened for Appropriate Assessment. This particularly includes any impacts on water quality, habitats within the river or wetland habitats along the river margin.

Future development should seek to improve the quality of "buffer" areas by restoring riparian habitats within and adjacent to the cSAC. This could involve the establishment of riparian woodland or wetlands.

Low-lying lands along tidal rivers are particularly vulnerable to the potential impacts of climate change, with or without embankments. This should be taken into account when considering the types of development that are appropriate within or close to the river corridor.

PL2 Western branch of Pil River

The west branch of the Pil River from Tower Road to Main St. is an important ecological corridor through the village. As well as the river itself (FW2), a number of habitats are found in this section including wet grassland (GS4), dry neutral/calcareous grassland (GS1), dry meadows/grassy verges (GS2), scrub (WS1), riparian woodland (WN5), broadleaved woodland (WD1), conifer woodland (WD4), a spring (FP1), amenity grassland (GA2) and recolonising ground (ED3).

Within the river channel there are patches of aquatic plants, particularly of water crowfoot species. This corresponds with the EU habitat floating river vegetation (code 3260). The Pil River is also significant in terms of salmonid habitat. Thus this branch of the river is functionally and ecologically linked with the Lower River Suir cSAC which is designated from the Main St. bridge downstream.

Starting at Tower Road, the south bank of the river is steep-sided with scrub vegetation. This appears to have been more heavily wooded in the past, with recent development resulting in some ground clearance and reduction in width of the wooded habitat. It contains a mixture of native tree and shrub species such as ash, hawthorn, elder, blackthorn and holly, with a concentration of non-natives towards the eastern end, including sycamore, Wilson's honeysuckle, rhododendron and buddleja. This opens out into an area of recolonising ground in front of the new residential development. CAAS (2003) recorded woodland vegetation here with wild garlic, germander speedwell, wood avens, celandine and ground ivy under hazel, elm and sycamore, with alder growing at river level on seasonally flooded ground with golden saxifrage, water figwort, pendulous sedge and hemlock water dropwort. It seems that much of this has been cleared during development of the adjacent land.



Fig. 2 Recolonising ground with remnant scrub woodland vegetation on the south bank of the river; heavily modified channelised riverbank at Kildalton Close.

The north bank is level, open and prone to flooding. The grassland here has been classified as wet. It is somewhat improved and has a low species diversity, but the combination of creeping bent-grass, flote-grass and creeping buttercup is indicative of inundation grassland, i.e. grassland that is subject to periodic flooding. The river here contains patches of water-crowfoot, an example of floating river vegetation. The ground slopes up from the wet grassland to a dry calcareous grassland on thin soils close to outcropping bedrock. As well as grasses such as red fescue, common bent-grass and cock's foot, there is a moderate range of herbaceous species such as common cat's-ear, red clover, self-heal and glaucous sedge, as well as a fairly good cover of mosses.



Fig. 3 Flood plain grassland on the north bank of the river at Tower road, with calcareous grassland on high ground in the background; water-crowfoot floating river vegetation in the same area.

The river corridor continues between the housing. In this section it has been channelised with stone walls as far as the bridge on Hillcrest Avenue. The banks have very little vegetation except for some pendulous sedge, and are shaded by planted ornamental trees and shrubs.

From the bridge at Kildalton Close to Main St., a mixture of scrub, mixed woodland, and riparian woodland is found. Some of the scrub seems to have arisen where the ground was cleared in the past and has since recolonised. At the western end of this section, the scrub is mainly bramble with English elm, nettle and bindweed. There are few clumps of the invasive non-native species, Japanese knotweed, as well as some pampas-grass. Dumping of household and garden waste is frequent. Scrub is also found towards the main street.

Most of the woodland is classified as mixed broadleaved woodland as it contains both native species such as ash and alder, and non-natives such as sycamore. A stand of planted conifers backs onto the houses on the Banagher Rd. A narrow strip of mostly native riparian woodland is found along the river itself. The main

tree species are alder and ash, with hazel, holly, guelder rose and elder in the woodland understorey. Pendulous sedge, bindweed and nettle are found growing on the sediment deposited by the river.

A stone well house is found just upstream of the Main St. bridge. The river is channelised with stone in this section. A small drain flows into the river between the well and the bridge.

Green infrastructure – PL2

The habitat complex of the river channel and riparian woodland (WN5) is both a core and a corridor feature, and is of county importance as it contains small examples of an EU habitat type (floating river vegetation) and is important for salmonids, as well as being directly connected to a site of international biodiversity importance, the Lower River Suir cSAC. The riparian woodland, though found here as a narrow strip along the riverbank, represents a habitat type that is relatively rare in Ireland.

The wet and dry grassland (GS4, GS1, GS2), scrub (WS1), broadleaved woodland (WD1), conifer woodland (WD4) and spring (FP1) are core features of local importance (higher value) as they support a high level of local biodiversity and are essential for maintaining the ecological functions of the river corridor.

The recolonising ground (ED3), treeline (WL2) and amenity grassland (GA2) are buffer/rehabilitation areas of local importance (lower value). These are highly modified habitats but are nonetheless important for buffering the ecological functions of the river corridor from adjacent development and could be rehabilitated to enhance this function.

The ecological network provides several services to society. It is an important reservoir of biodiversity, linked directly to an internationally important cSAC; the Lower River Suir. It contains small examples of habitats of international significance, floating river vegetation and wet woodland, listed in the Habitats Directive. The lower-lying areas along the river perform a regulatory function as they absorb floodwaters and may have the potential to remove pollutants. They act as a natural attenuation area reducing the risk of flooding elsewhere in the catchment. The woodland is a carbon sink, mitigating for climate change.

The biodiversity of this area adds value to features of cultural importance such as stone buildings, walls and bridges, and the well.

Any proposals for development which could impact on EU listed habitats or species found in the Lower River Suir cSAC downstream will require to at least be screened for Appropriate Assessment. This particularly includes any impacts

on water quality, habitats within the river or wetland habitats along the river margin.

This section of the river provides a good opportunity for development of a walking and cycling route as part of local green infrastructure. Any such development would need to be subject to an ecological assessment and discussion with the SRFB and NPWS, and sensitively designed to ensure that the ecological functions of the river corridor are maintained. There should be no further channelisation or walling of the river bank.

Any proposed development in this area will require the appropriate management and removal of invasive species, in consultation with the appropriate authorities.

PL3 East (main) branch of Pil River, Kildalton College grounds, adjoining lands

The east branch of the Pil river from Main St. to the bridge along the back entrance to Kildalton by the playing pitches is an important ecological corridor linking the village with the wider countryside and the habitats in Kildalton. The main habitat found along the river channel (FW2) is mixed broadleaved woodland (WD1). The river is important in terms of salmonid habitat and is directly linked to the internationally important Lower River Suir cSAC below the Main St. bridge. The playing pitches (GA2) and fields (GA1, BC3) behind the community centre are highly modified habitats which run almost right up to the river bank.



Fig. 4 The Pil River adjoining Kildalton, with broadleaved woodland on north bank; broadleaved woodland on steep banks and floodplain behind the Church of Ireland.

This is the larger branch of the river upstream of the confluence, and it has been wooded along its banks at least since the 1800s. The high proportion of non-native trees such as sycamore and beech suggest that much of this was planted as

part of the Bessborough demesne. The understorey is dominated by invasive rhododendron and laurel. The steep-sided banks of mixed broadleaved woodland lead to low-lying riparian woodland. Previous work by CAAS (2003) found horse chestnut, oak, sycamore and hazel on the slope with a dry ground flora of barren strawberry, bluebell, lords-and-ladies and ground elder. In the lower-lying part of the wood, prone to flooding, they recorded an abundant population of the uncommon species, starved wood sedge, as well as wood speedwell, wild garlic, meadowsweet, cow parsley, distant sedge, pendulous sedge, celandine, marsh marigold, Rhododendron, traveller's joy and grey poplar.

This woodland is linked to the main mixed woodland of Kildalton by a treeline, and by the outflow from the ponds in the college grounds. The chain of woodland, treelines, ponds and stream connect this part of the Pil River with the wider hinterland to the north and east of Piltown. The wooded Pil River corridor continues east of Kildalton. The more recently planted hedge of hawthorn and holly beside the football pitch adds to the local ecological network.

