Sneem Village, County Kerry Biodiversity Action Plan 2014

A report for Sneem Tidy Towns Association

by Patrick Crushell & Peter J. Foss

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Report cover images:
View of Sneem village from the estuary south of the town, County Kerry (Photograph: P. Foss).

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2 Executive Summary

Sneem village is located on the northern side of Kenmare Bay, County Kerry. The village is located on the Ring of Kerry, on the route of the Kerry way, and on the recently established Wild Atlantic Way. The river that passes through the village is recognised as being of international ecological importance being designated within a Special Area of Conservation (SAC) (Kenmare River SAC).

The main aim of this project was to develop a Biodiversity Action Plan for the village. As a means of informing the Plan, the natural history of the village and its surrounding area was recorded and evaluated.

The resulting plan has the following aims:

- To propose measures aimed at conserving and enhancing the biodiversity value of Sneem and its surroundings.
- To propose measures aimed at enhancing public appreciation of the natural heritage of the area.

The main feature of biodiversity value within the town is the river together with its associated semi-natural margins and the estuary into which it flows. The river supports a wide variety of native flora and fauna and provides a natural corridor through the town which wildlife can avail of. Other areas that add further to the natural heritage of the town include the woodland and heath that occur along the coastal area to the south of the town.

The rare and protected Freshwater Pearl Mussel which is in danger of extinction across Western Europe occurs within the river. Other notable species that occur along the river include Otter and Atlantic Salmon. The presence of these three species confirms that the river is un-polluted and of high nature conservation value. The Lesser Horseshow Bat is also known to occur in Sneem and the surrounding area. In Ireland, this protected bat occurs only in the south-west and is absent from much of Europe.

While the amenity areas within the village are not of particular ecological interest, they do provide good opportunities for presenting information on the natural heritage of the area to residents and visitors alike.

A total of 27 different habitat types were recorded in the environs of Sneem village. Of the habitats recorded; the river, estuarine, woodland, heath-land, reed bed, salt marsh, and rocky shore are of most importance from a biodiversity perspective. The current survey identified 237 species of mainly terrestrial flora and fauna as occurring within the study area. This includes 164 species of higher plants (mostly native species); 11 fern species; 20 mosses and liverworts; 6 lichens; 5 seaweed and algal species; 21 bird species; 2 amphibian species; 5 insects and 1 species of fish.

Two invasive alien species were recorded as having a significant impact on biodiversity:

- Rhododendron (*Rhododendron ponticum*) which is impacting on the heath and woodland habitats of the surroundings by shading out native species.
- Japanese Knotweed (*Fallopia japonica*) which is abundant within the town and impacting on the marginal habitats associated with the river.

This report outlines a number of key recommendations and actions aimed at conserving and enhancing the biodiversity value of key areas within the village. Further recommendations are made with regards improving access and interpretation of the natural heritage of the area for the general public.

3 Introduction

Wetland Surveys Ireland Ltd. was commissioned by Sneem Tidy Towns Association to prepare a biodiversity conservation plan for the village.

Sneem is surrounded by a varied natural landscape that includes the marine and coastal areas, woodlands, mountains, and freshwater rivers and lakes. The environment of this landscape remains in a relatively pristine condition compared with other areas of Ireland and Western Europe that have been modified greatly by socio-economic pressures. This natural landscape presents a valuable asset to the people that live in the area. The value of the asset is evident in part by the number of visitors attracted by to the area annually. A key element of this natural landscape is the rich diversity of plants and animals (biodiversity) that the physical landscape supports.

It is important that the landscape and its biodiversity be protected from current and future threats so that future generations can continue to gain benefits from its existence. If we are to preserve this unique, distinctive and varied asset, everyone must acknowledge, appreciate and work to conserve it as suggested by Kerry County Council (2008)[1].

3.1 Importance of biodiversity

Biodiversity, which is short for biological diversity, is the variety of all life on Earth. This includes plants and animals and the areas where they live (also known as habitats). Biodiversity also includes humans, crops, stock and even our pets! We are an integral part of biodiversity and can influence it in both positive and negative ways.

We as human beings are an integral part of biodiversity and we can influence it in a positive or negative way. Biodiversity provides us with food, fuel, medicines and other essentials that we simply cannot live without and is a critical component of the services that nature provides free of charge to all of human society.

These services include such things as:

- Provision of water, food, fuel medicines etc
- Regulation of flooding, climate, and disease
- Cultural services such as recreational benefits

The loss of biodiversity is well recognised as a major problem at an international scale as is evident from the Convention on Biological Diversity which has 193 signatories, Ireland being one. In 2002, all parties committed themselves to achieve a significant reduction in the rate of loss of biodiversity by 2010. The EU set a target of halting biodiversity loss by 2010; a target that has not been met.

It is believed that the current trends in biodiversity loss are bringing us closer to a number of potential tipping points that could catastrophically reduce the capacity of ecosystems to provide the essential services outlined above (Department of Arts, Heritage and the Gaeltacht 2011)[2].

In order to prevent the future loss of biodiversity at a national and international level, it is crucial that the value of biodiversity be conveyed to the wider public and that actions be taken at a local level.

[1] http://www.kerrycoco.ie/en/allservices/heritage/heritagebiodiversityplan2008-12/thefile,2352,en.pdf
[2] http://www.npws.ie/media/Biodiversity%20Plan%20text%20English.pdf

3.2 Project Aims

The main aim of this project was to assess and evaluate the biodiversity of the village and its surroundings with the objective of preparing a biodiversity conservation plan. This plan recommends practical measures aimed at conserving and enhancing the biodiversity of the area. In addition, opportunities for the development of educational and interpretative facilities relating to natural heritage and biodiversity within the village are explored.

In drawing up the plan the following was undertaken:

- An appraisal of the natural heritage of the area to determine the key biodiversity features of the village and its surroundings. This included field surveys and reference to any previously published or un-published material.
- An assessment of the current pressures that impact on the biodiversity of the village.
- An assessment of the biodiversity interpretative and educational facilities within the village.
- An evaluation of visitor facilities including access, signage, paths and other interpretative features.
- Consultation with stakeholders including National Parks and Wildlife Service (NPWS), Inland Fisheries Ireland and Kerry County Council.

Following the completion of the above objectives, recommendations in the form of specific actions are made in relation to:

- Conservation and enhancement of the biodiversity within the village.
- Interpretation and visitor facilities.
- Public Involvement.
- Resource allocation.

3.3 Study Area (Sneem Village and its Environs)

Sneem village occurs on the Iveragh Peninsula on the northern side of Kenmare Bay, County Kerry (see **Figure 3.1**) mid way between Kenmare and Waterville along the N70 also known as the "Ring of Kerry".

The Macgillycuddy's Reeks mountain range provides a dramatic backdrop to the north of the town, while Kenmare Bay occurs just to the south. These two major features of the surrounding landscape are connected via the Sneem River. The river rises in the mountainous area to the north and passes through the centre of the village before entering a narrow inlet of Kenmare Bay to the south.

The extent of the area covered by the biodiversity plan is indicated in **Figure 3.2**. It approximately equates to the village as defined in the local area plan prepared by Kerry County Council (2008)[3]. The boundary of the study area is defined by the following features:

- The GAA pitch to the north at Moularostig
- The pier to the south
- The Atlantic Gateway housing development to the east
- the Sneem Hotel to the east

While the plan relates mainly to the village as outlined above, it is important that the surrounding hinterland also be considered as the biodiversity of the town is intrinsically linked with the surrounding landscape. For this reason, the biodiversity interest of the surrounding area is also

[3] http://www.kerrycoco.ie/en/allservices/planning/localareaplans/localareaplans/southeastkerrysettlementslocalareaplan/thefile,498,en.pdf

described in **Section 4 below**.

On commencement of the project, eight individual sites within the study area were identified as being of most potential for biodiversity based on local knowledge and interpretation of existing information. For the purposes of this report these areas are labeled A – H as presented in **Table 3.1** and illustrated in **Figure 3.2** below. These sites were subject to detailed targeted surveys during the field study.

Table 3.1: Sites identified as being of potential biodiversity interest within the Sneem study area. See Figure 3.2 for locations referred to.

Site Label	Local Name	Location	Site Description
A	Jack Currans Meadow	Immediately south of town on western bank of Sneem estuary	Wet grassland area with public footpath running through centre. Ornamental and native planting in places. Narrow wooded corridor mainly of Alder beside River Sneem/Estuary.
B		South of town on western bank of Sneem estuary	Natural reed bed area and estuary subject to periodic maritime flooding and influence. Areas of wet grassland/marsh and scrub near the boat slipway and boat house.
C	Goosey Island	South of town between Church Street and Quay Road on eastern bank of Sneem estuary	Natural and amenity area with grassland, ornamental planting, reed bed and scrub woodland areas. The area includes a series of path, visitor amenities (maze; picnic area; grill; benches and car park) and a series of theme gardens created by Sneem Tidy Towns Group.
D	Goldens Height	South of town on eastern bank of Sneem estuary near Sneem Hotel	Rocky headland with natural dry heathland and birch woodland. Includes a rough foot path walk from Quay road to the Sneem Hotel.
E	Old Pond Road	East of town north of New Street (N70)	Natural rocky knoll with dry heathland vegetation, willow and gorse scrub. *Rhododendron ponticum* is invading parts of the area.
F		North of town to west of the Sneem River	Wet grassland area and some abandoned fields being invaded by willow/gorse and bramble scrub vegetation. Bounded by the River Sneem to the east. The river has a narrow woodland margin including mature trees. Abandoned farm buildings present.
G	Inch	North of town on eastern side of GAA Pitch and bounded by Sneem River	GAA playing pitch and car park area, with semi natural grassland margin along the River Sneem to the east. Eastern shore of the river has a narrow native woodland margin, western shore has few trees present.
H	Caol Beaúigh	North West of town north of West End road (N70)	Rough pasture and wet grassland area used for cattle grazing, with hedgerows and scattered scrub.

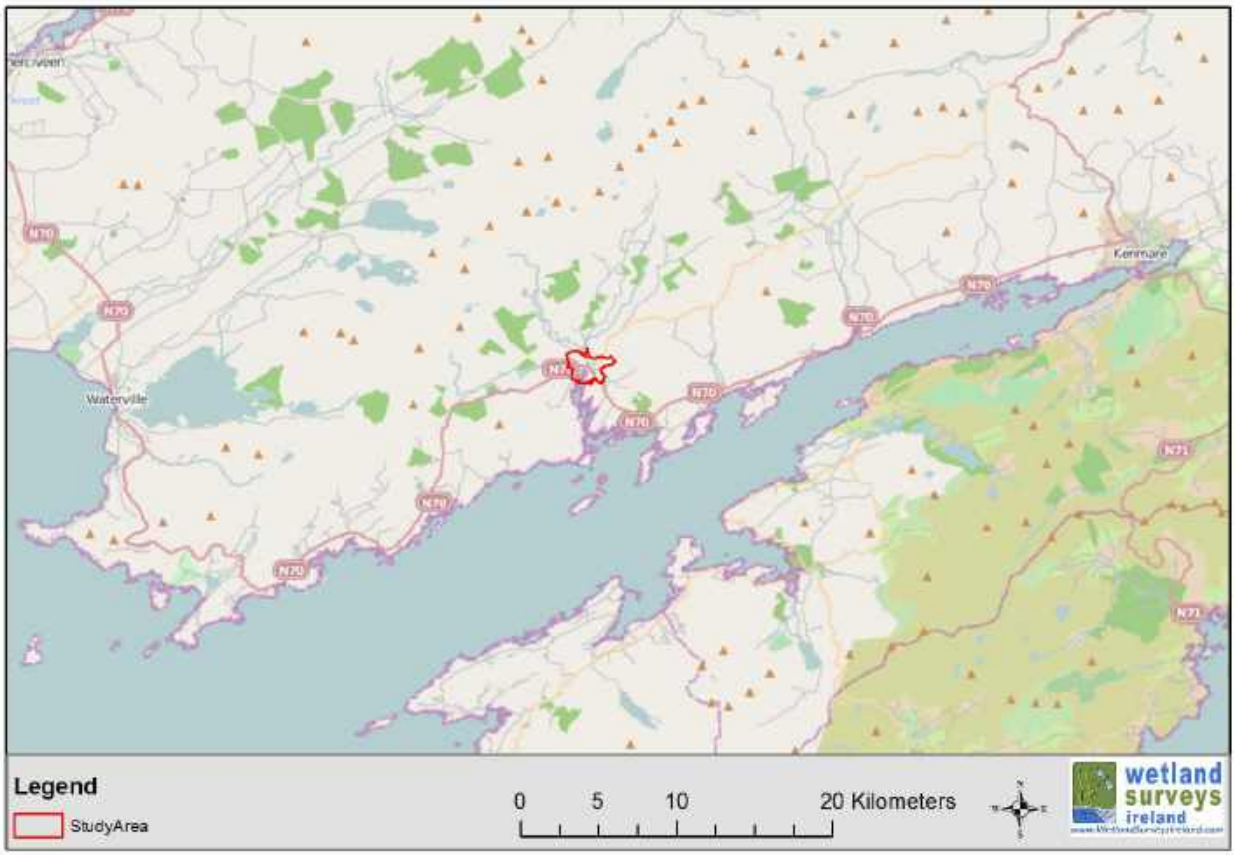

Figure 3.1: The location of study area (Sneem Village and Environs) in relation to surrounding landscape.

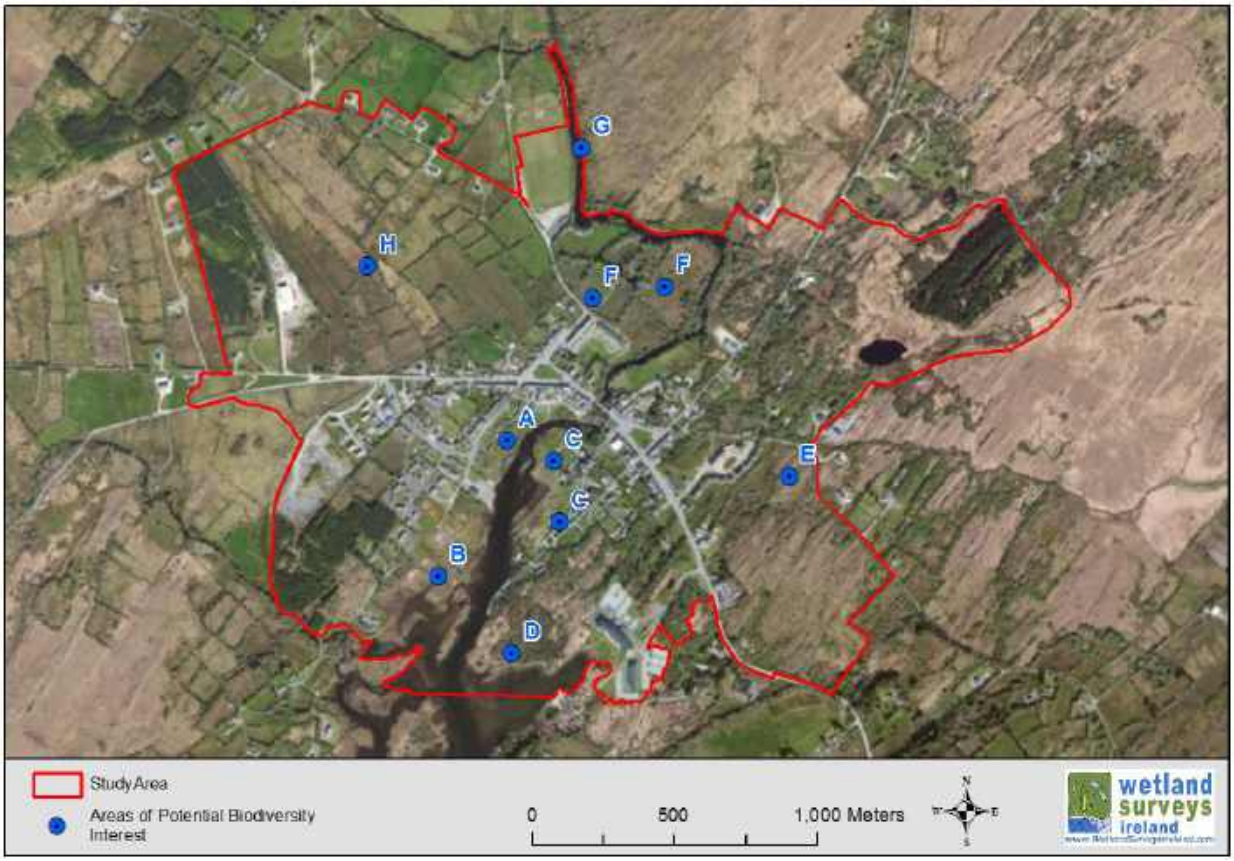

Figure 3.2: Study area with areas of potential biodiversity interest indicated.

