

NPWS

Farranamanagh Lough SAC
(site code: 002189)

**Conservation objectives supporting document-
Coastal habitats**

Version 1

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Please note that the opinions expressed in the site report from the Vegetated Shingle Monitoring Project (VSM) are those of the authors and do not necessarily reflect the opinion or policy of NPWS.

Please note that this document should be read in conjunction with the following report: NPWS (2018) Conservation Objectives: Farranamanagh Lough SAC 002189. Version 1.0. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

1 Introduction

Achieving Favourable Conservation Status (FCS) is the overall objective to be reached for all Annex I habitat types and Annex II species of European Community interest listed in the Habitats Directive 92/43/EEC (European Commission, 2013). It is defined in positive terms such that a habitat type or species must be prospering and have good prospects of continuing to do so.

Farranamanagh Lough SAC is a small Special Area of Conservation (SAC) located approximately 1km east of Kilcrohane, Co. Cork, on the northern side of Dunmanus Bay.

Farranamanagh Lough SAC (site code: 002189) is selected for coastal lagoons (a priority habitat) and perennial vegetation of stony banks. The following coastal habitat is included in the list of Qualifying Interests for the SAC and is dealt with in this supporting document:

1220 Perennial vegetation of stony banks

The mapped distribution of perennial vegetation of stony banks in Farranamanagh Lough SAC is presented in Appendix I.

2 Conservation Objectives

A conservation objective aims to define the favourable conservation condition of a habitat or species at a particular site. Implementation of the objective will help to ensure that the habitat or species achieves favourable conservation status at a national level.

This supporting document sets out the conservation objective for perennial vegetation of stony banks in Farranamanagh Lough SAC, which is defined by a list of parameters, attributes and targets. The main parameters are (a) Range (b) Area and (c) Structure and Functions, the last of which is broken down into a number of attributes, including physical structure, vegetation structure and vegetation composition.

The targets set for perennial vegetation of stony banks (vegetated shingle) are based in part on the findings of the Vegetated Shingle Monitoring Project (VSM) (Martin *et al.*, 2017), which was carried out in 2016 on behalf of the National Parks and Wildlife Service (NPWS). This document should be read in conjunction with that report.

Vegetated shingle within Farranamanagh Lough SAC was also recorded during the National Shingle Beach Survey (NSBS), which was carried out in 1999 on behalf of NPWS (Moore and Wilson, 1999).

The VSM surveyed, mapped and assessed a single sub-site associated with Farranamanagh Lough SAC (Martin *et al.*, 2017): Farranamanagh Lough (VSM site code 015)

As part of the VSM, a detailed individual site report and a habitat map were produced for the Farranamanagh Lough sub-site and these are included in Appendix II at the end of this document.

The conservation objective for perennial vegetation of stony banks in Farranamanagh Lough SAC is based on the findings of the VSM.

3 Perennial vegetation of stony banks

The following definition of perennial vegetation of stony banks habitat in Ireland is based on the data collected during the VSM (Martin *et al.*, 2017) and is an adaptation of the definitions used in European Commission (2013) and NPWS (2013).