Adjoining the woodland on the south bank, a moderately diverse calcareous grassland is found in the old graveyard of the Church of Ireland, with such species as self-heal, barren strawberry, daisy, common cat's-ear, small sedges and violet, as well as mosses.

Green infrastructure – PL3

The river channel itself is a corridor feature of county importance, as it supports salmonids and is directly linked to the internationally designated Lower River Suir cSAC. The broadleaved woodland (WD1) is a modified habitat but is essential for maintaining the ecological function of the river corridor and contains the uncommon species, starved wood sedge, and so is also of county importance. The old grassland in the graveyard adds to the habitat diversity here and is of local importance (lower value).

The ecological network /green infrastructure functions associated with this area are:

It supports habitats of county and local value.

The lower-lying areas along the river perform a regulatory function as they absorb floodwaters and may have the potential to remove pollutants. They act as a natural attenuation area reducing the risk of flooding elsewhere in the catchment. The woodland is a carbon sink, mitigating for climate change.

It provides a corridor for wildlife between the village and the habitats in Kildalton and the wider countryside beyond, though removal of woodland and scrub on the south east bank in more recent times has somewhat compromised this corridor function. This presents an opportunity for rehabilitation, by fencing off the river bank and allowing it to recolonise naturally.

There is a small risk of pollution or introduction of invasive species from dumping of soil and green waste on the river bank, which is to be discouraged particularly as the Lower River Suir cSAC is less than 100m downstream. The proposed use of the field at the community centre as community allotments is an excellent example of green infrastructure. Protection and enhancement of the hedgerow boundary and siting of a suitable composting area at the eastern end away from the river corridor would help maintain local ecological functions. Enhancement of field boundaries by fencing off and allowing rehabilitation of the hedgerows would encourage beneficial insects to pollinate crops and control pest species.

Hedgerows

Hedgerows form a particular type of ecological network important for trees, plants associated with woodlands, songbirds, small mammals and invertebrates including bees and butterflies.

Thirty-nine hedgerows were surveyed and evaluated. All of these are within or on the study area boundary.

The extent of hedgerows reflects the field patterns and history of land management. The total number of hedgerows has declined since the early 1800s. Relatively intact networks are found in the west of the village linking Main St. to the west branch of the river parallel to Tower Rd.; north of Main St between Hillcrest Avenue and the bridge; and south of Main St. between the bypass and the Tybroughney road.

Hedgerow numbers are shown on the habitat map and results of the evaluation of individual hedgerows are in Appendix 4. Table 2 below summarises the results of the hedgerow evaluation for Piltown.

Table 2. Hedgerow Evaluation

Hedgerow Numbers	Rating	Description
-	1 *	Low value – least important
H01, H03, H04, H05, H07, H08, H09, H11, H12, H13, H14, H15, H16, H17, H18, H19, H20, H21, H23, H24, H25, H26, H27, H29, H31, H32, H34, H36, H37, H38, H39	2 **	Moderate value - of moderate importance
H02, H06, H10, H22, H28, H30, H33, H35	3 ***	High value – most important

Two-thirds of the hedgerows are of cultural value as they are shown on the 1st edition OS map (1837-1842); five of these are townland boundaries. All of the hedgerows in the study area were found to be of relatively moderate or high value.

Almost all are associated with banks, raised linear mounds of earth on which plants were originally established. Over half had at least some trees present. The most frequently-occurring tree species is ash. Non-native beech and sycamore also occur. Crab apple was found in H03.

Eleven different shrubs were recorded from the surveyed hedgerows, hawthorn being the most common. Other native shrub species are blackthorn, gorse and bramble. Holly was found in many hedgerows, usually as a single bush. Non-native shrub species including travellers-joy, Wilson’s honeysuckle, snowberry and butterfly bush are occasional.

The highest-ranking hedgerow is H28.

The field system near Tower Rd. has existed since at least the 1800s, though the internal boundaries have been removed in more recent times to produce a strip of long, narrow fields, bounded by hedgerows H01-H09. Hedgerows H02 and H06 are high value hedgerows in this network, which is important as a link between the river corridor and Main St.



Fig. 5 Hedgerows H06 and H07 near Tower road; and H33, a townland boundary south of Main St.

A small network of hedgerows is found east of Hillstreet Avenue. These were not directly accessed for surveying and their evaluation is based on confirmation from the nearest viewing point and map information, which indicates that they are at the higher end of moderate value. Again they are important links between the river corridor and the town centre.

The strip of land south of the main street has been in use as fields associated with the houses since at least the 1800s, and many of the field boundaries are still intact, including a portion of the townland boundary between Belline-Rogerstown and Banagher. H12 running east-west at the south end of the fields is also of ancient origin. In the past it formed one side of a lane linking the lands south of the village with a lane onto Main St. near H34. The highest ranking hedgerow in this network is H35. This network links Main St. with the countryside south of the village, though this has been fragmented by construction of the Piltown bypass.

Green infrastructure – hedgerows

Hedgerows in the study area primarily function as ecological corridors. They comprise semi-natural habitats and are important for nesting birds (protected under the Wildlife Acts).

The hedgerows are ranked in Table 2 above according to their value relative to each other, based on the hedgerow survey methodology. Their value as part of local green infrastructure (Table 3) is evaluated based on the ecological evaluation criteria (Appendix 6), which finds that over half of the hedgerows in Piltown are of local importance (higher value) due their importance in maintaining links and ecological corridors.

This type of green infrastructure has the following values:

It supports habitats of high local value.

Certain hedgerows help maintain the connectivity of other ecological networks (i.e. H01-H09, H20-H22) providing corridors or additional habitat.

They have potential for development as landscaped amenity areas and more effective stockproof barriers.

They are important features of the cultural landscape.

They provide habitat for pollinating insects and predators of crop pests for commercial crops.

Priorities for development should be the promotion of higher standards of management by owners and greater consideration of hedgerow values by planners if development is proposed adjacent to them. Guidelines are provided to inform planning around hedgerows.

Other features of biodiversity interest

Other features of biodiversity interest include the habitats dry stone walls, stone buildings and stone features which are mapped on the habitat map as either BL1A and BL1B. They are particularly associated with the churches and other stone buildings, stone walls bordering roads and stone bridges. Survey work showed that they provide a habitat for native plants and feeding and roosting habitat for small birds including wrens and coal tits. Spotted flycatcher have been previously recorded in Piltown – they like to use natural ledges found in old stonework. While no bat surveys were carried out, the ecology of bats suggests that dry stone walls and stone buildings/features have potential value as roosting sites particularly if they are linked by hedgerows, lines of trees or blocks of semi-natural vegetation to wetlands.

While intensively-managed grassland (GA1) comprises most of the agricultural land around Piltown, pockets of semi-natural grassland are found in the village. Dry meadow grassland (GS2) is found where fields have not been actively managed in the past few years, or where management is low-key, e.g. the field between H02 and H03. This was grazed by a small number of horses at the time of surveying. The main grass species are Yorkshire fog, creeping bent, cock's foot, red fescue and common couch, with a low diversity of herbaceous species such as creeping buttercup, willowherbs, spear thistle and broad-leaved dock. Fields south of Main St. that have not been used in recent years have become dominated by a tussocky dry meadow vegetation of cock's-foot, Yorkshire fog and false oat grass. Dry meadow vegetation is naturally tussocky with a low

diversity of plant species. It provides habitat for seed-eating birds and cover for small mammals.



Fig. 6 Recolonising ground, dry meadow and scrub vegetation behind new housing development; mature pollarded beech on Main St.

Neutral grassland (GS1) with a moderately diverse range of species is found where grassland is mown or grazed, but has not been reseeded in recent times. Examples of it are found in the old graveyards and in front of the community centre.