4 Biodiversity of Sneem and Environs

The village occurs on undulating rocky topography up to twelve metres above sea level at the highest points. The underlying geology of Sneem is Old Red Sandstone, laid down approximately 400 million years before present, during the Devonian period. This sandstone is siliceous in nature and has acid characteristics. The subsoil of Sneem village is a glacial till derived from Devonian Sandstone, while the predominant soil type in the area has been described as a surface water gley (Teagasc soil and subsoil maps available at www.epa.ie).

The underlying geology and soils has a major influence on the vegetation that occurs throughout the area by providing conditions most suitable for acid-loving plants. The other major influence on biodiversity of the area is climate which in the case of South Kerry is characterized by year round mild temperatures and frequent rainfall. The area experiences a mild oceanic climate with a small annual temperature range of only 8 ºC and frequent cyclonic depressions accompanied by rain and strong winds. Data over a 30-year period (to 1981) for the area indicates an annual mean daily air temperature of 10.5 ºC and an average annual rainfall of around 1600 mm (Rohan 1986).

This section describes the biodiversity that occurs within the Sneem and the surrounding area. The information presented below was gathered by two different means:

a) Desk-top review of existing published and un-published information as referenced in the text and listed in the bibliography; and

b) Targeted biodiversity surveys (habitats, flora, birds, and terrestrial mammals) of the village and its environs undertaken by the authors during summer 2013.

The natural history of the area is described under the following headings; designated areas, habitats, flora, birds, mammals, amphibians, and invertebrates.

4.1 Sites Designated for Nature Conservation

The natural history of Sneem and its environs is well recognised as is evident by the presence of four protected sites deemed to be of international importance for certain species and habitats that are considered threatened across western Europe. These sites of international importance are known as Special Areas of Conservation (SACs). A map showing the location of these sites in relation to the Study Area is presented in **Figure 4.1**. The following is a summary of each of these sites (further information on the interest and protection of these sites is available on the National Parks and Wildlife Service website[4]):

a) Kenmare River SAC

This site includes much of Kenmare Bay and Islands, extending from Kenmare in the northeast to Dursey Island and Skarriff Island to the southwest. The Sneem River (as far upstream as far as the GAA pitch) is included within the SAC (see **Figure 4.1**). The site is of special interest due to the presence of an unusual collection of marine species, a high number of which are notable. For example, it is the only known site in Ireland for the Northern Sea-fan (*Swiftia pallid*) and is the only known area where this species and the Southern Sea-fan (*Eunicella verrucosa*) occur together. The burrowing Fireworks Anemone (*Pachycerianthus multiplicatus*) is known from only three other sites in Ireland. Other features of interest within the SAC include a large population of Harbour Seals, populations of seabirds, and a range of coastal habitats including dry heath, shingle shores, sand dunes, salt marsh, and estuarine mudflats.

[4] http://npws.ie/protectedsites/

b) Killarney National Park, MacGillacuddy's Reeks and Caragh River Catchment SAC

This is a very large site that includes most of the mountain range covering much of the central part of the Iveragh Peninsula. Excellent examples of natural habitats occur throughout the area including; bogs, heaths, mountain cliffs, native woodlands, rivers, and lakes. These habitats are home to a broad range of rare and protected animal and plant species including; the Killarney Fern, Slender Naiad (plant), Freshwater Pearl Mussel, Kerry Slug, Marsh Fritillary (butterfly), Killarney Shad (fish), Atlantic Salmon, River (and Brook) and Sea Lamprey (primitive fishes), Lesser Horseshoe Bat and Otter.

c) Old Domestic Buildings, Askive Wood SAC

This site consists of a small, two-storey, stone building situated within a predominantly conifer woodland approximately 3km south-east of Sneem (see **Figure 4.1**). Other habitats that occur within the site include a small lake, scrub, and broadleaved woodland. It is a breeding site of the Lesser Horseshoe Bat (*Rhinolophus hipposideros*), a species that has a very restricted distribution in Ireland (only occurs in the southwest) and is absent from much of Europe. A considerable number of bats roost within the building and use the surrounding woodland areas as feeding grounds.

d) Drongawn Lough SAC

Drongawn Lough is an excellent example of a completely natural, moderately sized, saline lake / lagoon in almost pristine condition (Healy *et al.* 1997). The lagoon is among the three best examples of 'silled' (i.e. bedrock bar) lagoons in the country. The lake has a rich and interesting fauna which includes two rare crustacean species. An interesting feature is the presence of lagoonal and freshwater species in a community dominated by marine species. While no very rare plants have been recorded in the lagoon, the diversity of algae and the abundance of Spiral Tasselweed (*Ruppia cirrhosa*) are notable. The lake margin supports a rare Rove Beetle (*Stenus lustrator*).

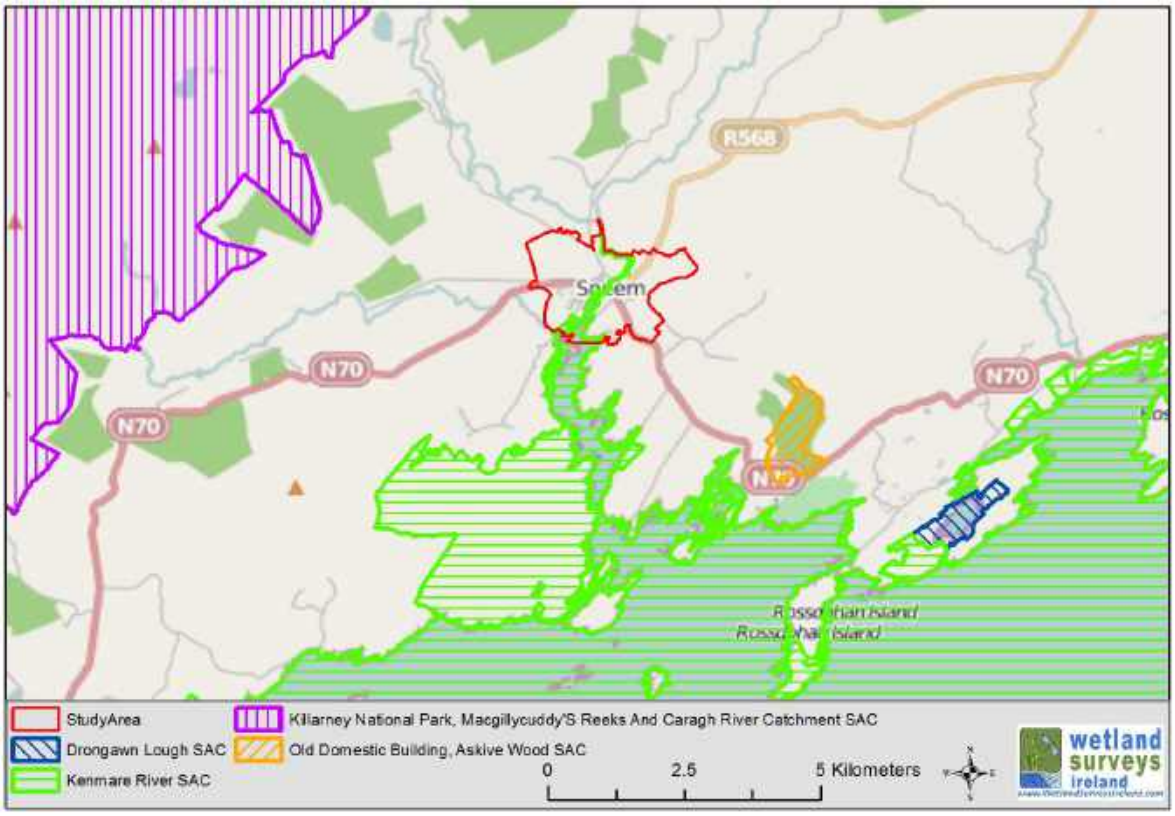

Figure 4.1: Study area in relation to designated sites in the surroundings.

4.2 Habitats and Flora of Sneem

A wide range of wildlife habitats occur in proximity to Sneem village including rivers, lakes, woodlands, grasslands, heaths, coastal, and marine habitats. This variety of habitat types supports a great diversity of flora and fauna.

A total of 25 different habitat types (classed according to system proposed by Fossitt (2000) in '*A Guide to Habitats in Ireland*') were recorded within the area during the current study as presented in **Table 4.1** below.

Of the habitats listed, those that are of most interest from a biodiversity perspective include the freshwater habitats, semi-natural woodlands, heath, coastal, and marine habitats. A habitat map showing the location and extent of the key habitats types within the study area is presented in **Figure 4.2**. The habitat map was created using a Geographic Information System following methodology outlined in Smith *et al*. (2011). A brief description of the main habitats and their constituent flora is described in the following paragraphs. A series of photographs illustrating the habitats present in Sneem are presented throughout the report with further examples also presented in Appendix 4.

Table 4.1: The main habitat types recorded in 2013 in Sneem village, County Kerry, after Fossitt (2000).

Habitat Category	Habitat type	Habitat code
Freshwater habitats	Acid oligotrophic lakes*	FL2
	Eroding / upland river*	FW1
	Drainage ditches	FW4
	Reed and large sedge swamp	FS1
Grassland and marsh	Improved agricultural grassland	GA1
	Amenity Grassland	GA2
	Wet Grassland	GS4
	Marsh	GM1
Heath	Dense Bracken	HD1
	Dry siliceous heath*	HH1
	Wet heath*	HH3
Woodland and scrub	Oak-Birch-Holly woodland*	WN1
	Hedgerows	WL1
	Treelines	WL2
	(Mixed) broadleaved woodland	WD1
	Conifer woodland	WD4
	Scrub	WS1
Exposed ground	Exposed siliceous rock	ER1
	Recolonising bare ground	ED3
Cultivated and built land	Cultivated land: Flower beds and borders	BC4
	Buildings and artificial surface: Stone Walls, Paths	BL3
Coastline	Upper salt marsh*	CM2
	Sea walls, piers & jetties	CC1
	Sheltered Rocky shores*	LR3
	Littoral sediments: Mud shores*	LS4
Marine habitats	Estuary*	MW4

Note: Those habitats marked with an (*) are listed on Annex I of the EU Habitats Directive, as they are deemed to be of international conservation importance.

4.2.1 Eroding / Upland River (FW1)

Plate 1: River Sneem just downstream of bridge in the centre of the village.

The Sneem River which passes through the village can be best described as a spate river in that it is short, responds rapidly to rainfall within the catchment, and is fast flowing throughout its length. As such, the river is dominated by eroding conditions. Upstream of the town, the river is characterised by a series of riffles, glides, and pools while beneath and downstream of the bridge the river runs over steep rock faces forming a dramatic cascade. There is a narrow fringe of semi natural woodland and scrub (principally Ash, Alder, and Willow) occurring along the river bank.

The river itself supports a wide range of notable species including; Salmon, Freshwater Pearl-mussel, and Otter. The river is also likely to be of importance to notable bird and bat species, in particular Kingfisher, Grey Wagtail, Dipper, and Daubentons bat. Downstream of the village, the river is influenced by sea-water and supports a different range of species specially adapted to these 'brackish' conditions (mix of fresh and salt water).

The species present within the river indicates that it is un-polluted as they depend on good water and substrate quality to complete their life cycles. The river system is very sensitive to water pollution.

Potential sources of pollution that would threaten the ecological status of the river would include; input of nutrients from agricultural, forestry or domestic sources, and run-off of suspended solids (soil and sediment) from forestry, agricultural or construction activities. Development of housing or land reclamation in proximity to the river also presents a significant threat to the integrity of the river system.

Plate 2: Sneem River upstream of the village with diverse native woodland occurring along the river bank.

Certain areas along the river margin are being invaded by two non-native invasive species, Rhododendron (*Rhododendron ponticum*) and Japanese Knotweed (*Fallopia japonica*). The presence of the latter species can shade out native species, and may also lead to problems with bank stability. The river contributes to the economy of the village by providing a resource used by visiting anglers. However, the potential value of the river as a recreational and educational amenity seems somewhat under developed.

Overall the river is deemed to be of international ecological importance due to its unpolluted and relatively unmodified state. The presence of a number of species that are relatively rare across Europe is an indication of the quality of the river.

4.2.2 Large Sedge and Reed Swamp (FS1)

Areas of reed swamp occur within the estuary to the south of the village (see **Figure 4.2**). These areas are mostly dominated by Common reed (*Phragmites australis*) which has become established in sheltered areas on a wet muddy substrate. Black Bog Rush (*Schoenus nigricans*) is common among the reeds to the south of the rowing club boat house (Area B). This habitat is typically species poor although plays an important role in nutrient uptake and regulation. The habitat is suitable for a number of bird species including Reed Bunting and Moorhen.

Plate 3: Reed swamp area on western side of Sneem estuary.

4.2.3 Wet Grassland (GS4)

Plate 4: A view of wet grassland to the north of Sneem (Area F).

Wet grassland is relatively common throughout the study area (see **Figure 4.2**). An area of wet grassland with elements of marsh vegetation occurs on the western side of the estuary. At this location the habitat is dominated by grasses including Creeping Bent (*Agrostis stolonifera*) with Purple Moor-grass (*Molinia caerulea*). Other species commonly occurring include Soft-rush (*Juncus effusus*), Creeping Buttercup (*Ranunculus repens*), Water Horsetail (*Equisetum fluviatile*) and False Fox-sedge (*Carex otrubae*). Elsewhere in the study area, wet grassland is dominated by Soft-rush (*Juncus effusus*), Creeping Buttercup (*Ranunculus repens*), Cuckoo Flower (*Cardamine pratensis*) and other typical wet grassland species. Large-flowered Butterwort (*Pinguicula grandiflora*) and Blue-eyed-grass (*Sisyrinchium bermudiana*) were recorded amongst wet grassland to the south of the village (Area A). Wet grassland is typically used for grazing cattle and is often the subject of drainage and land reclamation. The habitat provides an important refuge to a variety of wetland flora and fauna. Notable animal species that were recorded amongst wet grassland within the study area include Common Frog and Snipe.

4.2.4 Heath (HH) / Scrub (WS1) / Exposed Siliceous Rock (ER1)

A complex mosaic of wet and dry heath with scrub and exposed siliceous rock is common throughout the wider study area occurring on undulating lands with rocky ridges and intervening depressions (see **Figure 4.2**). The proportion of heath in relation to scrub (gorse dominated) typically varies depending on management.

Plate 5: Heath vegetation with heathers, western gorse and Purple Moor Grass south Sneem village (Area D).

