Broads Forum
6 February 2014
Agenda Item No 9

Implementation and Maintenance of HLS Measures to Deliver Benefits for Breeding Waders

Report by RSPB Broads Area Manager

Summary: Breeding wader numbers are in decline across the UK. This picture is mirrored in Broadland, with the highest concentrations being found on the RSPB's reserves at Berney Marshes, and Buckenham and Cantley marshes. However, this picture of success on RSPB reserves creates a problem, as it attracts a disproportionate level of predation. Through the RSPB's Futurescapes project, the RSPB has been working with Natural England and many landowners to implement landscape-scale management. By applying our knowledge of land management for breeding waders and wintering waterfowl we are able to assist and deliver land management operations commensurate with HLS agreements. This removes pressure from the RSPB to deliver most of the breeding wader output, enables landowners to draw down greater levels of grant to manage their land, has a beneficial simplifying affect on water management, and, above all, provides a home for wildlife.

1 Concerns About Breeding Wader declines

1.1 Across the UK, the numbers of breeding waders are declining (principally lapwing, redshank, snipe and curlew) in both lowland and upland habitats. Appendix 1 (a map produced by Broads Authority) shows where breeding waders are to be found in the Broads (breeding waders are shown by the circular, yellow and black symbol). The two primary sites are Berney Marshes RSPB reserve and Mid Yare RSPB reserve (specifically Buckenham and Cantley marshes), with a few outlying sites such as Haddiscoe and Thurlton Marshes. This picture is significantly different from that shown by previous surveys carried out in 2002 and prior to that in 1995. There have been changes in overall numbers and distribution across the Broads.

2 Why are Breeding Waders in Decline?

2.1 No single factor can explain these declines, however, increased levels of predation (terrestrial and avian), unsuitable water levels, lack of suitable 'in-field' features such as footdrains, change in land use, adjacent conflicts in land use, poor sward characteristics, more extreme weather conditions, and more contribute to the picture.

3 What Can We Do to Change This Picture?

3.1 Many of the changes needed are within our gift. We have the Higher Level agri-environment scheme which if applied suitably can enhance both

conditions for breeding waders and quality of grazing land. Between Natural England, the RSPB and landowners, we have the technical expertise to deliver works which promote better conditions for breeding waders and other wildlife, alongside good agricultural management.

4 What Can RSPB Do to Help Landowners Manage for Breeding Waders?

4.1 The RSPB has owned and managed land within the Broads since the mid 1970's. Our primary focus is creating conditions for wildlife to flourish and for people to enjoy nature. We undertake research to find out what management prescriptions benefit the key species we are focusing on then carry out surveys to determine the effect of implementing these management regimes (the RSPB is currently managing a 2 year research project, funded by DEFRA looking at the impacts of predation on breeding waders, with a view to incorporating a prescription in the New Environmental Land Management Scheme). We have been working closely with Natural England advisors helping to determine whether there is potential for enhancement through a HLS agreement, in particular, the HK9 (breeding wader) and HK10 (wintering waterfowl) options.

4.2 In 2012, the RSPB gave advice and carried out direct management on 690ha of Broads grazing marsh, and carried out the same activities on 1384ha of Broads grazing marsh in 2013 (see appendix 2). The product of our research, surveys and land management works provides us with the confidence to ensure our interventions will be successful. In order to facilitate high quality land management works, the RSPB has invested in specific pieces of machinery to enable us to create and maintain in-field features to benefit breeding waders. We can, and indeed do, provide a contracting service for landowners who wish to do the same