Scrub (WS1) and recolonising ground (ED3) habitats are found in areas where development was proposed but not begun, or where ground has been cleared and then left idle. An extensive example of this is between H03 and H06, with scattered small bushes of willow recolonising this area. Piles of spoil behind the new housing are being colonised by a mixture of grasses and ruderal (weedy) species, such as willowherbs, dove's-foot cranesbill, sow-thistles and ragwort. A tiny pond has formed which contains bulrush. Scrub and recolonising ground can have a moderate to high diversity of species because it is a transitional habitat. It provides habitat for invertebrates and mammals. Birds previously recorded from Piltown that use these habitats include redpoll, linnet, finches, and yellowhammer.

The Piltown area was once famous for its orchards. An old apple orchard (WD5) is found just west of Banagher Rd. while a newer one (BC2) has been planted behind Anthony's Inn.

Lying outside the LAP boundary, but linked to it by a stream and woodland, are the ponds (FL8) and mixed woodland (WD1, WD2) of Kildalton. Previous work by CAAS (2003) found the woodland to be dominated by non-native tree and shrub species, and partly managed as a game woodland. It is of some value for birds and mammals. A tree roost of Leisler's bat has been previously recorded from the house.

An old pollarded beech on Main St., though of limited value for biodiversity, is an interesting cultural and natural feature in the village centre.

Green infrastructure value of other features (listed above)

These habitats are of lower local ecological value. Mature trees should be considered as being of potentially high local value as they may contain roosting sites for rare species such as bats. This would need to be confirmed by survey work.

The ecological network /green infrastructure associated with these features has the following values:

They provide habitats principally of low local value of importance to common bird species and invertebrates within the built-up urban area.

They have potential as roosting sites for rare species.

Mature trees and publicly accessible green spaces improve the appearance of the streetscape and provide a passive amenity for the community.

Farmland has an important provisioning function in terms of food supply.

3.3 Summary of biodiversity assessment/evaluation

Using criteria contained in guidelines produced by the NRA (www.nra.ie, Appendix 6) the relative significance of the principal habitats within the study area was assessed. These results are summarised in Table 3, which should be used in conjunction with Maps 1 and 2.

Table 3. Summary of biodiversity assessment/evaluation in Piltown

Ecological network/Habitats	Ecological network element	Relative evaluation
PL1: CW2, FW2, WN5, GS1, GS4*, GS2,* FP1	Core area, part of larger corridor feature	Internationally important
PL1: GS2, WS1, ED3*	Core/rehabilitation areas within cSAC	Internationally important
PL1: WS1, GS\$, GS1, WD1,GA1,ED3	Buffer/rehabilitation area adjacent to internationally important area	Local importance (higher value)
PL2: FW2, WN5	Core area, part of larger corridor feature of international importance	County importance
PL2: GS4, GS1, GS2, WS1, WL1, WD1, WD4, FP1, WL1 (H15)	Core areas, part of larger corridor feature of county importance	Local importance (higher value)
PL2: ED3, WL2, GA2	Buffer/rehabilitation areas linked to corridor feature of county importance	Local importance (higher value)
PL3: FW2, WD1	Core area, linked to corridor feature of international importance	County importance
PL3: GS1	Core area linked to WD1 above	Local importance (lower value)
H02, H03, H06, H07, H09, H20, H21, H22, H10, H15, H33, H35, H28, H30, H26, H24, H25, H39	Corridors linked to core areas in village and river corridor of county/ international importance	Local importance (higher value)
H01, H04, H05, H08, H12, H13, H14, H11, H18, H19, H27,H29, H34,H36,H37, H38	Small corridor features linked to wider network	Local importance (lower value)
H16, H17, H31	Small remnant corridor features	Local importance (lower value)
WS1, ED3, GS2, GS1, WD5 & BC2 (orchards), BL1A, BL1B	Core/corridor features	Local importance (lower value)

GS2*, GS4*, ED3* All habitats, even relatively common types, inside the SAC are considered internationally important. Hence GS2, GS4 and ED3 are ranked as internationally important in the first two rows. Outside the SAC their ranking is

lower and depends on their relationship to the key habitats and functions of the SAC.

4 Guidelines for Sustainable Development of Hedgerows and Drainage Ditches

The Green City Guidelines (Brennan and O'Connor 2008) contain many other suggestions for integrating biodiversity and development.

4.1 Hedgerows

Spatial planning should protect best quality hedgerows (those which score between 20 and 30). If a dense network of such hedgerows is present within fields proposed for development, those with highest values and which function as connecting features/wildlife corridors should be retained. The objective should be to retain a connected network, which links to other types of semi-natural areas, provides a wildlife or green corridor, particularly from countryside into the town centre and has a sustainable use within the new development.

No development should be allowed within 5m of retained hedgerows.

Developers and local groups should be reminded of their obligations under the Wildlife Act i.e. not to remove or interfere with hedgerows between March 1st and 31st August.

Boundary hedgerows should be retained unless there is an imperative reason of public safety. Prospective developers should be reminded that hedgerows require little management, look more appropriate in rural locations than garden hedges and are a ready made green feature of particular value to birds.

If a new boundary has to be established encouragement should be given to replace the original semi-natural feature (hedgerow, dry stone wall) with another type of semi-natural boundary. It is preferable to use native species, particularly the locally occurring ones mentioned in the hedgerow section of this report. This will provide alternative habitat for displaced species, be more compatible with local landscape values and maintain connectivity for species which relied on such features for commuting or feeding.

Spatial planning for large scale developments should integrate retained hedgerows into the design of roads, pedestrian/cycleways routes or open spaces. A grass margin should be retained around all retained hedgerows. By cutting grass regularly within this margin the hedgerow will appear to be managed.

Landscaping plans should retain hedgerows by incorporating them within new shrubberies or woodlands. Hedgerows (or individual mature trees contained within them) could become a nucleus for a new woodland developed by planting native trees/shrubs. Instead of retaining a straight line, gaps (for roads,

paths, views) could be created and resulting smaller lengths could become the focii of woodlands/shrubberies of more varied shapes. Depending on the potential risks of anti-social activity or requirements for a more garden look the margins of these new hedgerows/cum woodlands/shrubberies could be planted with spiny shrubs or species of horticultural value.

4.2 Drainage Ditches

Drainage ditches provide a habitat for aquatic species, allow for connectivity and provide for flood attenuation. Drainage ditches which form part of the catchment of salmonid rivers and are adjacent to hedgerows are most valuable.

Drainage ditches should be retained, unless there is an imperative reason of public safety, by ensuring that their hydrology is protected, culverting does not occur and new development does not drastically alter the physical environment within 5m.

Spatial planning should attempt to integrate drainage ditches into new designs.

Drainage ditches could become amenity type wetland features through reprofiling and landscaping. Landscaping should involve native species, particularly those occurring locally to maximise biodiversity and amenity values.

In large scale developments drainage ditches could be enlarged to become the nuclei of Sustainable Urban Drainage Systems. If used as receiving waters for surface water drainage, or SUDS, monitoring should occur to ensure no deterioration occurs.

If a barrier is required around a drainage ditch, spiny shrubs (hawthorn, blackthorn) rather than a fence, should be planted. If a fence is erected a type should be chosen which would allow for the movement of small mammals.