Dry heath dominated by Ling Heather (*Calluna vulgaris*), Western Gorse (*Ulex gallii*), and Bell Heather (*Erica cinerea*) is prominent on the rocky outcrops and steep slopes while wet heath with an abundance of Purple Moor-grass (*Molinia caerulea*) occurs on less sloping terrain between the rocky outcrops. Other species commonly occurring in this area include Tormentil (*Potentilla erecta*), Common Cotton-grass (*Eriophorum angustifolium*) and Carnation Sedge (*Carex panacea*). Scrub in these areas is typically dominated by Gorse (*Ulex* spp.) and occasionally Willow (*Salix* spp.). The habitat complex is often used for sheep grazing although much of the examples within the study area appear abandoned and not subject to active management. Good examples of the habitat are of high ecological importance. It provides suitable habitat to a range of fauna species, including Kerry Slug, and a range of moorland birds (such as Meadow Pipit, Skylark, Red Grouse, Kestrel, and Merlin).

4.2.5 Oak-Birch-Holly woodland (WN1) / Mixed Deciduous Woodland (WD1)

Plate 6: Area of Birch woodland south of Sneem village (Area D). A path through this woodland leads from the quay to the Sneem Hotel.

The woodland areas recorded within the study area are composed of a variety of trees and shrubs of differing heights. The layers will normally include a canopy layer of tall trees such as oak and ash, an under storey layer comprising shrubs such as hawthorn, holly and hazel. The ground layer will be made up of a variety of ferns, grasses, sedges and herbaceous plants. This gives woodland a distinct vertical structure and provides a wide variety of habitats which in turn support a diverse range of flora and fauna.

Dead wood and fallen trees provide important micro-habitats within semi-natural woodlands supporting a wide range of specialised insects and fungi. The many layers that comprise woodlands therefore make them very important in terms of biodiversity.

Much of the mature woodland areas around Sneem that occur along the river corridor corresponds to mixed deciduous woodland, dominated by a mix of both native (Ash, Oak, Willow, Alder and Birch) and non-native tree species (such as Horse chestnut, Sycamore, Lime and Beech with occasional conifers). Although

these woodlands may originate from planting, they can now be considered 'semi-natural' as they are re-generating naturally and resembles the potential natural woodland cover of the area. Today true natural or ancient woodland is extremely rare in Ireland.

The woodland on the headland south of the town (Area D) corresponds to more native or natural oak-birch-holly woodland (see **Figure 4.2**). It is typically dominated by Birch (*Betula pubescens*) with some Oak (*Quercus petraea*), and an abundance of Holly (*Ilex aquifolium*) and occasional Rowan (*Sorbus aucuparia*) in the shrub layer. Species most frequently recorded in the herb layer include Hard Fern (*Blechnum spicant*), Bracken (*Pteridium aquilinum*), Great Wood-rush (*Luzula sylvatica*) and Honeysuckle (*Lonicera periclymenum*). In both woodland types there is an extensive cover of mosses and other epiphytes occurring on the trees and throughout the ground layer.

The woodland habitat varies in quality throughout the area. Occasional dense stands of *Rhododendron* are present. The occurrence of this species has the effect of shading out all other plants from the shrub, herb and ground layers, resulting in no regeneration of young trees.

In general, the woodland habitat is of high value to fauna, providing nest sites, cover, and food to many woodland birds and mammals. In addition, the woodland provides valuable roost sites and foraging habitat for a number of bat species.

In places, the woodland edge grades into Willow or Gorse scrub (WS1), this type of semi-natural woodland edge is beneficial to wildlife, as it creates a continuity of habitat and additional structural diversity.

4.2.6 Exposed Siliceous Rock (ER1) / Stone walls (BL3)

A good example exposed siliceous rock occur around the RC Church in the town. The habitat also occurs in association with heath around the throughout the wider study area. Exposed rocky areas provide a habitat for a number of species specially adapted to grow on bare rock crevices including Stonecrop, Spleenwort, Lichens and Mosses. Kerry Slug, a notable species that is restricted to south-west Ireland occurs in association with this habitat.

Plate 7: Exposed siliceous rock with associated flora nearby the church in the centre of Sneem.

Dry stone walls occur at various locations around and in the village of Sneem. They are important rock habitat for a number of species that are specialised to grow on bare rock crevices including Ivy-leaved toadflax, Spleenwort and Polypody, Lichens and Mosses. The species diversity on such dry stone walls tends to be higher if walls are left in as natural a state as possible and not "cleaned" so often.

4.2.7 Amenity Grassland (GA2)/Flower Beds and Borders (BC4)

This habitat includes well managed grasslands that occur in public areas and private gardens. The grassland is intensively managed and are species poor having been reseeded and regularly fertilised. They occur in association with flower beds and ornamental trees. The habitat is common throughout Sneem dominating most open spaces such as the village squares, and the park to the south of the village.

Plate 8: Amenity grassland and exotic planting in the centre of Sneem. Such areas typically have low wildlife value.

For the purpose of habitat mapping, gardens and buildings have been mapped as a mosaic. These areas tend to have a low biodiversity value although they can be enhanced by appropriate planting.

4.2.8 Sheltered Rocky Shore (LR3)

Plate 9: Rocky shore communities in Sneem estuary.

This habitat occurs along the shore of the estuary south of the town, being dominated by brown seaweeds. The main species recorded include Channel Wrack (*Pelvetia canaliculata*) and Serrated Wrack (*Fucus serratus*) and occasional Bladder Wrack (*Fucus vesiculosus*) occurring further down the shore. Similar to the other intertidal habitats, the rocky shore supports a host of marine invertebrates and provides an important food source to birds. Otter may also use these areas. Rocky shores is a habitat that provides educational opportunities to demonstrate a variety of ecological concepts.

4.2.9 Mud Shores (LS4)

This habitat includes the muddy inlets and mud-flats between rocky outcrops. The flats which are covered at high tide are extremely productive areas which, together with other intertidal habitats, are of great importance to birds and fish. They provide vital feeding and resting areas for populations of migratory, overwintering and breeding waders and waterfowl.

Mud flats are recognised as being of high ecological importance and are listed for protection across Europe.

Plate 10: Mudflats within Sneem estuary that are exposed at low tide.

4.2.10 Upper salt marsh (CM2)

Plate 11: Sample of upper salt marsh vegetation in the foreground.

Small patches of this habitat occur along the estuary in those sheltered areas that are regularly inundated by the sea, such as along the upper shore on the western side of the estuary. The vegetation of the Salt Marsh varies according to how frequently and for how long the area is submerged by the sea. Those areas at the upper end that are only occasionally flooded by the tide are dominated by Rushes and grasses including Sea Rush (*Juncus maritimus*), Red Fescue (*Festuca rubra*) and Creeping Bent (*Agrostis stolonifera*). Species more typical of freshwater marsh conditions also present include Yellow Iris (*Iris pseudacorus*) and Purple-loosestrife (*Lythrum salicaria*). At the sea-ward extent of the habitat, species characteristic of lower salt marsh appear including Sea Plantain (*Plantago maritima*), Sea Arrowgrass (*Triglochin maritima*), Sea Aster (*Aster tripolium*) and Common Scurvygrass (*Cochlearia officinalis*).

The salt marsh that occurs within the study area is very restricted in extent (not mapped separately) but shows a good transition from upper to lower salt marsh. Salt Marsh can provide an important roost site for many coastal birds that may utilise the estuary. Saltmarsh is a rare habitat in Ireland, and is a high priority for nature conservation being listed for protection across Europe.

4.2.11 Estuary (MW4)

Plate 12: Estuary south of Sneem village.

This habitat occurs to the south of the town, downstream of the waterfall where the river enters the marine environment and extends southwards within a narrow inlet for approximately 4.5km before the marine conditions dominate near Oysterbed Pier (see **Figure 4.2**). The estuary is the transitional zone between the river and the open sea and is subject to marine influences, such as tides, waves, and the influx of saline water; and riverine influences, such as flows of fresh water and sediment. The inflows of both sea water and fresh water provide high levels of nutrients in both the water column and sediment, making estuaries among the most productive natural habitats in the world. At low tide the estuary is characterised by rocky outcrops and shores covered in marine algae (seaweed), with mud flats occurring elsewhere. The rocky outcrops above the high tide mark are covered in a diverse lichen flora. Both mudflats and salt marsh are present within the estuary (see above). These habitats are of importance to birds throughout both summer and winter. The habitat is recognised as being of high ecological importance and corresponds to a habitat listed for protection across Europe.

4.2.12 Other Habitats

Other habitats that occur within the study area include **Hedgerows (WL1)** and **Treelines (WL2)** as shown on the habitat map presented in **Figure 4.2**. These typically occur as field boundaries, along road sides, and also occur along river margins. They are recognised as being of high wildlife value by providing feeding and breeding sites for a variety of common birds and mammals. They also provide wildlife corridors along which species can move between semi-natural areas. Bats typically commute along hedgerows and treelines and during summer feed on the many insects associated with these linear habitats.

Recolonising Bare Ground (ED3) is present at a number of locations, with the most extensive area occurring within an unfinished housing development to the west of the village (see **Figure 4.2**). These areas can provide opportunities to pioneer plant communities. However, invasive alien species such as Japanese Knotweed (*Fallopia japonica*) often become established from where they can subsequently spread.

Improved Agricultural Grassland (GA1) occurs on areas of productive farmland surrounding Sneem. The habitat is of low ecological value with low species diversity due to reseeding and on-going nutrient input.

Two **Oligotrophic Lakes (FL2)** occur in proximity of the village. One of these is a small pond likely to be artificial in origin, located at the entrance to the Sneem Hotel. These lakes are typically characterised by acid and low nutrient conditions therefore providing conditions suitable for a range of specially adapted flora and fauna. Smooth Newt and a variety of Dragonflies were recorded from the pond at the Sneem Hotel.

Conifer Plantation (WD4) is present at three locations on the outskirts of the village. These plantations are typically single species stands of Sitka Spruce (*Picea sitchensis*). They are of low biodiversity interest and support few native species. They are of value to a number of bird species such as Goldcrest, Coal Tit and Great Tit.

Buildings and Artificial Surfaces (BL3) are predominant throughout the village (see **Figure 4.2**). Where they occur in association with gardens they have been mapped together as a single mosaic. Some buildings provide valuable roost sites for bat species.

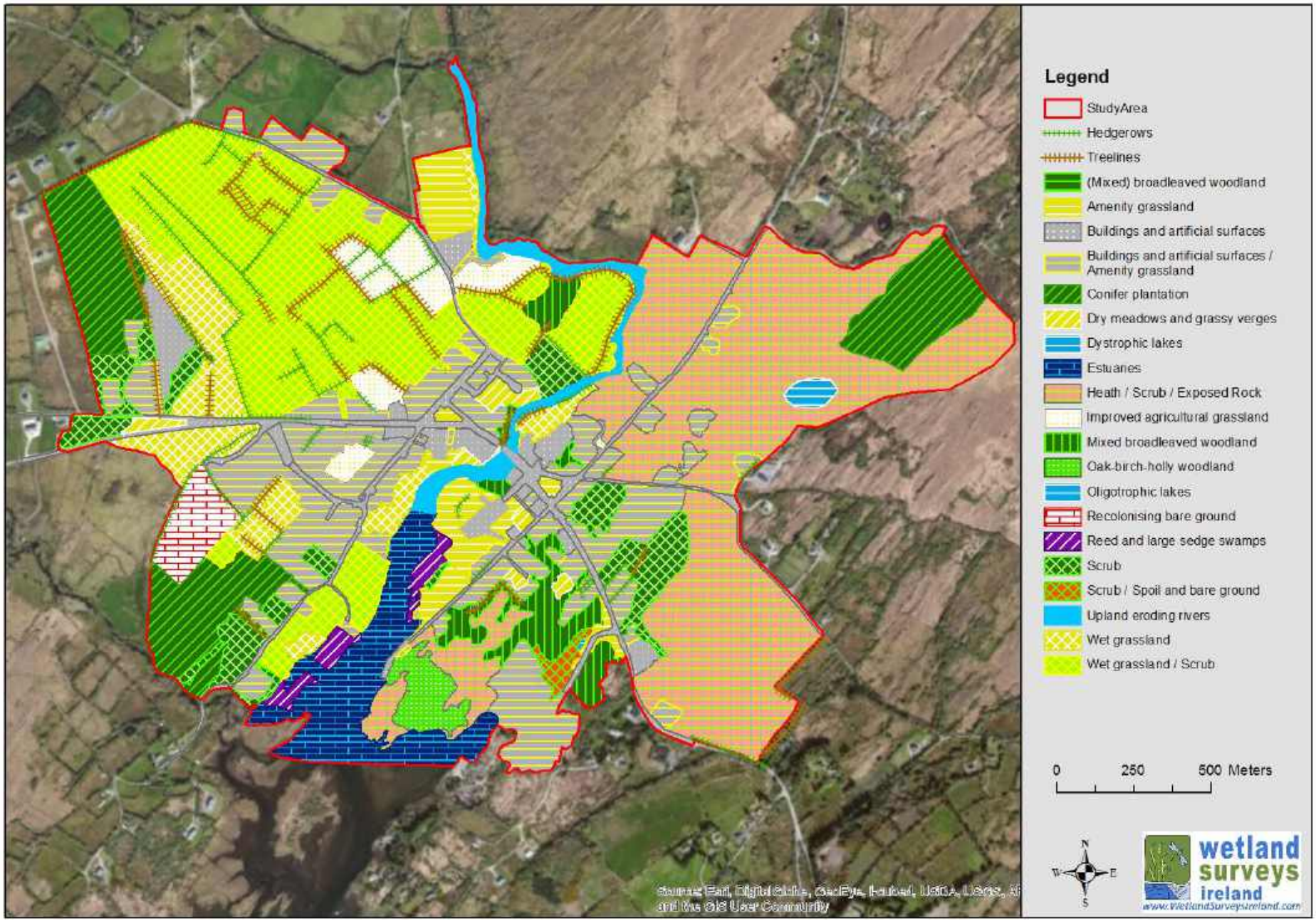

Figure 4.2: Habitat map of Sneem Village and surroundings.

4.2.13 Rare and Protected Flora

A total of 206 plant species were recorded within the study area during the field surveys undertaken as part of the current project. This included 164 species of higher plants (the majority native); 11 ferns; 20 mosses and liverworts; 6 lichens; and 5 seaweed and algal species. The full list of plant species recorded is presented in Appendix 1. No rare of protected plant species were recorded during the field survey.

A review of the information held by the Biodiversity Data Centre and NPWS shows that nine rare and protected plant species have previously been reported from the 10 km square of the study area (see **Table 4.2**). The only flowering plants reported include: the rare orchid, Irish Lady's-tresses (*Spiranthes romanzoffiana*), which is normally found around lake edges or within marshes and pastures that are subject to periodic flooding (Curtis and Thompson 2009); the Kerry Lily (*Simethis planifolia*), known from coastal heaths to the west of Sneem; and Betony (*Stachys officinalis*), which is found on grassy banks of woodlands and hedgerows.

Table 4.2: Rare and protected plant species recorded within the 10km square of the study area (Source: National Biodiversity Data Centre 2013; NPWS 2014).

Group	Common Name	Scientific Name	Status	Last recorded
Flowering plant	*Simethis planifolia*	Kerry Lily	Protected Species	1994
Flowering plant	*Spiranthes romanzoffiana*	Irish Lady's-tresses	Protected Species	1986
Flowering plant	*Stachys officinalis*	Betony	Protected Species	1901
Fern	*Trichomanes speciosum*	Killarney Fern	Protected Species	1961
Moss	*Campylopus shawii*	Shaw's Swan-neck Moss	Threatened Species	2006
Moss	*Campylostelium saxicola*	Bent-moss	Threatened Species	1951
Moss	*Sematophyllum demissum*	Prostrate Signal-moss	Threatened Species	1951
Moss	*Sematophyllum substrumulosum*	Bark Signal-moss	Threatened Species	2008
Moss	*Sphagnum platyphyllum*	Flat-leaved Bog-moss	Protected Species	2000
Liverwort	*Lejeunea hibernica*	Irish Pouncewort	Threatened Species	1951
Liverwort	*Plagiochila atlantica*	Western Featherwort	Protected Species	1951
Alga	*Lithothamnion corallioides*	Coral Maërl	Protected Species	2000

4.3 Birds

BirdWatch Ireland (BWI) and the Royal Society for the Protection of Birds in Northern Ireland (RSPBNI) have developed a list of Birds of Conservation Concern in Ireland List (BoCCI) (Lynas *et al.* 2007). In this list, birds are classified into three separate lists (Red, Amber and Green), based on the conservation status of the bird and hence conservation priority. The Red List birds are of high conservation concern, the Amber List birds are of medium conservation concern and the Green List birds are not considered threatened.

