

# National Parks and Wildlife Service

## *Conservation Objectives Series*

Derrinlough (Cloonkeenleananode) Bog SAC  
002197



An Roinn Tithíochta,  
Rialtais Áitiúil agus Oidhreachta  
Department of Housing,  
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*

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002197      Derrinlough (Cloonkeenleananode) Bog SAC

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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](http://www.npws.ie/Publications)

### NPWS Documents

<b>Year :</b>	1990
<b>Title :</b>	The Raised Bogs of Ireland, their Ecology, Status and Conservation.
<b>Author :</b>	Cross, J.
<b>Series :</b>	Report to the Minister of State at the Department of Finance. The Stationery Office, Dublin
<b>Year :</b>	2017
<b>Title :</b>	National Raised Bog Special Areas of Conservation Management Plan 2017-2022
<b>Author :</b>	NPWS
<b>Series :</b>	Conservation Management Plan
<b>Year :</b>	2023
<b>Title :</b>	Derrinlough (Cloonkeenleananode) Bog SAC (Site Code: 002197) Conservation objectives supporting document - raised bog habitats V1
<b>Author :</b>	NPWS
<b>Series :</b>	Conservation objectives supporting document

### Other References

<b>Year :</b>	2011
<b>Title :</b>	Review and revision of empirical critical loads and dose-response relationships. Proceedings of an expert workshop, Noordwijkerhout, 23-25 June 2010
<b>Author :</b>	Bobbink, R.; Hettelingh, J.P.
<b>Series :</b>	RIVM report 680359002, Coordination Centre for Effects, National Institute for Public Health and the Environment (RIVM)
<b>Year :</b>	2014
<b>Title :</b>	Nitrogen deposition and exceedance of critical loads for nutrient nitrogen in Irish grasslands
<b>Author :</b>	Henry, J.; Aherne, J.
<b>Series :</b>	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 polygons clipped to the SAC boundary. Expert opinion used as necessary to resolve any issues arising  
**Used For :** 7110, 7120 (Map 2, Map 3)

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**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)

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## Conservation Objectives for : Derrinlough (Cloonkeenleananode) Bog SAC [002197]

### 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 Derrinlough (Cloonkeenleananode) Bog SAC, which is defined by the following list of attributes and targets:

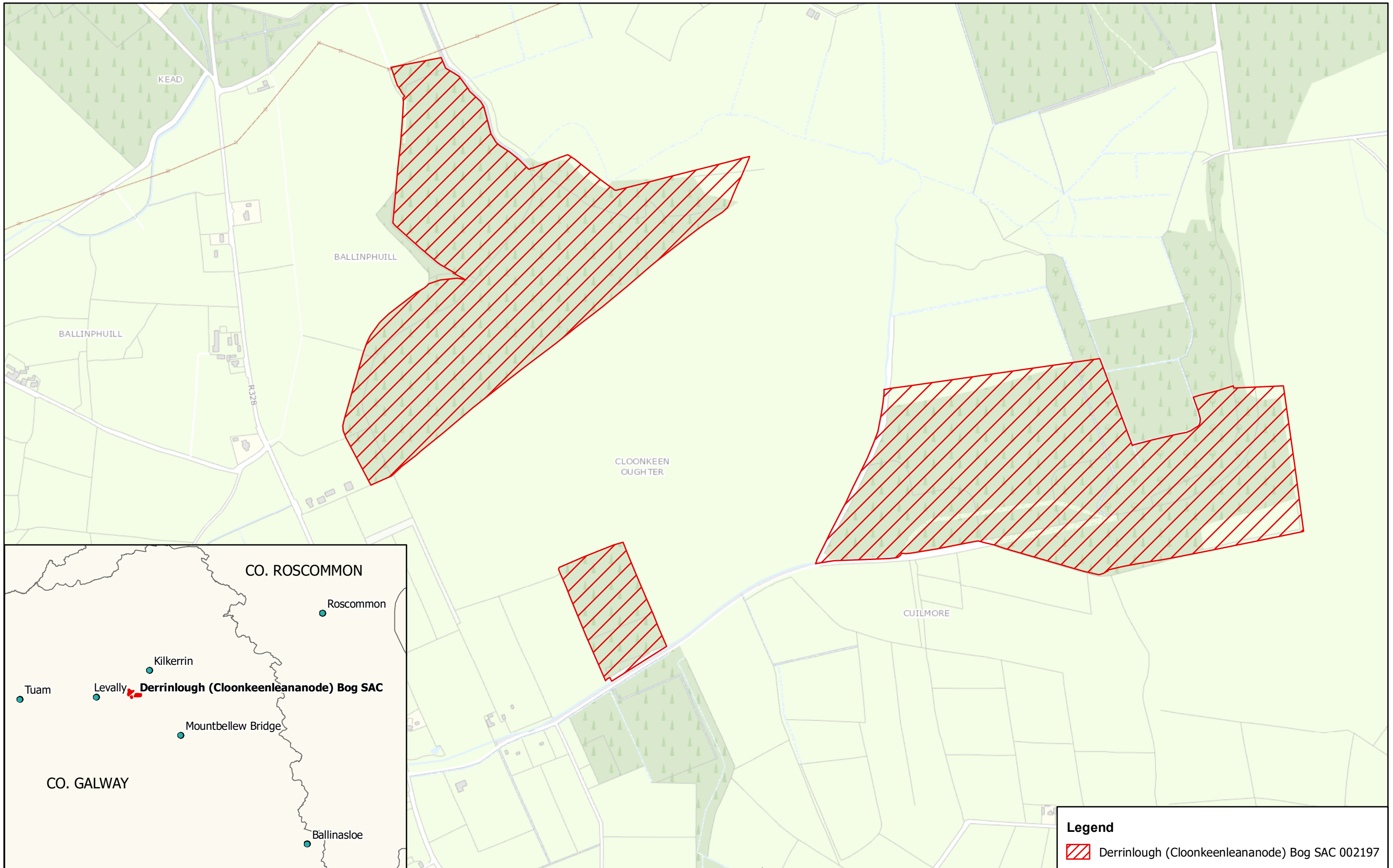
Attribute	Measure	Target	Notes
Habitat area	Hectares	Restore area of active raised bog to 5ha, subject to natural processes	Active Raised Bog (ARB) habitat within the SAC boundary was mapped at 0.2ha by Crushell et al. (2019). The area of Degraded Raised Bog (DRB) on the high bog has been estimated to be 4.8ha. Eco-hydrological assessments of the cutover estimate that an additional 0.04ha of bog-forming habitats could be restored. The long term target for ARB for the SAC is therefore 5ha. See raised bog supporting document for further details on this and 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 and DRB habitat at Derrinlough (Cloonkeenleananode) 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 Derrinlough (Cloonkeenleananode) Bog SAC in 2014 (latest figure available) was 45.5ha (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 levels should only be 10cm below the surface, for very short periods of time. Open water is often characteristic of soak systems
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 comprises several habitats resulting from the felling of the conifer plantations such as: developing rich fen (7230), wet birch woodland and wet willow-alder woodland on the north-east of the northern SAC section; wet alder woodland along the western cutover in the northern SAC section; developing wet woodland dominated by willow along the northern cutover of the eastern SAC section; and oak-ash woodland on a mineral ridge across the middle and eastern sections of the eastern SAC section. Further wet bog woodland and wet willow woodland are anticipated to develop in other areas currently described as 'cutover with birch' along the north-west of the eastern SAC section
Vegetation quality: central ecotope, active flush, soaks, bog woodland	Hectares	Restore 2.5ha 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, and bog woodland. Target area of ARB for the site has been set at 5ha (see area target above)
Vegetation quality: microtopographical features	Hectares	Restore adequate cover of high quality microtopographical features	Low hummocks and hollows are present on Derrinlough (Cloonkeenleananode) Bog (Crushell et al. 2019)