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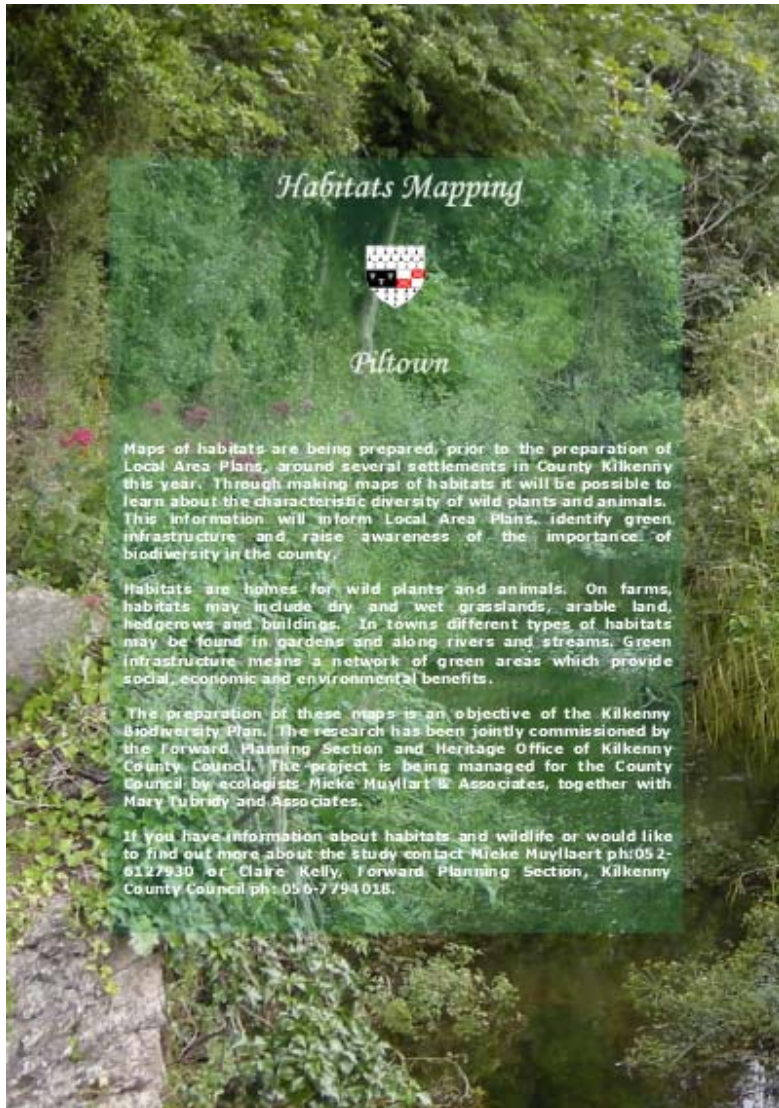
Websites

Environmental Protection Agency www.epa.ie

Geological Survey of Ireland www.gsi.ie

National Parks & Wildlife Service www.npws.ie

Appendix 1 Information Leaflet



Appendix 2 Record sheets used in habitat mapping and hedgerow evaluation

Kilkenny LAP habitat survey 2010

Target areas

Settlement: _____ Recorder: _____ Date: _____

Target note **List species, describe features, management, invasives**
ID no.

Settlement:	Surveyor:
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No.	Height	Width	Gaps	Biodiversity value	Structure	Structural diversity	Management	Notes
	1 <1.5m	1 <1m	0 50%+	List tree and shrub species	1 Shrub layer only	0 No bank/ditch	1 Short-term unmgd (5 yrs)	Include notable spp., signs of fauna
	2 1.5-2.5m	2 1.2m	1 25-50%		2 Shrub + herbs	1 Bank only	2 Long-term unmgd	
	3 2.5-4m	3 2-3m	2 10-25%		3 Tree, shrub + herbs, open base	2 Bank + ditch	3 Box profile	
	4 >4m	4 3m+	3 5-10%		4 Tree, shrub + herbs, dense base	3 Bank, ditch, stagnant water	4 Cut one side	
			4 <5%		4 Bank, ditch, flowing water	5 Cut both sides		
			5 no gaps			6 A-shape		

Kilkenny LAP Habitat Assessment PILTOWN

NB Connectivity and Cultural value are entered directly to spreadsheet afterwards using field map and 1st ed. map.

Appendix 3 Target notes

Ecological network feature: PL1

Habitat codes

CW2, FW2, WN5, GS4, GS1, GS2, FP1, ED3, GS2, WS1, WD1

Scientific name	Common name
-----------------	-------------

<i>Alnus glutinosa</i>	Alder
<i>Fraxinus excelsior</i>	Ash
<i>Rubus fruticosus</i>	Bramble
<i>Dactylis glomerata</i>	Cock's-foot
<i>Salix fragilis</i>	Crack willow
<i>Agrostis stolonifera</i>	Creeping bent-grass
<i>Apium nodiflorum</i>	Fool's watercress
<i>Salix cinerea</i>	Grey willow
<i>Crataegus monogyna</i>	Hawthorn
<i>Oenanthe crocata</i>	Hemlock water-dropwort
<i>Galium palustre</i>	Marsh bedstraw
<i>Caltha palustris</i>	Marsh marigold
<i>Senecio aquaticus</i>	Marsh ragwort
<i>Festuca rubra</i>	Red fescue
<i>Phalaris arundinacea</i>	Reed canary-grass
<i>Rhododendron ponticum</i>	Rhododendron
<i>Acer pseudoplatanus</i>	Sycamore
<i>Mysotis scorpioides</i>	Water forget-me-not
<i>Veronica beccabunga</i>	Water speedwell
<i>Salix alba</i>	White willow
<i>Angelica sylvestris</i>	Wild angelica

Lonicera nitida Wilson's honeysuckle

Holcus lanatus Yorkshire fog

Ecological network feature: PL2

Habitat codes

FW2, GS4, GS1, GS2, WS1, WN5, WD1, WD4, FP1, ED3, GA2

Scientific name	Common name
-----------------	-------------

<i>Alnus glutinosa</i>	Alder
<i>Fraxinus excelsior</i>	Ash
<i>Prunus spinosa</i>	Blackthorn
<i>Pteridium aquilinum</i>	Bracken
<i>Buddleja</i>	Butterfly-bush
<i>Dactylis glomerata</i>	Cock's-foot
<i>Agrostis capillaris</i>	Common bent-grass
<i>Hypochaeris radicata</i>	Common cat's-ear
<i>Agrostis stolonifera</i>	Creeping bent-grass
<i>Ranunculus repens</i>	Creeping buttercup
<i>Bellis perennis</i>	Daisy
<i>Geranium molle</i>	Dove's-foot cranesbill
<i>Sambucus nigra</i>	Elder
<i>Ulmus procera</i>	English elm
<i>Glyceria sp.</i>	Flote-grass
<i>Carex flacca</i>	Glaucous sedge
<i>Salix cinerea</i>	Grey willow
<i>Viburnum opulus</i>	Guelder rose
<i>Crataegus monogyna</i>	Hawthorn

Kilkenny LAP Habitat Assessment PILTOWN

		Ecological network feature: PL3	
		Habitat codes	
		WD1, FW4, GS1	
		<i>Scientific name</i>	Common name
Corylus avellana	Hazel		
Calystegia sepium	Hedge bindweed		
Ilex aquifolium	Holly		
Hedera helix	Ivy	<i>Potentilla sterilis</i>	Barren strawberry
Fallopia japonica	Japanese knotweed	<i>Fagus sylvatica</i>	Beech
Urtica dioica	Nettle	<i>Hyacinthoides non-scripta</i>	Bluebell
Cortaderia selloana	Pampas-grass	<i>Prunus laurocerasus</i>	Cherry laurel
Carex pendula	Pendulous sedge	<i>Hypochaeris radicata</i>	Common cat's-ear
Sonchus asper	Prickly sow-thistle	<i>Anthriscus sylvestris</i>	Cow parsley
Senecio jacobaea	Ragwort	<i>Bellis perennis</i>	Daisy
Trifolium pratense	Red clover	<i>Carex remota</i>	Distant sedge
Festuca rubra	Red fescue	<i>Veronica chamaedrys</i>	Germander speedwell
Phalaris arundinacea	Reed canary-grass	<i>Populus canescens</i>	Grey poplar
Rhododendron sp.	Rhododendron	<i>Aegopodium podagraria</i>	Ground elder
Plantago lanceolata	Ribwort plantain	<i>Ranunculus ficaria</i>	Lesser celandine
Prunella vulgaris	Selfheal	<i>Arum maculatum</i>	Lords-and-ladies
Juncus effusus	Soft rush	<i>Caltha palustris</i>	Marsh marigold
Polystichum setiferum	Soft shield-fern	<i>Filipendula ulmaria</i>	Meadowsweet
Acer pseudoplatanus	Sycamore	<i>Rhododendron ponticum</i>	Rhododendron
Ranunculus sp.	Water-crowfoot	<i>Prunella vulgaris</i>	Selfheal
Prunus avium	Wild cherry	<i>Carex strigosa</i>	Starved wood-sedge
Epilobium sp.	Wilowherb species	<i>Acer pseudoplatanus</i>	Sycamore
Lonicera nitida	Wilson's honeysuckle	<i>Clematis vitalba</i>	Traveller's joy
Geum urbanum	Wood avens	<i>Viola sp.</i>	Violet
Holcus lanatus	Yorkshire fog	<i>Allium ursinum</i>	Wild garlic
		<i>Veronica montana</i>	Wood speedwell

