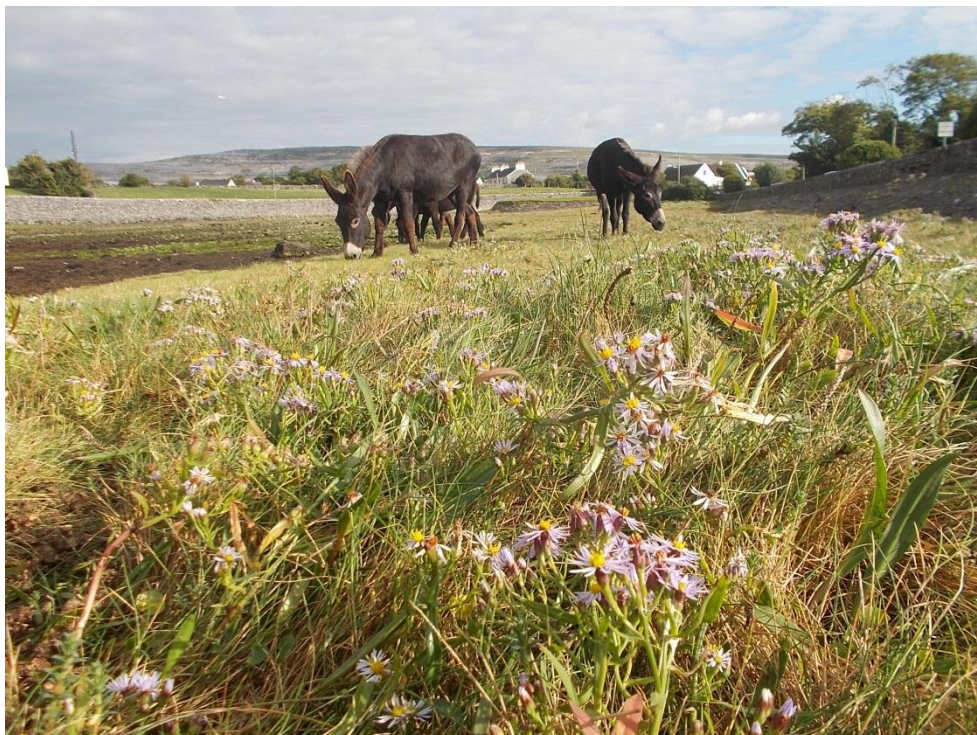

Ballyvaughan Tidy Towns Survey of Wildlife and Natural Amenity 2014



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For The Ballyvaughan Community Development Group and

Burren and Cliffs of Moher Geopark LIFE project



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Executive summary

Adjacent to Ballyvaughan there are *Special Areas of Conservation* and a *Special Area of Protection* for birds. The habitats surrounding the village include some of national and international importance, notably limestone pavement, orchid-rich calcareous grassland, turloughs and saltmarshes. While these habitats are within walking distance of the village, calcareous grassland and saltmarsh habitats are also present within the village itself. In addition, there are 24 other habitats within the village, in which 146 species of plant have been recorded. One species, *Cardamine impatiens* is so rare that it is only known from two locations in Ireland. These habitats support birds, bees, butterflies, and mammals some of which require protection under Annex 2 of the Habitats Directive.

It is suggested that these habitats be managed in order to enhance their value to biodiversity, increasing and protecting the species which live in them.

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1 Introduction

Wildlife and Natural Amenities is one of the categories judged in the *Tidy Towns Competition*. A wildlife survey provides the base-line information on species present, identifying the habitats in the village and providing observations on their current management. This will inform future management allowing for improvement in this category in the Tidy Towns Competition.

Ballyvaughan has received 32 marks out of a possible 50 (i.e. only 64%) in the last 2 years (2012, 2013) for *Wildlife and Natural Amenities* in the *Tidy Towns Competition*. The judges suggested the creation of a Wildlife Trail, to be combined with a Heritage trail, and that the harbour and seashore should be included. The focus of the competition lies within the 50km speed limit zone, although Ballyvaughan also benefits from the areas of European importance (*Special Areas of Conservation* and a *Special Protection Area for Birds* – SACs and an SPA) on its outskirts, and the Geopark Heritage Trail.

The Wildlife Survey was commissioned by the *Ballyvaughan Community Development Group* (BCDG) funded by the *Burren and Cliffs of Moher Geopark* as part of their LIFE project, to take place during 2014. The survey identifies habitats and physical features on an annotated 1:2500 map, habitat descriptions and species lists, including notable species and those which are indicative of the health of the habitat.

Information boards give guidance on several attractive walks which commence within the village. Arising from this survey, a wildlife walk could be devised linking areas of interest. However the main road carries a lot of traffic, especially in the tourist season, and is not only very narrow but lacks pavements, making it less than ideal for walkers. There are some vantage points within the village where people can observe wildlife safely.

In 2013, the judge commented “Besides the Burren the sea is a very important natural amenity ...” and suggested that the harbour and seashore be incorporated in future.

2 Key objectives

- 1) **To create a Map of Habitats within the Ballyvaughan 50km speed restriction zone.**
- 2) **To list species present in the village, including birds, butterflies, bees and mammals, and plants of interest.**
- 3) **To provide a photographic record of those habitats.**
- 4) **To provide a management plan for habitats present in the village, and advice on how to improve the score for Wildlife and Natural Amenities under the Tidy Towns Competition.**

3 Methodology

3.1 Scope of the survey

The area eligible for the *Tidy Towns Competition* is normally that within the 50 km/hour speed limit (TT Handbook). The survey focused on that area but was extended beyond where the verges are managed and it is possible to walk safely. Whilst areas in the village under private management, namely gardens and fields, were not surveyed, occasionally good examples are mentioned.

3.2 Survey methods

A desk study and a field survey were both carried out to provide the data in this report. The desk study included a literature review concerning the SACs and surrounding areas of interest to identify species which may also be present in the village. The County Clare Recorders for the Botanical Society of Britain and Ireland (BSBI) drew attention to a rare plant, found only in Ballyvaughan, which was then carefully searched for. Ordnance Survey maps and aerial photographs were also consulted.

Suggestions for the field survey method are made in the *Tidy Towns Handbook 2010* (page 37). The **Wildlife Survey Habitat Map** is based on Phase 1 Habitat Surveying as outlined in '*A handbook for Phase 1 habitat survey – a technique for environmental audit*', (NCC 1990), in particular section 4, Urban Surveys, and also '*Best practise guidance for habitat survey and mapping*' (Smith et al. 2011). Species lists were used to identify habitats present, (rather than full relevés in 5 quadrats per habitat). An initial walk was the first step and a map was drawn up as areas were identified. These were revisited several times during the year as vernal (spring) species died back and were replaced with summer vegetation. Species lists include those which are notable and those which are indicative of the quality of the habitat. Habitats are identified using the codes in '*A guide to habitats in Ireland*', (Fossitt 2000), and species are named according to Webb's Irish Flora (2012).

Public consultation provided species data for the fauna, including birds, butterflies, bees and mammals. Intertidal species are also included in the survey. Ballyvaughan has several members of the community who have excellent knowledge in these areas. Their names were provided by the BCDG group. General species lists were obtained from the National Biodiversity Data Centre (Bioblitz record cards), for use in questioning participants and for community involvement the lists were also displayed at the Church, the Village Stores (Spar) and at the National School.

Without influencing during questioning people were asked if they had seen these species within the 50km speed restriction zone in Ballyvaughan during the 12 month period October 2013-October 2014. A category was added if they had seen them in the close vicinity (roughly equivalent to the zone within the Ballyvaughan town signs). Information on moth species was extracted from records submitted by Dr Sharon Parr. Data on birds recorded on Birdtrack was made available by Dr Stephen Ward. A notice was published in the Community Newsletter about the survey, sheets were handed out and a Facebook group was created to allow the public to communicate any findings they might have which would add to the survey.

3.3 Limitations

The survey was carried out between 12th April and 2nd October.2014, during which time most plants are easily identifiable. However some groups such as mosses and liverworts, which become more apparent during the winter, may have been overlooked. The plants listed in the survey are not intended to be exhaustive. It is an acceptable short-cut to focus on species which identify the habitats present and are indicative of their quality. The fauna data is also not exhaustive but should

provide a baseline for future study. It was not intended to do a full citizen-science project given time limitations. Bird data from last 12 months was used in preference to continuing the survey through the winter since there is a large amount of good quality data available for Ballyvaughan.

In urban habitat mapping a minimum area is usually set for habitats. To be marked accurately at the scale 1:2500, a minimum area is suggested to be 4m x 4m. Since this would exclude some of the small scale information, and given that the focus of the survey includes small areas along the roadside, the minimum area was reduced to include 50cm wide linear habitats and flower beds.

The sublittoral and marine habitats were not surveyed.

4 The habitats of Ballyvaughan

Ballyvaughan is a village in North Clare, in the limestone area known as the Burren. It is in the *Burren and Cliffs of Moher Geopark*, and is bordered by the sea in *Galway Bay Special area of Conservation* – SAC (Habitats Directive) which focuses on the conservation of both habitats and rare species. It is also part of the Inner Galway Bay *Special Protection Area SPA* (Birds Directive) which focuses on the diversity and protection of wild bird species. The Ballyvaughan turlough SAC is to the south, and is crossed by the Wood Loop Walk. To the west lies the Rine with the Ballyvaughan saltmarsh, also part of an SAC; to the East is Lough Rask a brackish lake, i.e. it receives fresh water from inland and saline water from the coast. There is also an area of coastal grassland to the west of Ballyvaughan (between An Fullacht Fia and Tigin) which is home to the endemic Burren Green Moth *Calamia tridens occidentalis*. Further walks lead from Ballyvaughan, such as the Music Trail which begins opposite the Burren College of Art car park.

Ballyvaughan is very much a farming township surrounded by fields, which in the past often contained sheep (OSI maps). There are some mature trees and hedgerows; stone walls are a notable feature of the area. Ballyvaughan is a popular place for tourists. Coaches stop in the village and at the Old Pier opposite Monks. There is a school, playing field, and church.

During the field survey 146 species of higher plant and 10 bryophytes (moss and liverworts) were recorded. A total of 26 habitats were found, see **Table 1** and map at **Figure 1**. Artificial surfaces and buildings are marked as urban areas.

Habitats of importance are limestone pavements, orchid-rich calcareous grassland, turloughs and saltmarshes which are listed on Annex I of the EU Habitats Directive, i.e. as being of importance not just in an Irish context but in a European context; under the Directive these habitats are considered to be priorities for conservation.

