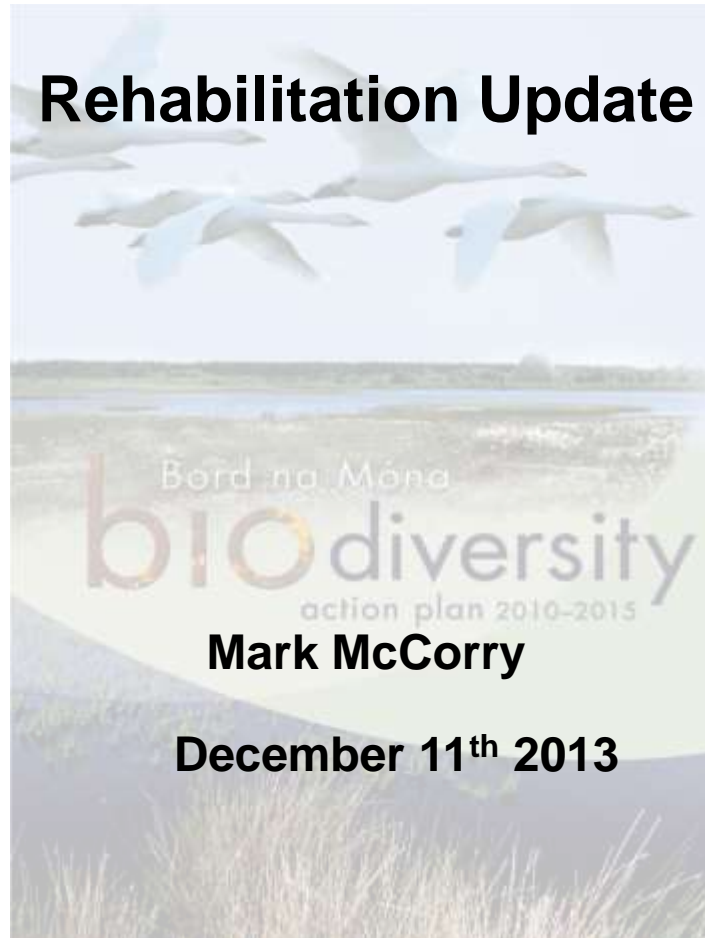


Biodiversity Action Plan Review 2013



Outline

- Review – pioneer cutaway habitats
- Planning for rehabilitation
- Pioneer cutaway habitat development & natural colonisation - The Derries
- Kilberry wetland rehabilitation trial
- *Sphagnum* farming at Kilberry
- Cuckoo Hill Ecotope survey (Raised bog restoration project)



Active production bog



Pioneer cutaway habitats



**Soft Rush-
dominated poor fen**



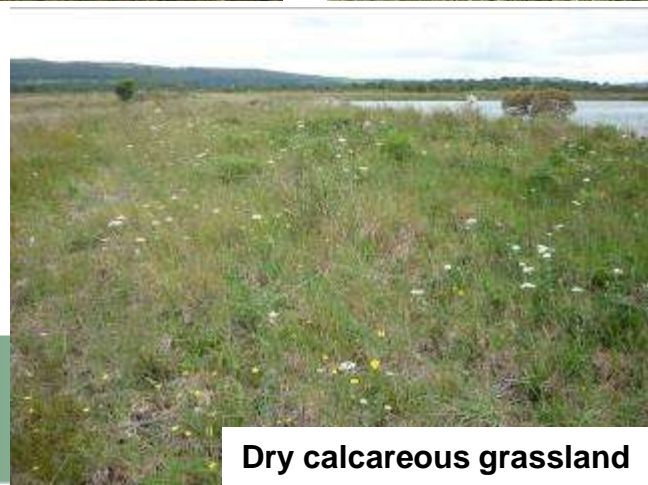
**Bog Cotton
-dominated poor fen**

**Wetlands
& Open water**



Birch scrub

Dry Heath



Dry calcareous grassland



Reedbeds

Future Trends



Majority of dry cutaway, if left undeveloped for alternate after-use, expected to develop Birch-dominated woodland +/- open habitats in medium-term future