Appendix 4 Results of hedgerow evaluation

No.	Height	Width	Gaps	Biodiversity value	Structure	Structural diversity	Connectivity	Cultural value	Score	Management
	1 <1.5m 2 1.5-2.5m 3 2.5-4m 4 >4m	1 <1m 2 1.2m 3 2-3m 4 3m+	0 50%+ 1 25-50% 2 10-25% 3 5-10% 4 <5% 5 no gaps	No. of native tree & shrub species 1 One-two 2 Three 4 Four+	1 Shrub layer only 2 Shrub + herbs 3 Tree, shrub + herbs, open base 4 Tree, shrub + herbs, dense base	0 No bank/ditch 1 Bank only 2 Bank + ditch 3 Bank, ditch, stagnant water 4 Bank, ditch, flowing water	0 No direct connections 1 Connection by water (ditch only) 2 1 connection 3 2 connections 4 3 connections 5 4 or more connections	1 Not on 1 st ed map 2 On 1 st ed map (but not fld bdry) 4 Townland boundary		1 Short-term unmgd (5 yrs) 2 Long-term unmgd 3 Box profile 4 Cut one side 5 Cut both sides 6 A-shape
1	2	2	1	4	3	0	2	2	16	2
2	3	2	1	4	3	1	3	4	21	1
3	4	1	1	4	3	1	3	2	19	4
4	3	2	2	2	3	1	3	2	18	2
5	2	1	0	2	3	1	2	1	12	2
6	3	3	4	4	4	1	2	2	23	2

Kilkenny LAP Habitat Assessment PILTOWN

No.	Height	Width	Gaps	Biodiversity value	Structure	Structural diversity	Connectivity	Cultural value	Score	Management
	1 <1.5m 2 1.5-2.5m 3 2.5-4m 4 >4m	1 <1m 2 1.2m 3 2-3m 4 3m+	0 50%+ 1 25-50% 2 10-25% 3 5-10% 4 <5% 5 no gaps	No. of native tree & shrub species 1 One-two 2 Three 4 Four+	1 Shrub layer only 2 Shrub + herbs 3 Tree, shrub + herbs, open base 4 Tree, shrub + herbs, dense base	0 No bank/ditch 1 Bank only 2 Bank + ditch 3 Bank, ditch, stagnant water 4 Bank, ditch, flowing water	0 No direct connections 1 Connection by water (ditch only) 2 1 connection 3 2 connections 4 3 connections 5 4 or more connections	1 Not on 1 st ed map 2 On 1 st ed map (but not tld bdry) 4 Townland boundary		1 Short-term unmgd (5 yrs) 2 Long-term unmgd 3 Box profile 4 Cut one side 5 Cut both sides 6 A-shape
7	3	1	4	2	3	1	3	1	18	1
8	2	1	5	1	2	1	3	1	16	3
9	2	2	2	2	3	1	3	2	17	4
10	2	2	4	2	2	1	5	2	20	1
11	2	2	2	2	3	1	3	2	17	2
12	1	1	5	1	2	1	5	2	18	3
13	1	1	4	4	2	1	2	1	16	3
14	1	1	3	2	2	1	3	2	15	3

Kilkenny LAP Habitat Assessment PILTOWN

No.	Height	Width	Gaps	Biodiversity value	Structure	Structural diversity	Connectivity	Cultural value	Score	Management
	1 <1.5m 2 1.5-2.5m 3 2.5-4m 4 >4m	1 <1m 2 1.2m 3 2-3m 4 3m+	0 50%+ 1 25-50% 2 10-25% 3 5-10% 4 <5% 5 no gaps	No. of native tree & shrub species 1 One-two 2 Three 4 Four+	1 Shrub layer only 2 Shrub + herbs 3 Tree, shrub + herbs, open base 4 Tree, shrub + herbs, dense base	0 No bank/ditch 1 Bank only 2 Bank + ditch 3 Bank, ditch, stagnant water 4 Bank, ditch, flowing water	0 No direct connections 1 Connection by water (ditch only) 2 1 connection 3 2 connections 4 3 connections 5 4 or more connections	1 Not on 1 st ed map 2 On 1 st ed map (but not tld bdry) 4 Townland boundary		1 Short-term unmgd (5 yrs) 2 Long-term unmgd 3 Box profile 4 Cut one side 5 Cut both sides 6 A-shape
15	3	1	2	4	3	1	2	2	18	4
16	1	1	0	4	2	1	0	4	13	3
17	1	1	0	4	2	1	0	4	13	3
18	2	1	0	4	3	1	2	4	17	2
19	1	1	4	4	2	1	0	2	15	3
20	2	1	3	2	3	1	3	2	17	1
21	3	1	2	4	3	1	2	1	17	1
22	2	1	2	4	3	1	5	2	20	2

Kilkenny LAP Habitat Assessment PILTOWN

No.	Height	Width	Gaps	Biodiversity value	Structure	Structural diversity	Connectivity	Cultural value	Score	Management
	1 <1.5m 2 1.5-2.5m 3 2.5-4m 4 >4m	1 <1m 2 1.2m 3 2-3m 4 3m+	0 50%+ 1 25-50% 2 10-25% 3 5-10% 4 <5% 5 no gaps	No. of native tree & shrub species 1 One-two 2 Three 4 Four+	1 Shrub layer only 2 Shrub + herbs 3 Tree, shrub + herbs, open base 4 Tree, shrub + herbs, dense base	0 No bank/ditch 1 Bank only 2 Bank + ditch 3 Bank, ditch, stagnant water 4 Bank, ditch, flowing water	0 No direct connections 1 Connection by water (ditch only) 2 1 connection 3 2 connections 4 3 connections 5 4 or more connections	1 Not on 1 st ed map 2 On 1 st ed map (but not tld bdry) 4 Townland boundary		1 Short-term unmgd (5 yrs) 2 Long-term unmgd 3 Box profile 4 Cut one side 5 Cut both sides 6 A-shape
23	2	1	1	4	4	1	2	1	16	1
24	2	1	3	4	2	1	3	1	17	3
25	2	1	0	2	3	1	2	1	12	2
26	1	1	2	4	2	1	3	2	16	3
27	3	1	2	2	3	1	4	2	18	2
28	2	2	5	4	4	1	5	2	25	5
29	2	1	1	4	3	1	3	2	17	4
30	3	2	4	4	3	1	2	2	21	5

Kilkenny LAP Habitat Assessment PILTOWN

No.	Height	Width	Gaps	Biodiversity value	Structure	Structural diversity	Connectivity	Cultural value	Score	Management
	1 <1.5m 2 1.5-2.5m 3 2.5-4m 4 >4m	1 <1m 2 1.2m 3 2-3m 4 3m+	0 50%+ 1 25-50% 2 10-25% 3 5-10% 4 <5% 5 no gaps	No. of native tree & shrub species 1 One-two 2 Three 4 Four+	1 Shrub layer only 2 Shrub + herbs 3 Tree, shrub + herbs, open base 4 Tree, shrub + herbs, dense base	0 No bank/ditch 1 Bank only 2 Bank + ditch 3 Bank, ditch, stagnant water 4 Bank, ditch, flowing water	0 No direct connections 1 Connection by water (ditch only) 2 1 connection 3 2 connections 4 3 connections 5 4 or more connections	1 Not on 1 st ed map 2 On 1 st ed map (but not tld bdry) 4 Townland boundary		1 Short-term unmgd (5 yrs) 2 Long-term unmgd 3 Box profile 4 Cut one side 5 Cut both sides 6 A-shape
31	1	2	0	4	3	1	0	2	13	2
32	2	2	3	4	2	1	0	2	16	2
33	2	4	3	2	2	1	2	4	20	2
34	3	2	3	2	3	1	3	2	19	2
35	3	2	3	4	3	1	3	2	21	2
36	3	2	3	2	3	1	3	2	19	2
37	3	2	3	2	3	1	3	1	18	2
38	3	1	1	2	2	1	3	2	15	2