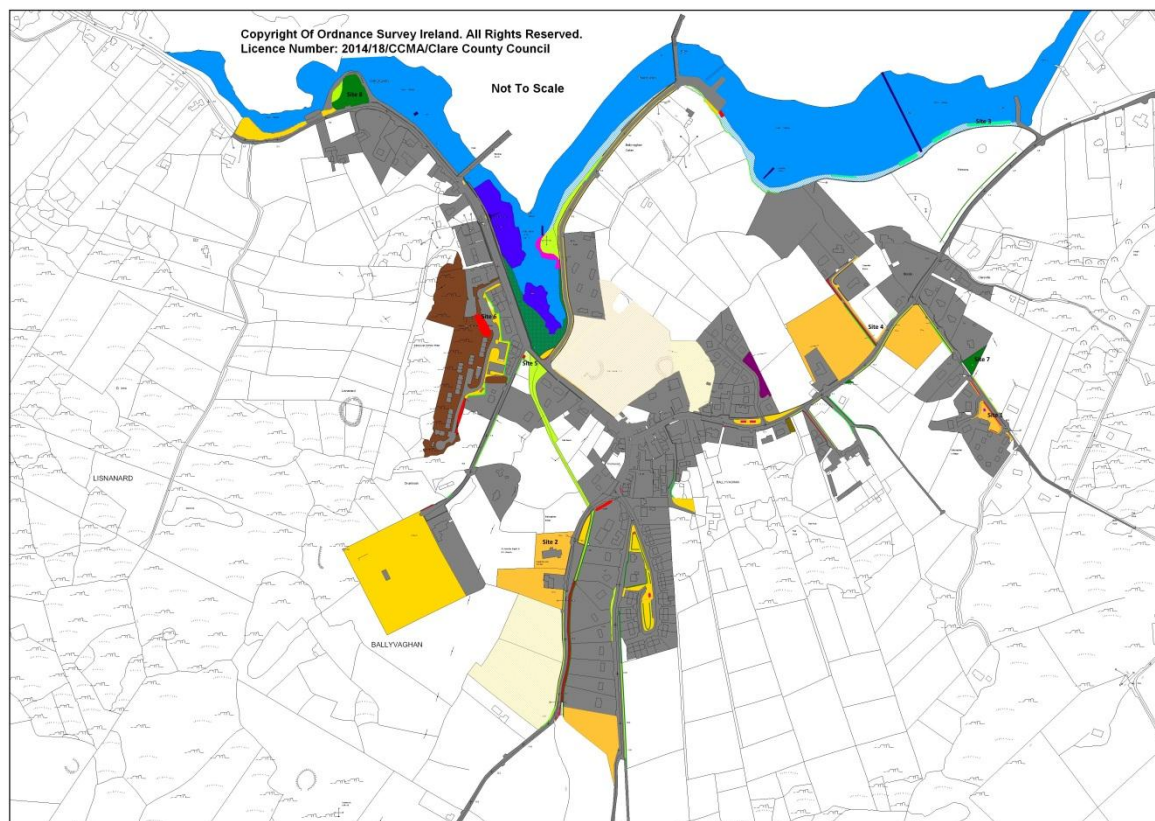


Figure 1: Map of Ballyvaughan

Habitats of Ballyvaughan

4.1. BC3 Tilled land

Just one small area in the village is awaiting unknown planting. When land is tilled it gives an opportunity for annual species to grow without competition. Some weed species which once grew with arable crops used to be common, but with modern herbicides are now rare. If this area is planted with crops it may increase the biodiversity in the area and provide food for birds. However if it is planted with a ryegrass *Lolium perenne* ley this is of low value to biodiversity.

4.2. BC4 Flowerbeds

Figure 2: Flower beds and amenity grassland outside Ballyvaughan Lodge B&B.



In Ballyvaughan there are several beds planted with non-native flowering plants. Annual weeds occur at the base of the flower bed wall where herbicides had been used. This often leaves an unsightly border of dead vegetation. Slug-pellets have also been used. Flowers in borders can provide nectar for insects.

4.3. BL1 Stone walls

Figure 3: Stone wall near the School supporting ferns, mosses and stonecrops



Stone walls are great habitats for invertebrates, ferns mosses and lichens. Garden and field walls support lichens, bryophytes and several ferns species including rusty-back fern *Asplenium ceterach*, and maidenhair spleenwort *Asplenium trichomanes*. In the early summer rue-leaved (or 3-fingered) saxifrage *Saxifraga tridactylites* grows on old buildings and lime-washed walls.

Stone walls also support ivy and brambles, important food sources for insects.



Figure 4: Rue-leaved or 3-fingered saxifrage *Saxifraga tridactylites*.



Figure 5: Stone crop and stiff sand-grass *Catapodium marinum*

This habitat includes coastal constructions, sea walls and piers in Ballyvaughan which support different plant communities able to tolerate salt spray, and derelict buildings and bridges which can be important habitats for animals.

It is important not to remove the vegetation from stone walls or spray them with herbicide. For maintenance they should be repaired with lime mortar, not cement, and woody species should only be removed if they threaten to break the wall.

4.4. BL3 Buildings and artificial surfaces

The built area in Ballyvaughan includes buildings and tarmaced areas. On the map they are included with urban areas and gardens in general. Some gardens are noted later.

Figure 6: Buildings and artificial surfaces in Ballyvaughan



4.5 CB1 Shingle and gravel banks

The shingle near the ancient foundations of Ballyvaughan castle in the bay is included here. It supports high-shore terrestrial plants which also occur on the strandline - see shingle and gravel shores. This area is sparsely populated with sea mayweed *Tripleurospermum maritimum* and sea beet *Beta maritima*.

Figure 7: Shingle and gravel bank habitat overlying the foundations of Ballyvaughan castle.



4.6 CC1 Sea walls piers and jetties



Figure 8: Man-made stone construction in the intertidal zone

In Ballyvaughan there are a few man made stone constructions built in the intertidal zone. They are completely immersed at high tide and therefore have the same flora and fauna as the rest of the littoral habitats.

4.7 CM1 Lower salt marsh

Figure 9: Lower Saltmarsh, with right of way along shore.



There are two areas of lower saltmarsh, one in Ballyvaughan bay, (which grades into Upper Saltmarsh habitat) and one below Clareville House, which has elements of flora more distinctly of lower saltmarsh habitat. This area is very narrow and patchy, and has a public right of way going through it.

4.8. CM2 Upper Saltmarsh

Figure 10: Donkeys grazing the upper saltmarsh in Ballyvaughan Bay; sea asters *Aster tripolium* flowering in the foreground



Upper Saltmarsh is characterised by similar species as lower saltmarsh but has higher cover of grasses and rushes. In Ballyvaughan Bay most of the saltmarsh is of the upper saltmarsh type. It is grazed in the summer by donkeys.

4.9. ED3 Recolonising bare ground

Figure 11: Area of recolonising limestone rubble to the rear of the Ballyvaughan Coast Hotel 2014



Recolonising bare rubble habitats are found in the turlough drain (Ballyvaughan levee), and in the wake of road-works. It also includes the area in which narrow-leaved bitter-cress *Cardamine impatiens* grows. This habitat also occurs beside some roads, and at the base of stone walls, where the ground has often been rendered bare by the frequent application of herbicides.

4.10. ED5 Refuse and other waste



Figure 12: Grass clippings near Ballyvaughan cottages

There are several small piles of grass cuttings around Ballyvaughan. They are sometimes well organised for composting, and sometimes dumped over walls.

4.11. GM1 Marsh

A small area near the end of the Turlough drain at Ballyvaughan Bridge on the coast road contains some native marsh species intermixed with ornamental garden species.



Figure 13: Marsh area near Ballyvaughan Bridge on the coast road.

4.12. GA1 Improved agricultural grassland



Figure 14: Improved agricultural grassland near Fair Green opposite O'Loclainn's

Some fields seen from the roadside in the village have been improved or support low levels of biodiversity.

4.13. GA2 Amenity grassland (improved)

Figure 15: Area of amenity grassland opposite Monks Ballyvaughan 2014



The grassy areas managed in the centre of the village, which are cut regularly during the summer, classify as improved Amenity grassland, and generally have low diversity. With a less frequent cutting regime, some areas have potential to be more diverse.

4.14. GS1 Dry calcareous and neutral grassland

Some of the amenity grassland in Ballyvaughan is of higher diversity and plants characteristic of calcareous soils. A good example of this is on Green Road (L5036), where amenity grass outside Ballyvaughan Holiday Cottages has cowslips *Primula veris*, orchids, knapweed *Centaurea nigra* and yellow rattle *Rhinanthus minor*. These plants are mown around and allowed to set seed. The seed heads provide food for Goldfinches in winter.

This type of grassland can also be found at the Church, where it has a large number of cowslips and quaking grass *Briza media*, and at one other small piece of amenity grassland where the unnamed new road adjoins the N67; here the orchid rich grass verge continues along a wooden fence.



Figure 16: Dry calcareous grassland outside Ballyvaughan Holiday Cottages



Figure 17: Church grounds with dry calcareous grassland



Figure 18: Mown orchid in verge grassland



Figure 19: Verge with mown orchids and herbicide spray-zone



Figure 20: Mown orchid

The field at the corner of Green Road is a splendid example of calcareous grassland with abundant cowslips *Primula veris* and oxeye daisies *Leucanthemum vulgare*; it would benefit from late cutting and low fertiliser regime.



Figure 21: Field at junction of N67 and Green Road; dry calcareous grassland with cowslips and ox-eye daisies

4.15. GS2 Dry meadows and grassy verges

All the verges in Ballyvaughan, and much of the turlough drain, have the plant community of dry meadows and grassy verges. They are dominated by Cocksfoot grass *Dactylis glomerata* and False oat grass *Arrhenatherum elatior*, with nettle, bush vetch *Vicia sepium*, hogweed *Heracleum sphondylium*, knapweed *Centaurea nigra* and meadow vetchling *Lathyrus pratensis*. They are not often cut and provide linear habitats supporting bees, butterflies and other insects.

4.16. HD1 Dense Bracken

Figure 22: Limestone pavement covered by dense bracken behind Ballyvaughan Coast Hotel 2014



Behind the hotel there is an area of limestone pavement which classified as HD1 Dense bracken during the summer.

4.16. WD5 Scattered trees and parkland

This habitat is represented in Ballyvaughan by the amenity grassland near Dolmen Cottages which has been planted with shrubs and trees. Although the grassland is rank it contains a high proportion of sedges, and has considerable potential to be of value as a wildlife habitat. There are brambles growing among the shrubs



Figure 23 Scattered trees and shrubs in grassland at Dolmen Cottages

4.17. WL1 Hedgerows

Generally the hedgerows are not intact having many gaps, but are of native trees with only occasional garden introductions such as Wilson’s honeysuckle- *Lonicera nitida* – a native of New Zealand, snowberry – *Symphoricarpus albus* – a native of N America, periwinkle *Vinca major* – a native of southern Europe and North Africa and *Escallonia* – a native of South America. Some spindle *Euonymus europaeus* – a native of Ireland is present on the outskirts of the town. Many hedges are very overgrown with bramble and ivy.