Derrycasheen
Future wetlands



Planning Rehabilitation

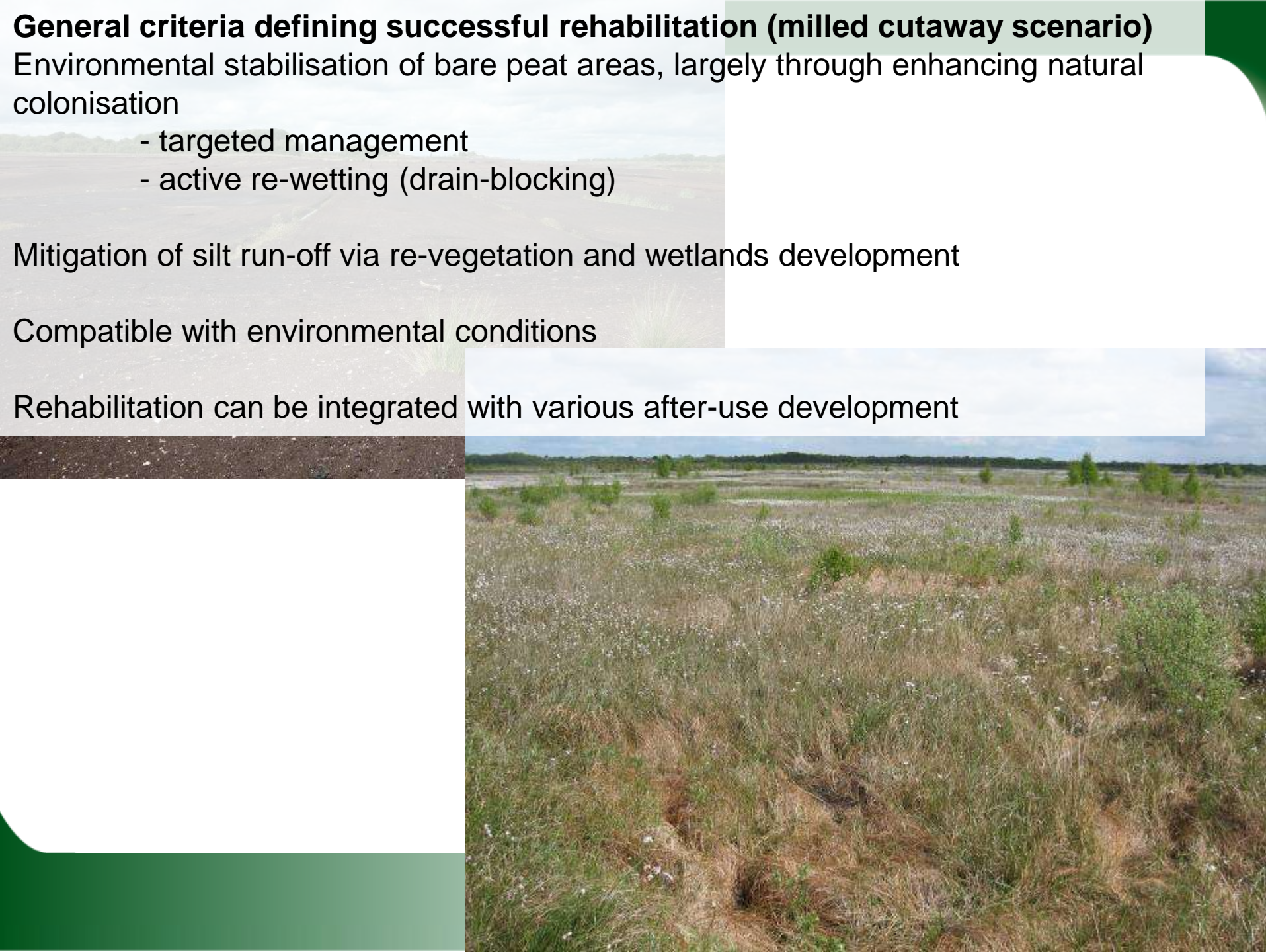
- when peat production ceases



Planning Rehabilitation – when peat production ceases

- Condition 10.2 of EPA licenses - rehabilitation plan
- **Rehabilitation not the same as after-use and development - but linked**
- Rehabilitation about environmental stabilisation of the former peat production areas
- Future after-use is
 - Windfarm development, Amenity, Biodiversity, Forestry, Industrial development etc (Strategic Framework for the Future Use of Peatlands)
- Can be significant lag period between end of peat production and after-use development
 - need for rehabilitation and peat stabilisation
 - Some sites unsuitable for development