Perennial vegetation of stony banks occurs along the coast where shingle (cobbles, pebbles, and gravel $\geq 2\text{mm}$) has accumulated to form elevated ridges or banks above the high tide mark. The majority of the rocky material should be between 2mm and 256mm in diameter to be considered in this habitat category. On the upper beach, the pioneer community can be characterised by perennial species such as sea beet (*Beta vulgaris* subsp. *maritima*), sea-kale (*Crambe maritima*), rock samphire (*Crithmum maritimum*), cleavers (*Galium aparine*), yellow-horned poppy (*Glaucium flavum*), sea pea (*Lathyrus japonicus*), wild radish (*Raphanus raphanistrum* subsp. *maritimus*), curled dock (*Rumex crispus*), sea campion (*Silene uniflora*), perennial sow-thistle (*Sonchus arvensis*) and sea mayweed (*Tripleurospermum maritimum*). The majority of the area within this pioneer community is usually bare shingle. At the top of the beach, and moving inland, a wider range of vegetation types can be found at larger shingle sites including a lichen-rich community and coastal forms of grassland, heath and scrub. The grassland community can be characterised by grass species such as common bent-grass (*Agrostis capillaris*), creeping bent-grass (*A. stolonifera*), false oat-grass (*Arrhenatherum elatius*), cock's-foot (*Dactylis glomerata*), spreading meadow-grass (*Poa humilis*), sand couch (*Elytrigia repens*), red fescue (*Festuca rubra*), Yorkshire fog (*Holcus lanatus*) and crested hair-grass (*Koeleria macrantha*), field wood-rush (*Luzula campestris*), and broadleaf herbs such as yarrow (*Achillea millefolium*), thrift (*Armeria maritima*), common mouse-ear (*Cerastium fontanum*), wild carrot (*Daucus carota*), autumn hawkbit (*Leontodon autumnalis*), common bird's-foot trefoil (*Lotus corniculatus*), buck's-horn plantain (*Plantago coronopus*), ribwort plantain (*P. lanceolata*), silverweed (*Potentilla anserina*), common sorrel (*Rumex acetosa*), dandelion (*Taraxacum officinale* agg.), lady's bedstraw (*Galium verum*), red clover (*Trifolium pratense*) and white clover (*T. repens*). The scrub community can be characterised by the woody species honeysuckle (*Lonicera periclymenum*), blackthorn (*Prunus spinosa*), bramble (*Rubus fruticosus* agg.), gorse (*Ulex europaeus*) and the climber hedge bindweed (*Calystegia sepium*). These more inland communities have less bare shingle and vegetative cover usually dominates. The majority of the grassland and scrub communities are rooted within soil, whereas the pioneer community is usually rooted in gravel, sand or organic matter (e.g. decomposing seaweed and other plant material). Once the soil layer on top of the shingle is more than 30cm deep, the community is no longer defined as perennial vegetation of stony banks.

3.1 Overall Objective

The overall objective for 'Perennial vegetation of stony banks' in Farranamanagh Lough SAC is to 'restore the favourable conservation condition'.

This objective is based on an assessment of the recorded condition of the habitat under a range of attributes and targets. The assessment is divided into three main headings: (a) Range, (b) Area and (c) Structure and Functions.

3.2 Area

3.2.1 Habitat area

Habitat extent is a basic attribute to be assessed when determining the condition of a particular habitat. The target for favourable condition is that there is no decrease from the established baseline. Bearing in mind that coastal systems are naturally dynamic and subject to change, even within a season, this target is assessed subject to natural processes, including erosion and succession.

The VSM (Martin *et al.*, 2017) mapped the area of vegetated shingle where it occurred in the sub-site. The area of perennial vegetation of stony banks recorded by the VSM in the Farranamanagh Lough sub-site was 0.89ha (Martin *et al.*, 2017).

The target is that the habitat area should be stable or increasing, subject to natural processes, including erosion and succession.

3.3 Range

3.3.1 Habitat distribution

The recorded location of the surveyed vegetated shingle site in Farranamanagh Lough SAC, as mapped by Martin *et al.* (2017), is presented in Appendix I.

Perennial vegetation of stony banks in the sub-site surveyed by the VSM is located between a lagoon, known as Farranamanagh Lough (or Farranamanagh Lake), and the sea (Martin *et al.*, 2017).

The NSBS (Moore and Wilson, 1999) classified the perennial vegetation of stony banks in the NSBS sub-site Farranamanagh Lough as a vegetated ridge barrier and it is defined as a shingle bar following Chapman (1976).

The NSBS (Moore and Wilson, 1999) ranked each surveyed site as either High, Medium or Low interest, based on site representativity, species diversity, habitat diversity and the presence of rare or scarce species. Farranamanagh Lough was ranked as a 'High interest' site by the NSBS (Moore and Wilson, 1999) due to it being an excellent system, although damaged in parts due to extraction. A 'High interest' ranking denoted a site that is of high conservation value and perhaps of interest botanically or geomorphologically (Moore and Wilson, 1999).

The target is that there should be no decline or change in the distribution of the habitat, unless it is the result of natural processes, including erosion and succession.