Vegetation quality: bog moss ( <i>Sphagnum</i> ) species	Percentage cover	Restore adequate cover of bog moss ( <i>Sphagnum</i> ) species to ensure peat-forming capacity	<i>Sphagnum</i> 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 <i>Sphagnum austinii</i> are particularly good peat formers. <i>Sphagnum</i> 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 small wet quaking area of about one hectare, occurs in the north-east of the site and is dominated by the bog species hare's-tail cottongrass ( <i>Eriophorum vaginatum</i> ) and <i>Sphagnum cuspidatum</i> with a high water table present for the majority of the year. The nationally rare bog moss <i>Sphagnum pulchrum</i> has also been recently recorded from this area
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	Indicators of disturbance on a raised bog include species indicative of drying out conditions such as abundant <i>Narthecium ossifragum</i> and <i>Trichophorum germanicum</i> ; <i>Eriophorum vaginatum</i> forming tussocks; abundant <i>Sphagnum magellanicum</i> in pools previously dominated by species typical of very wet conditions (e.g. <i>Sphagnum cuspidatum</i> ). Indicators of frequent burning events include abundant <i>Cladonia floerkeana</i> and high cover of <i>Carex panicea</i> (particularly in the true midlands raised bog type). The colonisation of downy birch ( <i>Betula pubescens</i> ) and conifers poses an ongoing threat to the drier high bog areas which have been recently cleared of conifers and will require some ongoing management to avoid impacts to sensitive areas
Vegetation composition: non-native invasive species	Percentage cover	Non-native invasive species at insignificant levels and not more than 1% cover	Non-native invasive species that can commonly occur on raised bog habitats include: <i>Pinus contorta</i> , <i>Rhododendron ponticum</i> , and <i>Sarracenia purpurea</i> (Cross, 1990). Sitka spruce ( <i>Picea sitchensis</i> ) saplings were found scattered across the high bog at Derrinlough (Cloonkeenleananode) Bog during the 2018 survey. They were most frequent in the felled conifer plantations and also in the vicinity of a flush where water flow in the area of a steep slope probably contributed to their abundance. <i>Rhododendron ponticum</i> was also found scattered across Derrinlough (Cloonkeenleananode) Bog. It was occasional in conifer clear fell areas, but frequent in parts of the active flush (Crushell et al. 2019)
Air quality: nitrogen (N) 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 Derrinlough (Cloonkeenleananode) Bog suggests that the current level is approximately 11.1kg N/ha/yr (Henry and Aherne, 2014)