Bird species recorded during the field survey are presented in **Table 4.3** below, the conservation status of each species as per the BoCCI is also presented.

The variety of bird species that were recorded in the area represents the diversity of habitats present.

The amenity areas and ornamental gardens within the study area support typical garden birds including; Blackbird, Chaffinch, Blue Tit, Great Tit, and Greenfinch. Other garden birds likely to occur within the area include Starling and House Sparrow. Gardens provide a wider diversity of habitat for birds than would otherwise be available in their natural habitat.

Lowland farmland in the area includes improved pasture, wet grassland, hedgerows, treelines, and scrub. Typical bird species of such lowland farmland include; Hooded Crow, Rook, Magpie, Swallow, Chaffinch, Wren, Blackbird, and Robin. The species encountered during field surveys are common and widespread throughout the country. Species of conservation interest that are likely to utilise lowland farmland in the area include Barn Owl (red list) and Kestrel (amber list).

The complex of heath, exposed rock, and scrub that occur throughout the wider study area provides suitable habitat for many of the common farmland birds listed above. Other species that may be associated with this habitat mosaic include; Skylark, Meadow Pipit, Wheatear, and Snipe. These areas also provide suitable hunting grounds for birds of prey.

Common woodland species recorded within the study area include; Wren, Robin, Chaffinch, Greenfinch, Blue tit, Great Tit, Coal Tit, Blackbird, Songthrush, Hooded Crow, and Wood Pigeon. These species are also associated with treelines and hedgerows.

The arrival of migrant bird species during summer months adds to the overall species composition of woodland habitats with birds such as Blackcap, Chiffchaff and Willow Warbler likely to occur during this time of year.

The Sneem River that flows through the study area is likely to support a number of bird species including Grey Wagtail, Kingfisher, Dipper, Grey Heron and Mallard. The presence of specialist riparian species (Grey Wagtail, Kingfisher (amber list) and Dipper) along natural watercourses is indicative of good water quality.

Estuaries are important sources of nutrients and contain a diverse number of invertebrates for both terrestrial and coastal birds (Nairn and O'Halloran 2012). Estuaries are of particular importance for non-breeding / over-wintering waterbirds that migrate from northern tundra regions. Birds likely to utilise the Sneem River estuary during winter months include Ringed Plover (amber list), Common Sandpiper (amber list), Cormorant (amber list), Curlew (red list), Grey Heron, Lapwing (red list), Oystercatcher, Herring Gull (red list), Black-headed Gull, Red-breasted Merganser, Redshank, Wigeon (amber list), Common Teal (amber list) and Mallard. Waterbirds encountered during field surveys conducted during the breeding season include Redshank, Oystercatcher, and Black-headed Gull.

Reed swamp is an important habitat for a variety of breeding birds while in winter the habitat may serve as important roosting areas. Reed bunting was the only bird species encountered during the field survey. Other species likely to utilise this habitat during the breeding season include; Coot (amber list), Moorhen, and Mute Swan (amber list). Non-breeding birds that are likely to occur include birds of prey such as kestrel and Sparrowhawk.

Based on NBDC data (2013), marine seabirds likely to occur in the wider study area particularly amongst sea cliffs, islands and rocky coasts include: Black Guillemot (amber list), Common Guillemot (amber list), Razorbill (amber list), Great Northern Diver (Annex I; EU Birds Directive), Northern Gannet (amber list), European Shag (amber list), Chough (Annex I; EU Habitats Directive), Manx Shearwater (amber list), Black-legged Kittiwake (amber list), Common Tern (Annex I; EU Birds Directive) and Arctic Tern (Annex I; EU Birds Directive). The main diet of these birds comprises fish, plankton, molluscs and crustaceans.

Upland heath and bog associated with the mountains to the north of Sneem, provides suitable habitat for Red Grouse, a species of high conservation concern.

A notable species regularly observed in the study area and surroundings is the re-introduced White Tailed Sea Eagle. The species is of high conservation concern listed on Annex I of the EU Birds Directive. Suitable breeding and foraging habitat for the species occurs throughout the wider study area. The individuals that have been observed in the Sneem area are only now reaching maturity and it is hoped, a breeding population will become established in the near future.

A total of 48 bird species of conservation concern have previously been reported from the 10km square of the study area (NBDC 2013) as presented in Appendix 2.

Table 4.3: Bird species recorded in Sneem during the breeding season 2013.

Common Name	Scientific Name	BoCCI Status / Annex I
Blackbird	*Turdus merula*	Green
Black-headed Gull	*Chroicocephalus ridibundus*	Red
Blue tit	*Cyanistes caeruleus*	Green
Chaffinch	*Fringilla coelebs*	Green
Coal tit	*Periparus ater*	Green
Common Gull	*Larus canus*	Amber
Great tit	*Parus major*	Green
Greenfinch	*Carduelis chloris*	Green
Grey Wagtail	*Motacilla cinerea*	Green
Hooded Crow	*Corvus cornix*	Green
House Martin	*Delichon urbicum*	Amber
House sparrow	*Passer domesticus*	Amber
Magpie	*Pica pica*	Green
Mallard	*Anas platyrhynchos*	Green
Meadow Pipit	*Anthus pratensis*	Green
Oystercatcher	*Haematopus ostralegus*	Amber
Pied wagtail	*Motacilla alba yarrellii*	Green
Redshank	*Tringa totanus*	Red
Reed bunting	*Emberiza schoeniclus*	Green
Robin	*Erithacus rubecula*	Green
Rook	*Corvus frugilegus*	Green
Song thrush	*Turdus philomelos*	Green
Starling	*Sturnus vulgaris*	Amber
Swallow	*Hirundo rustica*	Amber
Swift	*Apus apus*	Amber
Wood Pigeon	*Columba palumbus*	Green
Wren	*Troglodytes troglodytes*	Green

4.4 Mammals (including bats)

A list of mammal species that have previously been reported from the 10km square of the study area is presented in **Table 4.4**. Signs and tracks are the best way of determining the presence of mammal species without conducting nocturnal surveys. Little evidence of mammal activity was recorded during the field surveys.

Otter and Badger both occur within the study area and are strictly protected by law under Wildlife Act and the EU Habitats Directive respectively. American Mink, an introduced species is also present in the area. They are not afforded protection in Ireland and can have negative impacts on local fish and wildfowl populations.

Four species of bat have previously been reported (see **Table 4.4**), all of which are likely to occur in the village. All bat species are protected under the Wildlife (amendment) Act 2000 and the EU Habitats Directive. Bats typically roost in buildings, crevices of old built structures such as bridges, and within cracks and holes in mature trees. They would be expected to mostly feed along hedgerows, treelines and areas of woodland. Daubenton's Bats have a preference for feeding over freshwater lakes and rivers and on summer evenings can be observed feeding on insects along the Sneem River. The diversity of wooded habitats in Sneem, in particular the presence of mixed deciduous woodland and scrub along the Sneem River, provides suitable foraging habitat and commuting habitat for a variety of bat species. It is most likely the following four bat species also occur in the area although to date not recorded: Leisler's bat, Brown long-eared, Natterer's, and whiskered bats (Conor Kelleher *personal communication*).

Common (Harbour) Seal is the only marine mammal likely to occur within the Sneem estuary. The Kenmare River cSAC supports one of the largest populations of Common Seal in the country. Other marine mammals that occur frequently in the wider area of Kenmare River include; Grey Seal, Harbour Porpoise, and Bottle-nosed Dolphin.

Table 4.4: Previous records of mammals (incl. bats) within the 10km grid square (V66) of the study area (NBDC 2014)

Common Name	Scientific Name	Protection status
American Mink	*Mustela vison*	NA
Badger	*Meles meles*	Irish Wildlife Act
European Rabbit	*Oryctolagus cuniculus*	NA
Hedgehog	*Erinaceus europaeus*	Irish Wildlife Act
Irish Hare	*Lepus timidus subsp. hibernicus*	Irish Wildlife Act
Otter	*Lutra lutra*	Irish Wildlife Act; EU Habitats Directive, Annex II & IV
Red Deer	*Cervus elaphus*	Irish Wildlife Act
Sika Deer	*Cervus nippon*	Irish Wildlife Act
Daubenton's Bat	*Myotis daubentonii*	Irish Wildlife Act; EU Habitats Directive, Annex IV
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	Irish Wildlife Act; EU Habitats Directive, Annex II & Annex IV
Common Pipistrelle	*Pipistrellus pipistrellus sensu lato*	Irish Wildlife Act; EU Habitats Directive, Annex IV
Soprano Pipistrelle	*Pipistrellus pygmaeus*	Irish Wildlife Act; EU Habitats Directive, Annex IV
Common Seal	*Phoca vitulina*	Irish Wildlife Act; EU Habitats Directive, Annex II
Grey Seal	*Halichoerus grypus*	Irish Wildlife Act; EU Habitats Directive, Annex II

4.5 Amphibians and Reptiles

There are three species of amphibian that occur in Ireland. Of the three amphibian species that occur in Ireland, Common Frog (*Rana temporaria*) and the Smooth Newt (*Lissotriton vulgaris*) were both recorded during the field survey. Smooth Newts were recorded within the small pond at the entrance to the Sneem Hotel. Garden ponds, wet grassland, wet heath and freshwater wetland habitats all provide suitable habitat for frogs and newts.

Although not previously recorded in the 10km square of the study area Common Lizard (*Lacerta vivipara*), a reptile, is likely to occur amongst suitable habitat in the wider study area.

The Common Frog, Smooth Newt and Common Lizard are all afforded protection under the Irish Wildlife Act.

4.6 Fish

The study area supports a number of freshwater and marine fish species. Fish species that have been previously report from the 10km square of the study area are presented in **Table 4.5**.

Freshwater fish known to occur within the Sneem River include Atlantic Salmon and Brown Trout. Both species play an important role in the lifecycle of the protected Freshwater Pearl Mussel that occurs in the river. Atlantic Salmon is afforded protection under the Irish Wildlife Act and is also listed as a key protected species on Annex II of the EU Habitats Directive.

Marine fish that have previously been reported include; Pollack, Plaice, and Thornback Ray. The range of marine fish present in the area is certainly more extensive than this suggests, however other records have not yet been collated by the National Biodiversity Data Centre.

Table 4.5: Previous records of fish within the 10km grid square (V66) of the study area (NBDC 2013)

Common Name	Latin Name	Recorded	Conservation Status
Atlantic Salmon	*Salmo salar*	1986	Protected Species; EU Habitats Directive, Annex II
Brown / Sea trout	*Salmo trutta*	1999	
Plaice	*Pleuronectes platessa*	2007	
Pollack	*Pollachius pollachius*	2009	
Thornback Ray	*Raja clavata*	2007	Threatened Species

4.7 Invertebrates

It is likely that the invertebrate fauna of Sneem is likely to be high based on the presence of a rich variety of habitats for such faunal groups such as heath, river, woodlands, reed bed, grassland, and scrub. **Table 4.6** presents a list of invertebrate species encountered during field surveys while previous records of rare and protected species of invertebrates (insects and molluscs) recorded within and surrounding the study area is presented in Appendix 2. All invertebrates encountered during field surveys were obtained from incidental records as no targeted invertebrate surveys (freshwater, terrestrial or marine) were undertaken.

Freshwater Pearl Mussel is a highly sensitive aquatic species that has been recorded from the Sneem River. Mussel populations with large numbers of individuals and juveniles occur in rivers with low nutrient levels and unsilted gravel. The species is afforded strict protection under the Irish Wildlife Act and is listed on Annex II of the EU Habitats Directive. The presence of the species within the Sneem is an indication of the relatively unpolluted nature of the river. The life cycle of the mussel is

very complex and relies on amongst other things, good water and substrate quality.

The Sneem River is likely to support a good diversity of freshwater invertebrates such as stoneflies, mayflies, caddis fly larvae, and water beetles. Water quality for the Sneem River is classed as high with a Q value of 4-5 due to a good diversity of macro-fauna thereby implying good water quality (EPA Maps 2014).

Rocky shores within marine environments typically support a wide range of invertebrates including limpets, barnacles, common mussel, snails, amphipod crustaceans, and crabs. Mud and sand shores are likely to support lugworms, bivalve molluscs, mud snails, and polychaete worms.

Table 4.6: Lists the invertebrates encountered during field surveys of the study area undertaken during summer months in 2013.

Group	Common Name	Scientific Name
Annelid	Lugworm	*Arenicola marina*
Insect	Biting Midge	*Culicoides obsoletus*
Insect	Whirligig beetle species	*Gyrinidae spp.*
Insect	Cranefly	*Tipula sp.*
Insect	Green dock leaf beetle	*Gastrophysa viridula*
Insect	Green-veined white	*Pieris napi*

4.8 Summary of Sneem Biodiversity

As defined above, biodiversity relates to the variety of all living things. As an indication of the biodiversity of Sneem, the number of different species that have been recorded is presented in **Table 4.7** below. The information presented is based on records held by the National Biodiversity Data Centre and the results of the field survey undertaken as part of the current study.

It is important to note that this list is by no means complete and is likely to only cover a fraction of the total biodiversity of Sneem. Some groups are well represented while others have been poorly studied or reported. For example the field surveys undertaken for the current study focused on flowering plants due to the ease by which these can be studied. Other groups such as insects and other invertebrates have not been studied in any detail and are therefore likely to be under represented.

Sneem village and the study area is located within the 10 km square V66 in which a total of 972 species have been recorded by the NBDC (May 2013). Full details of the species recorded within the 10km square can be easily exported from the NBDC website.

Of the 972 species recorded by the NBDC a total of 89 are worthy of mention due to their rarity and special conservation status in Ireland. These are listed in the Appendix 2 below. The list includes 48 bird species, 11 insects mainly butterflies and bees, 8 snails and 4 bat species listed as either Protected under national or EU legislation, or regarded as threatened.

The field survey undertaken as part of the current study identified 237 species of mainly terrestrial flora and fauna within the study area during summer 2013. The full list of species recorded during the field survey is presented in Appendix 1. This includes 164 species of higher plants (the majority native although a few species were recorded as likely to have been planted and therefore regarded as garden exotics); 11 fern species; 20 moss and liverworts; 6 lichens; 5 seaweed and algal species; 21 bird species; 2 amphibian species; 5 insects and 1 species of fish. Of the 237 species recorded in 2013, a total of 70 had not previously been recorded by the NBDC and are new 10km species records for the Sneem area. Information on these new species records will be submitted to the NBDC in due

course.

This list of 237 species from the 2013 Sneem survey can be regarded as the minimum number of species within the Sneem area, with additional species likely to occur based on the list of species recorded by the National Biodiversity Data Centre for the 10 km square encompassing the village and its environs (see **Table 4.7**).

Further surveys conducted at different times of the year, or surveys of specific groups (e.g. mosses, lichens, fungi and invertebrates) are likely to reveal a significant numbers of additional species.

Table 4.7: Published biodiversity data for the 10 km and 4 km (tetrad) squares containing the study area, and summary results of the 2013 Biodiversity Survey.