3.4 Structure and Functions

A fundamental aim of shingle conservation is to facilitate natural mobility. Shingle beaches are naturally dynamic systems, making them of geomorphological interest, as well as ecological interest. They are constantly changing and shingle features are rarely stable in the long-term.

3.4.1 Physical structure: functionality and sediment supply

The health and on-going development of the habitat relies on a continuing supply of shingle sediment. This may occur sporadically as a response to storm events rather than continuously. Interference with the natural coastal processes, through offshore (or onshore) extraction or coastal defence structures in particular, can interrupt the supply of sediment and lead to beach starvation.

The shingle in the Farranamanagh Lough sub-site comprises cobble and pebble as defined using a modified version of the particle size ranges defined in Fossitt (2000) (Martin *et al.*, 2017).

Table 1. Shingle composition (as defined in Fossitt (2000) with minor modifications) of perennial vegetation of stony banks in the Farranamanagh Lough sub-site during the VSM 2016. Percentage (%) cover shown, recorded to the nearest 5%. Only the two stops with exposed shingle could contribute to the data presented.

	Stop 3	Stop 4
Boulder (>256 mm)	0	0
Cobble (>64-256 mm)	35	95
Pebble (>16-64 mm)	65	5
Gravel (2-16 mm)	0	0

The target is to maintain, or where necessary restore, the natural circulation of sediment and organic matter, without any physical obstructions.

3.4.2 Physical structure: disturbance

Damage to the habitat due to disturbance was assessed as a negative indicator by Martin *et al.* (2017). Disturbance can include damage from heavy trampling, vehicle damage and removal of substrate.

The target is that no more than 20% of the habitat is affected by disturbance.

3.4.3 Vegetation structure: zonation

Ecological variation within this habitat type depends on stability, the amount of fine material accumulating between the pebbles, climatic conditions, width of the foreshore and past management of the site. The ridges and lows also influence the vegetation patterns, resulting in characteristic communities and zonations of bare and vegetated shingle. In the frontal, less stable areas of shingle, the vegetation tends to be dominated by short-lived salt-tolerant perennials (pioneer community). Where the shingle is more stable, it becomes more vegetated and may include grassland, heathland and scrub communities, depending on the exact nature of the site. The presence of lichens indicates long-term stability of the shingle structure. Further information on the communities of perennial vegetation of stony banks is found in Martin *et al.* (2017).

The VSM (Martin *et al.*, 2017) recorded three communities of perennial vegetation of stony banks in the Farranamanagh Lough sub-site - a pioneer community, a grassland community and a scrub community. The most abundant community was the pioneer community found towards the front of the system.

Vegetated shingle is part of a naturally dynamic coastal system. In order to ensure the ecological functioning of all of the vegetated shingle communities present, it is vital to maintain the zonations and transitions to other habitats, including lagoon, saltmarsh and sand dune habitats.

Habitats associated with perennial vegetation of stony banks in the Farranamanagh Lough sub-site include saltmarsh and a lagoon.

The target is to maintain the range of coastal habitats, including transitional zones, subject to natural processes, including erosion and succession.

3.4.4 Vegetation composition: communities and typical species

The degree of exposure, as well as the coarseness and stability of the substrate determines species diversity. Typical species lists for the three main vegetated shingle communities (pioneer, grassland and scrub) are presented in Martin *et al.* (2017).

As mentioned earlier, the shingle in the Farranamanagh Lough sub-site includes three communities of perennial vegetation of stony banks that were recorded during the VSM (Martin *et al.*, 2017) – a pioneer, a grassland and a scrub community. The pioneer community is the most extensive and runs the length of the shingle barrier. Both the scrub and grassland communities are found behind the pioneer community, in the more sheltered, lagoon side of the barrier (Martin *et al.*, 2017).

Table 2 presents the typical species recorded within the pioneer, grassland and scrub communities of perennial vegetation of stony banks in the Farranamanagh Lough sub-site.

Table 2. Typical species recorded within the pioneer, grassland and scrub communities of perennial vegetation of stony banks habitat in the Farranamanagh Lough sub-site. Negative and non-native species are excluded from the list.