General criteria defining successful rehabilitation (milled cutaway scenario)

Environmental stabilisation of bare peat areas, largely through enhancing natural colonisation

- targeted management
- active re-wetting (drain-blocking)

Mitigation of silt run-off via re-vegetation and wetlands development

Compatible with environmental conditions

Rehabilitation can be integrated with various after-use development



Planning Rehabilitation – continued

Scope of each draft plan (pre-consultation) – general issues

- Categorisation of the emerging habitats
- Environmental stabilisation of the former peat production areas
- Drainage management through the site and water emissions from the site
- The timeframe for cutaway bog rehabilitation
- Integrating other planned after-use developments on the site with rehabilitation



Planning Rehabilitation – continued

Proposed rehabilitation programme

Short-term (0-5 years)

- most sustainable management option allow continued natural re-colonisation
- some targeted management if required
- continued monitoring of bare peat areas

Medium-term

- targeted management carried out on remaining bare peat areas - if required

Long-term

- evaluate success of short/medium rehabilitation measures
- enhance where necessary
- Reporting to the EPA will continue until IPPC License is surrendered



Planning Rehabilitation – continued

- Development of a **draft** rehabilitation plan for cutaway
- Consultation
 - With BnM staff, EPA, NPWS, Coillte, Inland Fisheries Ireland, Forest Service, IPCC; An Taisce, BWI; local authorities and other stakeholders etc
- Development of **finalised** rehabilitation plans
 - (**Not** after-use plans, but can be incorporated into future after-use plans or planning for development)



Planning Rehabilitation – continued

Timeframes

- Some sites available for rehabilitation now (e.g. Derrydoo-Woodlough)
- But much of the cutaway on sites still in production for some time
- Can't proceed until production ceases totally - e.g. due to drainage issues
- but there is potential for staged rehabilitation (e.g. Boora)
- At some sites can't plan fully until bog drainage is in its final stage (e.g. new pumps projected at some sites)
- Rehabilitation can also be combined with future land-use development (e.g. Mountlucas windfarm)



Derrydoo-Woodlough

- Draft rehabilitation plan developed 2011
- Consultation - winter-spring 2012
BnM, NPWS, EPA, IPCC, An Taisce, local communities etc
- Consultation - site visit with NPWS (March 2012)
- Final plan developed April 2012
- Planning resources/logistics - spring 2012
Machinery/HR (BnM Feedstock)
Drainage survey (BnM Surveyor Team)
Access
- Rehabilitation begins June 2012

