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Conservation Objectives Series

Screen Hills SAC 000708

An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

National Parks and Wildlife Service,
Department of Housing, Local Government and Heritage,

90 King Street North, Dublin 7, D07 N7CV, Ireland.

Web: www.npws.ie
E-mail: natureconservation@housing.gov.ie

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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***

000708	Screen Hills SAC
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)
4030	European dry heaths

Supporting documents, relevant reports & publications

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

NPWS Documents

Year :	1979
Title :	A Preliminary Report on Areas of Scientific Interest in County Wexford
Author :	Goodwillie, R.N.
Series :	Unpublished report
Year :	1984
Title :	The vegetation of Irish lakes
Author :	Heuff, H.
Series :	Unpublished report to NPWS
Year :	2009
Title :	Ireland Red List No. 2: Non-marine molluscs
Author :	Byrne, A.; Moorkens, E.A.; Anderson, R.; Killeen, I.J.; Regan, E.C.
Series :	Ireland Red List series, NPWS
Year :	2010
Title :	Ireland Red List No. 4: Butterflies
Author :	Regan, E.C.; Nelson, B.; Aldwell, B.; Bertrand, C.; Bond, K.; Harding, J.; Nash, D.; Nixon, D.; Wilson, C.J.
Series :	Ireland Red List series, NPWS
Year :	2012
Title :	Ireland Red List No. 8: Bryophytes
Author :	Lockhart, N.; Hodgetts, N.; Holyoak, D.
Series :	Ireland Red List series, NPWS
Year :	2013
Title :	The status of EU protected habitats and species in Ireland. Volume 2. Habitats assessments
Author :	NPWS
Series :	Conservation assessments
Year :	2014
Title :	Guidelines for a national survey and conservation assessment of upland vegetation and habitats in Ireland, Version 2.0
Author :	Perrin, P.M.; Barron, S.J.; Roche, J.R.; O'Hanrahan, B.
Series :	Irish Wildlife Manuals, No. 79
Year :	2015
Title :	Habitats Directive Annex I lake habitats: a working interpretation for the purposes of site-specific conservation objectives and Article 17 reporting
Author :	O Connor, Á.
Series :	Unpublished document by NPWS
Year :	2016
Title :	Ireland Red List No. 10: Vascular Plants
Author :	Wyse Jackson, M.; FitzPatrick, Ú.; Cole, E.; Jebb, M.; McFerran, D.; Sheehy Skeffington, M.; Wright, M.
Series :	Ireland Red Lists series, NPWS
Year :	2019
Title :	The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments
Author :	NPWS
Series :	Conservation assessments

Other References

Year :	1981
Title :	National Heritage Inventory. Areas of Scientific Interest in Ireland
Author :	An Foras Forbartha
Series :	An Foras Forbartha
Year :	1982
Title :	Eutrophication of waters. Monitoring assessment and control
Author :	OECD
Series :	OECD, Paris
Year :	1993
Title :	The discovery of *Lotus subbiflorus* Lag. in South-east Ireland
Author :	Fitzgerald, R.
Series :	Irish Naturalists' Journal, 24(6): 240-243
Year :	2000
Title :	Colour in Irish lakes
Author :	Free, G.; Allott, N.; Mills, P.; Kennelly, C.; Day, S.
Series :	Verhandlungen Internationale Vereinigung für theoretische und angewandte Limnologie, 27: 2620-2623
Year :	2002
Title :	Deterioration of Atlantic soft water macrophyte communities by acidification, eutrophication and alkalinisation
Author :	Arts, G.H.P.
Series :	Aquatic Botany, 73: 373-393
Year :	2006
Title :	A reference-based typology and ecological assessment system for Irish lakes. Preliminary investigations. Final report. Project 2000-FS-1-M1 Ecological assessment of lakes pilot study to establish monitoring methodologies EU (WFD)
Author :	Free, G.; Little, R.; Tierney, D.; Donnelly, K.; Coroni, R.
Series :	Environmental Protection Agency, Wexford
Year :	2016
Title :	A narrative for conserving freshwater and wetland habitats in England
Author :	Mainstone, C.; Hall, R.; Diack, I.
Series :	Natural England Research Reports Number 064
Year :	2017
Title :	Irish Vegetation Classification: Technical Progress Report No. 3
Author :	Perrin, P.
Series :	Report submitted to National Biodiversity Data Centre
Year :	2018
Title :	The Geological Heritage of County Wexford. An audit of County Geological Sites in County Wexford
Author :	Meehan, R.; Hennessy, R.; Parkes, M.; Gatley, S.
Series :	Geological Survey of Ireland