Pioneer community	Grassland community	Scrub community
<i>Achillea millefolium</i>	<i>Agrostis stolonifera</i>	<i>Arrhenatherum elatius</i>
<i>Agrostis stolonifera</i>	<i>Anthyllis vulneraria</i>	<i>Calystegia sepium</i>
<i>Arrhenatherum elatius</i>	<i>Daucus carota</i>	<i>Festuca rubra</i>
<i>Atriplex prostrata</i>	<i>Festuca rubra</i>	<i>Galium aparine</i>
<i>Beta vulgaris</i> subsp. <i>maritima</i>	<i>Leontodon autumnalis</i>	<i>Geranium robertianum</i>
<i>Calystegia sepium</i>	<i>Plantago lanceolata</i>	<i>Lonicera periclymenum</i>
<i>Festuca rubra</i>	<i>Silene uniflora</i>	<i>Polypodium vulgare</i>
<i>Galium aparine</i>	<i>Trifolium repens</i>	<i>Rubus fruticosus</i> agg.
<i>Lotus corniculatus</i>		<i>Rumex acetosa</i>
<i>Plantago lanceolata</i>		<i>Sedum anglicum</i>
<i>Raphanus raphanistrum</i> subsp. <i>maritimus</i>		<i>Umbilicus rupestris</i>
<i>Rubus fruticosus</i> agg.		
<i>Silene uniflora</i>		
<i>Trifolium repens</i>		
<i>Tripleurospermum maritimum</i>		

No notable species were recorded within the perennial vegetation of stony banks habitat in the Farranamanagh Lough sub-site during the NSBS (Moore and Wilson, 1999) or the VSM (Martin *et al.*, 2017).

The target for this attribute is to ensure that the occurrence of typical species within the range of vegetated shingle communities is maintained.

3.4.5 Vegetation composition: negative indicator species

Negative indicator species can include species indicative of changes in nutrient status e.g. nettle (*Urtica dioica*), and species not considered to be typical of the habitat, e.g. bracken (*Pteridium aquilinum*). The list of negative indicator species commonly found in the habitat is presented in Appendix I of Martin *et al.* (2017).

No negative indicator species were noted within the four monitoring stops recorded in the Farranamanagh Lough sub-site by the VSM; however, three negative species, perennial rye-grass (*Lolium perenne*), common ragwort (*Senecio jacobaea*) and common nettle (*Urtica dioica*), were recorded as being occasional within the habitat (Martin *et al.*, 2017).

The target for negative indicator species is that no species is present in more than 60% of stops and the combined cover in any individual stop is 25% or less.

3.4.6 Vegetation composition: non-native species

Non-native species can be invasive and have deleterious effects on native vegetation. Low targets are set as non-native species can spread rapidly and are most easily dealt with when still at lower abundances.

The VSM did not record any non-native species within the monitoring stops in the vegetated shingle habitat in the Farranamanagh Lough sub-site. However, the non-native invasive species montbretia (*Crocsmia x crocosmiiflora*) was observed (Martin *et al.*, 2017).

The target for non-native species is that no species is present in more than 20% of stops, the combined cover in any individual stop is 1% or less, and the cover across the whole site 1% or less. At a site level, if a non-native species has been under-recorded, or not recorded, via the stops the percentage cover for the species across the site should be recorded and assessed.

4 References

Chapman, V.J. (1976) Coastal Vegetation. Pergamon Press, Oxford.

European Commission (2013) Interpretation Manual of European Union Habitats – EUR 28. DG Environment-Nature and Biodiversity, Brussels.