Figure 24: Hedgerow on School Road

4.18. WL2 Treelines

Some of the fields around Ballyvaughan have lines of trees rather than hedges surrounding them. The trees are either native e.g. whitethorn (hawthorn) or species introduced long ago, e.g. sycamore. There are also young treelines in some amenity grassland areas.



Figure 25: Treelines in amenity grassland on St Joseph's Road



Figure 26: Treeline of hawthorn trees along field wall

4.20. WN2 Oak-ash-hazel woodlands

At the Old Churchyard there is an oak-ash-hazel wood with some non-native trees. It has woodland flowers which include cowslip and celandine *Ficaria verna*. There is a record that long-eared owl roosted here in the past. There has been recent cutting of ivy and tidying of the Churchyard. Other plant species include false oxlip, *Primula hybrid* and *Arum maculatum*. This community is also found at the Bird-hide where the woodland is just mature enough to include here.



Figure 27: The old graveyard on Green Road

4.21. WS1 Scrub

The young woodland at the Bird hide also includes some scrub habitat with gorse. A larger area of scrub lies past the school on the Wood Loop walk.



Figure 28: Scrub with gorse at the Bird-hide

4.22. WS2 Immature woodland

There are a few aspens *Populus tremula* which are suckering and may develop into woodland; the areas noted in the survey are in Shirley's garden on the L5036, field wall on the N67 and at the Burren Coast hotel. They are included in immature woodland habitat. – aspen is a rare tree locally.

4.23. WS3 Ornamental/non-native shrub

One flower bed near Ballyvaughan cottages has become overgrown with non-native shrubs, and is now included in this habitat type rather than a flower bed. There is another area where non-native shrubs dominate near the Health Centre. See Figure 33



Figure 29: Flower bed overgrown with non-native shrubs

4.24. Marine Habitats LR4 Mixed Substrate Shores

Ballyvaughan has elements of three marine intertidal habitats. Ballyvaughan Bay is very sheltered and has areas of limestone pavement; this is LR4, mixed substrata shores.

Figure 30: Limestone pavement in Ballyvaughan Bay - part of the mixed substrata shore habitat



The lichen zone is a narrow band along the tide line – best seen on the harbour walls, but also evident on rock outcrops. One of the lichens is black and sometimes mistaken for tar. Brown fucoid seaweeds cloth the rocks exposed at low tide; in the deeper channel there are several red seaweeds and mussels.

4.25. Marine Habitats LS5 Mixed Sediment shores

Most of the rest of the shoreline continuing as far as the Sea Gate classifies as Mixed Sediment Shore LS5. There are areas of fine sand and gravel strewn with larger boulders. Here the pattern of Fucoid seaweeds is very clear, with Channelled wrack (*Pelvetia caniculata*) at the extreme top of the littoral zone, the mid shore is dominated by Knotted wrack (*Ascophyllum nodosum*), mixed with Bladder wrack (*Fucus vesiculosus*) and Serrated Wrack (*Fucus seratus*) at the lower intertidal.

4.26. Marine Habitats LS1 Shingle and gravel shores

There are also areas which classify as LS1 Shingle and gravel shores particularly due to the nature of the strandline and the terrestrial vegetation it supports.

The littoral zone in Ballyvaughan was surveyed before the Knotted Wrack was harvested between Sea Gate and the Pier. This will alter the species composition on the beach for several years.

Figure 31: Climin of harvested Knotted Wrack at Sea Gate



Figure 32: Bare rocks in the intertidal zone after harvesting of Knotted Wrack *Ascophyllum nodosum*.



There was a lot of the free floating form of the seaweed *Ascophyllum nodosum* var. *mackaii* present, indicating the mixed sediment and sheltered conditions along the shore. There was a single *Osmunda hybrida* specimen found before the cutting and lots of ephemeral green algae including *Ulva intestinalis*.

5. Areas with habitat of note

5.1. Site 1 BV holiday cottages grassland

This is the best example in Ballyvaughan of grassland managed to foster its wild flowers. Complete mowing occurs only in the spring with, during the summer, paths cut through the longer areas. This allows the wild flora, particularly hardheads *Centaurea nigra* to set seed; the seeds are available as food for birds during autumn and winter. Cowslips *Primula veris* and yellow rattle *Rhinanthus minor* have been sown. Yellow rattle is semi-parasitic on grass roots and reduces the vigour of the grasses, requiring less mowing and allowing less competitive wild flowers to flourish. There are wildflowers in abundance including orchids during the summer months.

It is **recommended** that other areas of grassland in Ballyvaughan could be returned to more valuable habitats by adopting this approach, i.e. cutting less frequently.

5.2. Site 2 Church

The church is set in grassland which still has orchids, cowslips and quaking grass, along with some other wildflowers. It is good to see the grass being grazed by sheep, though the timing of grazing should be optimised to allow for flowering. The Ballyvaughan seedling apple trees are now protected and are a natural heritage feature of local interest (see below).

It is **recommended** that the frequency of mowing is reduced to allow these flowers to grow and set seed; otherwise, continual cutting will eventually eliminate these species.

5.3. Site 3 Saltmarsh

The areas of saltmarsh in and around Ballyvaughan are part of an area of European importance. Significantly the area of upper saltmarsh in Ballyvaughan Bay is on limestone pavement which is unusual. The saltmarsh between the New Pier and the Sea Gate has notable plants including sapphire or glasswort *Salicornia* and sea lavender *Limonium humile*.

While the larger area of saltmarsh at Rine Point is protected, it is **recommended** that the ecological importance of the smaller areas of saltmarsh in Ballyvaughan is highlighted.

5.4. Site 4 Verges with orchids

In the road-verge marked on map, there were numerous orchids, of at least three species (two species of *Dactylorhiza* and Twayblade *Listera ovata*), which, regrettably were mown this summer. Mowing a maximum of twice a year is **recommended** in this area, avoiding the period between late Spring and early Autumn.

5.5. Site 5 Narrow-leaved bitter-cress *Cardamine impatiens* near the bridge on the coast road

Narrow-leaved bitter-cress is discussed above. That on the seaward side of the sea wall may be self-sustaining. The large population upstream of the bridge has benefitted from the disturbance resulting from installation of a new drain. It is **recommended** that the best way of sustaining this population is to disturb the ground each autumn.

5.6. Site 6 Ballyvaughan Coast Hotel

The grassland to the rear of the hotel has interesting wetland species such as Ragged Robin *Silene flos-cuculi*, but brambles and aspen *Populus tremula* are encroaching. There are some planted trees (some of which are dead and should be removed).

It is **recommended** that this area should be mown occasionally to maintain the grassland; its native nature should be reinforced by the removal of non-native shrubs; the best Aspen suckers should be retained to mature, the others being removed to prevent them becoming too dense.



Figure 33: Ragged robin flowering in the grounds of the Burren Court Hotel

Figure 34: Grassland with shrubs and Aspen at the Burren Coast Hotel



5.7. Site 7 Old Church-yard

The old churchyard on Green Road (Lough Rask Road) has mature woodland, with some non-native trees. Long eared owls have roosted and possibly bred there, although not noted during the survey. There is an understory of spring flowering species. This area has been cleared recently and the ground flora is flourishing.

5.8. Site 8 Bird-hide

Bird Hide with woodland and scrub habitat; the spring flora is threatened by the spread of Winter Heliotrope *Petasites fragrans*. The local Cub-Scouts have built bug-hotels. It is **recommended** that for comfort, the Bird hide is improved to reduce the wind blowing through. Seating and a shelf, on which observers can rest binoculars, should be installed plus covering one window so that one can enter the hide unseen. Hinged windows which can be held open would be ideal. Within the hide itself, information signs or laminated sheets about the sea birds should be provided.



Figure 35: The bird-hide viewed from the seaward side. Note the field scabious *Knautia arvensis* flowering in the foreground

5.9. Areas just outside the 50km speed restriction zone

Some areas which are technically outside the 50km speed-restriction zone are nevertheless easily accessible and have already been mentioned in the survey. Ballyvaughan is surrounded by interesting areas which could feature in a wildlife leaflet.

Ballyvaughan Turlough lies on Wood Loop L5042 sign-posted The Burren Way, beginning at School Road L5042. It is a *Special Area of Conservation* under the *Habitats Directive*. It was not fully surveyed but walked through twice during spring when the woodland flora is very good. This is an interesting walk with convenient parking, although the full circle has some difficult terrain. There are

scientific papers on the turlough which are quite dated (Goodwillie 1972; Ivimey Cook & Proctor 1959); since it is a habitat of such importance it should be thoroughly surveyed in the near future, seeking the advice of a specialist such as Dr. Micheline Sheehy Skeffington.



Figure 36: Wood anemones and lesser celandine on the Wood Loop

The turlough was once noted for its large population of nationally rare shrubby cinquefoil *Potentilla fruticosa*, but this could not be located during the survey. The walk leads through pasture with celandine, among blackthorn bushes, and enriched turlough wetland with the dark Turlough moss *Cinclidotus fontinalis*. Brimstone and Small white butterflies have been noted here. The path through the hazel scrub needs annual maintenance to maintain its width. It widens out in the woodland, which has many typical vernal species. The path exits along a field, between an electric fence and the hedgerow but is very narrow with a lot of bramble.

Lough Rask is mentioned in the NPWS Galway Bay SAC paper on turloughs. It is a site for a rare moss. It has both seasonal and daily tidal fluctuations in the water level. This turlough has some saline influence.



Figure 37: The Rine with saltmarsh



Figure 38: Incipient holly scrub as seen from the green road down to the Rine

The Rine is also of great importance and has high diversity

6 Plant species of Ballyvaughan

Table 2 lists 146 plant species which were noted during the survey. It is indicative rather than a full species list. Species present were typical of limestone grassland and verges, including some familiar flowering species such as Cowslip. There were also ruderal species and annuals often found where herbicide had created bare-ground in which this weedy community could grow. Hedgerows were primarily of native species, with few garden shrubs as mentioned above.

6.1. Management for species of particular interest

6.1.1 Ballyvaughan Seedling, Heritage Apple Trees.

The Ballyvaughan Seedling is a heritage variety of apple tree which originated in the Old Workhouse garden in Ballyvaughan. It was saved and conserved by the Irish Seed Savers Association, and has been distributed throughout Ireland. It is a self-rooter, which means it can be grown from a cutting. Several trees have been planted in the church grounds but they are not doing well, due to the bark having been nibbled – probably by hares. Bark-guards should be placed around them. New trees should be planted to replace those that have died. The trees will fare better if the turves are removed from around their bases and if they are mulched

It is **recommended** that planting of Ballyvaughan apple trees might be extended through the village, since they look well in blossom. They might be a feature on a heritage-cum-nature trail around the village, or during a Heritage Week event.