Species group	Number of species listed for 10 km square (V66) by the NBDC*	Number of species listed for the 4 km square (V66Y) by the NBDC*	Number of species found during the 2013 Sneem village biodiversity field survey	Number of new species recorded during the 2013 survey in respect of 10 km square (V66)
Algae	98	-	5	-
Amphibian	1	1	2	1
Annelid	13	-	1	-
Bird	89	-	21	1
Bony Fish	31	-	1	-
Bryozoan	20	-	-	-
Cartilaginous fish	2	-	-	-
Coelenterate	42	-	-	-
Conifer	1	-	1	-
Crustacean	32	-	-	-
Echinoderm	28	-	-	-
Fern	14	-	11	3
Flatworm	2	-	-	-
Flowering plant	229	6	164	54
Insects	92	15	5	2
Lichen	3	-	6	3
Liverwort	40	-	2	-
Marine mammal	2	-	-	-
Mollusc	87	4	-	-
Moss	76	-	18	5
Sponge	30	-	-	-
Terrestrial mammal	13	4	-	-
Tunicate	18	-	-	-
Miscellaneous groups	9	-	-	-
Total	972	30	237	69

* NBDC data as of May 2013

5 Biodiversity Interest of Sneem Village

This section evaluates the ecological interest of Sneem village based on the results of surveys carried out and follows methodology outlined by the IEEM (2006) and NRA (2009) to be used in determining the ecological interest of an area.

Sites of particular biodiversity interest within the village that were identified during the current study include:

- **Sneem River and Estuary (Area G to B)**: The river and estuary and adjoining semi-natural areas are of international ecological importance based on the presence of a wide range habitats and species of European Importance.
- **Lands to North of Sneem (Area F):** Area of scrub and wet grassland with some mature trees. This area is currently of local value providing habitat for common mammals and birds. It adjoins the Sneem River to the east which enhances the potential value of the site.
- **Goldens Height (Area D):** This area of high local importance with a good example of birch woodland in association with heathland. The area has a good diversity of native flora and provides suitable habitat for a range of fauna species such as invertebrates, mammals and birds.
- **Goosey Island (Area C):** This area is currently of local value due to the presence of small wooded areas, wetland ponds, and reed swamp. The area could be enhanced considerably if the grassland was managed appropriately. There are some interpretative signs in this area that present information on the biodiversity interest of the area.
- **Jack Currans Meadow (Area A):** This wet grassland area is of local biodiversity value. Good variety of wet grassland species with native tree species also occurring.
- **Caol Beaúigh (Area H):** Extensive area of wet grassland with hedgerows and scattered scrub. Area is deemed to be of local biodiversity value, providing suitable conditions for wetland flora and fauna in proximity to the village.

Elsewhere throughout the village, features such as roadside verges, hedgerows, treelines, stone walls and exposed rock, and ponds add to the biodiversity interest of Sneem.

6 Management of Biodiversity

During the current study, a number of pressures that impact the biodiversity of the village have been identified. These issues need to be addressed in order to effectively conserve and enhance the biodiversity interest of the village. The following is a summary of the main issues identified, (photographs illustrating examples of these issues are presented in Appendix 4):

- Land reclamation and development in proximity to sensitive areas. It is evident from past aerial photography and mapping that significant land reclamation has taken place to the south of the village in proximity to the mouth of the Sneem River. Future development of this area could threaten the conservation value of the river and estuary, and should therefore be avoided.
- Inappropriate cutting / mowing regime for roadside verges and public grassland areas. It was noted that the cutting regime throughout most public areas was regular mowing to keep a short and kempt appearance. This means of mowing reduces the diversity of species and makes the habitat less suitable for fauna. Similarly, the inappropriate use of herbicides, pesticides and fertilizer in these areas also reduces biodiversity.
- Introduction and spread of non-native species. A number of non-native species have been identified during the current study. Those that are of most concern include Japanese Knotweed and Rhododendron. Japanese Knotweed has impacted on the biodiversity in proximity to the Sneem River, upstream of the village. The species was also recorded growing profusely throughout many private properties within the town. As well as shading out native species, Japanese Knotweed may also destabilize river banks due to the absence of vegetative cover during winter season. Rhododendron grows abundantly in areas of heath surrounding the village and has the effect of shading out the native heathland species.
- Cleaning of stone walls. Many of the walls and exposed rock surfaces within the village display a good growth of interesting epiphytic flora. To maintain the biodiversity of these habitats that support a specialised flora it is important that clearing of vegetation is not undertaken.
- Water pollution. The Sneem River remains relatively pristine as demonstrated by the presence of Freshwater Pearl Mussel within the channel. However, pollution from various sources threatens the ecological status of the river. Future development and any associated drainage should be undertaken in such a way that ensures the water quality of the river remains high.
- Lack of interpretation and signage relating to the natural heritage resource of the village. As mentioned above, the village is surrounded by undisturbed natural habitats and is located on the banks of a river of international significance. There is a notable absence of signage and interpretative information on the biodiversity interest and value of these features.

7 Recommendations to Enhance the Biodiversity Value Sneem Village

This section outlines a range of actions which should be considered by the Sneem Tidy Towns Association in consultation with other stakeholders. These actions aim to achieve the following management objectives that have been identified:

1. To conserve and enhance biodiversity in Sneem village
2. To increase appreciation and awareness of biodiversity
3. To create opportunities for wider public involvement
4. To ensure resources are allocated for the various aspects of the management and proposals

The recommended actions are presented in tables below. Those measures being proposed for specific locations within the village are shown on maps presented in **Figure 7.1** & **Figure 7.2** and labeled according to recommendation code.

In addition, photographs presented in Appendix 4 illustrate some of the habitats, measures and issues which are referred to in this section. Sneem village includes a rich selection of natural habitats on its doorstep, including the river, estuary, heath, and woodland habitats. The measures outlined below will ensure the future survival of these habitats and enhance areas which have been degraded by the expansion of invasive exotic species.

It is of importance that professional advice be sought in relation to undertaking any works in proximity to sensitive areas such as the Sneem River (Kenmare River SAC). It is a requirement of Article 6 of the Habitats Directive that any project (or plan), no matter how minor, that could potentially impact on a Natura 2000 site (SAC or SPA) should be subject to an Appropriate Assessment. The aim of the assessment is to determine whether the project could result in impacts of significance. In the event that impacts are foreseen, then mitigation measures may be proposed to ensure impacts are avoided or are no longer deemed to be of significance. Following mitigation, should impacts still be foreseen then the project should not proceed and alternatives need to be considered.

7.1 Biodiversity Enhancement Actions

The following actions are proposed to maintain and enhance biodiversity within Sneem. Codes in the first column correspond to locations shown in **Figure 7.1**.

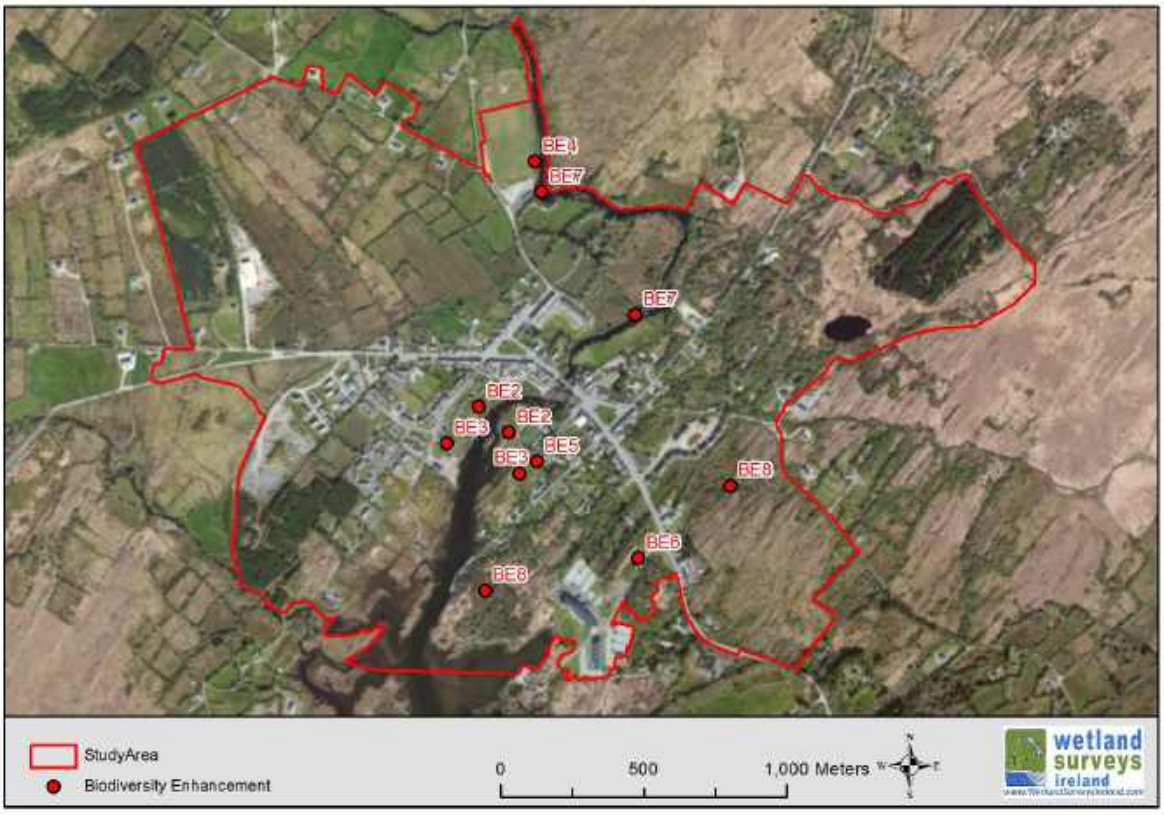

Figure 7.1: The location of biodiversity enhancement actions in Sneem village and environs as recommended by the current study.

Code	Recommendation	Priority Level / Timescale
BE1	**Habitat management – roadside verges** For the greatest biodiversity value, road verges should be cut once, or perhaps twice a year, at the end of the growing season (August/September) and, if necessary, in early spring. Cuttings should always be removed. Where the verge is sufficiently wide, a 2-zone system should be established. The verge could be divided into bands, running parallel to the road. The 1m strip nearest the road could be kept short, while allowing wild grasses and forbs to proliferate in the outer strip, which would be cut, as above, once or twice a year. Avoid using fertilizer, herbicides or pesticides.	High / Annual
BE2	**Species enhancement – Wildflower/Butterfly meadow creation** Many of the wet grassland areas to the south and on either side of the estuary (see **Figure 7.1**) are dominated by mown grassy vegetation, and are relatively species poor. Mowing of the grassland area should be carried out annually after the main flowering season, in late August / September. This would allow an increase in habitat for the growth of wild flowers and in turn provide important food and nectar sources for invertebrates (butterfly, bees, beetles etc.), and feeding areas for birds and bats. Grassland management should follow that set out in BE1 above.	High / Annual
BE3	**Habitat management – Planting of native species**	High /

Code	Recommendation	Priority Level / Timescale
	No further planting of exotic species within village in areas identified for their natural and biodiversity wildlife value should occur. Planting of native trees and shrubs within and surrounding the village should be encouraged.	Ongoing
BE4	**Habitat connectivity** Promote the planting of native hedgerows at various locations throughout the town. A suitable location for the planting of such hedgerows includes the area bordering the GAA pitch (see **Figure 7.1)**.	High / Short term
BE5	**Species enhancement – Pond maintenance** The small ponds in rocky terrain situated near the RC Church in the nature trail area should be cleared of rubbish and maintained to attract aquatic insects, invertebrates, vertebrates, and wild flowers. Safety issues regarding water depth/access should be considered and advise sought on best-practice.	High / Short term & ongoing
BE6	**Species enhancement – Pond maintenance at Sneem Hotel entrance** The pond situated near the entrance to the Sneem Hotel could be improved for wildlife by the creation of a wider (1 m) uncut grass border around the edge of the pond. This would reduce disturbance to newts in the pond and provide marginal feeding and cover habitats. Care should also be taken to ensure that only native planting occurs in or around the pond area.	High / Short term
BE7	**Control of Invasive Species – Removal of Japanese Knotweed** Invasive species, namely Japanese Knotweed occur at a number of locations within the study area (see see **Figure 7.1**) and within a number of private areas in the village. A program to eradicate this species from the village should be considered. Removal of these species will ensure that it does not expand further and threaten the native species around the sensitive river and estuary area.	High / Ongoing
BE8	**Control of Invasive Species – Removal of Rhododendron** *Rhododendron ponticum* should be removed from a number of locations identified as having biodiversity value (see **Figure 7.1**). Following Rhododendron removal, where appropriate, cleared areas should be selectively under-planted/re-planted with native trees and understory shrubs (e.g. Oak, Ash, Sloe, Hawthorn) of local provenance. Any excess cut material should be removed from site and composted.	Moderate – Low
BE9	**Species enhancement – Bat boxes** Bat boxes could be located throughout the theme garden/nature trail area on trees to provide roosting sites for these species, as well as in selected areas within the village (e.g. RC & Church of Ireland grounds etc.). Schwegler woodcrete bat boxes are recommended and these should be sited by a bat specialist. These should be monitored annually for maintenance and to ensure effectiveness. Box suppliers are given in the Appendix 3.	Moderate / Medium term
BE10	**Species enhancement – Bird boxes** Bird boxes should be located in nature trail and woodland area to provide additional nest sites for a range of species, as well as in selected areas within the village (e.g. RC & Church of Ireland grounds etc.). Different types should be used to suit the range of species that typically occur in Sneem. Both open fronted and small hole (25-32 mm diameter) boxes would be most appropriate. Initially 20 bird boxes should be erected throughout the village. Monitoring of occupation of bird boxes should be carried out the following bird breeding season.	Moderate / Medium term
BE11	**Species enhancement – Planting of night-scented plants for bats** Additional planting within the nature trail area could include night-scented species to encourage night-flying insects onto the site to act as prey items for bats.	Moderate / Medium term
BE12	**Information and research – Biodiversity register** The maintenance of a biodiversity register of all species recorded in the village. The species lists contained in Appendix 1 could form the baseline.	Moderate / Short term and ongoing

Code	Recommendation	Priority Level / Timescale
BE13	**Information and research – Surveys of flora and fauna** Invite expert groups and individuals to undertake further research and inventory work on selected species groups in the area, e.g. birds, bats, invertebrates, fungi, lichens, mosses etc.	Moderate
BE14	**General management – Litter removal** Shoreline clean up of litter should be scheduled regularly as should general litter collection within nature trail and woodland area.	High / Ongoing

7.2 Interpretation of Natural Heritage

Interpretation and understanding by the general public of the value of biodiversity, namely the river, estuary, marine, heath, and woodland (and their associated flora and fauna) found in proximity of Sneem village should be a priority. Actions that should be considered in order to improve access to, interpretation of, and knowledge of the biodiversity of the area are listed below.

The selection of suitable interpretation panels is important along with the use of appropriate graphics and text. It is recommended that professional advice be sought on the selection and design of information panels. Where relevant, codes in the first column correspond to locations shown in **Figure 7.2**.