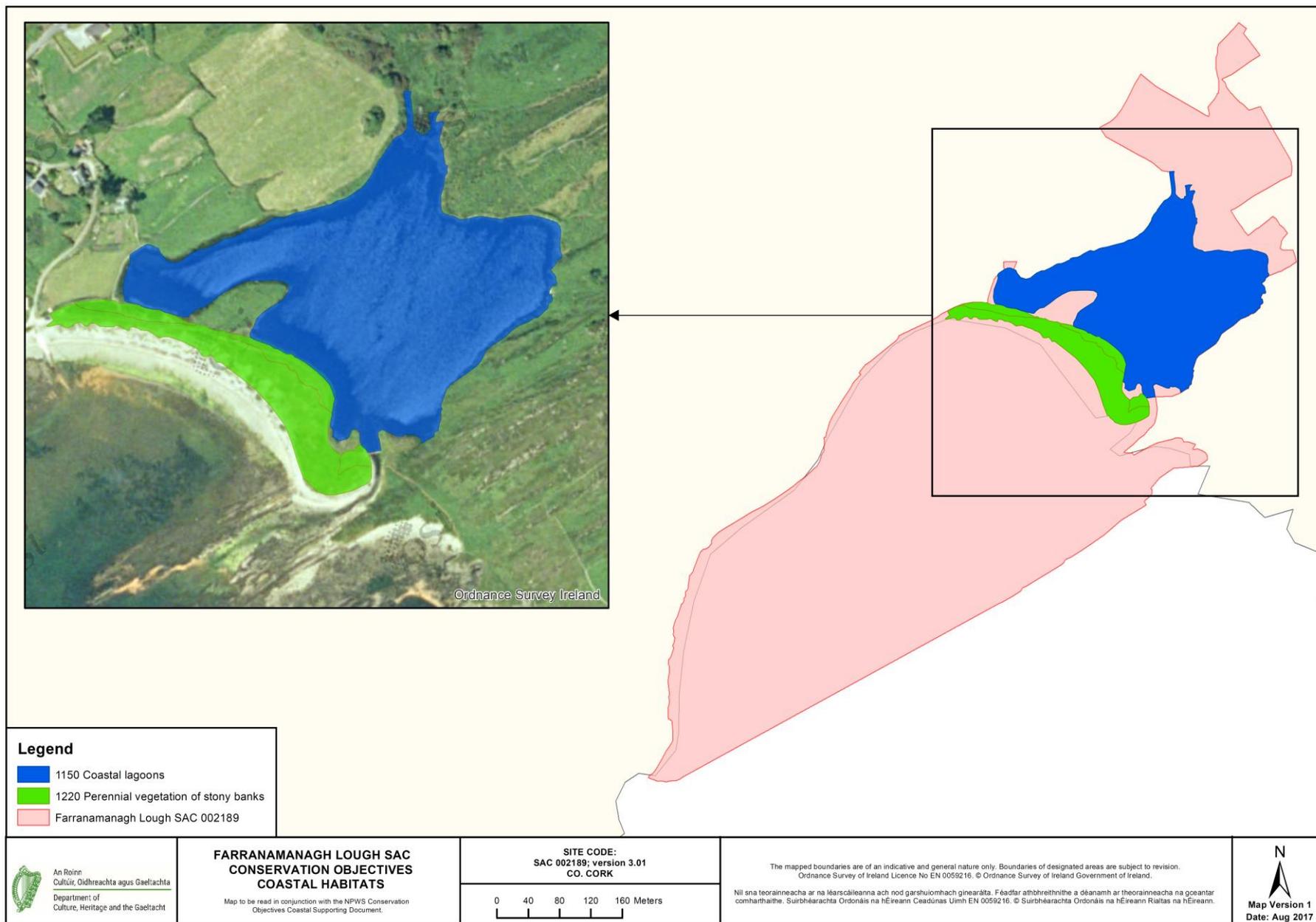
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Moore, D. and Wilson, F. (1999) National Shingle Beach Survey of Ireland 1999. Unpublished report to National Parks and Wildlife Service, Dublin.

NPWS (2013) The status of EU protected habitats and species in Ireland. Volume 2. Habitat Assessments. Version 1.1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

Appendix I – Distribution map of perennial vegetation of stony banks within Farranamanagh Lough SAC



Appendix II – Farranamanagh Lough site report and habitat map from the Vegetated Shingle Monitoring Project (VSM)

SITE 015 FARRANAMAGH LOUGH

The following individual site report should be read in conjunction with the main report (Martin *et al.*, 2017). Please note that NSBS refers to the National Shingle Beach Survey (NSBS) (Moore & Wilson, 1999), CMP refers to the Coastal Monitoring Project (Ryle *et al.*, 2009), SDM refers to the Sand Dunes Monitoring Project (Delaney *et al.*, 2013) and VSM to the Vegetated Shingle Monitoring Project (Martin *et al.*, 2017).