Wherever the trees are planted a sign should be erected to inform the public that this variety is a speciality of the area.

For fruiting to occur, Ballyvaughan apple trees should be planted together with another variety, as recommended by the ISSA, to facilitate cross-pollination.

Figure 39: Ballyvaughan Seedling apple tree (Picture Irish Seed Savers Association)



6.1.2 Narrow-leaved Bitter cress (*Cardamine impatiens*)

This was first described from Ballyvaughan by David Webb, Professor of Botany, Trinity College Dublin. Writing in the *Irish Naturalists' Journal* of 1982 he said it had been recorded each year from 1966-78. Tom Curtis recorded it as still at Ballyvaughan Harbour in 1999. In Webb's *Irish Flora* (2012), Parnell & Curtis describe it as a very rare biennial

This plant only occurs in Ireland in a very restricted area in Ballyvaughan and perhaps at one other site in the Midlands. It is a biennial so needs to survive one winter in order to set seed. The seeds

will most likely germinate in areas which have been recently disturbed or have few competing species. The plant is in the form of a small rosette when not flowering, and could easily be mistaken for other weed species. If the population is to remain viable, it is important that it is not weeded out or sprayed with herbicide at this stage. During 2014 the species grew on disturbed ground upstream of the bridge and on the sea wall (both sides) near the top of the bay; a few plants in the disturbed verges up School Road did not survive. (Fluctuations may be normal; the plants may have set seed prior to disappearing.)

This plant is on the Irish Red data list as vulnerable and is protected by law. It should therefore not be sprayed or uprooted. I would **recommend** training anyone who gardens or tends the roadside in the area to be able to recognise the species in all its phases. (Also protection by law includes no seed collecting without a license from National Parks and Wildlife Service (NPWS)).

It is **recommended** that community involvement in caring for this rare species should be set up to monitor its success. This should include applying for funding for a specific conservation management plan to advise *in-situ* conservation and the possibility of *ex-situ* conservation. Noeleen Smyth at the National Botanic Garden has given some initial suggestions to follow up for next growing season.



Figure 40: Narrow-leaved bitter-cress sign.

In May this year there were several specimens growing from crevices on the seaward side of the sea-wall and voluminously over limestone rubble on disturbed ground where the new pipeline flows under School Road on the landward side of the coast road (map ref: M 229 080). As a safeguard

against its inadvertent destruction, a temporary sign was made by Robert Wainwright drawing attention to its occurrence and interest.

6.1.3. *Buddleia*

There is a very large *Buddleia* bush in the bay at the top of the saltmarsh, which provides nectar to butterflies. *Buddleia* is an invasive plant and should not be planted. This tree is seeding into the stone walls in the surrounding area, particularly on the bridge. It can damage stone walls, and should be treated with spot applications of herbicides. See www.invasivespeciesireland.com

Figure 41: Large *Buddleia* bush on Saltmarsh near bridge



Figure 42: *Buddleia* bushes self-seeded into bridge wall



6.1.4. *Sargassum muticum*

This seaweed is invasive, aggressively so. During the survey it was found on the Rine point and at Bishop's Quarter. Steps should be taken to advise sports-fishermen to familiarise them with the species and keep an eye out for it in Ballyvaughan Bay.



Figure 43: Invasive seaweed *Sargassum muticum* (in the centre between brown *Fucus serratus* and green *Ulva* sp.)

6.1.5. Winter Heliotrope (*Petasites fragrans*)

Winter Heliotrope is widely naturalised along roadsides and woodland edges in the vicinity of Ballyvaughan. Once established it out-competes native vegetation and forms dense stands. There are no female plants in Ireland so the plant only spreads vegetatively or by being dug up and moved. Any small piece of the plants rhizome can produce a new plant.

It is **recommended** great care is taken not to inadvertently spread winter heliotrope when doing road works along the coast road

6.1.6. Japanese Knotweed.

There is a large stand of this aggressively invasive plant in a field next to the Petrol Station. It is **recommended** that appropriate treatment is sought by contacting **Invasive Species Ireland**

6.1.7 Red valerian (*Centranthus ruber*)



Figure 44: Red Valerian (*Centranthus ruber*) growing just outside Ballyvaughan on the N67

A single plant of red valerian *Centranthus ruber* was found growing on the sea wall in the early part of the survey. This has now been treated with herbicide, which should protect the sea wall from further damage and prevent seeding into new areas. It is an attractive species grown gardens but it seeds freely and has become a problem in some areas in the Burren.

6.2 Bryophytes in Ballyvaughan

Bryophytes may be found on trees, on walls, in grass and on bare mud. Bryophytes provide refuges for invertebrates. They are also food species, at the bottom of the food chain, for many insects.

It is **recommended** that they should not be removed or sprayed with weed-killer, particularly on stone walls. The only exception is where they may cause pedestrians to slip, in which case they should be removed manually.

Figure 45: Great Hairy Screw-moss (*Syntrichia ruralis*) growing with stonecrop in gravel near Fair Green



7. Animal species of Ballyvaughan

7.1. Bees and Butterflies

19 butterfly species and 7 bee species were recorded in the Ballyvaughan area. Butterflies have close relationships with certain plants which provide food for their caterpillars; these are listed in **Table 6**. Even nettles have their place in the scheme of things, providing food for Tortoiseshell and Peacock butterfly larvae. Where possible, they should be left uncut during the summer. Nettles support Small Tortoiseshell butterflies and moth species. Food plants for adult butterflies are listed in **Table 9**; these should be favoured in planting schemes.

Ivy flowers are a rich source of nectar for insects during autumn and winter; it is **recommended** that they are left to flower for insects and to set fruit for birds to feed on during the winter.

It is **recommended** that those plants favoured by butterflies and bees are fostered within the village. Commercially available 'wild flower mixes' should be specifically **avoided**, since these contain species which are not native to the Burren. Locally collected wild flower seed should be used in preference.

7.2. Moths

Moths were not recorded during 2014. Records from previous years may be indicative of species which frequent Ballyvaughan (see **Table 11**). The area is very good for observing moths and there is a site for the Burren Green moth *Calamia tridens occidentalis*, an endemic moth, just outside Ballyvaughan.

7.3. Bats and Mammals

There are Pipistrelle bats in Ballyvaughan; there may also be Leislars (on the evidence of a mummified specimen), and possibly Brown Long-Eared bats. In 2014 the only sightings reported to the survey were those of Pipistrelles. Close-by Aillwee Cave is a stronghold for Lesser horse-shoe bats.

Badgers, foxes, hares and pine marten have all been seen in the village in 2014. Otters were not found in Ballyvaughan during the survey but have been seen not far up the coast toward Rine Point. In the bay there are Common seals, about 20 have been seen on Gall Island but seem to be in decline (Patsy Mullins pers. comm).

7.4. Bird species of Ballyvaughan

Ballyvaughan is in a *Special Protection Area* for birds. There are many people with excellent knowledge about birds living in the village. Records submitted for the survey were very good (see **Table 7**). The town has a bird-hide for viewing seabirds. The survey showed there was also a high level in interest among the general community regarding birds from terrestrial habitats. It would be an addition to the town to create a sign about the more common bird species, preferably in a pub or café garden, where bird feeders could be set up.

Ballyvaughan is "One of the best areas on the Irish west coast for wintering divers; from September to April, Red-throated and Great Northern Diver are common throughout the bay, and this is one of the better sites in Ireland for wintering Black-throated Diver" (Dempsey, 2007). The rocky coast supports small numbers of many of the commoner wintering wildfowl and waders.

Six years ago there were breeding Long-eared Owls in Ballyvaughan.

(<http://www.clarebirdwatching.com/archives/author/admin/page/17>)

During the period from October 2013 to April 2014 BIRDTRACK records were submitted for two 2x2 km tetrads, IMI and IMJ, which overlap with Ballyvaughan by Stephen Ward (see **Table 12**). In addition, he recorded cuckoo, and counted 130 rooks' nests at Clareville House before leaf burst made further counts impossible.

Hérons nest from January **onwards on** Scots pine at Clareville House (Susan O'Donahoe pers comm); in May 2014 the Cubs-Scouts counted 10 nests under Susan's supervision.

Gall Island usually has 27-30 Artic tern nests and one or two Common terns nests (Pers. comm. John Murphy).

Little Egrets have been recorded at Lough Rask possibly breeding there. They usually move into heron colonies and start to breed as the herons are finishing breeding. There is a colour-ringing project in Oranmore, which rings nestlings. One of these nestlings (ringed in June 2013) was spotted in Iceland (1,200km away) four months later. It was seen with four other egrets and stayed for a couple of days much to the joy of Icelandic birders as they are rare there. Why it was journeying north in autumn is a mystery! Also in Oct 2010 one of the birds (also ringed the previous June) was spotted in the Azores (+2,000km away), more understandable being well to the south. Ringed birds from Oranmore have been seen at the Rine and Rahasane Turlough.

A merlin has been recorded on the Rine. (www.irishbirding.com/birds/web)

On 2nd Feb 2014 - two Black-throated divers, eight Red-throated divers and fifty Great Northern Divers were recorded from the town, all of which are *Annex 1 EU Birds Directive Species*. (www.clarebirdwatching.com/archives/category/scarce-rare-bird-sightings)

At the end of the survey, many of the winter species were building in numbers e.g. at Ballyvaughan turlough widgeon flocks may number hundreds. In late October 2014, Paul Troake sighted c. 400 gannets off-shore.

Berry-bearing bushes planted for winter-feeding birds should focus on native species (TTH p 30-32). *Cotoneaster* is NOT native and should be excluded as it is proving problematical in parts of the Burren where presumably bird-sown bushes are smothering native species. Brambles and Ivy are of importance to birdlife, other suitable shrubs and trees for alkaline soils and sea exposure include whitethorn (hawthorn), crab apple, ash, wych elm, Irish whitebeam, purging buckthorn, guelder rose, spindle and dog rose. Juniper and Yew are also typical Burren native tree species and could be included in planting schemes.

7.5. Other species

Common lizards and frogs occur in the village.

Dragonflies, Damselflies, Ladybirds and Shieldbugs may be a fun project for the School to record in future years.

Figure 46: The Heath Snail near the Recycling centre Ballyvaughan



The Heath Snail (*Helicella itala*) has suffered huge decreases in recent decades but remains a common and very visible species in the Burren and in coastal areas.