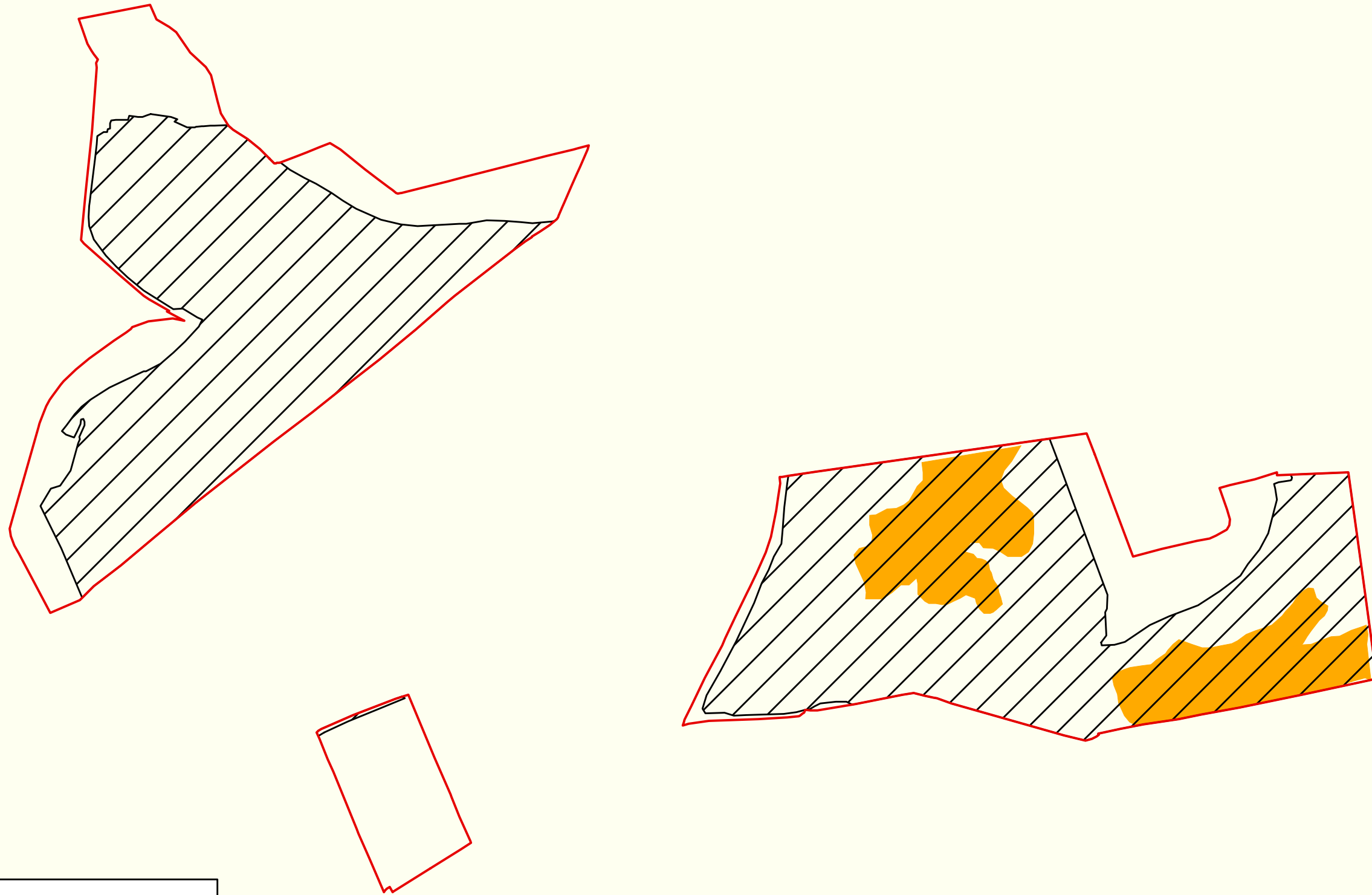
Water quality	Hydrochemical measures	Water quality on the high bog and in transitional areas close to natural reference conditions	Water chemistry within raised bogs is influenced by atmospheric inputs (rainwater). However, within soak systems, water chemistry is influenced by other inputs such as focused 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)
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**Legend**

 Derrinlough (Cloonkeenleananode) Bog SAC 002197



**Legend**

-  High Bog Boundary
-  Potential 7110 Active Raised Bog
-  Derrinlough (Cloonkeenleananode) Bog SAC 002197




An tSeirbhís Páirceanna Náisiúnta  
agus Fiadhúlra  
National Parks and Wildlife Service

**MAP 2:**  
**DERRINLOUGH (CLOONKEENLEANANODE) 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 002197; version 3**  
**CO. GALWAY**