5 Discussion Points

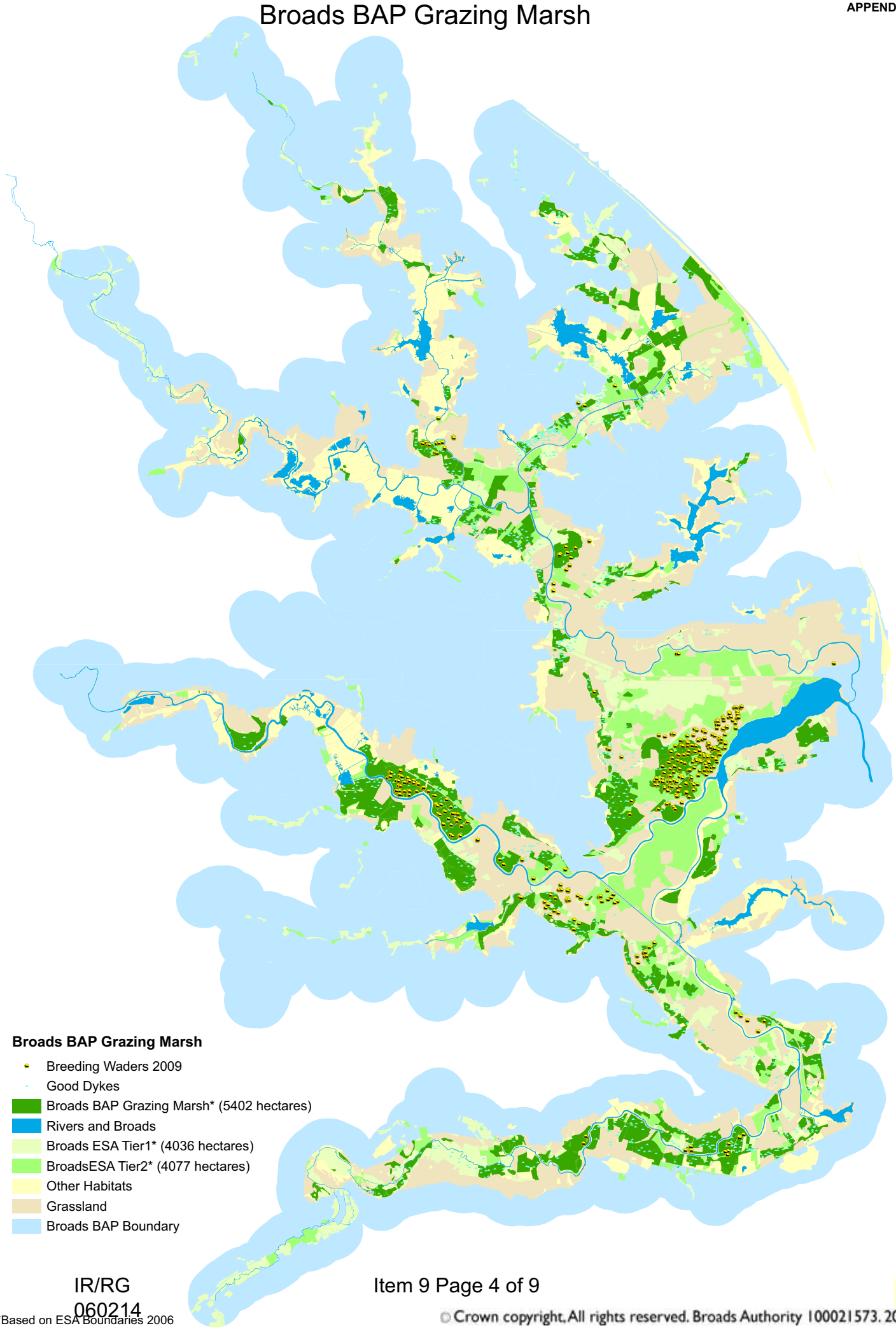
5.1 The Common Agricultural Policy is currently being reformed and it is assumed that we will see the replacement for the current agri-environment scheme commence sometime in 2016. HLS is now closed to new applicants and we don't know what the New Environmental Land Management Scheme (NELMS) looks like or how it will be targeted. This provides us with an opportunity to consider where NELMS will be most appropriately applied across all land types to benefit wildlife as well as maintain agriculture. Managing land for breeding waders has other benefits:

- If applied holistically, it can make it easier and more efficient to manage water levels across larger areas, thereby reducing costs to ratepayers and local councils;
- Wetter ground captures and retains more carbon, providing some mitigation for the changes we are seeing in our climate (see Appendix 4 for guidance for landowners on carbon and soils management provided by the Broads Authority;
- More wildlife makes the Broads more attractive – better for tourism, better for health;

- Good quality grazing is provided, thereby supporting the livestock industry;
- Waders and waterfowl are part of the traditional landscape of the Broads. By carrying out work for these species we are both maintaining and enhancing the ‘magical waterland,’ which is the Broads.