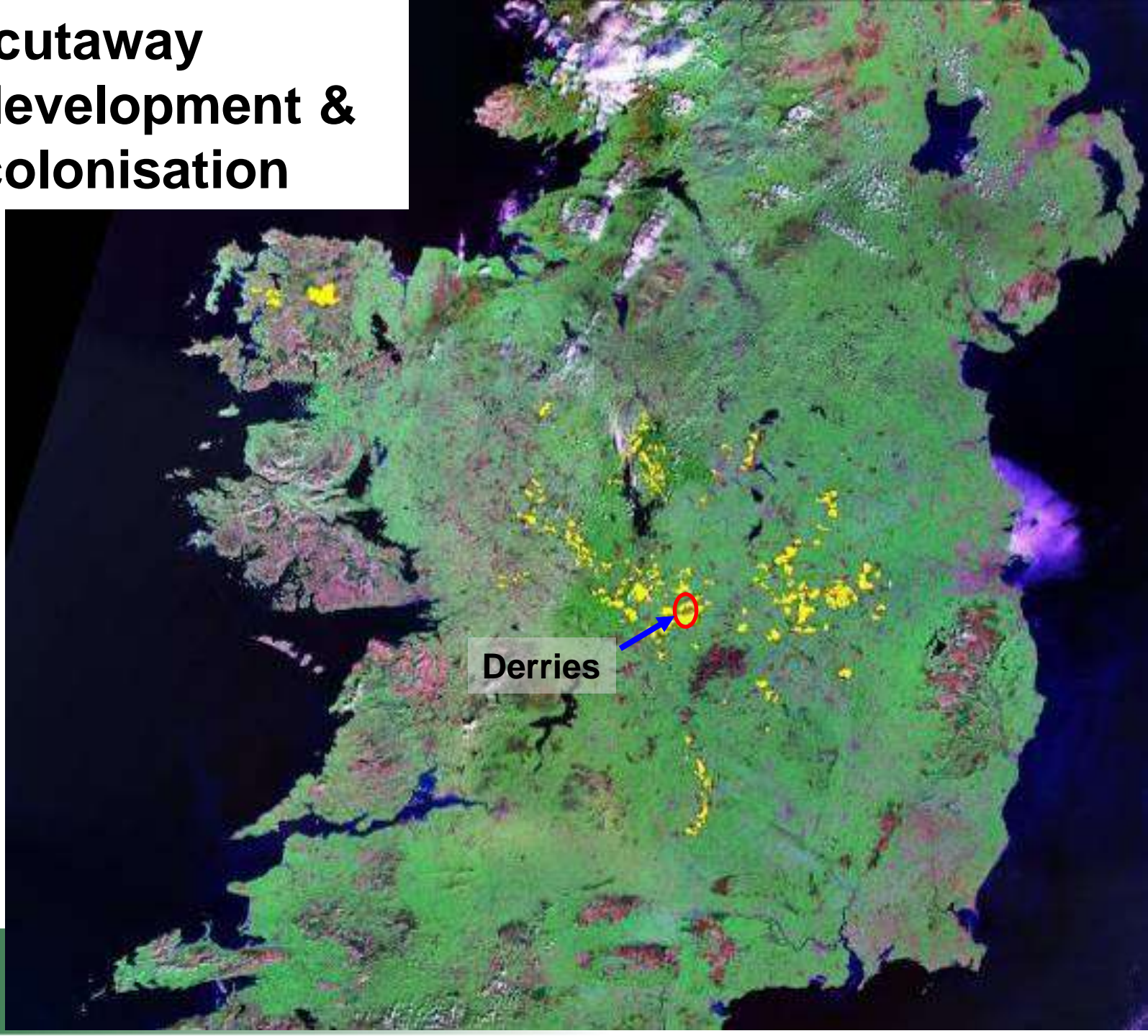
Bord na Móna

Derrydoo-Woodlough Rehabilitation Plan

Rehabilitation Plan			
This rehabilitation plan is developed under Condition 10 of IPPC Licence Ref. 502. It outlines the measures that will provide for stabilisation of the bog area. Rehabilitation can comprise natural colonisation with or without targeted management, and in some instances will incorporate other after-uses (development of sites for nature conservation, amenity, renewable energy, forestry and/or other commercial developments) deemed compatible with the site as outlined under the Bord na Mona Land Use Framework document 2011.			
Bog Name:	Derrydoo-Woodlough Bog group	Area (ha):	Total approx. 469 Ha (comprises a cluster of sites of variable size) Mayerwood Bog 188ha Linnaneagh Bog 102ha Pau/Lough Bog 143ha Gortnahulla 36ha
Works Name:	Attymon	County:	Galway
Author(s):	CF, MMC & DF	Survey Date(s):	Site survey dates: 8 th & 9 th April 2010; June 2011
Maps:	Rehabilitation map		
Review status: finalised March 29th 2012			
Background The Derrydoo-Woodlough Bog group is comprised of a cluster of four sub-sites, each of which is an example of degraded raised bog with associated marginal habitats. These bogs were ditched (drained) in the early 1980s but were never industrially harvested for peat and the surface vegetation remained largely intact. Derrydoo-Woodlough bog is part of the Attymon – Blackwater 502 bog group. This plan is a specific rehabilitation plan for the Derrydoo-Woodlough Bog group and outlines: <ul style="list-style-type: none">• criteria which define the successful rehabilitation,• consultation with interested parties,• main issues for rehabilitation,• proposed rehabilitation programme,• and proposed timeframe to implement this programme, and associated aftercare, maintenance and monitoring. The basis for the proposed approaches and implementation is the experience gained in 40 years of research on the after-use development and rehabilitation of the Bord na Mona outway bogs (see reference documents).			
Scope The scope of the rehabilitation plan seeks to address issues of concern as identified by Bord na Mona and the consultees. The key issues identified are: <ul style="list-style-type: none">• Categorisation of the habitats developing on Derrydoo-Woodlough Bog group (outlined in Appendix I)• Environmental stabilisation of the former peat production areas (N/A)• Maintenance of drainage and silt control through the site• Remediation of water courses where necessary (decommissioning)• The timeframe for bog rehabilitation/restoration• The impact of any other proposed development on the site and rehabilitation plan			
List of consultees Bord na Mona Senior Management; NPWS, IPCC; BWI; Golden Eagle Trust; An Taisce, Collite; EPA, local county council, Heritage Officer, local communities			