0    75    150    300 Metres

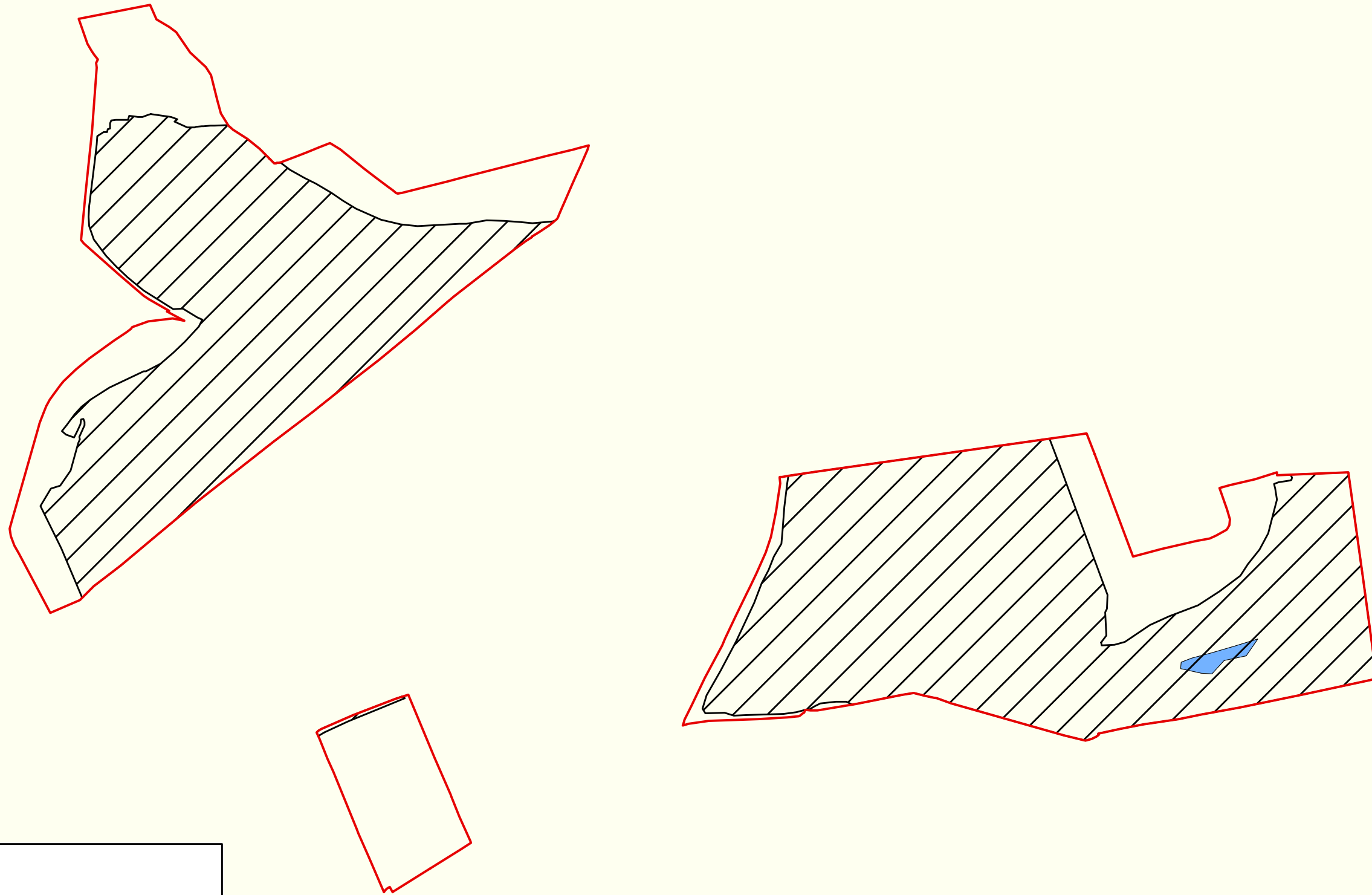


The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision.  
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Níl sna teorainneacha ar na léarscáileanna ach nod garshuíomhach ginearálta. Féadfar athbheithníthe a déanamh ar theorainneacha na gceantar comharthaíthe. Suirbhéarachta Ordonáis na hÉireann Ceadúnas Uimh OSI-NMA-014. © Suirbhéarachta Ordonáis na hÉireann Rialtas na hÉireann

