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Conservation Objectives Series

Aughrim (Aghrane) Bog SAC 002200

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

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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***

002200	Aughrim (Aghrane) Bog SAC

7120	Degraded raised bogs still capable of natural regeneration

Supporting documents, relevant reports & publications

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

NPWS Documents

Year :	2017
Title :	National Raised Bog Special Areas of Conservation Management Plan 2017-2022
Author :	NPWS
Series :	Conservation Management Plan
Year :	2019
Title :	NHA Raised Bog Monitoring Project 2018 - Aughrim Bog (NHA 001227), County Galway - Site Report
Author :	Crushell, P.H.; Crowley, W.; Denyer, J.; Foss, P.; Gallagher, M.C.; MacGowan, F.; Smith, G.
Series :	NHA Raised Bog Monitoring Project
Year :	2023
Title :	Aughrim (Aghrane) Bog SAC (Site Code: 002200) Conservation objectives supporting document - raised bog habitats V1
Author :	NPWS
Series :	Conservation objectives supporting document

Other References

Year :	2011
Title :	Review and revision of empirical critical loads and dose-response relationships. Proceedings of an expert workshop, Noordwijkerhout, 23-25 June 2010
Author :	Bobbink, R.; Hettelingh, J.P.
Series :	RIVM report 680359002, Coordination Centre for Effects, National Institute for Public Health and the Environment (RIVM)
Year :	2014
Title :	Nitrogen deposition and exceedance of critical loads for nutrient nitrogen in Irish grasslands
Author :	Henry, J.; Aherne, J.
Series :	Science of the Total Environment, 470–471: 216–223

Spatial data sources

Year :	2023
Title :	Internal NPWS dataset
GIS Operations :	Modelled potential habitat and ecotope polygon clipped to the SAC boundary. Expert opinion used as necessary to resolve any issues arising
Used For :	7110, 7120 (Map 2, Map 3)
Year :	2023
Title :	Digital elevation model and drainage patterns dataset
GIS Operations :	Dataset clipped to the SAC boundary. Expert opinion used as necessary to resolve any issues arising
Used For :	7110, 7120, (Map 4)

7120 Degraded raised bogs still capable of natural regeneration

To restore the favourable conservation condition of Degraded raised bogs still capable of natural regeneration in Aughrim (Aghrane) Bog SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Restore area of active raised bog to 5.7ha, subject to natural processes	Active Raised Bog (ARB) habitat within the SAC boundary was mapped at 1.5ha by Crushell et al. (2019). The area of Degraded Raised Bog (DRB) on the high bog potentially restorable to ARB by drain blocking has been estimated to be 4.3ha. Eco-hydrological assessments of the cutover have not identified any further areas with potential for formation of bog forming habitats. The long term target for ARB for the SAC is therefore 5.7ha. See the supporting document for further details on this and the following attributes