The shingle at this location is referred to as Site 108 Farranamanagh Lough by the NSBS.

1 SITE DESCRIPTION

Farranamanagh Lough is a small site located approximately 1 km east of Kilcrohane, Co. Cork, on the northern side of Dunmanus Bay. The site Farranamanagh Lough is a vegetated ridge barrier between a lagoon, also named Farranamanagh Lough, and the sea. It is part of the Farranamanagh Lough SAC (002189) (NPWS, 2014). This site was not surveyed by either the CMP or the SDM. It was surveyed during the NSBS for the Annex I habitat **1220 Perennial vegetation of stony banks**, though no conservation assessment was made. It was ranked as a ‘High interest’ site by the NSBS due to it being an excellent system, although damaged in parts due to extraction.

Annex I habitats associated with the **1220 Perennial vegetation of stony banks** surveyed at Farranamanagh Lough include ***1150 Lagoons** and **1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)**. The small area of **1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)** at the eastern end of the site and the ***1150 Lagoons** are both present on the landward side of the shingle habitat. No noteworthy species were observed during the NSBS or VSM.

Farranamanagh Lough is mainly used for recreation as evidenced by the track at the back of the shingle and the small boats stored on the shingle. There is a slipway present at the western end of the vegetated shingle.

2 CONSERVATION ASSESSMENTS

2.1 Overview

Farranamanagh Lough was surveyed on the 16th of August 2016. **1220 Perennial vegetation of stony banks** was recorded during the NSBS, and again during the VSM. The **1220 Perennial vegetation of stony banks** has three vegetation communities present - a pioneer community, a grassland community and a scrub community. The results of the conservation assessment of **1220 Perennial vegetation of stony banks** are presented in Table 1.

Table 1. Conservation assessment results for **1220 Perennial vegetation of stony banks** surveyed at Farranamanagh Lough, Co. Cork.

Habitat	Area	Structure & Functions	Future Prospects	Overall result
1220 Perennial vegetation of stony banks	Favourable	Unfavourable-Inadequate	Unfavourable-Inadequate	Unfavourable-Inadequate

2.2 1220 Perennial vegetation of stony banks habitat assessment

The conservation status of the Annex I habitat **1220 Perennial vegetation of stony banks** at Farranamanagh Lough is discussed below. As this habitat was not previously assessed, no trend can be ascribed to the conservation status. Areas recorded in 2016 are compared with the 1995 aerial photograph series. Due to the quality of these aerial photographs, only gross changes in area are noticeable. It should be borne in mind that natural processes such as erosion, deposition and succession are primary drivers of change on coastal habitats.

2.2.1 Area

The area of each vegetation community of Annex I **1220 Perennial vegetation of stony banks** is presented in Table 2. The pioneer community is the most extensive and runs the length of the shingle barrier. Both the scrub and grassland communities are found behind the pioneer community, in the more sheltered, lagoon side of the barrier. Based on 1995 aerial photographs there has been no change in the proportion of vegetation communities of **1220 Perennial vegetation of stony banks** at Farranamanagh Lough, nor has there been any change in area of the habitat as a whole. It should be noted that due to the quality of the aerial photographs taken in 1995, only gross changes in area would be noticeable. Area was assessed as Favourable (stable) during the VSM.

Table 2. Areas of the vegetation communities of Annex I **1220 Perennial vegetation of stony banks** at Farranamanagh Lough based on aerial photographs (APs) from 1995 for baseline areas and areas mapped during the VSM.

Habitat	1995 APs (ha)	Vegetated Shingle Monitoring Project (ha)
1220 Perennial vegetation of stony banks		
Pioneer community	0.67	0.67
Grassland community	0.15	0.15
Scrub community	0.08	0.08
Total	0.89	0.89

2.2.2 Structure and Functions

Structure and Functions were assessed for **1220 Perennial vegetation of stony banks** recorded at Farranamanagh Lough during the VSM. Table 3 shows the results of the Structure and Functions assessment.

Table 3. Annex I **1220 Perennial vegetation of stony banks** at Farranamanagh Lough for which Structure and Functions were assessed, with the number of monitoring stops, assessment criteria and the number of criteria that failed.