7.6. Intertidal species

Typical intertidal species of mixed sediments and mixed substrata shores were found in Ballyvaughan. Species include mussels, periwinkles, crabs and epifauna growing on fucoid seaweeds. In the muddier areas there are worms and amphipod crustaceans. The species composition may change with the recent seaweed harvesting.

8. Management suggestions

The following section contains management suggestions compliant with the requirements of the Tidy Towns Handbook (TTH), e.g. endeavour to minimise the use of herbicides and do not use at all in any wildlife areas (TTH p 38/9)

Area	Management recommendation
Species rich grass verges	Cut less frequently to return areas of grassland in Ballyvaughan to more valuable habitats.
Species rich grass verges	Mow paths through grass rather than mowing entire area
Species rich grass verges	Mow around plants in flower e.g. Knapweed and allow to set seed
Dolmen cottages	Sow yellow rattle to reduce vigorous grass. Replace non-native shrubs with native species.
Grass area at Bridge	Avoid cutting in September to allow Autumn Hawkbit to flower.
Church	Reduce frequency of mowing to allow flowers to grow and set seed.
Apples trees	Use bark-guards. Plant new trees to replace those that have died. Remove turves from around their bases and mulch. Erect sign to inform the public that this variety is a speciality of the area
Orchid verge	Mow a maximum of twice a year, before April and after September
Burren Coast Hotel	Mow occasionally to maintain the grassland avoiding cutting during the middle of summer.
Burren Coast Hotel	Replace non-native shrubs with native species.
Burren Coast Hotel	Retain best Aspen suckers; remove others to prevent them becoming too dense.
Saltmarsh	Bring importance of small areas in Ballyvaughan to the attention of the local community.
<i>Cardamine impatiens</i>	Disturb the ground, by raking each autumn to sustain population
<i>Cardamine impatiens</i>	Train gardeners and environmental workers to recognise the species in all its phases
<i>Cardamine impatiens</i>	Involve the community in caring for this rare plant and monitor its success. Apply for funding for a conservation management plan re <i>in-situ</i> & <i>ex-situ</i> conservation. Contact the National Botanic Gardens in Dublin and National Parks and Wildlife Service regarding its conservation.
Bird-hide	Reduce the wind blowing through bird-hide, create seating and a shelf on one side, and cover one window in order not to be seen on entering. Provide information signs about the sea birds in the hide itself.
Coast Road	Avoid spreading winter heliotrope when during road works
Japanese Knotweed	Seek appropriate treatment by contacting Invasive Species Ireland
Stone walls	Do not remove mosses and liverworts nor spray them with herbicide
Flower beds	Plant species which provide nectar and pollen for butterflies and bees. Avoid commercially available 'wild flower mixes'. Avoid peat based compost Minimise use of slug pellets
Hedgerows	Do not cut ivy in the Autumn, allow to flower for insects and to set fruit for birds to feed on during the winter
All areas	Minimise the use of herbicides and do not use at all in any wildlife areas. Don't spray wall bases (TT Handbook p38-39).
Amenity grassland	Provide bins for the use of dog owners

Gardens as local features



Figure 47: An example of species rich turf in garden

Gardens demonstrably supporting flower-rich lawns or wildlife friendly planting might feature either in a village trail leaflet, or be put forward by the BCDG for recognition by the TT adjudicator as being specifically fostered for their wild flowers. For example, immediately opposite the junction of the L5036 with the N67, is the bungalow which now belongs to Jane Quinlivan. The front lawn is of semi-natural wild flower-rich turf, notably mouse-eared hawkweed *Pilosella officinalis*.

The Tea Rooms garden is an outstanding example of a garden rich in flowers.



Figure 48: Suitable lime tolerant planting at the Tea Rooms

Herbicide usage

The Tidy Towns Handbook (TTH) suggests endeavouring to minimise the use of herbicides and do not use at all in any wildlife areas (TTH p 38/9)

Targeted application is preferable to spraying along the base and sides of walls. Spraying the base of walls allows for the very plants one does not want, i.e. weeds such as willow-herbs and sow-thistles to grow and seed themselves, some of which are fairly resistant to weed-killers. It would be better to trim, hand cut, or leave the natural vegetation alone in these narrow zones as the best defence against invasive weeds. Species which could be targeted for spot application are woody plants such as Buddleia and Red valerian whose roots can penetrate stone walls and eventually break them. It was noted that the fern and moss communities which are particularly good on stone walls through the town had also been sprayed during the year. This is unnecessary and unsightly.

During the survey sea radish (*Raphanus raphanistrum ssp maritimum*) which was growing on the salt-marsh was spot-sprayed. This species is sometimes foraged as wild food and should not be killed.

Improving Ballyvaughan's score for Wildlife and Natural Amenities

Access to the shore is currently difficult. It is also very muddy and difficult terrain. The bay which can be observed from the New Pier has donkeys grazing in the late summer which prevents the saltmarsh becoming rank. However improved signage could mention the diversity of seaweeds and offer some interpretation regarding the turlough outflow and seawall plant communities.

The saltmarsh areas in Ballyvaughan are small and easily damaged. A track is marked on the OSI map from the Pier to the Sea Gate which passes through a particularly eroded section of saltmarsh near the Sea Gate. It would be preferable to minimise vehicular use here.

A small area of grassland at Dolmen Village would lend itself to being made into a wildlife area. Currently the grass is rank; it needs to be managed to prevent the spread of brambles particularly near old planting of ornamental species. The ornamentals should be removed if the area is to become a wildlife area.

Grassland and wildflower meadows could be implemented as suggesting the TTH in several areas. The type of grassland in Ballyvaughan can be maintained with less cutting and sowing Yellow Rattle to reduce the vigour of grasses, allowing perennial flowers to establish. Paths may be mowed through the grass and around taller flowering plants to make the area look managed. Signage could be erected regarding the insects which may colonise and visit the area.

Appendices

Table 1: Summary of habitat types found in Ballyvaughan 2014

BC3	Tilled land	GS1	Dry calcareous and neutral grassland
BC4	Flowerbeds	GS2	Dry meadows and grassy verges
BL1	Stone walls	HD1	Dense bracken
BL4	Buildings and artificial surfaces (includes gardens)	LS5	Mixed sediment shores
CB1	Shingle and gravel banks	LR4	Mixed substrata shores
CC1	Sea walls piers and jetties	LS1	Shingle and gravel shores
CM1	Lower salt marsh	WD5	Scattered trees and parkland
CM2	Upper salt marsh	WL1	Hedgerows
ED3	Recolonizing bare ground	WL2	Treelines
ED5	Refuse and other waste	WN2	Oak-ash-hazel woodlands
GA1	Improved agricultural grassland	WS1	Scrub
GA2	Amenity grassland (improved)	WS2	Immature woodland
GM1	Marsh	WS3	Ornamental/non-native shrub

Table 2: Plant species found in Ballyvaughan 2014

Common name	Scientific name	Common name	Scientific name
Sycamore	<i>Acer pseudoplatanus</i>	Lesser Hawkbit	<i>Leontodon saxatile</i>
Yarrow	<i>Achillea millefolium</i>	Ox-eye daisy	<i>Leucanthemum vulgare</i>
Creeping bent	<i>Agrostis stolonifera</i>	Wild privet	<i>Ligustrum vulgare</i>
Three-cornered Garlic	<i>Allium triquetrum</i>	Fairy flax	<i>Linum catharticum</i>
Meadow Foxtail	<i>Alopecurus pratensis</i>	Common sea-lavender	<i>Limonium vulgare</i>
Scarlet pimpernel	<i>Anagallis arvensis</i>	Common Twayblade	<i>Listeria ovata</i>
Cow parsley	<i>Anthriscus sylvestris</i>	Perennial rye-grass	<i>Lolium perenne</i>
Thrift	<i>Armeria maritime</i>	Honeysuckle	<i>Lonicera periclymenum</i>
False Oat-grass	<i>Arrhenatherum elatius</i>	Common bird's-foot-trefoil	<i>Lotus corniculatus</i>

Lords-and-Ladies	<i>Arum maculatum</i>	Field Wood-rush	<i>Luzula campestris</i>
Rusty-back	<i>Asplenium ceterach</i>	Ragged robin	<i>Lychnis flos-cuculi</i>
Wall-rue	<i>Asplenium ruta-muraria</i>	Pineappleweed	<i>Matricaria discoidea</i>
Hart's tongue Fern	<i>Asplenium scolopendrium</i>	Black medick	<i>Medicago lupulinum</i>
Maidenhair Spleenwort	<i>Asplenium trichomanes</i>	Wall lettuce	<i>Mycelis muralis</i>
Sea aster	<i>Aster tripolium</i>	Winter heliotrope	<i>Petasites fragrans</i>
Spear-leaved Orache	<i>Atriplex prostrata</i>	Fox-and-cubs	<i>Pilosella aurantiaca</i>
Wintercress	<i>Barbarea vulgaris</i>	Buckshorn plantain	<i>Plantago coronopus</i>
Daisy	<i>Bellis perennis</i>	Ribwort plantain	<i>Plantago lanceolata</i>
Sea beet	<i>Beta vulgaris</i> spp. <i>maritima</i>	Greater plantain	<i>Plantago major</i>
Quaking grass	<i>Briza media</i>	Sea plantain	<i>Plantago maritima</i>
Butterfly Bush	<i>Buddleja davidii</i>	Annual Meadow-grass	<i>Poa annua</i>
Hedge Bindweed	<i>Calystegia sepium</i>	Knotgrass	<i>Polygonum aviculare</i>
Hairy Bittercress	<i>Cardamine hirsute</i>	Polypody	<i>Polypodium</i> sp.
Narrow-leaved Bittercress	<i>Cardamine impatiens</i>	Aspen	<i>Populus tremula</i>
Cuckooflower	<i>Cardamine pratensis</i>	Silverweed	<i>Potentilla anserina</i>
Glaucous Sedge	<i>Carex flacca</i>	Creeping cinquefoil	<i>Potentilla reptans</i>
Sea fern grass	<i>Catapodium marinum</i>	Cowslip	<i>Primula veris</i>
Common Knapweed	<i>Centaurea nigra</i>	Primrose	<i>Primula vulgaris</i>
Common century	<i>Centaurium erythraea</i>	Selfheal	<i>Prunella vulgaris</i>
Red valerian	<i>Centranthus ruber</i>	Blackthorn	<i>Prunus spinosa</i>
Common Mouse-ear	<i>Cerastium fontanum</i>	Bracken	<i>Pteridium aquilinum</i>
Creeping Thistle	<i>Cirsium arvense</i>	Meadow buttercup	<i>Ranunculus acris</i>
Spear Thistle	<i>Cirsium vulgare</i>	Lesser Celandine	<i>Ranunculus ficaria</i>
Spear thistle	<i>Cirsium vulgare</i>	Creeping buttercup	<i>Ranunculus repens</i>
Danish Scurveygrass	<i>Cochlearia danica</i>	Sea raddish	<i>Raphanus raphanistrum</i> ssp. <i>maritimus</i>
Pignut	<i>Conopodium majus</i>	Yellow-rattle	<i>Rhinanthus minor</i>
Field Bindweed	<i>Convolvulus arvensis</i>	Dog rose	<i>Rosa canina</i>
Hazel	<i>Corylus avellana</i>	Burnet rose	<i>Rosa pimpinellifolia</i>
Hawthorn	<i>Crataegus monogyna</i>	Wild madder	<i>Rubia peregrina</i>
Smooth Hawksbeard	<i>Crepis capillaris</i>	Bramble	<i>Rubus fruticosus</i> agg
Montbretia	<i>Crocsmia x crocosmiflora</i>	Common sorrel	<i>Rumex acetosa</i>
Cocksfoot	<i>Dactylis glomerata</i>	Curled dock	<i>Rumex crispus</i>
Sea Couch	<i>Elytrigia atherica</i>	Broad-leaved dock	<i>Rumex obtusifolius</i>
Short-fruited Willowherb	<i>Epilobium. obscurum</i>	Sea pearlwort	<i>Sagina maritima</i>

