ISSN 2009-4086

National Parks and Wildlife Service

Conservation Objectives Series

Murvey Machair SAC 002129

An Roinn Ealaíon, Oidhreachta,
Gnóthaí Réigiúnacha, Tuaithe agus Gaeltachta

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Citation:

NPWS (2017) Conservation Objectives: Murvey Machair SAC 002129. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

Series Editor: Rebecca Jeffrey
ISSN 2009-4086

Introduction

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Notes/Guidelines:

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

Qualifying Interests

**** indicates a priority habitat under the Habitats Directive***

002129	Murvey Machair SAC
1395	Petalwort *Petalophyllum ralfsii*
21A0	Machairs (* in Ireland)

Supporting documents, relevant reports & publications

Supporting documents, NPWS reports and publications are available for download from: www.npws.ie/Publications

NPWS Documents

Year :	1998
Title :	Biomar survey of Irish machair sites 1996
Author :	Crawford, I.; Bleasdale, A.; Conaghan, J.
Series :	Irish Wildlife Manual No. 3
Year :	1998
Title :	Biomar Survey of Irish machair sites, 1996. Vol. 2: plant communities
Author :	Crawford, I.; Bleasdale, A.; Conaghan, J.
Series :	Irish Wildlife Manual No. 4
Year :	2009
Title :	Coastal Monitoring Project 2004-2006
Author :	Ryle, T.; Murray, A.; Connolly, K.; Swann, M.
Series :	Unpublished report to NPWS
Year :	2013
Title :	Monitoring survey of Annex I sand dune habitats in Ireland
Author :	Delaney, A.; Devaney, F.M.; Martin, J.M.; Barron, S.J.
Series :	Irish Wildlife Manual No. 75
Year :	2015
Title :	Monitoring methods for *Petalophyllum ralfsii* (Wils.) Nees & Gottsche (Petalwort) in the Republic of Ireland
Author :	Campbell, C.; Hodgetts, N.; Lockhart, N.
Series :	Irish Wildlife Manual No. 90
Year :	2017
Title :	Murvey Machair SAC (site code: 2129) Conservation objectives supporting document- coastal habitats V1
Author :	NPWS
Series :	Conservation objectives supporting document

Other References

Year :	2006
Title :	The vegetation of Irish machair
Author :	Gaynor, K.
Series :	Biology and Environment: Proceedings of the Royal Irish Academy, vol 106B, No. 3: 311-321
Year :	2013
Title :	Conservation of selected legally protected and Red Listed bryophytes in Ireland
Author :	Campbell, C.
Series :	Unpublished Ph.D. Thesis, Trinity College Dublin

Spatial data sources

Year :	2009
Title :	Coastal Monitoring Project 2004-2006. Version 1
GIS Operations :	QI selected; clipped to SAC boundary; Expert opinion used as necessary to resolve any issues arising
Used For :	21A0 (map 2)
Year :	2016
Title :	NPWS rare and threatened species database
GIS Operations :	Dataset created from spatial references in database records. Expert opinion used as necessary to resolve any issues arising
Used For :	1395 (map 3)

21A0 Machairs (* in Ireland)

To restore the favourable conservation condition of Machairs (* in Ireland) in Murvey Machair SAC, which is defined by the following list of attributes and targets:

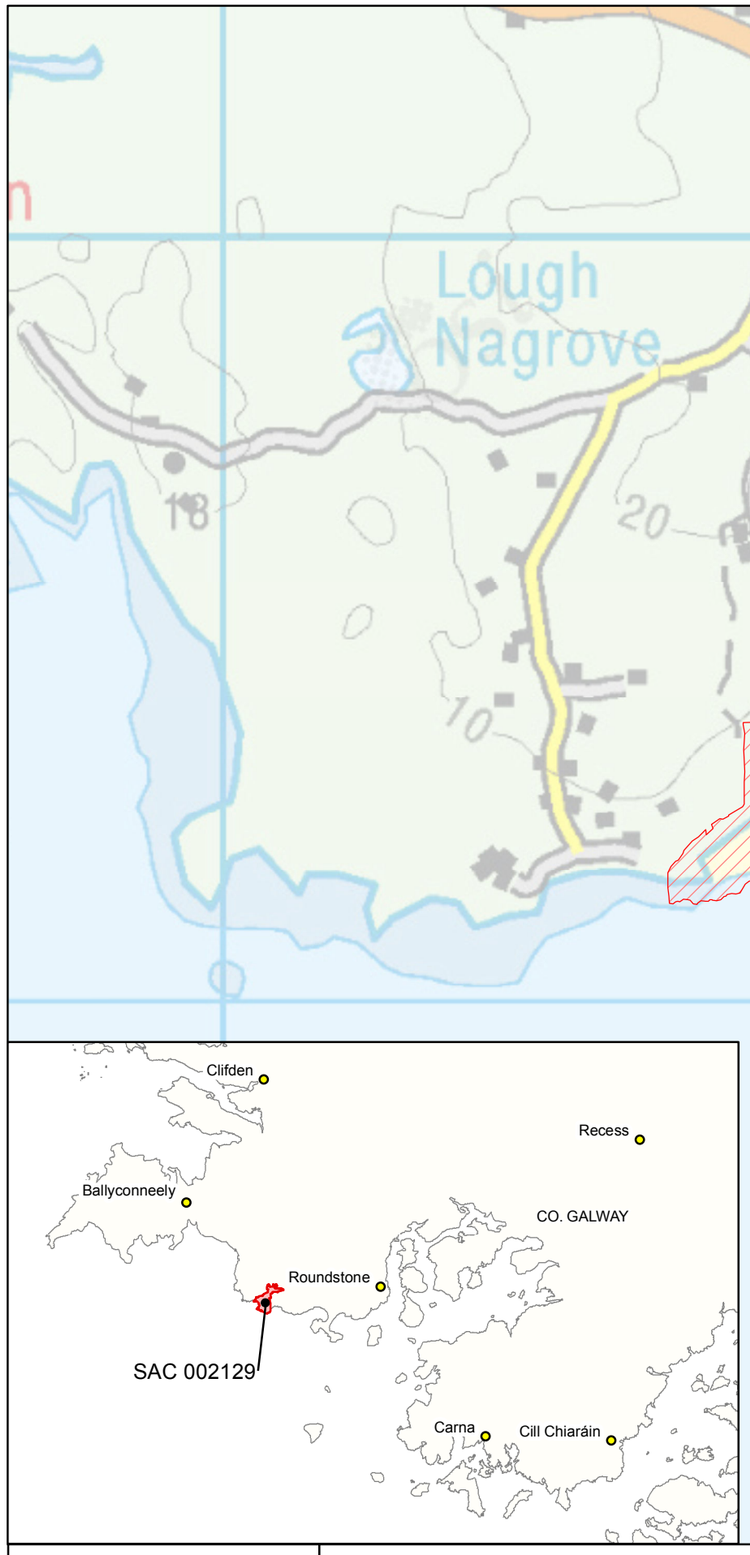
Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession. For the sub-site mapped: Doolan (Murvey) - 42.71ha. See map 2	Based on data from the Coastal Monitoring Project (CMP) (Ryle et al., 2009). Machair habitat was recorded and mapped at the sub-site Doolan (Murvey) (CMP site ID: 98) to give a total estimated area of 42.71ha within Murvey Machair SAC. See the Murvey Machair SAC conservation objectives supporting document for coastal habitats for further details
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes. See map 2 for known distribution	Based on data from Ryle et al. (2009). The machair plain comprises an exposed area, dominated by wind-blown sand and a more sheltered part, which is dominated by lakes and wetlands. See the coastal habitats supporting document for further details
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	Based on data from Ryle et al. (2009). Physical barriers can lead to fossilisation or over-stabilisation of dunes, as well as beach starvation resulting in increased rates of erosion. In this SAC, natural erosion is exacerbated by poaching and overgrazing. See the coastal habitats supporting document for further details
Physical structure: hydrological and flooding regime	Water table levels; groundwater fluctuations (metres)	Maintain natural hydrological regime	Based on data from Crawford et al. (1998), Gaynor (2006), Ryle et al. (2009) and Delaney et al. (2013). Seepage zones and damp hollows occur and support abundant sedges and mosses. A small channel edged by freshwater marsh runs out from Lough Namanawaun down to Murvey beach. See the coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from Ryle et al. (2009). Murvey Machair SAC contains areas of freshwater marsh, freshwater lake, wet grassland and heath. The northern part of the SAC contains two small but productive coastal lakes. Upslope, the machair grades into fields dominated by rock with dry grassland and heath, with some flushes and damp areas giving rise to stands of wet vegetation. In places, the seaward machair edge grades into brackish marsh as well as annual strandline vegetation. See the coastal habitats supporting document for further details
Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 10% of machair habitat, subject to natural processes	Based on data from Ryle et al. (2009). At Murvey Machair SAC, the total machair area is 42.71ha with approximately 15ha of this comprising bare sand (representing approximately 35% of the total area). Overgrazing and erosion has caused a decline in the extent of the machair vegetation with an increase in the cover of bare sand. See the coastal habitats supporting document for further details
Vegetation structure: sward height	Centimetres	Maintain structural variation within sward	Based on data from Ryle et al. (2009). Most of Murvey Machair SAC is heavily grazed by sheep, cattle and rabbits. The sward height is low indicating that the area is overgrazed. Overgrazing is preventing flowering and fruiting of characteristic vegetation resulting in low species diversity. See the coastal habitats supporting document for further details

Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain range of sub-communities with typical species listed in Delaney et al. (2013)	Based on data from Gaynor (2006), Ryle et al. (2009) and Delaney et al. (2013). A typical herb-rich sward occurs with species such as red fescue (*Festuca rubra*), daisy (*Bellis perennis*), ribwort plantain (*Plantago lanceolata*), buck's-horn plantain (*Plantago coronopus*), white clover (*Trifolium repens*), yarrow (*Achillea millefolium*), sand sedge (*Carex arenaria*), glaucous sedge (*Carex flacca*), common mouse-ear (*Cerastium fontanum*), eyebright (*Euphrasia officinalis* agg.), lady's bedstraw (*Galium verum*), fairy flax (*Linum catharticum*), common bird's-foot trefoil (*Lotus corniculatus*), selfheal (*Prunella vulgaris*) and biting stonecrop (*Sedum acre*). See the coastal habitats supporting document for further details
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-native species) to represent less than 5% cover	Based on data from Ryle et al. (2009). Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. See the coastal habitats supporting document for further details
Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control	Based on data from Ryle et al. (2009). See the coastal habitats supporting document for further details
Vegetation composition: bryophytes	Percentage cover	Should always be at least an occasional component of the vegetation	Based on data from Ryle et al. (2009). At Murvey Machair SAC, the mosses *Aulocomium* spp., *Brachythecium* spp., *Calliergonella cuspidata*, *Homalothecium lutescens*, *Syntrichia ruralis* subsp. *ruraliformis* and *Brachythecium albicans* were present on the machair. Petalwort (*Petalophyllum ralfsii*), a liverwort species listed on Annex II of the EU Habitats Directive, has also been recorded on the machair in this SAC. See the conservation objective for petalwort (1395) and the coastal habitats supporting document for further details

1395 Petalwort *Petalophyllum ralfsii*

To maintain the favourable conservation condition of Petalwort in Murvey Machair SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution	Number and geographical spread of populations	No decline. See map 3 for recorded locations	The known population of *Petalophyllum ralfsii* in Murvey Machair SAC occurs on flushed machair slopes. It has been recorded from seven locations on the machair. Data from NPWS surveys. See also Campbell et al. (2015)
Population size	Number of individuals	No decline. The population is estimated to be at least c.44 thalli	Estimate based on the mean of number of thalli recorded by Lockhart in 1998 (30 thalli), Holyoak in 1999 (38 thalli), Holyoak in 2004 (101 thalli) and Lockhart in 2006 (7 thalli), i.e. 44 thalli. Numbers of thalli can vary from year to year. See Campbell et al. (2015) for further details
Area of suitable habitat	Hectares	No decline. Area of suitable habitat at Murvey Machair is currently unknown, but is estimated to be at least c.0.0002ha	The area of suitable habitat at Murvey Machair has not yet been measured by GPS, but is estimated to be at least c.1.75m² (0.0002ha), i.e. a minimum area of 50cm x 50 cm at each of the seven mapped points. This is an underestimate and suitable habitat within the SAC is likely to be more widespread. See Campbell et al. (2015) for further details
Hydrological conditions: soil moisture	Occurrence of damp soil conditions	Maintain hydrological conditions so that the substrate is kept moist and damp throughout the year, but is not subject to prolonged inundation by flooding in winter	*Petalophyllum ralfsii* grows in damp sandy substrate. Based on Campbell (2013) and Campbell et al. (2015)
Vegetation: open structure	Height and percentage cover of vegetation	Maintain open, low vegetation, with a high percentage cover of bryophytes (small acrocarps and liverwort turf) and bare ground	At Murvey Machair, *Petalophyllum ralfsii* grows in compacted, sandy ground, maintained by grazing (sheep) and some disturbance from vehicles. In 2005, Holyoak recorded *P. ralfsii* on partly bare patches of short (c.4cm) moss-rich grassland on unshaded calcareous sand of machair slope. See also Campbell et al. (2015)