Habitat distribution	Occurrence	Restore the distribution and variability of active raised bog across the SAC. See map 2 for distribution of potential ARB	The ARB habitat at Aughrim (Aghrane) Bog SAC comprises subcentral ecotope and active flush systems. DRB corresponds to those areas of high bog where the hydrology has been adversely affected by peat cutting, drainage, afforestation and other land use activities, but which are capable of regeneration to ARB within 30 years (see area target above)
High bog area	Hectares	No decline in extent of high bog necessary to support the development and maintenance of active raised bog. See map 3	The area of high bog within Aughrim (Aghrane) Bog SAC in 2014 (latest figure available) was 91.6ha (NPWS, 2017)
Hydrological regime: water levels	Centimetres	Restore appropriate water levels throughout the site	For DRB to be restored to ARB, mean water level needs to be near or above the surface of the bog lawns for most of the year. Seasonal fluctuations should not exceed 20cm, and the mean water level should only be 10cm below the surface, for very short periods of time
Hydrological regime: flow patterns	Flow direction; slope	Restore, where possible, appropriate high bog topography, flow directions and slopes. See map 4 for current situation	The restoration of DRB to ARB depends on mean water levels being near or above the surface of bog lawns for most of the year. Long and gentle slopes are the most favourable to achieve these conditions. Changes to flow directions due to subsidence of bogs can radically change water regimes and cause drying out of higher quality DRB areas and soak systems
Transitional areas between high bog and adjacent mineral soils (including cutover areas)	Hectares; distribution	Restore adequate transitional areas to support / protect the active raised bog ecosystem and the services it provides	The SAC is bordered by raised bog and cutover to the north and west, by forest plantations, some on high bog, to the north-east and south, and by agricultural grassland to the east
Vegetation quality: central ecotope, active flush, soaks, bog woodland	Hectares	Restore 2.8ha of central ecotope/active flush/soaks/bog woodland as appropriate	At least 50% of ARB habitat should comprise high quality ARB habitat such as central ecotope, active flush, soaks and bog woodland. Target area of active raised bog for the site has been set at 5.7ha (see area target above)
Vegetation quality: microtopographica-l features	Hectares	Restore adequate cover of high quality microtopographical features	Restoration efforts on Aughrim (Aghrane) Bog have resulted in some active redevelopment of the habitat with an increase in regenerating raised bog microhabitats, including open water, wet hollows and wet lawns, which is addingto the diversity and ecological value of the site. A good range of bog mosses is present, including *Sphagnum fuscum* (*sensu lato*) and *S. austinii*. Low hummock and hollow, lawn and pool microtopography and large *Myrica* or *Molinia* dominated flushes are well developed on Aughrim Bog (Crushell et al. 2019)