Great Willow herb	<i>Epilobium hirsutum</i>	Glasswort	<i>Salicornia</i> sp.
Common Whitlowgrass	<i>Erophila verna</i>	Elder	<i>Sambucus nigra</i>
Spindle	<i>Euonymus europaeus</i>	Rue-leaved saxifrage	<i>Saxifraga tridactylites</i>
Petty spurge	<i>Euphorbia peplus</i>	Common figwort	<i>Scrophularia nodosa</i>
Japanese knotweed	<i>Fallopia japonica</i>	Biting stonecrop	<i>Sedum acre</i>
Red fescue	<i>Festuca rubra</i>	White stonecrop	<i>Sedum album</i>
Ash	<i>Fraxinus excelsior</i>	Groundsel	<i>Senecio vulgaris</i>
Cleavers	<i>Galium aperine</i>	Common Ragwort, Ragweed	<i>Senecio jacobea</i>
Lady's Bedstraw	<i>Galium verum</i>	Blue Moor-grass	<i>Sesleria caerulea</i>
Cut leaf geranium	<i>Geranium dissectum</i>	Hedge mustard	<i>Sisymbrium officinale</i>
Shining Cranesbill	<i>Geranium lucidum</i>	Corn sow-thistle	<i>Sonchus arvensis</i>
Dovesfoot cranesbill	<i>Geranium molle</i>	Rough sow thistle	<i>Sonchus asper</i>
Herb Robert	<i>Geranium robertianum</i>	Marsh woundwort	<i>Stachys palustris</i>
Herb Bennet	<i>Geum urbanum</i>	Chickweed	<i>Stellaria media</i>
Sea milkwort	<i>Glaux maritime</i>	Sea blite	<i>Sueda maritima</i>
Ivy	<i>Hedera helix</i>	Snowberry	<i>Symphoricarpos albus</i>
Irish ivy	<i>Hedera hibernica</i>	Dandelion	<i>Taraxacumofficinale</i> agg.
Hogweed	<i>Heracleum sphondylium</i>	Yellow clover	<i>Trifolium dubium</i>
Mouse-ear Hawkweed	<i>Hieracium pilosella</i>	Red clover	<i>Trifolium pratense</i>
Hawkweed	<i>Hieracium sp</i>	White clover	<i>Trifolium repens</i>
Yorkshire Fog	<i>Holcus lanatus</i>	Sea mayweed	<i>Tripleurospermum maritimum</i>
Tutsan	<i>Hypericum androsaemum</i>	Nettle	<i>Urtica dioica</i>
Perforate St. John's Wort	<i>Hypericum perforatum</i>	Common valerian	<i>Valeriana officinalis</i>
Cat's-ear	<i>Hypochaeris radicata</i>	Germander speedwell	<i>Veronica chamaedrys</i>
Holly	<i>Ilex aquifolium</i>	Slender speedwell	<i>Veronica filiformis</i>
Field Scabious	<i>Knautia arvensis</i>	Common field speedwell	<i>Veronica persicaria</i>
Nipplewort	<i>Lapsana communis</i>	Common vetch	<i>Vicia sativa</i>
Meadow Vetchling	<i>Lathyrus pratensis</i>	Bush vetch	<i>Vicia sepium</i>
Autumn Hawkbit	<i>Leontodon autumnalis</i>	Common dog violet	<i>Viola riviniana</i>

Table 3: Bryophytes recorded in Ballyvaughan 2014

Common name	Scientific name
Wall Screw-moss	<i>Tortula muralis</i>
Silky Wall Feather-moss	<i>Homalothecium sericeum</i>
Grey-cushioned Grimmiid	<i>Grimmia pulvinata</i>
Frizzled Pincushion	<i>Ulota phyllantha</i>
Liverwort, Dilated Scalewort	<i>Frullania dilatata</i>
Frizzled Crisp-moss	<i>Tortella tortuosa</i>
	<i>Schistidium sp.</i>
Common Liverwort	<i>Marchantia polymorpha subsp. Ruderalis</i>
Rock Pocket-moss	<i>Fissidens dubius</i>
Great Hairy Screw-moss	<i>Syntrichia ruralis</i>

Table 4: Bees recorded in Ballyvaughan 2014

Common name	Scientific name
Garden bumblebee	<i>Bombus hortorum</i>
Red-tailed bumblebee	<i>Bombus lapidarius</i>
White-tailed bumblebee	<i>Bombus lucorum</i>
Common carder bee	<i>Bombus pascuorum</i>
Early bumblebee	<i>Bombus pratorum</i>
Buff-tailed Bumblebee	<i>Bombus terrestris</i>
Red-tailed cuckoo bee	<i>Bombus (P.) rupestris</i>

Table 5: Butterfly species recorded in Ballyvaughan 2014 and larval food plants

Common name	Scientific name	Larval food plant
Brimstone	<i>Gonepteryx rhamni</i>	Alder buckthorn, Common buckthorn
Common Blue	<i>Polyommatus icarus</i>	Birds-foot trefoil
Dark green Fritillary	<i>Argynnis aglaja</i>	Common dog violet
Grayling	<i>Hipparchia semele</i>	Fine grasses: Sheep's fescue, Marram
Green-veined White	<i>Pieris napi</i>	Watercress, Garlic mustard, Cuckoo flower
Holly blue	<i>Celastrina argiolus</i>	Holly in spring, ivy in summer
Large White	<i>Pieris brassicae</i>	Cabbage for second brood, early brood as Small white
Meadow Brown	<i>Maniola jurtina</i>	Perennial rye grass, Meadow grasses, bents, Cocksfoot
Orange Tip	<i>Anthocharis cardamines</i>	Cuckoo flower, (Garlic mustard, Dame's Violet)
Painted Lady	<i>Vanessa cardui</i>	Stinging nettles, Artichoke, thistles
Peacock	<i>Inachis io</i>	Nettles
Red Admiral	<i>Vanessa atalanta</i>	Nettles
Ringlet	<i>Aphantopus hyperantus</i>	Grasses, particularly Cock's foot
Small Copper	<i>Lycaena phlaeas</i>	Common sorrel, Broad-leaved dock
Small Tortoiseshell	<i>Aglais urticae</i>	Nettles
Small White	<i>Pieris rapae</i>	Cabbage, Charlock, Nasturtium, Sea rocket, Turnip
Speckled Wood	<i>Pararge aegeria</i>	Cock's foot, couch grass
Wall	<i>Lasiommata megera</i>	Cock's foot, Yorkshire fog, Common bent
Wood White	<i>Leptidea sp.</i>	Bird's-foot trefoil, (Tufted vetch, Meadow vetchling)

Table 6: Mammal species recorded in Ballyvaughan 2014

Common name	Scientific name
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>
Red Fox	<i>Vulpus vulpus</i>
Pine Marten	<i>Martes martes</i>
European badger	<i>Meles meles</i>
Common Seal	<i>Phoca vitulina</i>
Red Squirrel	<i>Scirus vulgaris</i>
Brown Rat	<i>Rattus norvegicus</i>
Irish Hare	<i>Lepus timidus subsp. hibernicus</i>
European Rabbit	<i>Oryctolagus cuniculus</i>

Table 7: Bird species recorded in Ballyvaughan October 2013-October 2014

Common name	Scientific name	Common name	Scientific name
Mute Swan	<i>Cygnus olor</i>	Rock Dove/Feral Pidgeon	<i>Columba livia</i>
Common Shelduck	<i>Tadorna tadorna</i>	Common Wood Pidgeon	<i>Columba palumbus</i>
Eurasian Widgeon	<i>Anas Penelope</i>	Eurasian Collared Dove	<i>Streptopelia decaocto</i>
Eurasian Teal	<i>Anas crecca</i>	Common Cuckoo	<i>Cuculus canorus</i>
Mallard	<i>Anas platyrhynchos</i>	Red-billed Chough	<i>Pyrrhocorax pyrrhocorax</i>
Tufted Duck	<i>Athya fuligula</i>	Black-billed Magpie	<i>Pica pica</i>
Red-breasted Merganser	<i>Mergus serrator</i>	Eurasian Jackdaw	<i>Corvus monedula</i>
Common Pheasant	<i>Phasianus colchicus</i>	Rook	<i>Corvus frugilegus</i>
Great Northern Diver	<i>Gavia immer</i>	Hooded Crow	<i>Corvus cornix</i>
Northern Gannet	<i>Morus bassanus</i>	Common Raven	<i>Corvus corax</i>
Great Cormorant	<i>Phalacrocorax carbo</i>	Goldcrest	<i>Regulus regulus</i>
European Shag	<i>Phalacrocorax aristotelis</i>	Blue Tit	<i>Cyanistes caeruleus</i>
Little Egret	<i>Egretta gerzetta</i>	Great Tit	<i>Parus major</i>
Grey Heron	<i>Ardea cinerea</i>	Coal Tit	<i>Periparus ater</i>
Great Crested Grebe	<i>Podiceps cristatus</i>	Sky Lark	<i>Alauda arvensis</i>
Eurasian Sparrowhawk	<i>Accipiter nisus</i>	Sand Martin	<i>Riparia riparia</i>
Common Kestrel	<i>Falco tinnunculus</i>	Barn Swallow	<i>Hirundo rustica</i>
Eurasian Oystercatcher	<i>Haematopus ostalegus</i>	House Martin	<i>Delichon urbicum</i>
Ringed Plover	<i>Charadrius hiaticula</i>	Long-tailed Tit	<i>Aegithalos caudatus</i>
European Golden Plover	<i>Pluvialis apricaria</i>	Common Chiffchaff	<i>Phylloscopus collybita</i>
Northern Lapwing	<i>Vanellus vanellus</i>	Willow Warbler	<i>Phylloscopus trochilus</i>
Dunlin	<i>Calidris alpina</i>	Blackcap	<i>Sylvia atricapilla</i>
Common Snipe	<i>Gallinago gallinago</i>	Common Whitethroat	<i>Sylvia communis</i>
Whimbrel	<i>Numenius phaeopus</i>	Wren	<i>Troglodytes troglodytes</i>
Eurasian Curlew	<i>numenius arquata</i>	Common Starling	<i>Sturnus vulgaris</i>
Common Greenshank	<i>Tringa nebularia</i>	Common Blackbird	<i>Turdus merula</i>
Common Redshank	<i>Tringa tetanus</i>	Song Thrush	<i>Turdus philomelos</i>
Ruddy Turnstone	<i>Arenaria interpres</i>	European Robin	<i>Erithicus rubecula</i>
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Duncock	<i>Prunella modularis</i>
Common Gull	<i>Larus canus</i>	House Sparrow	<i>Passer domesticus</i>
Lesser Black-backed Gull	<i>Larus fuscus</i>	Pied Wagtail	<i>Motacilla alba subsp. Yarellii</i>
Herring Gull	<i>Larus argentatus</i>	Rock Pipit	<i>Anthus petrosus</i>
Sandwich Turn	<i>Sterna sandvicensis</i>	Chaffinch	<i>Fringilla coelebs</i>
Common Tern	<i>Sterna hirundo</i>	European Greenfinch	<i>Carduelis carduelis</i>
Razorbill	<i>Alca torda</i>	Eurasian Siskin	<i>Carduelis spinus</i>
Black Guillemot	<i>Cephus grille</i>	Common Linnet	<i>Carduelis cannabina</i>
Greater black-backed gull	<i>Larus marinus</i>	Common Bullfinch	<i>Pyrrhula pyrrhula</i>