3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)

To maintain the favourable conservation condition of Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) in Screen Hills 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	Screen Hills SAC has a series of small kettlehole lakes in a very important kettle and kame landscape. These lakes are very unusual and important in Ireland and the aquatic plants reported in this SAC are uncommon in the south-east. The lakes are naturally variable but with the predominance of acidic sands and gravels, many are likely, naturally, oligotrophic base-poor and a variant of habitat 3110, e.g. Screen A and B (Heuff, 1984). Some are more alkaline, e.g. Nabeist (Heuff, 1984), and possibly a natural variant of lake habitat 3130. Natural variation increases a site's diversity and, therefore, importance. Hydrosere succession is evident in the SAC, and raised bog has developed at Doo Lough. Therefore, the area of open water is naturally reducing, but succession could be accelerated by drainage and nutrient enrichment. Recent aquatic data are lacking and further study is needed. Information on all attributes and targets is provided in O Connor (2015)
Habitat distribution	Occurrence	No decline, subject to natural processes	The kettlehole lakes in the SAC resulted from blocks of dead ice melting at the end of the ice age (Meehan et al., 2018). The Screen Hills are composed of glaciofluvial and glaciolacustrine sands and gravels forming a raised hummocky region (Meehan et al., 2018). The hills were formed by meltwater from retreating ice at the end of the Ice Age and have some of the deepest glacial sediments in the country (Meehan et al., 2018). The lakes are small and typically round, and are distributed throughout the SAC. As noted by Goodwillie (1979), An Foras Forbartha (1981) and Heuff (1984), the lakes show succession from open water to freshwater marsh, acid fen and raised bog
Vegetation composition: typical species	Occurrence	Typical species present, in good condition, and demonstrating typical abundances and distribution	Goodwillie (1979) and Heuff (1984) provide records for aquatic plants in the SAC. In 1977, Heuff (1984) recorded *Littorella uniflora* and *Myriophyllum alterniflorum* at Screen A, *M. spicatum* at Screen B, and *Potamogeton polygonifolius, Nitella translucens* and marginal *Carex rostrata* at both sites. The more alkaline L. Nabeist had *Chara globularis, N. flexilis* s.l., *Fontinalis antipyretica, Callitriche* sp., *Myriophyllum spicatum* and *P. polygonifolius. Nymphaea alba* and *Utricularia minor* also occur in the SAC (NPWS internal files). For lists of typical plant species, see the Article 17 habitat assessments (NPWS, 2013, 2019) and O Connor (2015). These small, unusual kettlehole lakes with steeply sloping shoreline are likely to contain a natural variant of 3110 with a different suite of characteristic species. Naturally more alkaline lakes within the SAC may contain a variant of 3130