Vegetation quality: bog moss (*Sphagnum*) species	Percentage cover	Restore adequate cover of bog moss (*Sphagnum*) species to ensure peat-forming capacity	*Sphagnum* cover varies naturally across raised bogs in Ireland with relatively high cover in the east to lower cover in the west. Hummock forming species such as *Sphagnum austinii* are particularly good peat formers. *Sphagnum* cover and distribution also varies naturally across a site
Typical ARB species: flora	Occurrence	Restore, where appropriate, typical active raised bog flora	Typical flora species include widespread species, as well as those with more restricted distributions but typical of the habitat's subtypes or geographical range
Typical ARB species: fauna	Occurrence	Restore, where appropriate, typical active raised bog fauna	Typical fauna species include widespread species, as well as those with more restricted distributions but typical of the habitat's subtypes or geographical range
Elements of local distinctiveness	Occurrence	Maintain features of local distinctiveness, subject to natural processes	A significant portion of Aughrim (Aghrane) Bog was afforested by Coillte in the 1970s, however, this plantation was removed in 2013 as part of a LIFE bog restoration project. Recent restoration actions have resulted in active redevelopment of ARB with an increase in regenerating raised bog microhabitats, including open water, wet hollows and wet lawns, which is adding to the diversity and scientific value of the site
Negative physical indicators	Percentage cover	Negative physical features absent or insignificant	Negative physical indicators include: bare peat, algae dominated pools and hollows, marginal cracks, tear patterns, subsidence features such as dry mineral mounds /ridges emerging or expanding, and burning evidence
Vegetation composition: native negative indicator species	Percentage cover	Native negative indicator species at insignificant levels	Disturbance indicators include species indicative of conditions drying out such as abundant bog asphodel (*Narthecium ossifragum*), deergrass (*Trichophorum germanicum*) and harestail cotton-grass (*Eriophorum vaginatum*) forming tussocks; abundant magellanic bog-moss (*Sphagnum magellanicum*) in pools previously dominated by *Sphagnum* species typical of very wet conditions (e.g. feathery bog-moss (*S. denticulatum*)); and indicators of frequent burning events such as abundant Cladonia floerkeana and high cover of carnation sedge (*Carex panicea*) (particularly in true midlands raised bogs)
Vegetation composition: non-native invasive species	Percentage cover	Non-native invasive species at insignificant levels and not more than 1% cover	High numbers of individual bushes of *Rhododendron ponticum* as well as *Picea* and *Pinus* trees and saplings were recorded throughout the high bog during the 2018 survey, as well as along the central track/drains through the site. Increased tree invasion was noted on the eastern edge of the main bog lobe, and all areas affected by old surface drains associated with the central trackway through southern part of the high bog. The recently cleared forestry area along the southern part of the bog also showed high numbers of invasive *Rhododendron ponticum* and the area may also be acting as a seed source
Air quality: nitrogen deposition	kg N/ha/year	Air quality surrounding bog close to natural reference conditions. The total N deposition should not exceed 5kg N/ha/yr	Change in air quality can result from fertiliser drift; adjacent quarry activities; or other atmospheric inputs. The critical load range for ombrotrophic bogs has been set as between 5 and 10kg N/ha/yr (Bobbink and Hettelingh, 2011). The latest N deposition figures for the area around Aughrim (Aghrane) Bog suggests that the current level is approximately 12.9kg N/ha/yr (Henry and Aherne, 2014)
Water quality	Hydrochemical measures	Water quality on the high bog and in transitional areas close to natural reference conditions	Water chemistry within raised bogs is influenced by atmospheric inputs (rainwater). However, within soak systems, water chemistry is influenced by other inputs such as focused flow or interaction with underlying substrates. Water chemistry in areas surrounding the high bog varies due to influences of different water types (bog water, regional groundwater, and runoff from surrounding mineral lands)