Table 8: Intertidal species recorded in Ballyvaughan littoral zone 2014

Common name	Scientific name	Common name	Scientific name
Anemone	<i>Actinia equine</i>	Rough periwinkle	<i>Littorina saxatilis</i>
Amphipod	<i>Amphipoda</i>	Mussel	<i>Mytilus edulis</i>
Bryozoans	<i>Bryozoa</i>	Dog whelk	<i>Nucella lapillus</i>
Common shore crab	<i>Carcinus maenus</i>	Common limpet	<i>Patella Vulgata</i>
Top shell	<i>Gibbula sp.</i>	Spirorbid worms	<i>Spirorbis spp.</i>
Hydroids	<i>Hydrozoa</i>	Keel worms	<i>Potamoceros spp.</i>
Flat periwinkle	<i>Littorina obtusata</i>	Barnacle	
Common periwinkle	<i>Littorina littorea</i>		

Table 9: Nectar sources for adult butterflies

Common name	Adult nectar source
Brimstone	Primrose, Dandelion, vetches, Purple loosestrife, Common knapweed, Devil's-bit Scabious, Buddleia
Common Blue	Bird's-foot trefoil, dandelion
Dark green Fritillary	Thistles, hawkbits, orchids, Red clover, Thyme
Grayling	Creeping thistle, brambles, heather, Thyme
Green-veined White	Wide range of flowers
Holly blue	Hedgerow plants, brambles aphid honeydew
Meadow Brown	Thistles, knapweed, Buddleia
Painted Lady	Buddleia, Common knapweed, Devil's-bit scabious, Red Clover
Peacock	Common knapweed, Field scabious, Devi's-bit scabious, Buddleia, heathers
Red Admiral	Tree sap, over-ripe fruit, Ivy flowers
Ringlet	Brambles, thistles, orchids particularly Pyramidal orchid
Small Copper	Cuckoo flower, Ox-eye daisy, Common knapweed, heathers, Fleabane
Small Tortoiseshell	Dandelion, Grape hyacinth, Buddleia, Hebe, Ice plant, Michaelmas daisy, Devil's-bit scabious, Common knapweed, thistles
Small White	Buddleia, lavenders
Speckled Wood	Aphid dew, Wild carrot
Wall	Umbellifers e.g. Wild carrot
Wood White	Bird's-foot trefoil, Bush vetch, Meadow vetching

Table 10: Trees and shrubs suitable for insertion into planting schemes and providing food for birds during winter

Ash	Wych Elm
Crab apple	Dog rose
Guelder Rose	Hawthorn
Irish Whitebeam	Juniper
Purging Buckthorn	Yew
Spindle	

Ballyvaughan – tetrads and monads used in recording moths and birds

Ballyvaughan township area is included in records on a hectad (10km x 10km) scale and more recent records on a tetrad scale (2km x 2km). The hectad is called M20 and the two tetrads are M20I and M20J. Species in these records may or may not have been recorded within the 50km zone in the town. These records are included for reference only but may inform the community of interesting species which they may find at the town edges.

Moths recorded in M20I and M20J by Moths Ireland 2011-2013

Table 11: Moths Ireland dataset in tetrads M20I and M20J 2011 onward

Grid square	Scientific name	Common name	Record count	Date of last record
M20J	<i>Eriogaster lanestrus</i>	Small Eggar	1	27/05/2011
M20J	<i>Eurrhypara hortulata</i>	Small Magpie	1	28/05/2011
M20J	<i>Hadena perplexa</i>	Tawny Shears	5	28/05/2011
M20J	<i>Opisthograptis luteolata</i>	Brimstone Moth	3	28/05/2011
M20J	<i>Perconia strigillaria</i>	Grass Wave	2	28/05/2011
M20J	<i>Prays fraxinella</i>	Ash Bud Moth	1	28/05/2011
M20J	<i>Rusina ferruginea</i>	Brown Rustic	4	28/05/2011
M20J	<i>Yponomeuta padella</i>	Orchard Ermine	1	27/05/2011
M20I	<i>Abrostola tripartita</i>	Spectacle	12	14/05/2011
M20I	<i>Abrostola triplasia</i>	Dark Spectacle	8	02/07/2011
M20I	<i>Acasis viretata</i>	Yellow-barred Brindle	10	02/06/2012
M20I	<i>Acronicta alni</i>	Alder Moth	1	26/05/2012
M20I	<i>Acronicta megacephala</i>	Poplar Grey	2	22/04/2011

M20I	<i>Acronicta psi</i>	Grey Dagger	16	02/07/2011
M20I	<i>Agriopis marginaria</i>	Dotted Border	7	11/03/2012
M20I	<i>Agrotis clavis</i>	Heart & Club	1	02/06/2012
M20I	<i>Agrotis exclamationis</i>	Heart & Dart	24	02/07/2011
M20I	<i>Agrotis ipsilon</i>	Dark Sword-grass	3	22/04/2011
M20I	<i>Alcis repandata</i>	Mottled Beauty	9	02/06/2012
M20I	<i>Alsophila aescularia</i>	March Moth	10	11/03/2012
M20I	<i>Anticlea badiata</i>	Shoulder Stripe	10	08/04/2012
M20I	<i>Anticlea derivata</i>	Streamer	8	02/06/2012
M20I	<i>Apamea crenata</i>	Clouded-bordered Brindle	15	02/06/2012
M20I	<i>Apamea epomidion</i>	Clouded Brindle	4	02/07/2011
M20I	<i>Apamea monoglypha</i>	Dark Arches	24	02/07/2011
M20I	<i>Apamea sordens</i>	Rustic Shoulder-knot	11	02/06/2012
M20I	<i>Aporophyla nigra</i>	Black Rustic	9	13/11/2011
M20I	<i>Autographa bractea</i>	Gold Spangle	8	02/06/2012
M20I	<i>Autographa pulchrina</i>	Beautiful Golden Y	8	02/06/2012
M20I	<i>Biston betularia</i>	Peppered Moth	22	02/06/2012
M20I	<i>Biston strataria</i>	Oak Beauty	11	08/04/2012
M20I	<i>Blepharita adusta</i>	Dark Brocade	8	02/06/2012
M20I	<i>Cabera pusaria</i>	Common White Wave	2	26/05/2012
M20I	<i>Calliteara pudibunda</i>	Pale Tussock	15	02/06/2012
M20I	<i>Campaea margaritata</i>	Light Emerald	7	02/07/2011
M20I	<i>Cerura vinula</i>	Puss Moth	5	26/05/2012
M20I	<i>Charanyca trigrammica</i>	Treble Lines	20	02/06/2012
M20I	<i>Chloroclysta siterata</i>	Red-green Carpet	11	13/11/2011
M20I	<i>Chloroclysta truncata</i>	Common Marbled Carpet	31	02/06/2012

M20I	<i>Cilix glaucata</i>	Chinese Character	9	08/04/2011
M20I	<i>Cleorodes lichenaria</i>	Brussels Lace	5	02/07/2011
M20I	<i>Colocasia coryli</i>	Nut-tree Tussock	15	02/06/2012
M20I	<i>Colostygia multistrigaria</i>	Mottled Grey	6	11/03/2012
M20I	<i>Colostygia pectinataria</i>	Green Carpet	7	02/06/2012
M20I	<i>Colotois pennaria</i>	Feathered Thorn	7	13/11/2011
M20I	<i>Conistra ligula</i>	Dark Chestnut	3	08/04/2011
M20I	<i>Craniophora ligustri</i>	Coronet	6	02/06/2012
M20I	<i>Crocallis elinguarua</i>	Scalloped Oak	8	02/07/2011
M20I	<i>Cucullia umbratica</i>	Shark	12	02/07/2011
M20I	<i>Deilephila porcellus</i>	Small Elephant Hawk-moth	10	02/06/2012
M20I	<i>Diachrysis chrysitis</i>	Burnished Brass	14	02/07/2011
M20I	<i>Diaphora mendica</i>	Muslin Moth	18	02/06/2012
M20I	<i>Diarsia mendica</i>	Ingrailed Clay	5	11/05/2011
M20I	<i>Diarsia rubi</i>	Small Square-spot	19	26/05/2012
M20I	<i>Ecliptopera silaceata</i>	Small Phoenix	14	08/04/2012
M20I	<i>Ectropis bistortata/crepuscularia</i>	Engrailed/Small Engrailed	7	08/04/2012
M20I	<i>Eilema lurideola</i>	Common Footman	13	02/07/2011
M20I	<i>Electrophaes corylata</i>	Broken-barred Carpet	10	22/04/2011
M20I	<i>Epirrhoe alternata</i>	Common Carpet	31	02/06/2012
M20I	<i>Eriogaster lanestris</i>	Small Eggar	2	11/03/2012
M20I	<i>Eupithecia abbreviata</i>	Brindled Pug	3	06/05/2012
M20I	<i>Eupithecia absinthiata</i>	Wormwood Pug	5	02/07/2011
M20I	<i>Eupithecia dodoneata</i>	Oak-tree Pug	1	22/04/2011