Kilkenny LAP Habitat Assessment PILTOWN

No.	Height	Width	Gaps	Biodiversity value	Structure	Structural diversity	Connectivity	Cultural value	Score	Management
	1 <1.5m	1 <1m	0 50%+	No. of native tree & shrub species 1 One-two 2 Three 4 Four+	1 Shrub layer only	0 No bank/ditch	0 No direct connections	1 Not on 1 st ed map		1 Short-term unmgd (5 yrs)
	2 1.5-2.5m	2 1.2m	1 25-50%		2 Shrub + herbs	1 Bank only	1 Connection by water (ditch only)	2 On 1 st ed map (but not tld bdry)		2 Long-term unmgd
	3 2.5-4m	3 2-3m	2 10-25%		3 Tree, shrub + herbs, open base	2 Bank + ditch	2 1 connection	4 Townland boundary		3 Box profile
	4 >4m	4 3m+	3 5-10%		4 Tree, shrub + herbs, dense base	3 Bank, ditch, stagnant water	3 2 connections			4 Cut one side
			4 <5%			4 Bank, ditch, flowing water	4 3 connections		5 Cut both sides	
			5 no gaps				5 4 or more connections			6 A-shape
39	3	2	5	1	2	1	3	1	18	5

Appendix 5 Summary of Fossitt habitat classification

Summary of the habitat classification scheme in *A Guide to Habitats in Ireland* (Fossitt, 2000) with standard alphanumeric habitat codes.

NON-MARINE		NON-MARINE	
F	FRESHWATER		Peatlands contd.
FL	Lakes and ponds	PB4	Cutover bog
FL1	Dystrophic lakes	PB5	Eroding blanket bog
FL2	Acid oligotrophic lakes	PF	Fens and flushes
FL3	Limestone/marl lakes	PF1	Rich fen and flush
FL4	Mesotrophic lakes	PF2	Poor fen and flush
FL5	Eutrophic lakes	PF3	Transition mire and quaking bog
FL6	Turloughs		
FL7	Reservoirs	W	WOODLAND AND SCRUB
FL8	Other artificial lakes and ponds	WN	Semi-natural woodland
FW	Watercourses	WN1	Oak-birch-holly woodland
FW1	Eroding/upland rivers	WN2	Oak-ash-hazel woodland
FW2	Depositing/lowland rivers	WN3	Yew woodland
FW3	Canals	WN4	Wet pedunculate oak-ash woodland
FW4	Drainage ditches	WN5	Riparian woodland
FP	Springs	WN6	Wet willow-alder-ash woodland
FP1	Calcareous springs	WN7	Bog woodland
FP2	Non-calcareous springs	WD	Highly modified/non-native woodland
FS	Swamps	WD1	(Mixed) broadleaved woodland
FS1	Reed and large sedge swamps	WD2	Mixed broadleaved/conifer woodland
FS2	Tall-herb swamps	WD3	(Mixed) conifer woodland
		WD4	Conifer plantation
G	GRASSLAND AND MARSH	WD5	Scattered trees and parkland
GA	Improved grassland (highly modified)	WS	Scrub/transitional woodland
GA1	Improved agricultural grassland	WS1	Scrub
GA2	Amenity grassland (improved)	WS2	Immature woodland
GS	Semi-natural grassland	WS3	Ornamental/non-native shrub
GS1	Dry calcareous and neutral grassland	WS4	Short rotation coppice
GS2	Dry meadows and grassy verges	WS5	Recently-felled woodland
GS3	Dry-humid acid grassland	WL	Linear woodland and scrub
GS4	Wet grassland	WL1	Hedgerows
GM	Freshwater marsh	WL2	Treelines
GM1	Marsh		
H	HEATH AND DENSE BRACKEN	E	EXPOSED ROCK/DISTURBED GROUND
HH	Heath	ER	Exposed rock
HH1	Dry siliceous heath	ER1	Exposed siliceous rock
HH2	Dry calcareous heath	ER2	Exposed calcareous rock
HH3	Wet heath	ER3	Siliceous scree and loose rock
HH4	Montane heath	ER4	Calcareous scree and loose rock
HD	Dense bracken	EU	Underground rock and caves
HD1	Dense bracken	EU1	Non-marine caves
		EU2	Artificial underground habitats

P	PEATLANDS	ED	Disturbed ground
PB	Bogs	ED1	Exposed sand, gravel or till
PB1	Raised bog	ED2	Spoil and bare ground
PB2	Upland blanket bog	ED3	Recolonising bare ground
PB3	Lowland blanket bog	ED4	Active quarries and mines
		ED5	Refuse and other waste
NON-MARINE		MARINE	
B	CULTIVATED AND BUILT LAND	L	LITTORAL (INTERTIDAL)
BC	Cultivated land	LR	Littoral rock
BC1	Arable crops	LR1	Exposed rocky shores
BC2	Horticultural land	LR2	Moderately exposed rocky shores
BC3	Tilled land	LR3	Sheltered rocky shores
BC4	Flower beds and borders	LR4	Mixed substrata shores
BL	Built land	LR5	Sea caves
BL1	Stone walls and other stonework	LS	Littoral sediment
BL2	Earth banks	LS1	Shingle and gravel shores
BL3	Buildings and artificial surfaces	LS2	Sand shores
		LS3	Muddy sand shores
C	COASTLAND	LS4	Mud shores
CS	Sea cliffs and islets	LS5	Mixed sediment shores
CS1	Rocky sea cliffs	S	SUBLITTORAL (SUBTIDAL)
CS2	Sea stacks and islets	SR	Sublittoral rock
CS3	Sedimentary sea cliffs	SR1	Exposed infralittoral rock
CW	Brackish waters	SR2	Moderately exposed infralittoral rock
CW1	Lagoons and saline lakes	SR3	Sheltered infralittoral rock
CW2	Tidal rivers	SR4	Exposed circalittoral rock
CM	Salt marshes	SR5	Moderately exposed circalittoral rock
CM1	Lower salt marsh	SR6	Sheltered circalittoral rock
CM2	Upper salt marsh	SS	Sublittoral sediment
CB	Shingle and gravel banks	SS1	Infralittoral gravels and sands
CB1	Shingle and gravel banks	SS2	Infralittoral muddy sands
CD	Sand dune systems	SS3	Infralittoral muds
CD1	Embryonic dunes	SS4	Infralittoral mixed sediments
CD2	Marram dunes	SS5	Circalittoral gravels and sands
CD3	Fixed dunes	SS6	Circalittoral muddy sands
CD4	Dune scrub and woodland	SS7	Circalittoral muds
CD5	Dune slacks	SS8	Circalittoral mixed sediments
CD6	Machair	MW	MARINE WATER BODY
CC	Coastal constructions	MW1	Open marine water
CC1	Sea walls, piers and jetties	MW2	Sea inlets and bays
CC2	Fish cages and rafts	MW3	Straits and sounds
		MW4	Estuaries

Appendix 6 Ecological evaluation criteria

International Importance:

'European Site' including Special Area of Conservation (SAC), Site of Community Importance

(SCI), Special Protection Area (SPA) or proposed Special Area of Conservation.

Proposed Special Protection Area (pSPA).

Site that fulfills the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended).

Features essential to maintaining the coherence of the Natura 2000 Network¹.

Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive.

Resident or regularly occurring populations (assessed to be important at the national level)² of the following:

Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or

Species of animal and plants listed in Annex II and/or IV of the Habitats Directive.

Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971).

World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972).

Biosphere Reserve (UNESCO Man & The Biosphere Programme).

Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979).

Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979).

Biogenetic Reserve under the Council of Europe.

European Diploma Site under the Council of Europe.

Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988)³.

National Importance:

Site designated or proposed as a Natural Heritage Area (NHA).

Statutory Nature Reserve.

Refuge for Fauna and Flora protected under the Wildlife Acts.

National Park.

Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA);

Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park.

¹ See Articles 3 and 10 of the Habitats Directive.

² It is suggested that, in general, 1% of the national population of such species qualifies as an internationally important population. However, a smaller population may qualify as internationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

³ Note that such waters are designated based on these waters' capabilities of supporting salmon (*Salmo salar*), trout (*Salmo trutta*), char (*Salvelinus*) and whitefish (*Coregonus*).