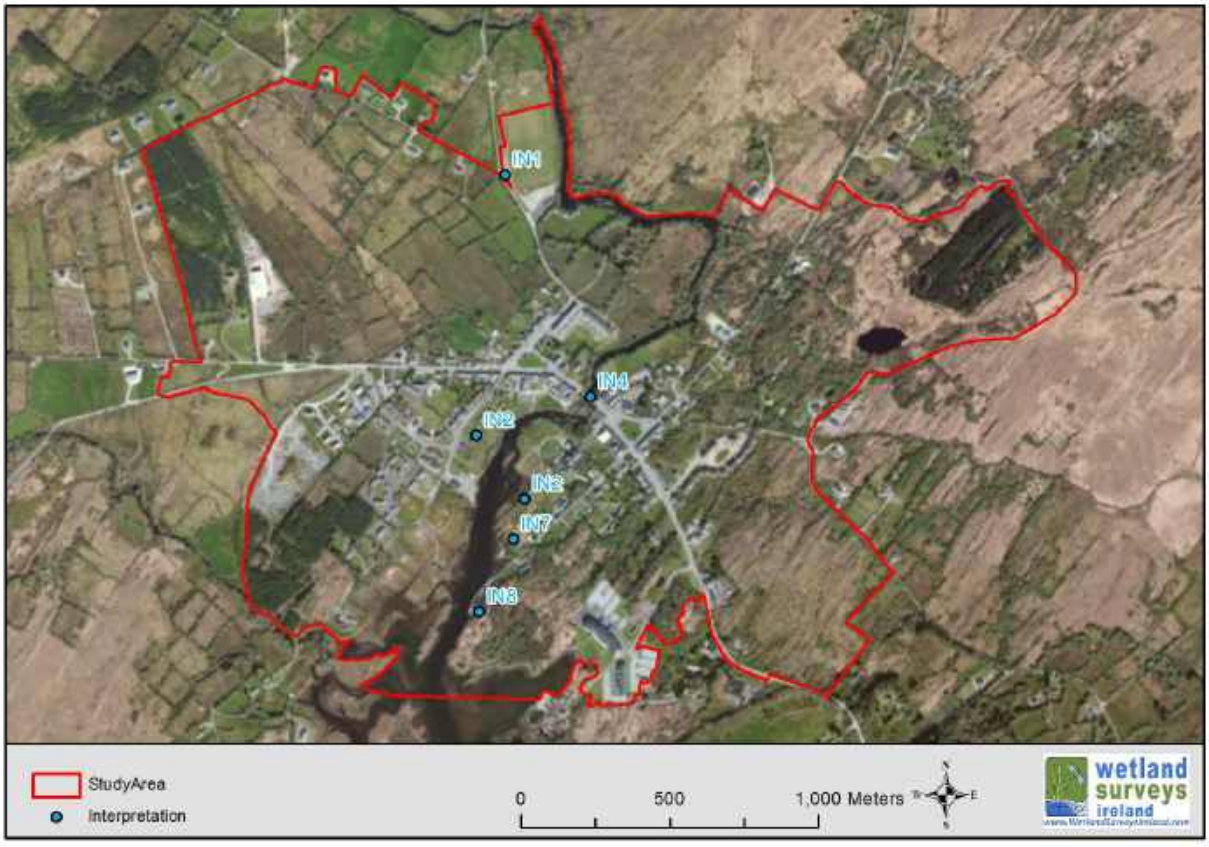

Figure 7.2: The location of interpretation enhancement measures in Sneem village recommended by the current study.

Code	Recommendation	Priority Level / Timescale
IN1	**Development of a walkway centred on the Sneem River from Mouth to Source** It is recommended that a way marked walk with accompanying interpretation leaflet should be developed. The walk should follow the network of existing roads and track ways that already exist upstream of Sneem. This would avoid the requirement for landowner agreement and avoid possible disturbance to sensitive habitats in proximity to the river.	High / Long term
IN2	**Access to nature trail /theme garden – Decide on and promote main entrance to nature trail area; Improve signage from village** Access to the theme garden area could be improved from the village via the RC Church or Quay Road with clearer finger signage. Similarly a finger sign to invite people to follow the river bank walk could be placed on Bridge Street.	High / Short term
IN3	**Map showing Sneem and alternative walking routes** Improved interpretative signage from village. Interpretative panel should welcome visitor to the nature trail area and river bank walk, provide information on the areas, walking routes. A similar panel could be located in the tourist office.	High / Short term
IN4	**Interpretation Panel – Life along the river** A panel outlining the importance of the river corridor for biodiversity. Graphical examples of selected species and their life-cycles should be illustrated. Suggested locations would be nearby the bridge in the village centre.	High / Short term
IN5	**Interpretation Panel – Information on bats** Panel is required on the value of woodland and scrub and the river corridor for bats. This could be located at the western side of the estuary.	Moderate
IN6	**Interpretation Panel – Information on birdlife** Panel is required on Birds of the estuary. This could be located at the eastern side of the estuary.	Moderate
IN7	**Interpretation Panel – Estuarine & Marine ecology** Panel is required on the value of the estuary, reed bed and mudflats, as a habitat for birds, invertebrates and the marine ecosystems. This should be located on the south eastern side of the estuary. The interpretive panel could explain the habitats that occur along a transect from open water in estuary, through the various seaweed zones, upper salt marsh up to the terrestrial heathland or woodland habitat. Such an information panel would have significant educational value.	High / Short term
IN8	**Interpretation Panel – Heathland and Birch woodland** Panel is required on the value of native birch woodland on the eastern side of the estuary, as a habitat for birds, mammals, invertebrates, flora, mosses, lichens, etc. Such an information panel would have a significant educational value. In addition, specimen native and non-native trees should be labeled along main pathways.	Moderate
IN9	**Interpretation – Guided walks and talks** Organise a series of events throughout the year to increase knowledge and awareness of the wildlife and conservation value of the village (in conjunction with National events, e.g. Heritage week, biodiversity week, national surveys (frogs, butterflies, bats etc.) or as standalone events (e.g. invited experts to lead bat walks; bird walks etc.).	High / Annual
IN10	**Public Notices / Interpretation Panel – Information about management** Selected information plackard/website elements in the village or nature trail area, focusing on recent work being undertaken (e.g. invasive species removal) or specific groups of plants or animals or habits (e.g. a tree nature trail, bats, shoreline/mudflats, birds in estuary) and the enhancement measures being taken for wildlife (bird and bat boxes, nest sites etc.) should be considered.	Moderate
IN11	**Public Notices / Interpretation Panel – Visitor behavior** Anti social and environmentally unfriendly practice (e.g. rubbish and litter removal, setting fires (other than within BBQ area), respect for other users etc.) should be addressed on interpretive panels.	High
IN12	**Interpretation / General Promotion – Promotion in Sneem village**	Moderate

Code	Recommendation	Priority Level / Timescale
	Promotion of the biodiversity of Sneem should be undertaken though a network of locations in Sneem town, e.g. Library, Tourist Office etc.	
IN13	**Interpretation / General Promotion – Website** Consideration should be given to the development of a Natural Heritage section on a Sneem village website. Important to ensure maintenance of website be considered and suggested that it could be hosted on an existing site such as Kerry County Council. This could contain information on the following elements, with downloadable visitor pamphlets and information on specific walks and groups of flora/fauna: • Biodiversity and natural history of Sneem village • Management plans for the area and improvement works being undertaken • What you can see in the village throughout the year • A register of species recorded in Sneem which should be updated annually • Specific down-loadable nature trails targeted at trees, birds, bats, the shoreline etc. • How to get involved and help as a volunteer • Events planned within the village each year, both learning and information programme and volunteer works scheduled • Specific schools programmes	High / ongoing

7.3 Public Involvement

Ownership is a vital ingredient in the maintenance of a community project such as the Sneem village biodiversity plan. Local volunteer input to the project will ensure its long term success and should provide a focus of pride for the local community.

To ensure such involvement the following measures should be considered, possibly in conjunction with a public meeting to gauge interest from various user groups.

Action Code	Action	Priority level / Timescale
PI1	**Management Structure – Form working group** Establish a formal local committee (or sub-committee of the Tidy Towns Group) to oversee the biodiversity project in Sneem village, and undertake the various aspects of the project in relation to fundraising, management of works, interpretation, and increasing public awareness of the project. Invite key stakeholders to sit on the committee (County Council, NPWS, Leader representatives etc.).	High / Short term
PI2	**Local participation – Public meetings** If deemed necessary hold public meeting(s) to discuss management proposals (e.g. invasive species removal), user groups requirements, sources of funding and assistance, available from both national and local groups and organisations / institutions.	Moderate
PI3	**Local participation – Volunteer register** Establish a local volunteer network and register to help carry out survey (butterfly monitoring, bats birds, etc.), management, and enhancement works (e.g. erection of signs, bird and bat boxes etc.).	High / Short term
PI4	**Local participation - Local school / adult education centre involvement** Initiate a nursery partnership scheme with the aid of local schools (or adult education centre) as keepers of seedling and sapling material for restocking public areas in Sneem village, particularly with slower-regenerating species such as oak or other native trees. These groups may also be approached to assist with surveys (butterfly monitoring, bats, birds, etc.), management, and enhancement works.	High / Medium term
PI5	**Local participation – Guided walks and talks** See Interpretation section above.	High / Annual
PI7	**Project Information dissemination – Information panels** Develop information panels on any biodiversity initiatives for display at appropriate locations within the town such as the tourist office or library.	Moderate

7.4 Resource Allocation

Financial resources will be required to undertake many of the measures outlined in this plan. There are a range of grant schemes available to fund local biodiversity initiatives that should be explored by the local committee. Private sources of income may also be available for particular project work, perhaps from local / regional companies that would like to sponsor green initiatives. The following organisations administer a range of grant schemes aimed at natural heritage:

- National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht
- The Heritage Council
- The Forest Service
- Coillte Teoranta
- Kerry County Council
- Environmental Protection Agency (EPA)
- South Kerry Rural Development

Advice should be sought with regards future funding sources and initiatives from a range of organisations that are listed in Appendix 3 of this report.

8 Bibliography

Anonymous (2009) Native Woodland Information Notes. In support of the native Woodland Scheme. Woodlands of Ireland, Dublin.

Balmer, D.E., Gillings, S., Caffrey, B.J., Swann, R.L., Downie, I.S. and Fuller, R.J. (2013). Bird Atlas 2007-2011: the breeding and wintering birds of Britain and Ireland. BTO Books, Thetford.

Barron, C. (2006) The control of Rhododendron in native woodlands. Native woodland scheme information note no. 3. Forest Service, Dublin.

Barron, C., and Little, D. (2009) The control of Rhododendron in native woodlands. Native woodland scheme information note No 3. The Forest Service and Woodlands of Ireland.

Carruthers, T. (1998) Kerry: A Natural History. The Collins Press, Cork, pp. 294.

Challinor, H., Murphy Wickens, S., Clark, J., and Murphy, A. (1999) A beginner's guide to Ireland's Seashore. Sherkin Island Marine Station Publications, Ireland, pp.208

Crowe, O. (2005) Ireland's Wetlands and their Waterbirds: Status and Distribution. BirdWatch Ireland, pp. 402.

Cummins, S., Bleasdale, A., Douglas, C., Newton, S., O'Halloran, J. and Wilson, H.J. (2010) The status of Red Grouse in Ireland and the effects of land use, habitat and habitat quality on their distribution. Irish Wildlife Manuals, No. 50. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

Curtis, T., and Thompson, R. (2009) The Orchids of Ireland. National Museums of Northern Ireland.

Department of Arts, Heritage and the Gaeltacht (2011). National Biodiversity Plan.

Dickson, G. (1990) The Concise guide to Mushrooms and Toadstools of Britain and Europe. New Holland, London, pp. 103.

Fossitt, J. (2000) A Guide to Habitats in Ireland. The Heritage Council, Ireland.

Healy, B., Oliver, G., Hatch, P and Good, J. (1997) Coastal lagoons in the Republic of Ireland. NPWS, Dublin.

Kelly, J., Maguire, C.M. and Cosgrove, P.J. (2008) Best Practice Management Guidelines Japanese knotweed *Fallopia japonica*. Prepared for Northern Ireland Environment Agency and NPWS as part of Invasive Species Ireland.

Kerry County Council (2008). Heritage and Biodiversity Plan 2008-2012.

Kerry County Council (2008). South East Kerry Local Area Plans (Sneem).

Lynas, P., Newton, S.F. and Robinson, J.A. (2007). The status of birds in Ireland: an analysis of conservation concern. Irish Birds 8: 149-166.

Maguire, C.M., Kelly, J. and Cosgrove, P.J. (2008) Best Practice Management Guidelines Rhododendron *Rhododendron ponticum* and Cherry Laurel *Prunus laurocerasus*. Prepared for Northern Ireland Environment Agency and NPWS as part of Invasive Species Ireland.

Moorkens, E.A. (2000) Conservation Management of the Freshwater Pearl Mussel *Margaritifera margaritifera*. Part 2: Water Quality Requirements. Irish Wildlife Manuals, No. 9.

Nairn, R. and O'Halloran, J. (2012) Bird Habitats in Ireland. The Collins Press, Wilton, Co. Cork.

NPWS (2013). Kenmare River SAC (site code: 2158). Conservation objectives supporting document – Marine habitats and species. National Parks and Wildlife Service.

Parnell, J. and Curtis, T. (2012) Webb's: An Irish Flora. Cork University Press. pp. 504.

Phillips, R. (1980) Grasses, Ferns, Mosses & Lichens of Great Britain and Ireland. Pan Books Ltd., London.

Rohan, P. K. (1986). The Climate of Ireland. (Meteorological Service).

Smith, G.F., O'Donoghue, P., O'Hora, K. and Delaney, E. (2011) Best Practice Guidance for Habitat Survey and Management. Heritage Council, Kilkenny.

Webb D.A., Parnell, J. and Doogue, D. (1996) An Irish Flora. Dundalgan Press Ltd., Dundalk.

APPENDIX 1

List of flora and fauna species recorded in Sneem village and environs during the 2013 biodiversity survey

Species Group	English Flora Name	Latin Species Flora Name	Record Comment
Algae	Bladder Wrack	*Fucus vesiculosus*	
Algae	Chanelled Wrack	*Pelvetia canaliculata*	
Algae	Green algae	*Filamentous Green algae (R. Sneem)*	
Algae	Gutweed	*Enteromorpha intestinalis*	
Algae	Serrated Wrack	*Fucus serratus*	
Fern	Bracken	*Pteridium aquilinum*	
Fern	Broad Buckler-fern	*Dryopteris dilatata*	
Fern	Field Horsetail	*Equisetum arvense*	New 10 km record
Fern	Hard-fern	*Blechnum spicant*	
Fern	Hart's-tongue Fern	*Asplenium scolopendrium*	
Fern	Maidenhair Spleenwort	*Asplenium trichomanes*	
Fern	Polypody	*Polypodium vulgare*	
Fern	Royal Fern	*Osmunda regalis*	
Fern	Scaly Male-fern	*Dryopteris affinis*	
Fern	Wall-rue	*Asplenium ruta-muraria*	New 10 km record
Fern	Water Horsetail	*Equisetum fluviatile*	New 10 km record
Flowering plant	Alder	*Alnus glutinosa*	
Flowering plant	Alternate Water-milfoil	*Myriophyllum alterniflorum*	
Flowering plant	Ash	*Fraxinus excelsior*	
Flowering plant	Aspen	*Populus tremula*	New 10 km record; possibly planted
Flowering plant	Beech	*Fagus sylvatica*	New 10 km record
Flowering plant	Bell Heather	*Erica cinerea*	
Flowering plant	Bindweed	*Calystegia sp.*	New 10 km record
Flowering plant	Biting Stonecrop	*Sedum acre*	New 10 km record
Flowering plant	Black Bog-rush	*Schoenus nigricans*	
Flowering plant	Blackberry	*Rubus fruticosus agg.*	New 10 km record
Flowering plant	Blackthorn	*Prunus spinosa*	
Flowering plant	Bluebell	*Hyacinthoides non-scripta*	
Flowering plant	Blue-eyed-grass	*Sisyrinchium bermudiana*	
Flowering plant	Bog Asphodel	*Narthecium ossifragum*	
Flowering plant	Bog Pimpernel	*Anagallis tenella*	
Flowering plant	Branched Bur-reed	*Sparganium erectum*	New 10 km record
Flowering plant	Brazilian Giant-rhubarb	*Gunnera manicata*	New 10 km record; probably planted
Flowering plant	Broad-leaved Pondweed	*Potamogeton natans*	New 10 km record
Flowering plant	Broaf-leaved Wood dock	*Rumex obtusifolius*	
Flowering plant	Brooklime	*Veronica beccabunga*	New 10 km record
Flowering plant	Brookweed	*Samolus valerandi*	New 10 km record
Flowering plant	Broom	*Cytisus scoparius*	
Flowering plant	Buck's-horn Plantain	*Plantago coronopus*	New 10 km record
Flowering plant	Bugle	*Ajuga reptans*	
Flowering plant	Bulbous Rush	*Juncus bulbosus*	
Flowering plant	Bulrush	*Typha latifolia*	New 10 km record