M20I	<i>Eupithecia innotata</i> form <i>fraxinata</i>	Ash Pug	4	02/06/2012
M20I	<i>Eupithecia tripunctaria</i>	White-spotted Pug	4	02/06/2012
M20I	<i>Eupithecia vulgata</i>	Common Pug	8	02/06/2012
M20I	<i>Gymnoscelis rufifasciata</i>	Double-striped Pug	7	31/03/2012
M20I	<i>Hada plebeja</i>	Shears	11	02/06/2012
M20I	<i>Hemithea aestivaria</i>	Common Emerald	5	02/07/2011
M20I	<i>Hepialus fusconebulosa</i> form <i>gallicus</i>	Map-winged Swift	11	02/07/2011
M20I	<i>Hepialus humuli</i>	Ghost Moth	13	02/07/2011
M20I	<i>Hoplodrina alsines</i>	Uncertain	13	02/07/2011
M20I	<i>Idaea aversata</i>	Riband Wave	16	02/07/2011
M20I	<i>Lacanobia contigua</i>	Beautiful Brocade	9	26/05/2012
M20I	<i>Lacanobia oleracea</i>	Bright-line Brown-eye	9	02/07/2011
M20I	<i>Lacanobia thalassina</i>	Pale-shouldered Brocade	9	14/05/2011
M20I	<i>Lampropteryx suffumata</i>	Water Carpet	3	26/05/2012
M20I	<i>Laothoe populi</i>	Poplar Hawk-moth	8	02/06/2012
M20I	<i>Ligdia adustata</i>	Scorched Carpet	5	02/06/2012
M20I	<i>Lithophane hepatica</i>	Pale Pinion	20	31/03/2012
M20I	<i>Lobophora halterata</i>	Seraphim	1	26/05/2012
M20I	<i>Lomaspilis marginata</i>	Clouded Border	8	02/07/2011
M20I	<i>Lomographa temerata</i>	Clouded Silver	13	02/06/2012
M20I	<i>Lycia hirtaria</i>	Brindled Beauty	11	15/04/2012
M20I	<i>Macaria liturata</i>	Tawny-barred Angle	1	27/06/2010
M20I	<i>Macrothylacia rubi</i>	Fox Moth	3	01/05/2011
M20I	<i>Malacosoma neustria</i>	Lackey	11	02/07/2011
M20I	<i>Melanchna persicariae</i>	Dot Moth	5	02/07/2011

M20I	<i>Melanchra pisi</i>	Broom Moth	4	02/06/2012
M20I	<i>Mythimna comma</i>	Shoulder-striped Wainscot	4	26/05/2012
M20I	<i>Mythimna conigera</i>	Brown-line Bright-eye	7	02/07/2011
M20I	<i>Noctua pronuba</i>	Large Yellow Underwing	29	02/06/2012
M20I	<i>Nola confusalis</i>	Least Black Arches	8	02/06/2012
M20I	<i>Notodonta dromedarius</i>	Iron Prominent	5	08/04/2012
M20I	<i>Notodonta ziczac</i>	Pebble Prominent	6	22/04/2011
M20I	<i>Nudaria mundana</i>	Muslin Footman	11	02/07/2011
M20I	<i>Ochropleura plecta</i>	Flame Shoulder	19	02/07/2011
M20I	<i>Odontopera bidentata</i>	Scalloped Hazel	16	02/06/2012
M20I	<i>Oligia strigilis</i> agg.	Marbled Minor agg.	14	02/06/2012
M20I	<i>Opisthograptis luteolata</i>	Brimstone Moth	33	02/06/2012
M20I	<i>Orthosia cerasi</i>	Common Quaker	17	08/04/2012
M20I	<i>Orthosia gothica</i>	Hebrew Character	33	27/04/2012
M20I	<i>Orthosia gracilis</i>	Powdered Quaker	4	22/04/2011
M20I	<i>Orthosia incerta</i>	Clouded Drab	25	26/05/2012
M20I	<i>Orthosia munda</i>	Twin-spotted Quaker	7	08/04/2012
M20I	<i>Ourapteryx sambucaria</i>	Swallow-tailed Moth	7	02/07/2011
M20I	<i>Perconia strigillaria</i>	Grass Wave	5	02/06/2012
M20I	<i>Peribatodes rhomboidaria</i>	Willow Beauty	14	02/07/2011
M20I	<i>Petrophora chlorosata</i>	Brown Silver-line	12	02/06/2012
M20I	<i>Phalera bucephala</i>	Buff-tip	11	11/05/2011
M20I	<i>Pheosia gnoma</i>	Lesser Swallow Prominent	1	26/05/2012
M20I	<i>Phigalia pilosaria</i>	Pale Brindled Beauty	1	25/02/2012
M20I	<i>Phlogophora meticulosa</i>	Angle Shades	22	02/06/2012

M20I	<i>Plagodis dolabraria</i>	Scorched Wing	11	02/06/2012
M20I	<i>Polia nebulosa</i>	Grey Arches	11	02/07/2011
M20I	<i>Ptilodon capucina</i>	Coxcomb Prominent	7	02/07/2011
M20I	<i>Saturnia pavonia</i>	Emperor Moth	4	02/06/2012
M20I	<i>Scoliopteryx libatrix</i>	Herald	1	08/04/2011
M20I	<i>Selenia dentaria</i>	Early Thorn	37	02/06/2012
M20I	<i>Selenia lunularia</i>	Lunar Thorn	12	02/06/2012
M20I	<i>Setina irrorella</i>	Dew Footman	5	02/06/2012
M20I	<i>Spilosoma lubricipeda</i>	White Ermine	23	02/06/2012
M20I	<i>Spilosoma luteum</i>	Buff Ermine	17	02/06/2012
M20I	<i>Thera britannica</i>	Spruce Carpet	5	02/06/2012
M20I	<i>Theria primaria</i>	Early Moth	2	06/03/2011
M20I	<i>Thyatira batis</i>	Peach Blossom	10	02/06/2012
M20I	<i>Trichopteryx carpinata</i>	Early Tooth-striped	6	31/03/2012
M20I	<i>Tyria jacobaeae</i>	Cinnabar	13	26/05/2012
M20I	<i>Xanthorhoe designata</i>	Flame Carpet	10	02/06/2012
M20I	<i>Xanthorhoe ferrugata</i>	Dark-barred Twin-spot Carpet	18	14/05/2011
M20I	<i>Xanthorhoe fluctuata</i>	Garden Carpet	12	02/06/2012
M20I	<i>Xanthorhoe montanata</i>	Silver-ground Carpet	17	02/06/2012
M20I	<i>Xestia triangulum</i>	Double-square Spot	2	02/07/2011
M20I	<i>Xylocampa areola</i>	Early Grey	28	19/05/2012
M20I	<i>Zanclognatha tarsipennalis</i>	Fan-foot	9	02/07/2011

Bird species recorded by Stephen Ward for Birdtrack between October 2013 and April 2014

Bird species recorded at Ballyvaughan quays Tetrad IM20J

A letter 'P' in the number column denotes 'present' but no count made – often because the species was heard but not seen.

Table 12: Bird species recorded by Stephen Ward for Birdtrack October 2013-October 2014

Date	Count	Comment
14th December 2013		
Blackbird	p	
Collared Dove	2	
Cormorant	1	
Hooded crow	2	
Jackdaw	18	
Pied Wagtail (yarrellii)	1	
Redshank	1	
Rook	200	One of those winter days when the rooks visit the rookery – very noisy.
Starling	10	
Teal	4	
Wigeon	34	Breeds in Scotland, Scandinavia & Russia – winters in Europe.

18th December 2013		
Black-headed Gull	1	
Blackbird	P	
Cormorant	2	
Curlew	1	
Great Black-backed Gull	3	
Grey Heron	1	

Herring Gull	3	
Hooded crow	1	
Jackdaw	6	
Mute swan	2	
Oystercatcher	1	
Pied Wagtail (yarrellii)	1	
Raven	1	
Redshank	1	
Robin	P	
Rook	1	

16th January 2014		
Black-headed Gull	4	
Blackbird	4	
Brent Goose (lb)	2	
Chaffinch	1	
Common Gull	37	
Cormorant	1	
Curlew	3	
Great Black-backed Gull	1	
Greenfinch	2	
Grey Heron	6	
Herring Gull	3	
Hooded Crow	3	
Jackdaw	20	
Lapwing	13	A small wintering flock which moves between the foreshore and Gall Island. An Irish breeding species with nos. boosted in winter by continental birds.
Magpie	3	

Oystercatcher	2	
Pied/White Wagtail	3	
Raven	1	
Redshank	2	
Robin	3	
Rook	P	
Starling	12	
Stonechat	1	An interesting record. Stonechats were ubiquitous until the two very hard winters of 2009-2010 and 2010-2011 virtually wiped them out. It is normally the tiny wren which is recorded as having been badly affected, but the wrens seemed to come through whereas the stonechats did not. The stonechats are only now beginning to recover.
Teal	12	
Woodpigeon	2	
Wren	2	

3rd April 2014		Some species present at this time will be breeding. (Excluding curlew, great northern diver, herring gull, turnstone, wigeon.)
Blackbird	1	
Chaffinch	P	
Collared Dove		
Curlew	3	
Dunnock	1	
Goldfinch	2	
Great Northern Diver	1	Individuals which are still here as late as this are in their stunning summer plumage and can sometimes be heard 'singing' – the eerie call from which they get the name 'loon' in N America.
Greenfinch	3	
Greenshank	2	Spring migrants heading for breeding grounds.
Grey Heron	3	

Herring Gull	2	
Hooded Crow	P	
Jackdaw	P	
Mallard	1	
Oystercatcher	7	
Pied Wagtail (yarrellii)	2	
Redshank	1	
Robin	2	
Rock Pipit	2	
Rook	130	This number refers to a census of rook nests I undertook before the leaves unfurl, rendering a further count \pm impossible
Sandwich Tern	22	Fishing off-shore
Starling	1	
Turnstone	1	
Wigeon	P	
Wren	1	

Bird species recorded in Ballyvaughan tetrad IM20I October 2013-October 2014

Date	Count	Comment
8th January 2013		
Blackbird	P	
Blackcap	1	A record of interest because it is so early in the year, suggesting overwintering in Ballyvaughan by this once summer migrant warbler.
Dunnock	P	
Hooded Crow	P	
Magpie	1	
Pied Wagtail (<i>yarrellii</i>)	1	
Robin	5	
Rook	P	

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