Legend

Murvey Machair SAC 002129

An Roinn Ealaíon, Oidhreachta, Gnóthaí Réigiúnacha, Tuaithe agus Gaeltachta

Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs

MAP 1:
MURVEY MACHAIR SAC
CONSERVATION OBJECTIVES
SAC DESIGNATION

Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 002129; version 3.
CO. GALWAY

0 0.1 0.2 0.3 0.4 0.5 km

N

Map Version 1
Date: Oct 2016

CMP Site Code: 98

Legend

- Murvey Machair SAC 002129
- Coastal Monitoring Project Survey Area

Annex I Qualifying Interest

- 21AO Machair

Annex I Non-qualifying interests

- 1210 Annual vegetation of drift lines
- OSi Discovery Series County Boundary

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MAP 2:
MURVEY MACHAIR SAC
CONSERVATION OBJECTIVES
MACHAIR

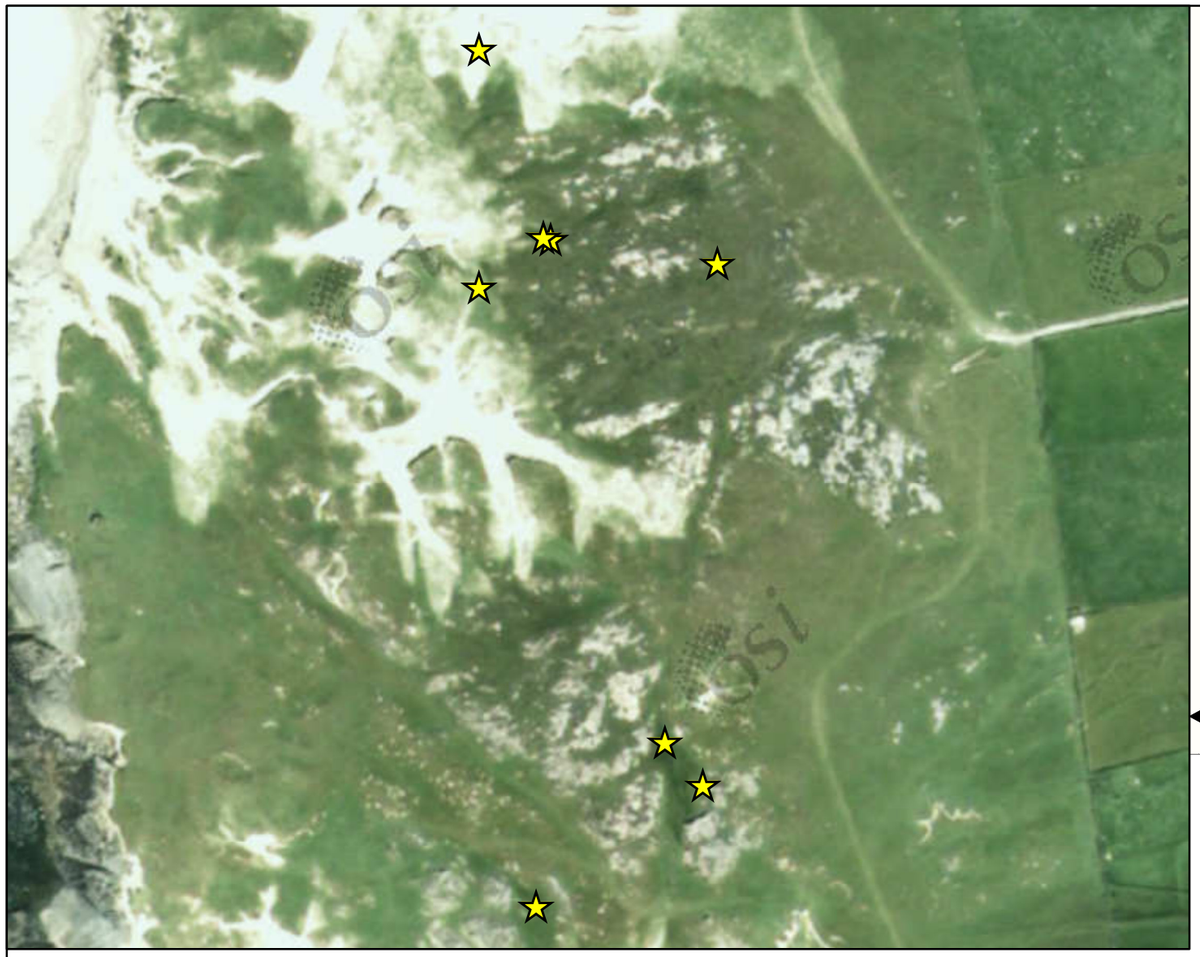
Map to be read in conjunction with the NPWS Conservation Objectives Document.