Vegetation composition: characteristic zonation	Occurrence	All characteristic zones should be present, correctly distributed and in good condition	The vegetation zones/communities in Screen Hills SAC are likely to be limited owing to the small size and steep littoral zones of the kettlehole lakes. Dominant bands in the steep-sided Screen A were *Littorella* in shallow water and *Nitella translucens* to 3m (Heuff, 1984). *Nitella translucens* dominated at the similar Screen B. Heuff (1984) observed that the steep-sided Lough Nabeist had vegetation at 6.2m, including moribund *Nitella flexilis*, that may have slumped down from more shallow water
Vegetation distribution: maximum depth	Metres	Maintain maximum depth of vegetation, subject to natural processes	Heuff (1984) recorded maximum vegetation depths of 3m/lake bottom in Screen A, 2.4m in Screen B and 6.2m in Nabeist, but noted that the deeper vegetation in the latter appeared to be dead and may have sunk from more shallow water. Further work is necessary to develop indicative targets for lake habitat 3110
Hydrological regime: water level fluctuations	Metres	Maintain/restore appropriate hydrological regime necessary to support the habitat	The Screen Hill lakes are unusual in that most do not have natural inflowing or outflowing streams. Groundwater is likely, therefore, to play an important role. Further investigation may be needed to determine the degree of connectivity with the regional groundwater, or whether the lakes are maintained by a low permeability layer. The acid nature of the soil likely influences the hydrochemistry of the lakes. Land drainage is evident and would historically have altered these kettlehole lakes. It is unclear whether more recent drainage maintenance activities continue to impact on their hydrological regime. Drainage can amplify water level fluctuations, increase turbidity, release of nutrients from the sediment, etc. The hydrological regime of the lakes must be maintained so that the area, distribution and depth of the lake habitat and its constituent/characteristic vegetation zones and communities are not reduced
Lake substratum quality	Various	Maintain appropriate substratum type, extent and chemistry to support the vegetation	Heuff (1984) describes the lake substratum of three lakes in Screen Hills SAC, which includes sand, peat and black organic mud. Research is required to further characterise the substratum types (particle size and origin) and substratum quality (notably pH, calcium, iron and nutrient concentrations) favoured by each of the five Annex I lake habitats in Ireland. It is likely that lake habitat 3110 is associated with a range of nutrient-poor substrates, from stones, cobble and gravel, through sands, silt, clay and peat. Substratum varies with catchment geology, and with depth and along shorelines in an individual lake
Transparency	Metres	Maintain/restore appropriate Secchi transparency. There should be no decline in Secchi depth/transparency	Heuff (1984) recorded Secchi depth of 1.5m in Screen A and 2.9m in Nabeist, suggestive of eutrophication impacts. The OECD fixed boundary system set transparency targets for oligotrophic lakes of ≥6m annual mean Secchi disk depth, and ≥3m annual minimum Secchi disk depth. Transparency relates to light penetration and, hence, to the depth of colonisation of vegetation. It can be affected by phytoplankton blooms, water colour and turbidity
Nutrients	µg/l P; mg/l N	Maintain/restore the concentration of nutrients in the water column to sufficiently low levels to support the habitat and its typical species	As a nutrient-poor habitat, oligotrophic and Water Framework Directive (WFD) 'high' status targets apply to lakes with 3110. Where a lake has nutrient concentrations that are lower than these targets, there should be no decline within class, i.e. no upward trend in nutrient concentrations. High Status/Oligotrophic has annual average total phosphorus (TP) concentration ≤10µg/l TP, average annual total ammonia concentration ≤0.040mg/l N and annual 95th percentile for total ammonia ≤0.090mg/l N. See also O Connor (2015), OECD (1982) and The European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2019