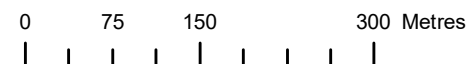


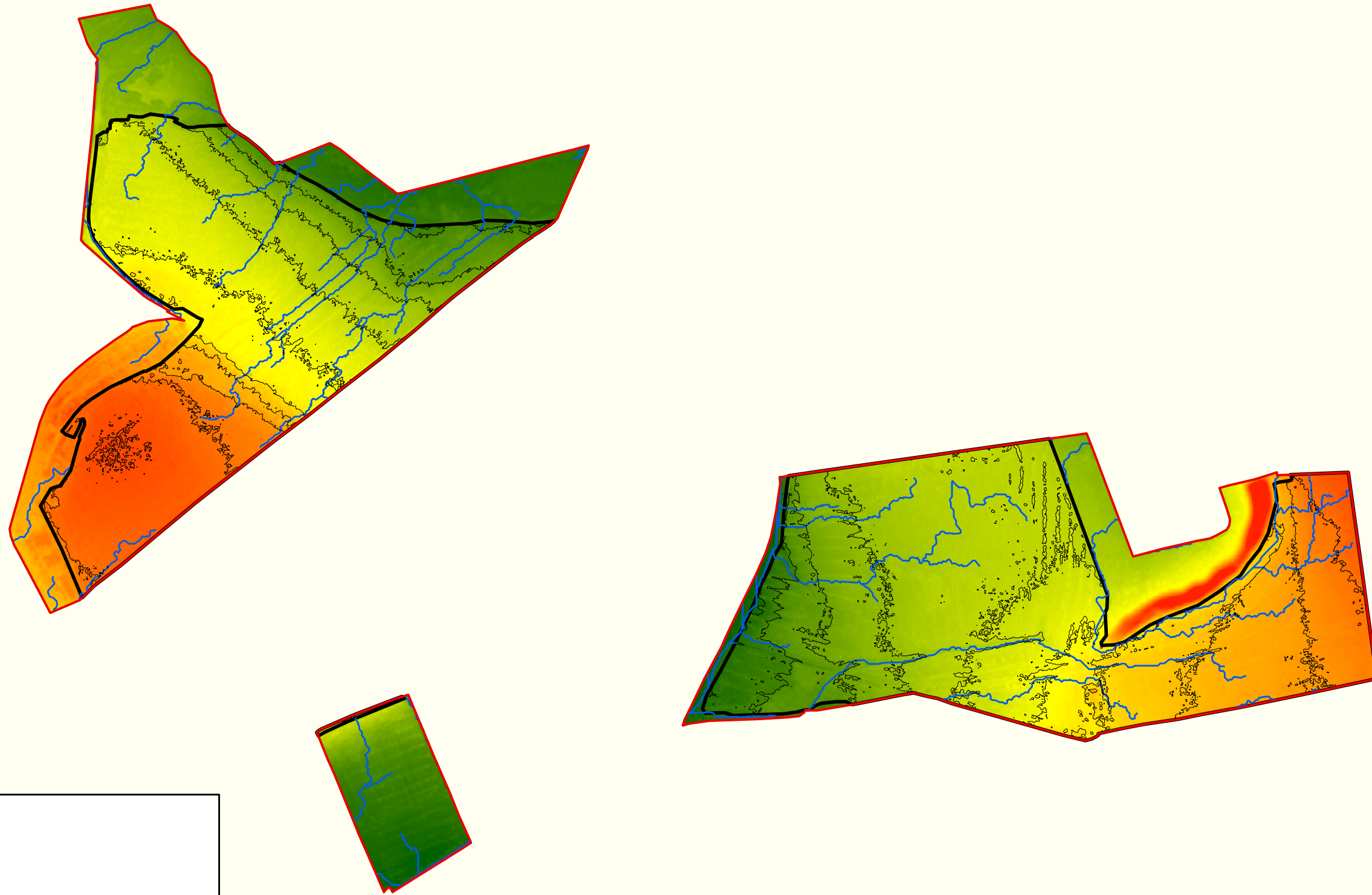
**Date: April 2023**







**Legend**

-  High Bog Boundary
-  Derrinlough (Cloonkeenleananode) Bog SAC 002197
- Active Raised Bog Ecotopes**
-  Active Flush





**Legend**

-  High Bog Boundary
-  Drainage Patterns
-  Contours
-  Derrinlough (Cloonkeenleananode) Bog SAC 002197