Resident or regularly occurring populations (assessed to be important at the national level)⁴ of the following:

Species protected under the Wildlife Acts; and/or

Species listed on the relevant Red Data list.

Site containing ‘viable areas’⁵ of the habitat types listed in Annex I of the Habitats Directive.

County Importance:

Area of Special Amenity.⁶

Area subject to a Tree Preservation Order.

Area of High Amenity, or equivalent, designated under the County Development Plan.

Resident or regularly occurring populations (assessed to be important at the County level)⁷ of the following:

Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;

Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;

Species protected under the Wildlife Acts; and/or

Species listed on the relevant Red Data list.

Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance.

County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP⁸, if this has been prepared.

Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county.

Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.

Local Importance (higher value):

Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared;

Resident or regularly occurring populations (assessed to be important at the Local level)⁹ of the following:

Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;

Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;

⁴ It is suggested that, in general, 1% of the national population of such species qualifies as a nationally important population. However, a smaller population may qualify as nationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

⁵ A ‘viable area’ is defined as an area of a habitat that, given the particular characteristics of that habitat, was of a sufficient size and shape, such that its integrity (in terms of species composition, and ecological processes and function) would be maintained in the face of stochastic change (for example, as a result of climatic variation).

⁶ It should be noted that whilst areas such as Areas of Special Amenity, areas subject to a Tree Preservation Order and Areas of High Amenity are often designated on the basis of their ecological value, they may also be designated for other reasons, such as their amenity or recreational value. Therefore, it should not be automatically assumed that such sites are of County importance from an ecological perspective.

⁷ It is suggested that, in general, 1% of the County population of such species qualifies as a County important population. However, a smaller population may qualify as County important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

⁸ BAP: Biodiversity Action Plan

⁹ It is suggested that, in general, 1% of the local population of such species qualifies as a locally important population. However, a smaller population may qualify as locally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

Species protected under the Wildlife Acts; and/or

Species listed on the relevant Red Data list.

Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality;

Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.

Local Importance (lower value):

Sites containing small areas of semi-natural habitat that are of some local importance for wildlife;

Sites or features containing non-native species that are of some importance in maintaining habitat links.

Legend

Study Area

(based on Piltown 2003 LAP boundary)

Habitats

- Horticultural land (BC2)
- Tilled land (BC3)
- Stone building (BL1B)
- Buildings and artificial surfaces (BL3)
- Houses with big gardens (BL31)
- Houses with medium gardens (BL32)
- Houses with small gardens (BL33)
- Land under development (BL3D)
- Tidal rivers (CW2)
- Spoil and spare ground (ED2)
- Recolonising bare ground (ED3)
- Other artificial lakes and ponds (FL8)
- Calcareous springs (FP1)
- Depositing/lowland rivers (FW2)
- Improved agricultural grassland (GA1)
- Amenity grassland (improved) (GA2)
- Dry calcareous and neutral grassland (GS1)
- Dry meadows and grassy verges (GS2)
- Wet grassland (GS4)
- (Mixed) broadleaved woodland (WD1)
- Mixed broadleaved/conifer woodland (WD2)
- Conifer plantation (WD4)
- Scattered trees and parkland (WD5)
- Riparian woodland (WN5)
- Scrub (WS1)
- Immature woodland (WS2)

Hedgerows & Treelines

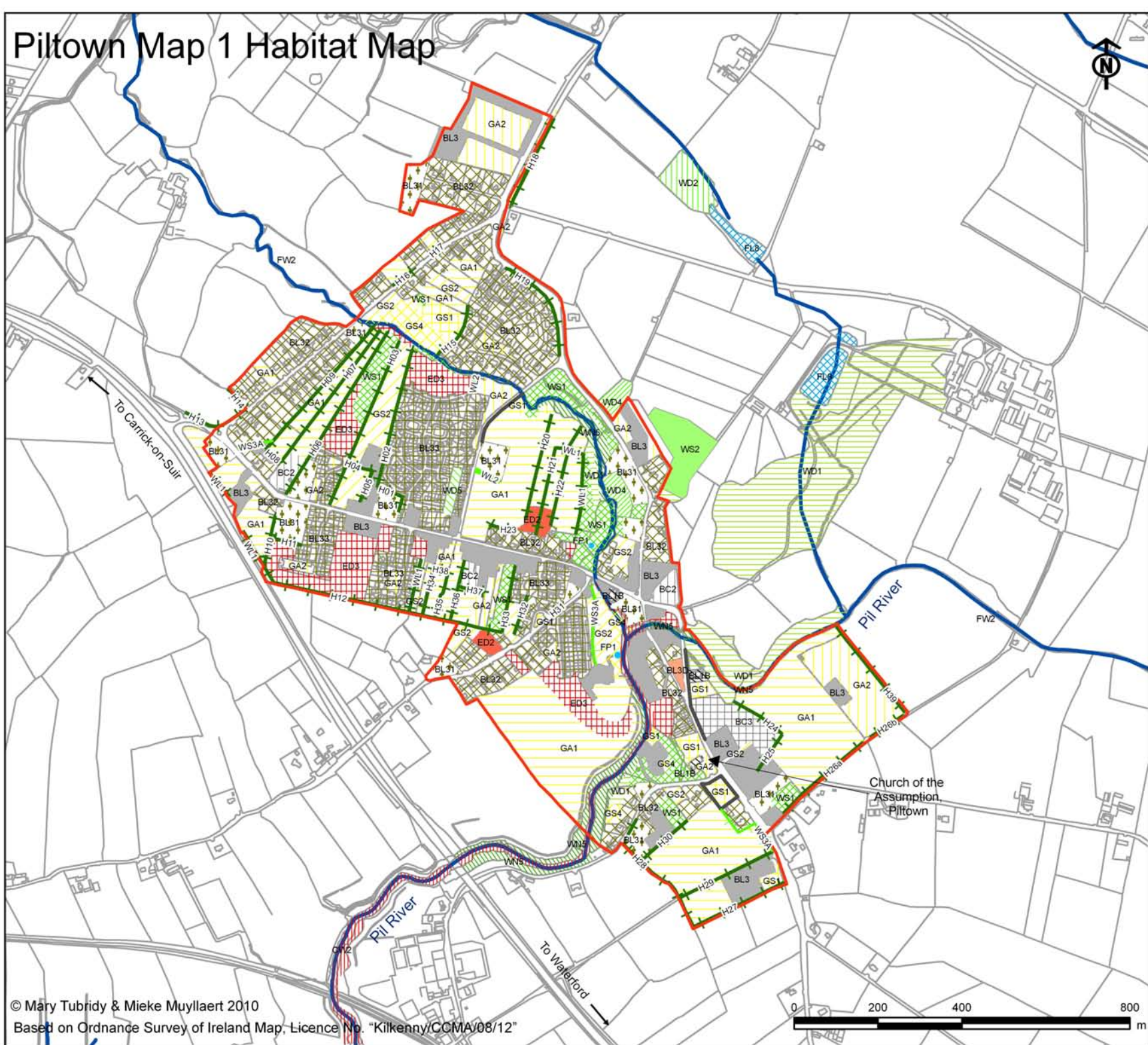
- Hedgerows H00: surveyed; WL1: unsurveyed
- Treelines (WL2)
- Non-native hedge (WS3A)

Stone Walls

- Stone wall (BL1A)