Habitat	No. monitoring stops	Total no. assessment criteria	No. failed criteria
1220 Perennial vegetation of stony banks	4	7	1

1220 Perennial vegetation of stony banks had one of its criteria fail – negative indicator species. Although no negative indicator species were recorded within the four monitoring stops, three negative species, *Lolium perenne*, *Senecio jacobaea* and *Urtica dioica*, were recorded as being occasional within the **1220 Perennial vegetation of stony banks**. During the NSBS none of these negative indicator species were recorded. Due to the increase in the presence of negative species within the

1220 Perennial vegetation of stony banks at this site since 1999 the criterion has been failed based on expert judgement. Structure and Functions of **1220 Perennial vegetation of stony banks** were assessed as Unfavourable-Inadequate during the VSM.

2.2.3 Future Prospects

Impacts and activities recorded at Farranamanagh Lough are presented in Table 15.4. Impact codes are assigned according to Ssymank (2011). The majority of impacts were associated with recreation, affecting only a small area of **1220 Perennial vegetation of stony banks**. These include the storage of boats on the shingle habitat, trampling and litter. All of these impacts were of a high negative intensity, apart from litter, which was low. The remaining negative impact listed was the presence of an invasive non-native species, *Crococsmia x crocosmiiflora* (montbretia). This non-native species was not recorded at the site by the NSBS. The presence of sea defences was assessed to have a neutral impact on the **1220 Perennial vegetation of stony banks** at a low percentage. There were no positive impacts recorded at Farranamanagh Lough (Table 4).

Table 4. Impacts recorded in Annex I **1220 Perennial vegetation of stony banks** at Farranamanagh Lough in 2016. Source refers to whether the impact being scored originates inside or outside the Annex I habitat being assessed.

Habitat code	Impact code	Impact description	Intensity	Effect	Percent of habitat	Source
1220	E04	Structures, buildings in the landscape (storage of boats on shingle habitat)	High	Negative	<1	Inside
1220	G05.01	Trampling, overuse	High	Negative	1	Inside
1220	H05.01	Garbage and solid waste	Low	Negative	<1	Inside
1220	I01	Invasive non-native species	Medium	Negative	<1	Inside
1220	J02.12.01	Sea defence or coast protection works, tidal barrages	High	Neutral	1	Inside

Development and evidence of excavation and removal of beach materials were recorded as impacts during the NSBS. There was no evidence of either during the VSM. Future prospects were assessed as Unfavourable-Inadequate during the VSM, largely due to the high-intensity impacts of recreation.

2.2.4 Conservation assessment

Area was assessed as Favourable while Structure and Functions and Future Prospects were both assessed as Unfavourable-Inadequate. The conservation status of **1220 Perennial vegetation of stony banks** at Farranamanagh Lough was assessed as Unfavourable-Inadequate.

3 DISCUSSION

3.1 Species lists for 1220 Perennial vegetation of stony banks communities

Three communities of **1220 Perennial vegetation of stony banks** were recorded during the VSM. Table 5 presents the positive indicator species recorded within the pioneer, grassland and scrub communities of **1220 Perennial vegetation of stony banks** at Farranamanagh Lough.

Table 5. Positive indicator species recorded within the pioneer, grassland and scrub communities of **1220 Perennial vegetation of stony banks** at Farranamanagh Lough. Negative and non-native species are excluded from the list.

Pioneer community	Grassland community	Scrub community
<i>Achillea millefolium</i>	<i>Agrostis stolonifera</i>	<i>Arrhenatherum elatius</i>
<i>Agrostis stolonifera</i>	<i>Anthyllis vulneraria</i>	<i>Calystegia sepium</i>
<i>Arrhenatherum elatius</i>	<i>Daucus carota</i>	<i>Festuca rubra</i>
<i>Atriplex prostrata</i>	<i>Festuca rubra</i>	<i>Galium aparine</i>
<i>Beta vulgaris s. maritima</i>	<i>Leontodon autumnalis</i>	<i>Geranium robertianum</i>
<i>Calystegia sepium</i>	<i>Plantago lanceolata</i>	<i>Lonicera periclymenum</i>
<i>Festuca rubra</i>	<i>Silene uniflora</i>	<i>Polypodium vulgare</i>
<i>Galium aparine</i>	<i>Trifolium repens</i>	<i>Rubus fruticosus agg.</i>
<i>Lotus corniculatus</i>		<i>Rumex acetosa</i>
<i>Plantago lanceolata</i>		<i>Sedum anglicum</i>
<i>Raphanus raphanistrum s. maritimus</i>		<i>Umbilicus rupestris</i>
<i>Rubus fruticosus agg.</i>		
<i>Silene uniflora</i>		
<i>Trifolium repens</i>		
<i>Tripleurospermum maritimum</i>		