Species Group	English Flora Name	Latin Species Flora Name	Record Comment
Flowering plant	Bush Vetch	*Vicia sepium*	New 10 km record
Flowering plant	Carnation Sedge	*Carex panicea*	
Flowering plant	Cherry Laurel	*Prunus laurocerasus*	New 10 km record; probably planted
Flowering plant	Cleavers	*Galium aparine*	
Flowering plant	Cock's-foot	*Dactylis glomerata*	
Flowering plant	Common Bird's-foot-trefoil	*Lotus corniculatus*	
Flowering plant	Common Dog-violet	*Viola riviniana*	
Flowering plant	Common Duckweed	*Lemna minor*	New 10 km record
Flowering plant	Common Figwort	*Scrophularia nodosa*	New 10 km record
Flowering plant	Common Knapweed	*Centaurea nigra*	
Flowering plant	Common Mouse-ear	*Cerastium fontanum*	
Flowering plant	Common Nettle	*Urtica dioica*	
Flowering plant	Common Ragwort	*Senecio jacobaea*	
Flowering plant	Common Reed	*Phragmites australis*	
Flowering plant	Common Scurvygrass	*Cochlearia officinalis*	New 10 km record
Flowering plant	Common Sedge	*Carex nigra*	
Flowering plant	Common Sorrel	*Rumex acetosa*	
Flowering plant	Common Valerian	*Valeriana officinalis*	New 10 km record
Flowering plant	Creeping Bent	*Agrostis stolonifera*	
Flowering plant	Creeping Buttercup	*Ranunculus repens*	
Flowering plant	Cross-leaved Heath	*Erica tetralix*	
Flowering plant	Cuckooflower	*Cardamine pratensis*	
Flowering plant	Daisy	*Bellis perennis*	
Flowering plant	Dandelion	*Taraxacum agg.*	
Flowering plant	Devil's-bit Scabious	*Succisa pratensis*	
Flowering plant	Dog-rose	*Rosa canina*	New 10 km record
Flowering plant	Downy Birch	*Betula pubescens*	New 10 km record
Flowering plant	Enchanter's-nightshade	*Circaea lutetiana*	New 10 km record
Flowering plant	Eyebright	*Euphrasia sp.*	
Flowering plant	False Fox-sedge	*Carex otrubae*	New 10 km record
Flowering plant	False-brome	*Brachypodium sylvaticum*	
Flowering plant	Field Wood-rush	*Luzula campestris*	
Flowering plant	Floating Sweet-grass	*Glyceria fluitans*	New 10 km record
Flowering plant	Foxglove	*Digitalis purpurea*	
Flowering plant	Fuchsia	*Fuchsia magellanica*	
Flowering plant	Germander Speedwell	*Veronica chamaedrys*	
Flowering plant	Gorse	*Ulex europaeus*	
Flowering plant	Great Willowherb	*Epilobium hirsutum*	New 10 km record
Flowering plant	Great Wood-rush	*Luzula sylvatica*	
Flowering plant	Greater Bird's-foot-trefoil	*Lotus pedunculatus*	
Flowering plant	Greater Plantain	*Plantago major*	
Flowering plant	Greater Spearwort	*Ranunculus lingua*	New 10 km record
Flowering plant	Ground-elder	*Aegopodium podagraria*	New 10 km record
Flowering plant	Groundsel	*Senecio vulgaris*	
Flowering plant	Guelder-rose	*Viburnum opulus*	New 10 km record
Flowering plant	Gypsywort	*Lycopus europaeus*	New 10 km record
Flowering plant	Hawkweed	*Hieracium sp.*	
Flowering plant	Hawthorn	*Crataegus monogyna*	
Flowering plant	Hazel	*Corylus avellana*	
Flowering plant	Heath Milkwort	*Polygala serpyllifolia*	

Species Group	English Flora Name	Latin Species Flora Name	Record Comment
Flowering plant	Hemlock Water-dropwort	*Oenanthe crocata*	
Flowering plant	Herb-Robert	*Geranium robertianum*	
Flowering plant	Hogweed	*Heracleum sphondylium*	New 10 km record
Flowering plant	Holly	*Ilex aquifolium*	
Flowering plant	Honeysuckle	*Lonicera periclymenum*	
Flowering plant	Horse chestnut	*Aesculus hippocastanum*	New 10 km record
Flowering plant	Irish Spurge	*Euphorbia hyberna*	New 10 km record
Flowering plant	Ivy	*Hedera helix*	
Flowering plant	Ivy-leaved Toadflax	*Cymbalaria muralis*	New 10 km record
Flowering plant	Japanese Knotweed	*Fallopia japonica*	New 10 km record
Flowering plant	Jointed Rush	*Juncus articulatus*	
Flowering plant	Large-flowered Butterwort	*Pinguicula grandiflora*	
Flowering plant	Lesser celandine	*Ficaria verna*	New 10 km record
Flowering plant	Lesser Marshwort	*Apium inundatum*	New 10 km record
Flowering plant	Lesser Spearwort	*Ranunculus flammula*	
Flowering plant	Ling Heather	*Calluna vulgaris*	
Flowering plant	Lousewort	*Pedicularis sylvatica*	
Flowering plant	Many-stalked Spike-rush	*Eleocharis multicaulis*	
Flowering plant	Marsh Arrowgrass	*Triglochin palustris*	New 10 km record
Flowering plant	Marsh Pennywort	*Hydrocotyle vulgaris*	
Flowering plant	Marsh Ragwort	*Senecio aquaticus*	
Flowering plant	Marsh Thistle	*Cirsium palustre*	
Flowering plant	Marsh-bedstraw	*Galium palustre*	
Flowering plant	Meadow Buttercup	*Ranunculus acris*	
Flowering plant	Meadowsweet	*Filipendula ulmaria*	
Flowering plant	Montbretia	*Crocosmia × crocosmiiflora*	
Flowering plant	Navelwort	*Umbilicus rupestris*	
Flowering plant	New Zealand Willowherb	*Epilobium brunnescens*	
Flowering plant	Northern Marsh-orchid	*Dactylorhiza majalis var. brevifolia*	New 10 km record
Flowering plant	Pedunculate Oak	*Quercus robur*	
Flowering plant	Pendulous Sedge	*Carex pendula*	New 10 km record
Flowering plant	Pignut	*Conopodium majus*	New 10 km record
Flowering plant	Poplar	*Populus sp. (nigra ?)*	New 10 km record; probably planted
Flowering plant	Primrose	*Primula vulgaris*	
Flowering plant	Procumbent Pearlwort	*Sagina procumbens*	
Flowering plant	Purple Moor-grass	*Molinia caerulea*	
Flowering plant	Purple-loosestrife	*Lythrum salicaria*	
Flowering plant	Ragged-Robin	*Lychnis flos-cuculi*	New 10 km record
Flowering plant	Red Clover	*Trifolium pratense*	
Flowering plant	Red Fescue	*Festuca rubra*	
Flowering plant	Red leaved cherry	*Prunus x cistena (?)*	
Flowering plant	Red Valerian	*Centranthus ruber*	New 10 km record
Flowering plant	Rhododendron	*Rhododendron ponticum*	
Flowering plant	Ribwort Plantain	*Plantago lanceolata*	
Flowering plant	Rowan	*Sorbus aucuparia*	
Flowering plant	Rusty Willow	*Salix cinerea subsp. oleifolia*	
Flowering plant	Saltmarsh Rush	*Juncus gerardii*	
Flowering plant	Sanicle	*Sanicula europaea*	
Flowering plant	Sea Arrowgrass	*Triglochin maritima*	

Species Group	English Flora Name	Latin Species Flora Name	Record Comment
Flowering plant	Sea Aster	*Aster tripolium*	New 10 km record
Flowering plant	Sea Club-rush	*Bolboschoenus maritimus*	New 10 km record
Flowering plant	Sea Plantain	*Plantago maritima*	
Flowering plant	Sea-milkwort	*Glaux maritima*	New 10 km record
Flowering plant	Sedge	*Carex viridula ssp. oedocarpa*	
Flowering plant	Selfheal	*Prunella vulgaris*	
Flowering plant	Shining Crane's-bill	*Geranium lucidum*	New 10 km record
Flowering plant	Silverweed	*Potentilla anserina*	
Flowering plant	Small-leaved Lime	*Tilia cordata*	New 10 km record; probably planted
Flowering plant	Smooth Meadow-grass	*Poa pratensis*	New 10 km record
Flowering plant	Smooth Sow-thistle	*Sonchus oleraceus*	
Flowering plant	Soft-brome	*Bromus hordeaceus*	
Flowering plant	Soft-rush	*Juncus effusus*	
Flowering plant	Spanish Bluebell	*Hyacinthoides hispanica*	New 10 km record
Flowering Plant	Spruce	*Picea sp.*	
Flowering plant	St Dabeoc's Heath	*Daboecia cantabrica*	New 10 km record; probably planted
Flowering plant	St Johns Wort	*Hypericum sp*	
Flowering plant	St Patrick's-cabbage	*Saxifraga spathularis*	
Flowering plant	Sweet Vernal-grass	*Anthoxanthum odoratum*	
Flowering plant	Sycamore	*Acer pseudoplatanus*	
Flowering plant	Tawny Sedge	*Carex hostiana*	
Flowering plant	Thrift	*Armeria maritima*	
Flowering plant	Thyme-leaved Speedwell	*Veronica serpyllifolia*	
Flowering plant	Tormentil	*Potentilla erecta*	
Flowering plant	Tufted forget-me-not	*Myosotis laxa*	New 10 km record
Flowering plant	Wall Cotoneaster	*Cotoneaster horizontalis*	
Flowering plant	Water Mint	*Mentha aquatica*	
Flowering plant	Water-cress	*Nasturtium officinale*	New 10 km record
Flowering plant	Western Gorse	*Ulex gallii*	
Flowering plant	White Water-lily	*Nymphaea alba*	
Flowering plant	Wild Angelica	*Angelica sylvestris*	
Flowering plant	Wild Privet	*Ligustrum vulgare*	
Flowering plant	Wood Anemone	*Anemone nemorosa*	New 10 km record
Flowering plant	Wood Avens	*Geum urbanum*	New 10 km record
Flowering plant	Wood Sage	*Teucrium scorodonia*	
Flowering plant	Wood-sorrel	*Oxalis acetosella*	
Flowering plant	Yarrow	*Achillea millefolium*	
Flowering plant	Yellow Iris	*Iris pseudacorus*	
Flowering plant	Yellow Pimpernel	*Lysimachia nemorum*	
Flowering plant	Yorkshire-fog	*Holcus lanatus*	
Lichen	Lichen	*Cladonia pocillum*	New 10 km record
Lichen	Foliose lichen	*Dermatocarpum miniatum*	New 10 km record
Lichen	Dog Lichen	*Peltigera membranacea*	
Lichen	Crustose Lichen	*possibly Amandinea punctata*	Possible new 10 km record
Lichen	Foliose lichen	*possibly Flavoparmelia caperata*	Possible new 10 km record
Lichen	Foliose lichen	*Xanthoria parietina*	
Liverwort	Liverwort	*Pellia epiphylla*	
Liverwort	Liverwort	*Scapania sp.*	

Species Group	English Flora Name	Latin Species Flora Name	Record Comment
Moss	Moss	*Aulacomnium palustre*	New 10 km record
Moss	Pointed Spear Moss	*Calliergonella cuspidata*	
Moss	Moss	*Campylopus introflexus*	
Moss	Great pocket moss	*Fissidens taxifolius*	New 10 km record
Moss	Greater water-moss	*Fontinalis antipyretica*	New 10 km record
Moss	Red Feather Moss	*Hylocomium splendens*	
Moss	Cypress-leaved plait-moss	*Hypnum cupressiforme*	
Moss	Moss	*Hypnum jutlandicum*	
Moss	Common Haircap Moss	*Polytrichum commune*	New 10 km record
Moss	Dotted Thyme-moss	*Rhizomnium punctatum*	
Moss	Little shaggy-moss	*Rhytidiadelphus loreus*	
Moss	Moss	*Rhytidiadelphus squarrosus*	
Moss	Sphagnum moss	*Sphagnum auriculatum*	
Moss	Sphagnum moss	*Sphagnum girgensohnii*	New 10 km record
Moss	Blunt-leaved Bog Moss	*Sphagnum palustre*	
Moss	Lustrous Bog Moss	*Sphagnum subnitens*	
Moss	Moss	*Thuidium tamariscinum*	
Moss	Moss	*Ulota crispa*	
Amphibian	Common frog	*Rana temporaria*	
Amphibian	Smooth or Common Newt	*Triturus vulgaris*	New 10 km record
Annelid	Lugworm	*Arenicola marina*	
Bird	Blackbird	*Turdus merula*	
Bird	Black-headed Gull	*Chroicocephalus ridibundus*	New 10 km record
Bird	Blue tit	*Cyanistes caeruleus*	
Bird	Chaffinch	*Fringilla coelebs*	
Bird	Coal tit	*Periparus ater*	
Bird	Common Gull	*Larus canus*	
Bird	Great tit	*Parus major*	
Bird	Greenfinch	*Carduelis chloris*	
Bird	Hooded Crow	*Corvus cornix*	
Bird	House Martin	*Delichon urbicum*	
Bird	House sparrow	*Passer domesticus*	
Bird	Magpie	*Pica pica*	
Bird	Mallard	*Anas platyrhynchos*	
Bird	Pied wagtail	*Motacilla alba yarrellii*	
Bird	Reed bunting	*Emberiza schoeniclus*	
Bird	Robin	*Erithacus rubecula*	
Bird	Rook	*Corvus frugilegus*	
Bird	Song thrush	*Turdus philomelos*	
Bird	Starling	*Sturnus vulgaris*	
Bird	Swallow	*Hirundo rustica*	
Bird	Wood Pigeon	*Columba palumbus*	
Bony Fish	Atlantic Salmon	*Salmo salar*	
Insect	Biting Midge	*Culicoides obsoletus*	New 10 km record
Insect	Cranefly	*Tipula sp.*	
Insect	Green dock leaf beetle	*Gastrophysa viridula*	New 10 km record
Insect	Green-veined white	*Pieris napi*	
Insect	Whirligig beetle species	*Gyrinidae spp.*	

APPENDIX 2

List of rare and protected flora and fauna previously reported from the Sneem area
(Source: NBDC 2014; NPWS 2014, sorted according to species group and common name)