Phytoplankton biomass	µg/l chlorophyll *a*	Maintain/restore appropriate water quality to support the habitat, including high chlorophyll *a* status	Oligotrophic and WFD 'high' status targets apply to lake habitat 3110. The average growing season (March-October) chlorophyll *a* concentration must be <5.0µg/l. The annual average chlorophyll *a* concentration should be <2.5µg/l and the annual peak chlorophyll *a* concentration should be ≤8.0µg/l. Where a lake has a chlorophyll *a* concentration that is lower than this target, there should be no decline within class, i.e. no upward trend in phytoplankton biomass. See also OECD (1982) and The European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2019
Phytoplankton composition	EPA phytoplankton composition metric	Maintain appropriate water quality to support the habitat, including high phytoplankton composition status	The Environmental Protection Agency (EPA) has developed a phytoplankton composition metric for nutrient enrichment of Irish lakes; however, this method may not be appropriate for small lakes such as those in Screen Hills SAC
Attached algal biomass	Algal cover	Maintain/restore trace/absent attached algal biomass (<5% cover)	Heuff (1984) recorded green filamentous algae on emergents at Screen A and Screen B, as well as blue-green algae and *Cladophora* on stems in Nabeist. Nutrient enrichment can favour epiphytic and epipelic algae that can out-compete the submerged vegetation. The cover abundance of attached algae in habitat 3110 should therefore be trace/absent (<5% cover)
Macrophyte status	EPA macrophyte metric (The Free Index)	Maintain high macrophyte status	Nutrient enrichment can favour more competitive submerged macrophyte species that out-compete the typical and characteristic species for the lake habitat. The EPA monitors macrophyte status for WFD purposes using the 'Free Macrophyte Index'; however, this method may not be appropriate for small lakes such as those in the Screen Hills SAC. The target for lake habitat 3110 is high status or an Ecological Quality Ratio (EQR) for lake macrophytes of ≥0.90, as defined in the European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2019
Acidification status	pH units, mg/l	Maintain/restore appropriate water and sediment pH, alkalinity and cation concentrations to support the habitat, subject to natural processes	Acidification can impact on species abundance and composition in soft water lake habitats. In Europe, acidification of isoetid lakes can lead to loss of isoetids and dominance by submerged *Sphagnum* mosses and *Juncus bulbosus* (Arts, 2002). The specific requirements of lake habitat 3110, in terms of water and sediment pH, alkalinity and cation concentration, have not been determined. For lakes with habitat 3110, and adopting a precautionary approach based on Arts (2002), minimum pH should not be <5.5 pH units. Maximum pH should be <9.0 pH units, in line with the surface water standards established for soft waters (where water hardness is ≤100mg/l calcium carbonate). See also the European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2019. Agricultural liming of land can artificially raise pH, alkalinity and cation concentrations. It is possible that the high alkalinity value recorded in Nabeist by Heuff (1984) was artificially raised
Water colour	mg/l PtCo	Maintain appropriate water colour to support the habitat	Increased water colour and turbidity decrease light penetration and can reduce the area of available habitat for lake macrophytes, particularly at the lower euphotic depths. No habitat-specific or national standards for water colour currently exist. Studies have shown median colour concentrations in Irish lakes of 38mg/l PtCo (Free et al., 2000) and 33mg/l PtCo (Free et al., 2006). It is likely that the water colour in all Irish lake habitats would naturally be <50mg/l PtCo. Water colour can be very low, <20mg/l PtCo or even <10mg/l PtCo, in lakes with habitat 3110, where the peatland in the lake's catchment is intact

Dissolved organic carbon (DOC)	mg/l	Maintain appropriate organic carbon levels to support the habitat	Dissolved (and particulate) organic carbon (OC) in the water column is linked to water colour and acidification (organic acids). Increasing DOC in water has been documented across the Northern Hemisphere, including afforested peatland catchments in Ireland. Damage and degradation of peatland, leading to decomposition of peat is likely to be the predominant source of OC in Ireland; however, it can result from the mineralisation of any organic matter. OC in water promotes decomposition by fungi and bacteria that, in turn, releases dissolved nutrients. The increased biomass of decomposers can also impact directly on the characteristic lake communities through shading, competition, etc.
Turbidity	Nephelometric turbidity units/ mg/l SS/ other appropriate units	Maintain appropriate turbidity to support the habitat	Turbidity can significantly affect the quantity and quality of light reaching rooted and attached vegetation and can, therefore, impact on lake habitats. The settlement of higher loads of inorganic or organic material on lake vegetation communities may also have impacts on sensitive, delicate species. Turbidity can increase as a result of re-suspension of material within the lake, higher loads entering the lake, or eutrophication. Turbidity measurement and interpretation is challenging. As a result, it is likely to be difficult to set habitat-specific targets for turbidity in lakes
Fringing habitat: area and condition	Hectares	Maintain/restore the area and condition of fringing habitats necessary to support the natural structure and functioning of habitat 3110	Most lake shorelines have fringing habitats that intergrade with and support the structure and functions of the lake habitat. Land reclamation and reseeding may have changed the fringing habitats in this SAC. *Carex rostrata*, reedbeds, *Cladium mariscus*, freshwater marsh, acid fen and raised bog have been recorded at the lakes (Goodwillie, 1979; Heuff, 1984). Fringing habitats are dependent on the lake, particularly its water levels, and support wetland communities and species of conservation concern. Many of the fringing wetland habitats support higher invertebrate and plant species richness than the lake habitats themselves. See also Mainstone et al. (2016)