Curraghbaghla

48

Knockaunarainy

Corra

Inchaquin

aveyard

eygrey

Clooncannon

64

Aghrane or Castlekelly

Suc

Legend

Aughrim (Aghrane) Bog SAC 002200

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MAP 1:
AUGHRIM (AGHRANE) BOG
CONSERVATION OBJECTIVES
SAC DESIGNATION

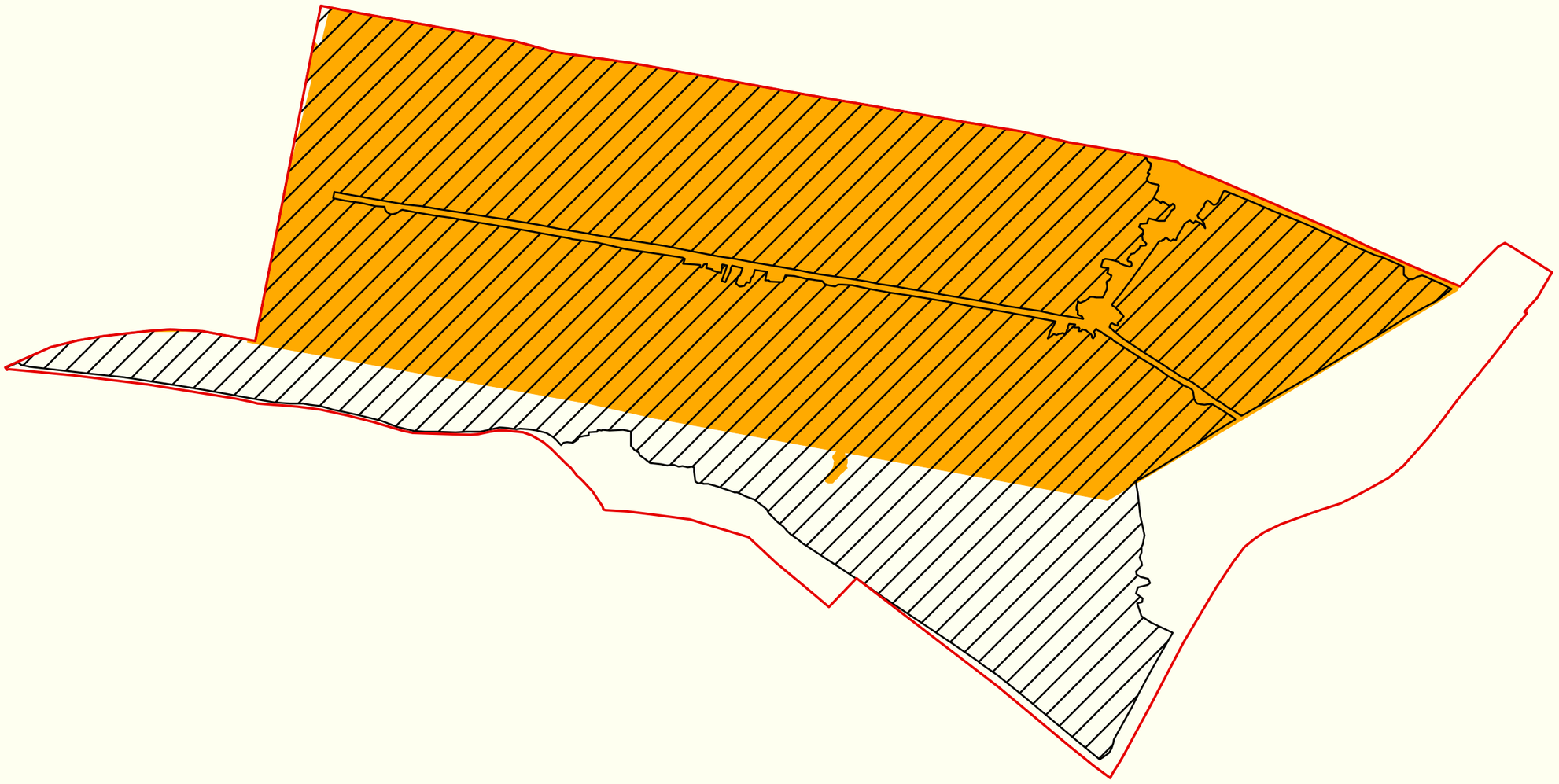
Map to be read in conjunction with the NPWS Conservation Objectives Document

SITE CODE:
SAC 002200; version 3
CO. GALWAY

0 125 250 500 Metres

N

Date: April 2023



Legend

- High Bog Boundary
- Potential 7110 Active Raised Bog
- Aughrim (Aghrane) Bog SAC 002200

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MAP 2:
AUGHRIM (AGHRANE) BOG SAC
CONSERVATION OBJECTIVES
EXTENT OF POTENTIAL ACTIVE RAISED BOG