Group	Common Name	Scientific Name	Status	Last recorded
Flowering plant	Betony	*Stachys officinalis*	Protected	1901
Flowering plant	Irish Lady's-tresses	*Spiranthes romanzoffiana*	Protected	1986
Flowering plant	Kerry Lily	*Simethis planifolia*	Protected	1994
Fern	Killarney Fern	*Trichomanes speciosum*	Protected	1961
Moss	Bark Signal-moss	*Sematophyllum substrumulosum*	Threatened	2008
Moss	Bent-moss	*Campylostelium saxicola*	Threatened	1951
Moss	Flat-leaved Bog-moss	*Sphagnum platyphyllum*	Protected	2000
Moss	Prostrate Signal-moss	*Sematophyllum demissum*	Threatened	1951
Moss	Shaw's Swan-neck Moss	*Campylopus shawii*	Threatened	2006
Liverwort	Irish Pouncewort	*Lejeunea hibernica*	Threatened	1951
Liverwort	Western Featherwort	*Plagiochila atlantica*	Protected	1951
Alga	Coral Maërl	*Lithothamnion corallioides*	Protected	2000
Bird	Arctic Tern	*Sterna paradisaea*	Amber; Annex I	1991
Bird	Barn Swallow	*Hirundo rustica*	Amber	1991
Bird	Black Guillemot	*Cepphus grylle*	Amber	1999
Bird	Black-headed Gull	*Larus ridibundus*	Red	1995
Bird	Black-legged Kittiwake	*Rissa tridactyla*	Amber	1995
Bird	Common Grasshopper Warbler	*Locustella naevia*	Amber	1991
Bird	Common Guillemot	*Uria aalge*	Amber	1995
Bird	Common Kestrel	*Falco tinnunculus*	Amber	1991
Bird	Common Kingfisher	*Alcedo atthis*	Amber; Annex I	1972
Bird	Common Linnet	*Carduelis cannabina*	Amber	1991
Bird	Common Sandpiper	*Actitis hypoleucos*	Amber	1991
Bird	Common Snipe	*Gallinago gallinago*	Amber	1984
Bird	Common Starling	*Sturnus vulgaris*	Amber	1991
Bird	Common Swift	*Apus apus*	Amber	1991
Bird	Common Tern	*Sterna hirundo*	Amber; Annex I	1972
Bird	Corn Crake	*Crex crex*	Red; Annex I	1972
Bird	Eurasian Curlew	*Numenius arquata*	Red	1991
Bird	Eurasian Oystercatcher	*Haematopus ostralegus*	Amber	1991
Bird	Eurasian Teal	*Anas crecca*	Amber	1991
Bird	Eurasian Wigeon	*Anas penelope*	Amber	1984
Bird	Eurasian Woodcock	*Scolopax rusticola*	Amber	1984
Bird	European Shag	*Phalacrocorax aristotelis*	Amber	1995
Bird	Great Black-backed Gull	*Larus marinus*	Amber	1991

Group	Common Name	Scientific Name	Status	Last recorded
Bird	Great Cormorant	*Phalacrocorax carbo*	Amber	1995
Bird	Great Northern Diver	*Gavia immer*	Annex I	1991
Bird	Herring Gull	*Larus argentatus*	Red	1995
Bird	House Martin	*Delichon urbicum*	Amber	1991
Bird	House Sparrow	*Passer domesticus*	Amber	1991
Bird	Lesser Black-backed Gull	*Larus fuscus*	Amber	1991
Bird	Little Grebe	*Tachybaptus ruficollis*	Amber	1972
Bird	Manx Shearwater	*Puffinus puffinus*	Amber	1995
Bird	Mew Gull	*Larus canus*	Amber	1972
Bird	Mute Swan	*Cygnus olor*	Amber	1991
Bird	Northern Gannet	*Morus bassanus*	Amber	1995
Bird	Northern Lapwing	*Vanellus vanellus*	Red	1972
Bird	Northern Wheatear	*Oenanthe oenanthe*	Amber	1991
Bird	Razorbill	*Alca torda*	Amber	1995
Bird	Red Grouse	*Lagopus lagopus*	Red	1972
Bird	Red-billed Chough	*Pyrrhocorax pyrrhocorax*	Amber; Annex I	1991
Bird	Ringed Plover	*Charadrius hiaticula*	Amber	1984
Bird	Sand Martin	*Riparia riparia*	Amber	1972
Bird	Sky Lark	*Alauda arvensis*	Amber	1991
Bird	Spotted Flycatcher	*Muscicapa striata*	Amber	1991
Bird	Yellowhammer	*Emberiza citrinella*	Red	1991
Insect	Bee	*Andrena coitana*	Threatened	1902
Insect	Bee	*Bombus magnus*	Threatened	1973
Insect	Bee	*Coelioxys elongata*	Threatened	1902
Insect	Beetle	*Gyrinus distinctus*	Threatened	1933
Insect	Dark Green Fritillary	*Argynnis aglaja*	Threatened	1976
Insect	Gatekeeper	*Pyronia tithonus*	Threatened	1976
Insect	Grayling	*Hipparchia semele*	Threatened	1976
Insect	Moss Carder-bee	*Bombus muscorum*	Threatened	1902
Insect	Red-tailed Carder Bee	*Bombus ruderarius*	Threatened	1973
Insect	Small Heath	*Coenonympha pamphilus*	Threatened	1970
Insect	Wall	*Lasiommata megera*	Threatened	1976
Mollusc	Common Shelled Slug	*Testacella haliotidea*	Threatened	1907
Mollusc	Common Whorl Snail	*Vertigo pygmaea*	Threatened	1914
Mollusc	Dog Whelk	*Nucella lapillus*	Threatened	1995
Mollusc	English Chrysalis Snail	*Leiostyla anglica*	Threatened	1914
Mollusc	Freshwater Pearl Mussel	*Margaritifera margaritifera*	Protected	2009
Mollusc	Kerry Slug	*Geomalacus maculosus*	Protected	1988
Mollusc	Striated Whorl Snail	*Vertigo substriata*	Threatened	1914
Mollusc	Tree Snail	*Balea perversa*	Threatened	1914
Mammal	Badger	*Meles meles*	Irish Wildlife Act	
Mammal	Common Pipistrelle	*Pipistrellus pipistrellus sensu*	Irish Wildlife Act; HD	

Group	Common Name	Scientific Name	Status	Last recorded
		lato	Annex IV	
Mammal	Common Seal	*Phoca vitulina*	Irish Wildlife Act; HD Annex II	
Mammal	Daubenton's Bat	*Myotis daubentonii*	Irish Wildlife Act; HD Annex IV	
Mammal	Grey Seal	*Halichoerus grypus*	Irish Wildlife Act; HD Annex II	
Mammal	Hedgehog	*Erinaceus europaeus*	Irish Wildlife Act	
Mammal	Irish Hare	*Lepus timidus subsp. hibernicus*	Irish Wildlife Act	
Mammal	Lesser Horseshoe Bat	*Rhinolophus hipposideros*	Irish Wildlife Act; HD Annex II, IV	
Mammal	Otter	*Lutra lutra*	Irish Wildlife Act; HD Annex II, IV	
Mammal	Red Deer	*Cervus elaphus*	Irish Wildlife Act	
Mammal	Sika Deer	*Cervus nippon*	Irish Wildlife Act	
Mammal	Soprano Pipistrelle	*Pipistrellus pygmaeus*	Irish Wildlife Act; HD Annex IV	

APPENDIX 3

Useful contacts for advice on funding, management and conservation of biodiversity

An Taisce, Tailors' Hall, Back Lane, Dublin. Tel. (01) 454 1786 Website: www.antaisce.org

Bat Conservation Ireland, Ulex House, Drumheel, Lisduff, Virginia, Co. Cavan. Tel: 046 9242882. Website: www.batconservationireland.org

BirdWatch Ireland, Unit 20, Block D, Bullford Business Campus, Kilcoole, Co. Wicklow, Ireland. Tel: 353 (0)1 2819878. Website: www.birdwatchireland.ie

Coillte Teoranta, Newtownmountkennedy, Co. Wicklow. Tel: (01) 2011111. Website: www.coillte.ie

Cork County Bat Group. Spring Lane, Carrigagulla, Ballinagree, Macroom, Co. Cork. Tel: (021) 7339247 or (087) 2980297 E-mail: conorkelleher@eircom.net Web site: www.corkcountybatgroup.ie

Irish Peatland Conservation Council, Bog of Allen Nature Centre, Lullymore, Rathangan, Co Kildare. Tel: (045) 860133. Website: www.ipcc.ie

Irish Wildlife Trust. Sigmund Business Park, 93A Lagan Road, Dublin Industrial Estate, Glasnevin, Dublin 11 Tel: 01-8602839. Web site: www.iwt.ie

National Parks and Wildlife Service, 7 Ely Place, Dublin 2. Tel:(01) 8882000. Website: www.npws.ie

National Biodiversity Data Centre. Website: www.biodiversityireland.ie

The Heritage Council, The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny, Ireland. Tel: (056) 7770777. Website: www.heritagecouncil.ie

Invasive Species Ireland. Useful on-line resource on invasive species in Ireland. Website: www.InvasiveSpeciesIreland.com

Tree Council of Ireland, Seismograph House, Rathfarnham Castle, Rathfarnham, Dublin 14. Tel: (01) 493 1313. Website: www.treecouncil.ie

The Woodland League, c/o East Clare Community Co-op, Main St., Scarriff, Co. Clare Tel: (087) 9933157. Website: www.woodlandleague.org

Woodlands of Ireland, Declan Little, Woodlands of Ireland, Seismograph House, Rathfarnham Castle, Dublin 14. Tel: 087-6685823. Website: www.woodlandsofireland.com

Forest Service, Head Office, Agriculture House, Kildare St. Dublin 2. Lo-call: 1890 200 510 Tel: 01 607 2000 http://www.agriculture.gov.ie/forestservice/grantandpremiumschemes/

Useful grant schemes include: Neighbour Wood Scheme and the Native Woodland Scheme.

Bird and Bat box supplier

It is recommended that bird and bat boxes be purchased locally. Local wood workers would be able to provide these at a reasonable cost. Examples of different types, advice on siting, and commercial suppliers are available on the following websites:

www.nestbox.co.uk

www.birdwatchireland.ie

www.alanaecology.com

www.jacobijayne.co.uk

APPENDIX 4

Photographs illustrating the main habitat types; management issues that need to be addressed; and location of interpretation recommendations in Sneem Village, County Kerry
(All photographs copyright Peter Foss unless otherwise stated)

Plates A. Habitats in Sneem Village

Plate A1: River Sneem and waterfall in the center of Sneem village a favourite attraction for visitors to the town.

Plate A2: River Sneem to the east of the GAA pitch north of the village (Area G). Note the well developed deciduous woodland corridor on the eastern bank of the river. A fishing platform is located on the western bank.

Plate A3: View over the estuary south of Sneem village looking towards boat yard in the west. A narrow reed bed area occurs in the forground which gives way to a regularly flooded rocky shore communities (west of Area C).

Plate A4: A view of wet grassland and marsh areas south of Sneem village near the old boathouse at Area B.

Plate A5: A view of wet grassland area with public footpath on the western side of Sneem estuary (Area A). A narrow alder scrub fringe occurs between the estuary and wet grassland.

Plate A6: A view of wet grassland area used for cattle grazing to the east of Sneem village (Area H). Hedgerows composed mostly of rusty willow add to the biodiversity value of the area.

Plate A7: A view of wet grassland to the north of Sneem village (Area F). Larger exotic and native trees seen in the distance add to the biodiversity value of this area dfor birds and bats.

Plate A8: Dry heathland vegetation with heathers and Purple Moor Grass south Sneem village (Area D). This area in the SE part of area D shows scattered scrub invasion and patches of dense Bracken.

Plate A9: Small area of mixed deciduous woodland with non-native trees on the River Sneem in the centre of the village.

Plate A10: Area of mature mixed conifer-deciduous estate woodland north of Sneem village (Area F). Older larger trees can provide important bat roost areas.

Plate A11: Area of semi natural Alder-Willow woodland north of Sneem village (Area F) on the eastern bank of the Sneem River. Such riverine woodlands are important bat and bird feeding sites.

Plate A12: Natural dry stone walls occur at various location in and around Sneem village. They are important bare rock habitat for a number of specialised to grow on rock crevices including Ivy-leaved toadflax, Spleenwort and Polypody, Lichens and Mosses.

These should be left in as near natural a state as possible and not "cleaned" too often, to enhance their biodiversity.

Plate A13: Area of recolonising bare ground created during construction of local housing estates. This site is located near the Atlantic Gateway estate (Area I). The area is being recolonised by gorse and willow scrub. Such "green field sites" can provide important wildlife areas for nesting and feeding birds and butterflies.

Plate A14: Amenity grassland area in the graveyard in the Church of Ireland in Sneem. Older, less intensively managed grassland areas such as this can have greater wildlife value.

Plate A15: Amenity grassland area south of Sneem village (Area C) where a number of gardens have been developed for visitor use. Such areas are an ideal forum in which to inform the general public, visitors and local residents of the value of biodiversity protection and local Tidy Town Committee intiatives.

Plates B. Biodiversity Pressures & Threats in Sneem Village

Plate B1: *Rhododendron ponticum* invading the heathland community in Area E. Dense growth by *Rhododendron* completely shades out native, significantly reducing the biodiversity value of such areas.

Plate B2: *Rhododendron ponticum* invading the heathland community in amenity Area D. Dense growth by *Rhododendron* completely shades out native, significantly reducing biodiversity value.

Plate B3: *Rhododendron ponticum* invading the grassland community beside the River Sneem by the GAA pitch north of the village (Area G).

Plate B4: *Rhododendron ponticum* invading the river bank woodland beside the Church of Ireland in the village.

Plate B5 & B6: The expansion and invasion of Japanese Knotweed (*Fallopia japonica)* threatens the biodiversity value of the habitats in Sneem. It is recommended that all stands of this be removed from the amenity Area C south of the village (image top) and from the River Sneem Area F north of the town (image bottom). In addition Japanese Knotweed should be eradicated from a number of location within the village where it occurs on private lands (see below).

Plate B7, B8 & B9: The expansion and invasion of Japanese Knotweed (*Fallopia japonica)* threatens the biodiversity value of habitats in Sneem. Japanese Knotweed should be eradicated from a number of location within the village where it occurs on private lands, perhaps by special tidy towns initiative targeted at this invasive alien.

Plate B10: Areas of standing open water are relatively uncommon in Sneem village. The small lake near the entrance to the Sneem Hotel contained the Smooth Newt, a previously not recorded in this 10 km square. Consideration should be given to creating a buffer zone approximately 1 m wide around the pond to provide shelter for wildlife. This should be left unmown, with a once annual high cut of the vegetation in the autumn if this is considered essential by the owners.

Plates C. Interpretation & Access in Sneem Village

Plate C1: One of the main acess points to Area C south of Sneem town, beside the RC Church. This area provides an ideal location for the erection of interpretative panels informing local residents and vistors about the biodiversity and natural history value of the town and its environs.

Plate C2: One of the main acess points to Area C south of Sneem town, beside the theme gardens. This area provides an ideal location for the erection of interpretative panels informing local residents and vistors about the biodiversity and natural history value of the town and its environs.

Plate C3: One of grassland areas in Area C south of the town beside one of the theme gardens. This area could be managed to create a wildflower garden with just one annual cut.

Plate C4: One of grassland areas near the theme gardens and barbeque/picnic area in Area C south of the town. This area could be managed to create a butterfly garden, increasing the areas biodiversity value.

Plate C5: An old information sign beside the public path through Area C which could be upgraded to include an interpretative panel on the value to wildlife and biodiversity of the estuary, reedbed and other adjacent habitats.

Plate C6: Steps on the southern edge of the peninsula in Area C. The path along the route from the quay to the Sneem Hotel is in poor condition in parts. Upgrading of the path and steps is recommended.

Plate C7: Section of heavily mown grassland in the NW corner of Area C. This area could be left in a more natural condition and managed as a wildflower meadow, with only a late summer cut and removal of hay as required. This would increase the biodiversity value of the area, reduce the cost of regular mowing and reduce the carbon footprint of mowing with machinery on a regular basis.

Plate C8: View of the grassland area in the NW corner of Area C as seen from Sneem village. It is recommended that this area be considered for managment as a wildflower meadow.