4030 European dry heaths

To maintain the favourable conservation condition of European dry heaths in Screen Hills 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	European dry heaths has not been mapped in detail for Screen Hills SAC and thus the exact total area of the qualifying habitat in the SAC is currently unknown. The SAC occurs in part of a classic 'kame and kettle' landscape, with many lake basins marking the site of former ice blocks in an acid sandy moraine. The moraine sands are extremely base-poor and dry which gives rise to extensive species-rich pasture-type dry heath (NPWS internal files). The heath vegetation in this SAC differs from most heaths elsewhere in Ireland in the virtual absence of ling heather (*Calluna vulgaris*) and the presence of a diverse range of annual species. The habitat occurs within a mosaic of dry grassland and scrub and in association with a number of small lakes and ponds in the SAC (NPWS internal files)
Habitat distribution	Occurrence	No decline, subject to natural processes	See the notes for Habitat area above
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil pH and nutrient status within natural ranges	Relevant nutrients and their natural ranges are yet to be defined. However, nitrogen deposition is noted as being relevant to this habitat (NPWS, 2013)
Community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	The entire diversity of dry heath vegetation communities within this SAC is unknown. Information on vegetation communities associated with this habitat in the uplands is presented in Perrin et al. (2014). See also the Irish Vegetation Classification (Perrin, 2017; www.biodiversityireland.ie/projects/ivc-classification-explorer)
Vegetation composition: lichens and bryophytes	Number of species at a representative number of 2m x 2m monitoring stops	Number of bryophyte or non-crustose lichen species present at each monitoring stop is at least three, excluding *Campylopus* and *Polytrichum* mosses	Attribute and target based on Perrin et al. (2014). Dry heath is not necessarily rich in lichen and bryophyte species, but a minimum amount should still be present
Vegetation composition: number of positive indicator species	Number of species at a representative number of 2m x 2m monitoring stops	Number of positive indicator species present at each monitoring stop is at least two	Attribute and target based on Perrin et al. (2014), where the list of positive indicator species for this habitat, which is composed of dwarf shrubs, is also presented. See also the Article 17 habitat assessment for 4030 (NPWS, 2013, 2019). Positive indicator species recorded in the habitat in the SAC include western gorse (*Ulex gallii*) and occasional bell heather (*Erica cinerea*), with common bird's-foot-trefoil (*Lotus corniculatus*) and tormentil (*Potentilla erecta*). Other species recorded include common bent (*Agrostis stolonifera*), sweet vernal-grass (*Anthoxanthum odoratum*), sand sedge (*Carex arenaria*), field wood-rush (*Luzula campestris*), sheep's sorrel (*Rumex acetosella*), sheep's-bit (*Jasione montana*), common stork's-bill (*Erodium cicutarium*), wild carrot (*Daucus carota*), lesser trefoil (*Trifolium dubium*) and violets (*Viola* spp.) (NPWS internal files)
Vegetation composition: cover of positive indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of positive indicator species at least 50% for siliceous dry heath and 50-75% for calcareous dry heath	Attribute and target based on Perrin et al. (2014), where the list of positive indicator species for this habitat, which is composed of dwarf shrubs, is also presented. See also the Article 17 habitat assessment for 4030 (NPWS, 2013, 2019)