3.2 Shingle vegetation substrate and composition

The vegetation of **1220 Perennial vegetation of stony banks** is rooted within a gravel and organic substrate mix for stop 1 and an organic substrate for stop 3 (the pioneer community stops), a soil substrate for stop 2 (the grassland community), and within an organic substrate for stop 4 (the scrub community). The shingle comprises cobble and pebble as defined using a modified version of particle size ranges defined in Fossitt (2000). For the scrub community, almost the entire shingle composition comprised cobbles, while pebble was the major component for the pioneer community (Table 6).

Table 6. Shingle composition (as defined in Fossitt (2000) with minor modifications) of **1220 Perennial vegetation of stony banks** at Farranamanagh Lough during the VSM 2016. % cover shown, recorded to the nearest 5%. Only stops with exposed shingle could contribute to the data presented.

	Stop 3	Stop 4
Boulder (>256 mm)	0	0
Cobble (>64-256 mm)	35	95
Pebble (>16-64 mm)	65	5
Gravel (2-16 mm)	0	0

3.3 Stabilising effects of permanent structures

Any anthropogenic structures which prevent the natural habitat dynamics of **1220 Perennial vegetation of stony banks** must be looked upon unfavourably when assessing the Structure and Functions and Future Prospects of the habitat. The site-specific conservation objective for **1220 Perennial vegetation of stony banks** in Farranamanagh Lough SAC (SAC 002189) states that "A

fundamental aim of shingle conservation is to facilitate natural mobility", with a target "to maintain the natural circulation of sediment and organic matter, without any physical obstructions". There are coastal defences by the slipway at Farranamanagh Lough, and although the area impacted upon is small, they are artificially stabilising the **1220 Perennial vegetation of stony banks** habitat. Following the approach undertaken by the SDM, most permanent built infrastructure, such as coastal defences and coastal roads, that were in place on the 1995 aerial photographs and had not undergone significant modifications or improvements since 1995, were scored as neutral.

3.4 Recreation

Farranamanagh Lough is mainly utilised for recreational purposes. Areas of the **1220 Perennial vegetation of stony banks** which are used as a track are compacted and becoming more semi-improved in nature, with an increase in the cover of negative indicator species such as *Lolium perenne*. Preventing vehicles using the track, or at least reducing their access to a minimum, may reduce some of these negative impacts. In addition, the practice of storing small boats on areas of the **1220 Perennial vegetation of stony banks** should be stopped.

3.5 Climate change

Due to the extensive erosion of coastal systems within Ireland during the winter storms of 2013/14 and evidence that an increase in Atlantic storms over the last few decades could be due to climate change (Masselink *et al.*, 2016), the impact of climate change on **1220 Perennial vegetation of stony banks** should be assessed. Based on comparisons between the VSM mapping recorded in 2016 and aerial photography taken in 2010 it appears that the area of **1220 Perennial vegetation of stony banks** at this site is unchanged and any impacts from storm activity have been minor. The impact of climate change has not been assessed for this site as it would be more appropriate if an assessment of this impact was made at the national level.

3.6 Other impacts

The non-native invasive species *Crococsmia x crocosmiiflora* (montbretia), which appears to have invaded the site since the NSBS survey in 1999, should be eradicated from the site as soon as possible.

A site-specific management plan addressing the issues discussed in sections 3.3, 3.4 and 3.6 would help improve the Future Prospects of **1220 Perennial vegetation of stony banks**, and this would ultimately improve the overall conservation assessment for the habitat.

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