Author:	Ian Robinson
Date of report:	3 January 2014
Broads Plan Objectives:	None
Appendices:	APPENDIX 1 – Broads BAP Grazing Marsh APPENDIX 2 – BLMS Broads Area Client Map APPENDIX 3 – Positive Carbon Management of Peat Soils

Broads BAP Grazing Marsh



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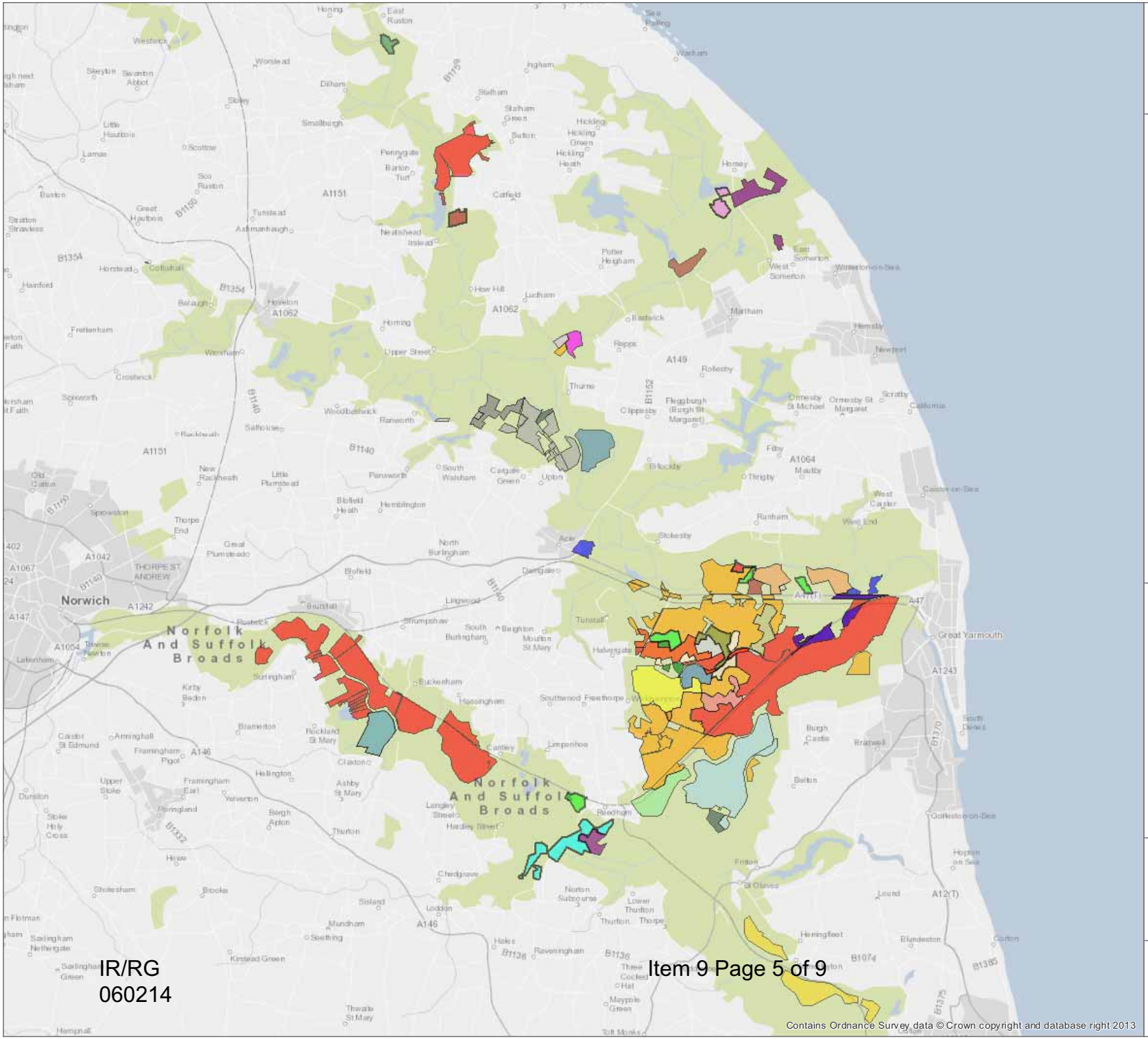
*Based on ESA Boundaries 2006



BLMS - Broads Area Client Map

APPENDIX 2

Legend:

- Askew Marshes Partnership
- Banhans
- Bartlet
- Beckhithe/Brooks pension
- Berney Estates land
- Blythes
- Braydestone Farms boundary
- Buxton
- Cargill
- Catfield Fen
- C. Cator
- Coltishall
- J. Child
- Claxton
- Cookes
- Dilham
- Dunthorne
- Fishers
- Hashim
- Heathcote
- Heigham Holmes
- Howells
- Horsey est
- Key
- Lanham
- Val Mack
- Marie Child
- Medler
- Molineux
- Mitchels
- Moore
- Norton
- NWT
- Portvleet
- Sheldrakes
- Somerleyton
- Tallowin
- Thurne Poors
- Vincent
- RSPB Reserves (Public)

Acknowledgements & Notes:

Created by: RSPB

N

Map scale = 1:119,367

Date printed: 11/10/2013

0 2 4 8 km

rspb giving nature a home

Broads Authority
The Broads - a member of the National Park family

Positive Carbon Management of Peat Soils

Soils store huge amounts of carbon when managed sustainably, benefiting wildlife and people

Peat soils are capable of supporting some of the most wildlife rich habitats on the planet, and the Broads wetland is no exception. The peaty fens, wet woodland and areas of grazing marsh in the Broads support over 600 priority species[1], including many rare invertebrates such as the Swallowtail butterfly and Norfolk hawker dragonfly.

Peatlands have recently also been recognised for the important environmental services they provide in the form of carbon and water storage. Globally peatlands store nearly double the amount of carbon locked up in the world's forests, an amazing 550 billion tonnes, with peat soils in the UK storing 580 million tonnes carbon[2].

In the Broads executive area, peat soils have been estimated to store 25 million tonnes of carbon[3] equivalent to the annual carbon emissions from a very large coal fired powered station. This carbon remains essentially "locked up" provided the wetland soils remain un-drained and undamaged by cultivation.

This document provides soil carbon protection advice to land owners, land managers and agri-advisors, and has arisen from the Broads Authority peat survey carried out in 2009/2010.[4]
The survey looked at the type and quality of peat soils outside of conservation designated fen and wet woodland habitats, and included fen meadow, grazing marsh and arable sites.
These peat soils account for over 4,500 hectares which could potentially be improved for carbon storage mainly through water management.

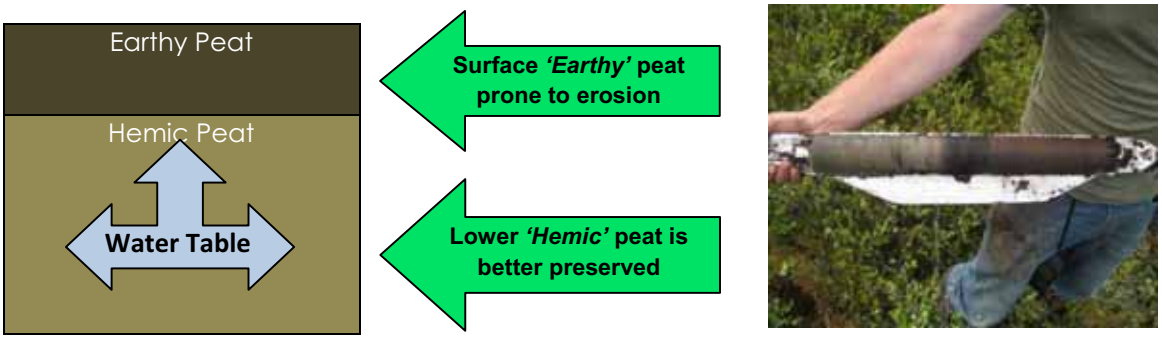
1. MINIMISING CARBON LOSS

Many of the surface peat layers in the Broads have been degraded and lost by erosion, shrinkage, or been extracted for fuel. The boundary of the base of this surface layer with the less decomposed hemic peat beneath is largely determined by watertable height.

1. Reducing loss of the surface 'earthy' peat
As the peat dries it is prone to shinkage and wind or water erosion, which can lower the ground surface and induce further drainage.
Action: To reduce peat and carbon loss the area can be established as permanent grassland.

2. Preserving the subsoil 'hemic' peat
Some peat bodies show a marked black 'gritty' layer (zone of degraded peat) where the watertable has been lowered into the upper part of the hemic peat by enhanced drainage.
Action: To preserve good quality hemic peat, the watertable should remain above the boundary of the 'hemic'and 'earthy' peat for as much of the year as possible.