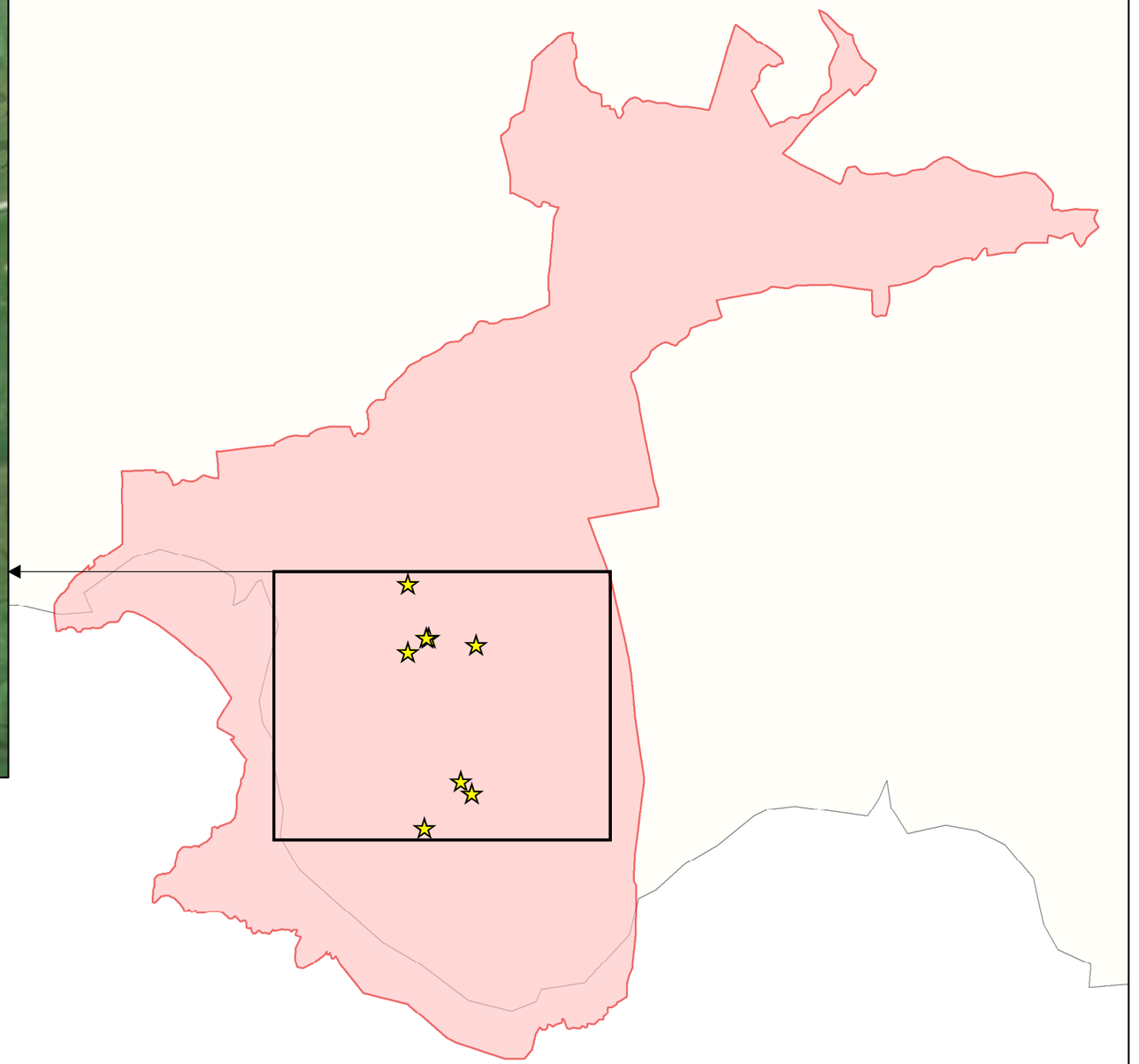
SITE CODE:
SAC 002129; version 3.
CO. GALWAY

0 0.085 0.17 0.255 0.34 0.425 km

N

Map Version 1
Date: Oct 2016





Legend

- Murvey Machair SAC 002129
- 1395 Petalwort *Petalophyllum ralfsii* (Wills.) Nees and Gott.
- OSi Discovery Series County Boundary

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MAP 3:
MURVEY MACHAIR SAC
CONSERVATION OBJECTIVES
PETALWORT

Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 002129; version 3.
CO. GALWAY

0 0.1 0.2 0.3 0.4 0.5 km

N

Map Version 1
Date: Oct 2016