Vegetation composition: dwarf shrub composition	Percentage cover at a representative number of 2m x 2m monitoring stops	Proportion of dwarf shrub cover composed collectively of bog-myrtle (*Myrica gale*), creeping willow (*Salix repens*) and western gorse (*Ulex gallii*) is less than 50%	Attribute and target based on Perrin et al. (2014). Bog-myrtle is indicative of flushed conditions and is more characteristic of wet heaths and blanket bogs. Creeping willow is more characteristic of dune heaths. Western gorse is a component of dry heath, but high proportions of it may indicate a history of undesirable levels of grazing
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of negative indicator species less than 1%	Attribute and target based on Perrin et al. (2014), where the list of negative indicator species for this habitat is also presented
Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%	Attribute and target based on Perrin et al. (2014). Non-native species can be invasive and have deleterious effects on native vegetation. A low target is set as non-native species can spread rapidly and are most easily dealt with when still at lower abundances. In the habitat in this SAC, musk thistle (*Carduus nutans*) has been recorded in large numbers. It may have been introduced with cattle feed and is well-established in the SAC (NPWS internal files)
Vegetation composition: native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 20%	Attribute and target based on Perrin et al. (2014). High cover of native trees and shrubs would indicate that the habitat may be succeeding towards scrub or woodland due to lack of grazing. Encroachment by tall gorse (*Ulex europaeus*) and bramble (*Rubus fruticosus* agg.) has been reported in parts of the habitat in the SAC (NPWS internal files)
Vegetation composition: bracken	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of bracken (*Pteridium aquilinum*) less than 10%	Attribute and target based on Perrin et al. (2014). High cover of bracken would indicate that the habitat may be succeeding towards a dense bracken community. In this SAC, dense bracken (*Pteridium aquilinum*) has been noted as becoming dominant in some parts of the habitat (NPWS internal files)
Vegetation composition: soft rush	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of soft rush (*Juncus effusus*) less than 10%	Attribute and target based on Perrin et al. (2014). High cover of soft rush would suggest undesirable hydrological conditions. Note, however, that poor flushes dominated by soft rush can naturally occur in mosaic with this habitat. Discrete areas of this separate habitat should not be considered here
Vegetation structure: senescent ling	Percentage cover at a representative number of 2m x 2m monitoring stops	Senescent proportion of ling (*Calluna vulgaris*) cover less than 50%	Attribute and target based on Perrin et al. (2014). Senescence is part of the natural cycle of ling, but a dominance of ling in the senescent phase would indicate a lack of management (e.g. appropriate grazing) to promote ling regeneration
Vegetation structure: signs of browsing	Percentage of shoots browsed at a representative number of 2m x 2m monitoring stops	Less than 33% collectively of the last complete growing season's shoots of ericoids showing signs of browsing	Attribute and target based on Perrin et al. (2014)
Vegetation structure: burning	Occurrence in local vicinity of a representative number of monitoring stops	No signs of burning in sensitive areas	Attribute and target based on Perrin et al. (2014), where the list of sensitive areas is also presented. Fires can be part of the natural cycle of heaths and may, under carefully controlled circumstances, be used as an occasional management tool to promote regeneration of, or diversity of growth phases, in ling (*Calluna vulgaris*). However, currently most hill fires in Ireland are intentionally started to encourage grass growth for livestock. Fires which are too intense, too frequent, too extensive or which occur in sensitive areas are damaging to the habitat
Vegetation structure: growth phases of ling	Percentage cover in local vicinity of a representative number of monitoring stops	Outside sensitive areas, all growth phases of ling (*Calluna vulgaris*) should occur throughout, with at least 10% of cover in the mature phase	Attribute and target based on Perrin et al. (2014), where the list of sensitive areas is also presented. The growth phases of ling are pioneer (<10cm high), building (10-30cm high) and mature (<30cm high). As burning is undesirable in sensitive areas, it is not reasonable to require the stated diversity of growth phases within these areas

Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground less than 10%	Attribute and target based on Perrin et al. (2014). Disturbance can include hoof marks, wallows, human footprints and vehicle and machinery tracks. Excessive disturbance can result in loss of characteristic species and presage erosion for heaths and peatlands
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	This includes species on the Flora (Protection) Order, 2015 (FPO) and/or Red Lists (Byrne et al., 2009; Regan et al., 2010; Lockhart et al., 2012; Wyse Jackson et al., 2016, etc.). A number of rare and threatened species have been recorded in the heath and associated habitats in the SAC, including the Endangered heath cudweed (*Gnaphalium sylvaticum*), the Vulnerable annual knawel (*Scleranthus annuus*) and the Near Threatened small cudweed (*Filago minima*) and hairy bird's-foot trefoil (*Lotus subbiflorus*) (Fitzgerald, 1993; Wyse Jackson et al., 2016; NPWS internal files), all of which are listed on the FPO

Glebe
Screen
Sch
Ballylemin
Ballinrooaun
80
101
Ballyvalloo
R742
Doo
Lough
Glenbough
66
Kilmacoe
42
44
Ballaghablake
PO
Enniscorthy
Kilcotty
Davidstown
Castleellis
Ballaghkeen
CO. WEXFORD
Redgate
Screen
Screen Hills SAC
Galbally
Killurin
Crossabeg
Wexford
Drinagh

Legend

Screen Hills SAC 000708

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

MAP 1:
SCREEN HILLS SAC
CONSERVATION OBJECTIVES
SAC DESIGNATION

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

SITE CODE:
SAC 000708; version 3.02.
CO. WEXFORD

0 0.125 0.25 0.5 Kilometres

N

Date: October 2021