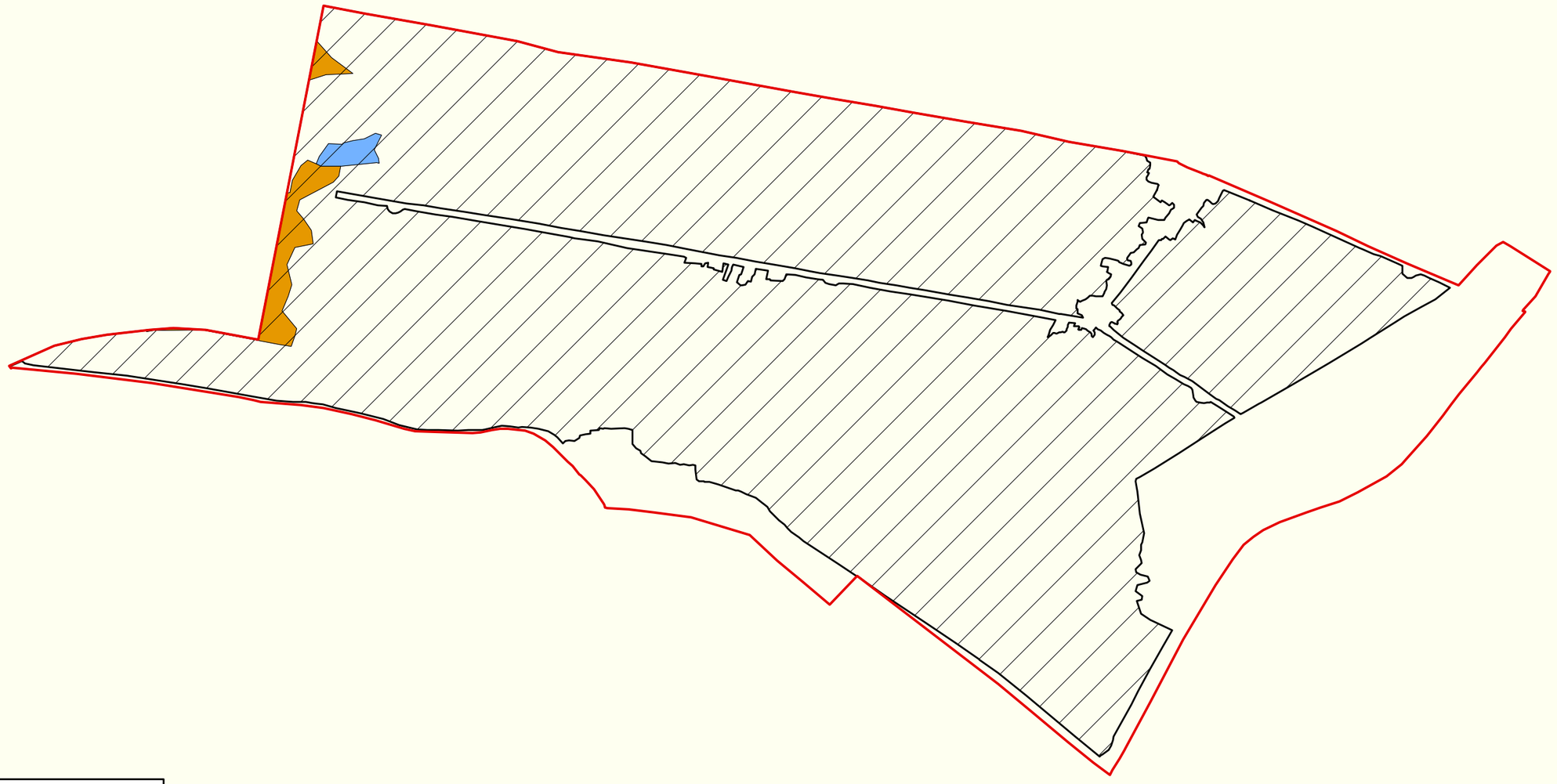
Map to be read in conjunction with the NPWS Conservation Objectives Document

SITE CODE:
SAC 002200; version 3
CO. GALWAY

0 100 200 400 Metres

N

Date: April 2023



Legend

- High Bog Boundary
- Aughrim (Aghrane) Bog SAC 002200

Active Raised Bog Ecotopes

- Active Flush
- Sub-central

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MAP 3:
AUGHRIM (AGHRANE) BOG SAC
CONSERVATION OBJECTIVES
ACTIVE RAISED BOG ECOTOPES