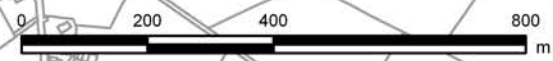
Base Map

Piltown Map 1 Habitat Map

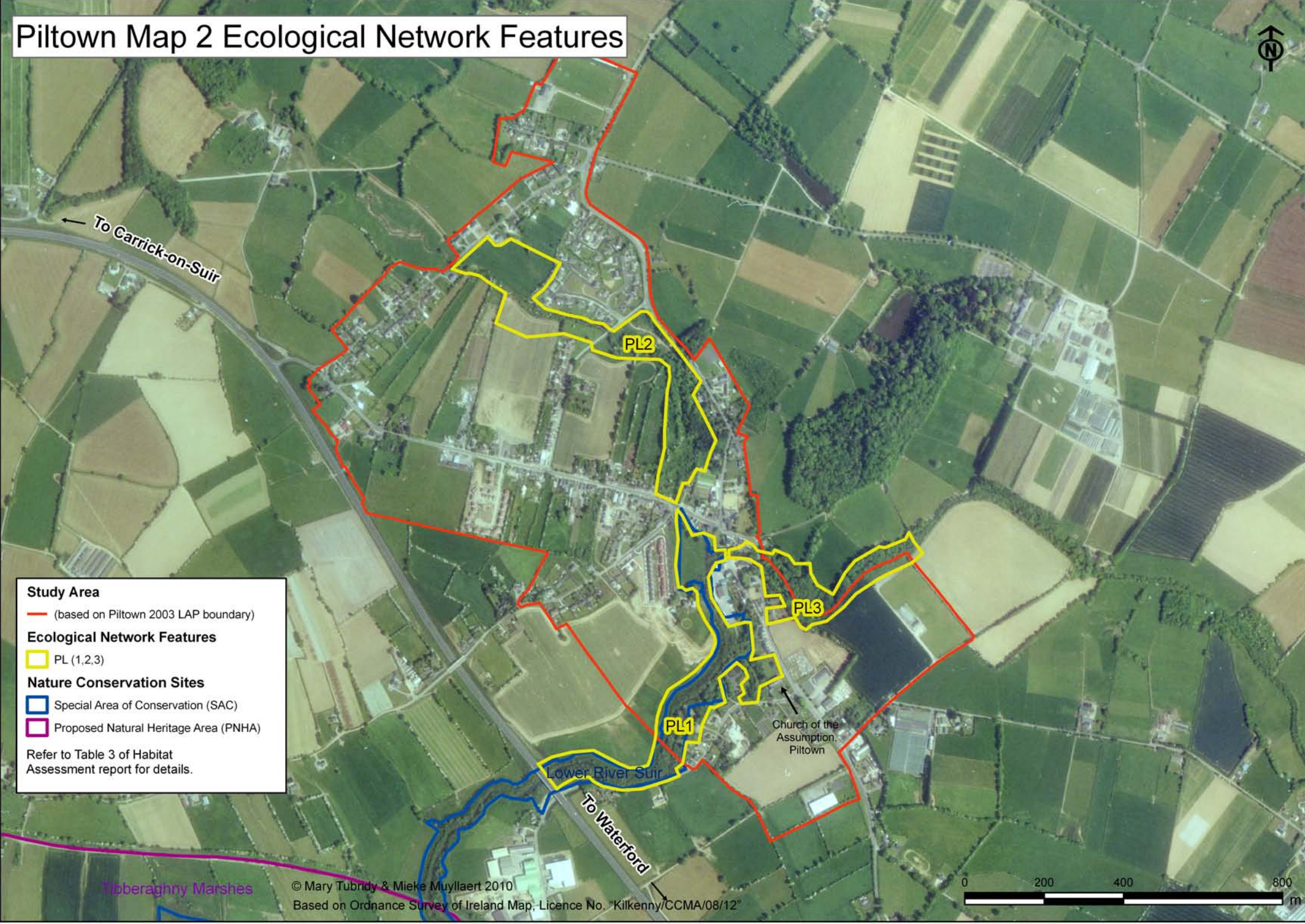


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Piltown Map 2 Ecological Network Features



Study Area
— (based on Piltown 2003 LAP boundary)

Ecological Network Features
□ PL (1,2,3)

Nature Conservation Sites
□ Special Area of Conservation (SAC)
□ Proposed Natural Heritage Area (PNHA)

Refer to Table 3 of Habitat Assessment report for details.

Thberaghny Marshes



Appendix 3

List of Native Trees & Shrubs

List of Native Trees & Shrubs

Choosing the right species of tree and shrub is very important in urban areas where there are restrictions on space. Where possible, always use native species. Below is a list of the trees and shrubs native to Ireland, and advice on the locations to which they are suited.

Common name	Latin name	Height (max)	Suitable for public open spaces	Suitable for streets and confined spaces	Suitable for tubs, containers, raised beds etc.	Guide to planting: see key below
Alder	<i>Alnus glutinosa</i>	22m	Yes	No	Yes	ADPS
Alder buckthorn	<i>Frangula alnus</i>	6m	Yes	No	Yes	D
Arbutus (strawberry tree)	<i>Arbutus unedo</i>	8m	Yes	No	Yes	Not frost hardy
Ash	<i>Fraxinus excelsior</i>	28m	Yes	No	No	ADIPS
Aspen	<i>Populus tremula</i>	24m	Yes	No	No	DPSV Not close to buildings or any services
Bird cherry	<i>Prunus padus</i>	14m	Yes	Yes	Yes	P
Bramble	<i>Rubus fruticosus</i>	2m	No	No	No	C/H note: tends to be invasive
Broom	<i>Cytisus scoparius</i>	2m	Yes	No	Yes	*
Burnet rose	<i>Rosa pimpinellifolia</i>	2m	Yes	No	Yes, but vigorous	C/H
Common (or European) gorse	<i>Ulex europeaus</i>	2.5m	Yes	No	In a rural setting	HV
Crab apple	<i>Malus sylvestris</i>	6m	Yes	No	No	AHIP
Dog rose	<i>Rosa canina</i>	2m	Yes	No	Yes. Vigorous	C/H
Downy birch	<i>Betula pubescens</i>	18m	Yes	Yes	Yes	ADIP
Elder	<i>Sambucus nigra</i>	6m	In hedge	No	No	V
Gelder rose	<i>Viburnum opulus</i>	4.5m	Yes	No	No	DH
Hawthorn	<i>Crataegus monogyna</i>	9m	Yes	Yes	Yes	AHIPS

Common name	Latin name	Height (max)	Suitable for public open spaces	Suitable for streets and confined spaces	Suitable for tubs, containers, raised beds etc.	Guide to planting: see key below
Hazel	<i>Corylus avellana</i>	6m	Yes	No	No	AHS
Holly	<i>Ilex aquifolium</i>	15m	Yes	Yes	Yes	AHPS
Honeysuckle	<i>Lonicera periclymenum</i>	climber	Yes	On walls	No	C
Ivy	<i>Hedera helix</i>	climber	Yes	Yes	Yes	C
Juniper	<i>Juniperus communis</i>	6m	Yes	No	No	S
Pedunculate oak	<i>Quercus robur</i>	30m	Yes	No	No	AI - only suitable for large spaces
Privet	<i>Ligustrum vulgare</i>	3m	Yes	Yes	Yes	No
Purging buckthorn	<i>Rhamnus cathartica</i>	4.5m	No	No	No	AHPV
Rowan or mountain ash	<i>Sorbus aucuparia</i>	9m	Yes	Yes	Yes	ADHIP
Scots pine	<i>Pinus sylvestris</i>	24m	Yes	No	No	AI
Sessile oak	<i>Quercus petraea</i>	30m	Yes	No	No	AI only suitable for large space
Silver birch	<i>Betula pendula</i>	18m	Yes	Yes	Yes	ADIP
Sloe, blackthorn	<i>Prunus spinosa</i>	3m	Yes	No	No	AHPV
Spindle	<i>Euonymus europaeus</i>	7.5m	Yes	No	No	H
Western (or mountain) gorse	<i>Ulex gallii</i>	1.5m	Yes	No	Yes	*
Whitebeam spp.	<i>Sorbus aria/S. anglica/S. devoniensis /S. hibernica/S. latifolia/S. rupicola</i>	12m	Yes	Yes	Yes	IPS
Wild cherry	<i>Prunus avium</i>	15m	Yes	Yes	Yes	AHI
Willow spp.	<i>Salix spp.</i>	6m	Some	No	No	V - Not suitable near buildings or services
Wych elm	<i>Ulmus glabr</i>	30m	Yes		No	PS
Yew	<i>Taxus baccata</i>	14m	Yes	No	Yes	AIPS

- A – Grows in a wide variety of soils
- C – Climber
- H – Suitable for hedging
- I – Suitable as an individual tree
- D – Tolerates or prefers damp conditions
- P – Tolerates smoke or pollution
- S – Tolerates shade
- V – Invasive
- * - Tolerates dry conditions