Note: This option is unsuitable for arable cultivation, as the rate of oxidation of the peat, (and hence its cultivation ability) is reduced when the watertable lies within the 'earthy' peat layer.



Natural England's **Environmental Stewardship Scheme** provides funding to landowners to help manage the countryside to protect wildlife, landscape and natural resources. Several Environmental Stewardship Options promote healthy soils and carbon protection, and have been included in this advice sheet.

Higher Level Stewardship Option:

- HK6 - Maintenance of species-rich, semi-natural grassland
- HK15 - Maintenance of grassland for target features

2. PROMOTING A NEUTRAL CARBON BALANCE

Where watertables have been maintained near the ground surface year-round, there may only be a thin earthy layer (< 10 cm thick). The peat body is otherwise in good condition as sufficient dead plant material should be preserved each year, to allow for any breakdown of peat during the growing season, when the watertable is lower.
Action: Maintain a high watertable year-round. This is possible where fields are isolated from drains and watercourses, and where groundwater flows are still functioning.

Habitat Water Level Guide

- ✓ **Fen** retain water levels as close to the ground surface as possble
- ✓ **Fen Meadow** retain water levels within 10 cm of the ground surface
- ✓ **Grazing Marsh** ideally retain water levels at or just below marsh level. HLS water level options will be prescribed according to individual agreement objectives.

Higher Level Stewardship Option:

- HK19 - Raised water levels

3. PROMOTING A POSITIVE CARBON BALANCE

Positive carbon balance tends to be restricted to two types of situation:
Where the watertable within areas of the valley floor is within 10 cm of the ground surface all year round, but is frequently above the ground level for extended periods. Such sites are usually highly valued wildlife habitats including wet woodland, reedbed or fen. Where high groundwater levels can be maintained, the accumulation of organic matter can exceed peat breakdown, leading to peat growth.
Action: Maintain high water levels year round.

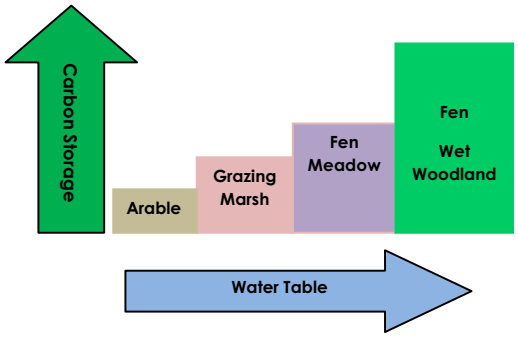


Fig 1 Broad's habitats and potential carbon storage

On the margins of the peat body, especially where peat is known to have formed in the past, positive carbon storage can be established on mineral soils **by establishing permanent grassland.**

Higher Level Stewardship Option:

- HK19 - Raised water levels
- HQ6 Maintenance of fen
- HG3 Maintenance of Reedbed
- HK6 - Maintenance of semi-natural grassland
- HK15 - Maintenance of grassland for target features

The Broads Authority can advise on ways to positively manage soils for carbon and wildlife
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Glossary

Earthy peat	Usually forms the ground surface of the peat body, earthy peat is the very dark brown to black-coloured. The material is dust-like when dry and prone to wind erosion and compaction. As the dust cannot return to the gel-like consistency when wet, it typically ponds rainwater. Water chemistry held in the peat topsoils therefore becomes increasingly different from the groundwater. This can be reflected in the vegetation that develops. E.g. Hard rush *Juncus inflexus* tends to colonise drains sides influenced by calcareous groundwater, while soft rush *J. effusus* colonises the normal ground surface, reflecting the acidic rainwater.
Hemic peat	This type of peat has partially decomposed, plant remains leave 'fossil' traces of the harder parts of plants (stems and woody matter). In the Broads grazing marshes hemic peat is initially recognised by its colour, which is dark brown to black. Secondary forms of recognition are by squeezing a sample (confirming a gel like quality) and by seeing plant fragments.

References

[1] Broads Biodiversity Audit (2011), Broads Authority Report, UEA
[2] Englands Peatlands Carbon Storage and Greenhouse Gases (2010), Natural England
[3] Broads Carbon Audit (2010), Broads Authority Report, UEA
[4] Broads Authority Peat Resource Contract (2010), Broads Authority Report, ELP