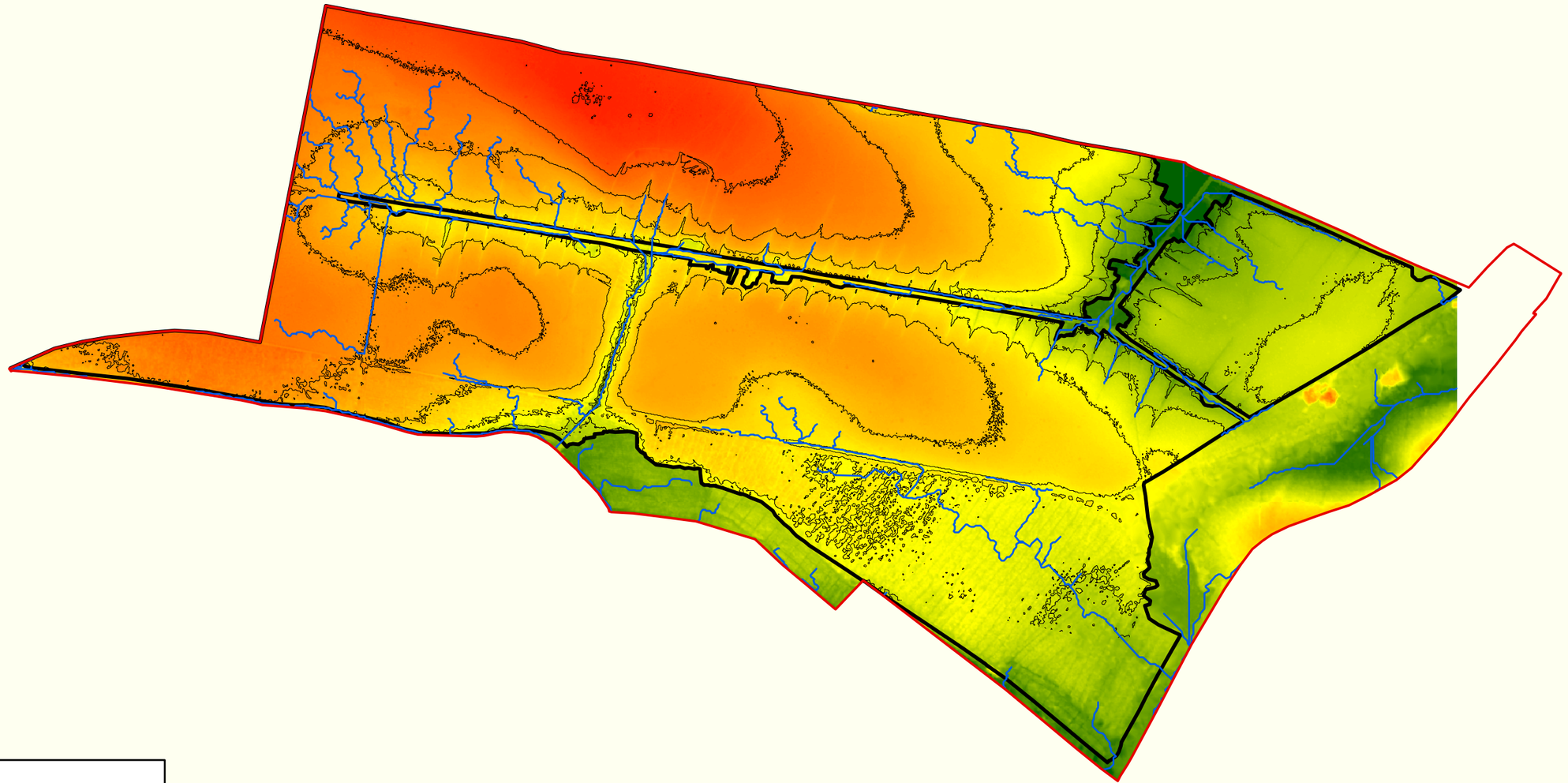
Map to be read in conjunction with the NPWS Conservation Objectives Document

SITE CODE:
SAC 002200; version 3
CO. GALWAY

0 100 200 400 Metres

N

Date: April 2023



Legend

- High Bog Boundary
- Drainage Patterns
- Contours
- Aughrim (Aghrane) Bog SAC 002200

Elevation

57.25 m

47.61 m

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MAP 4:
AUGHRIM (AGHRANE) BOG SAC
CONSERVATION OBJECTIVES
DIGITAL ELEVATION MODEL& DRAINAGE PATTERNS

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

SITE CODE:
SAC 002200; version 3
CO. GALWAY

0 100 200 400 Metres

N

Date: April 2023