Pioneer cutaway habitat development & natural colonisation





**Derries
2000**



**Derries
2004**





**Derries
2009**

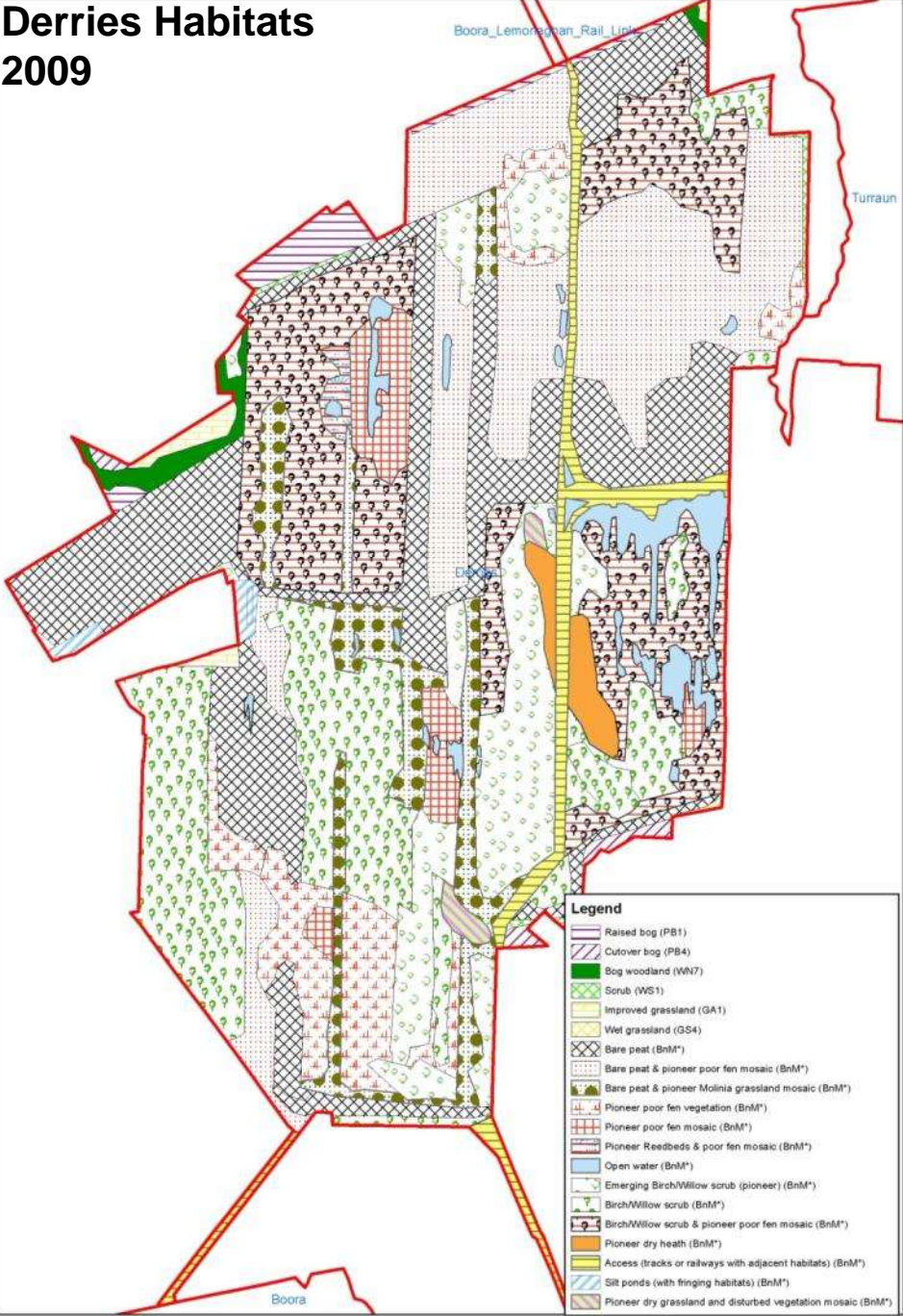


**Derries
2011**



Derries Habitats

2009

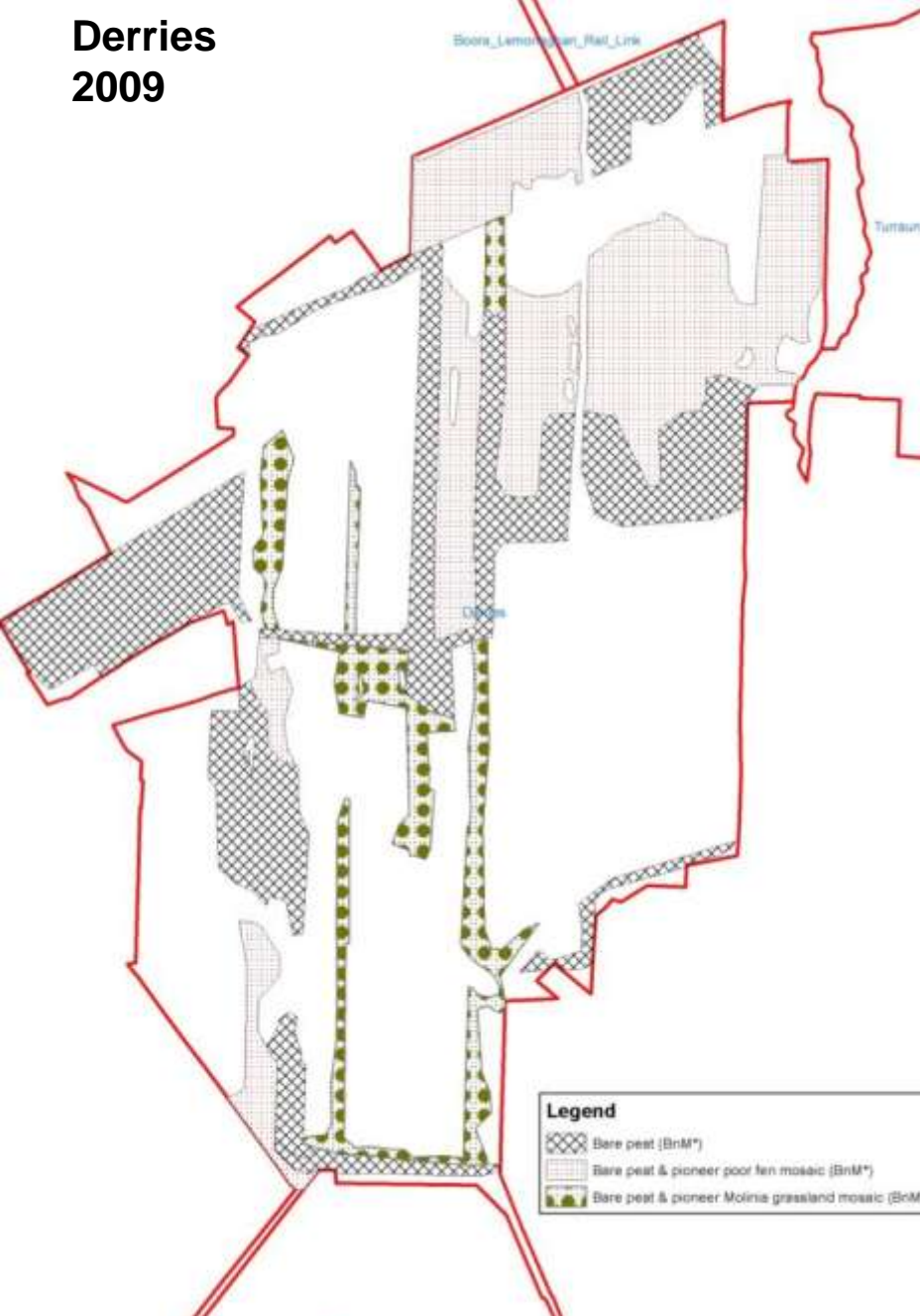


Derries Habitats

2013

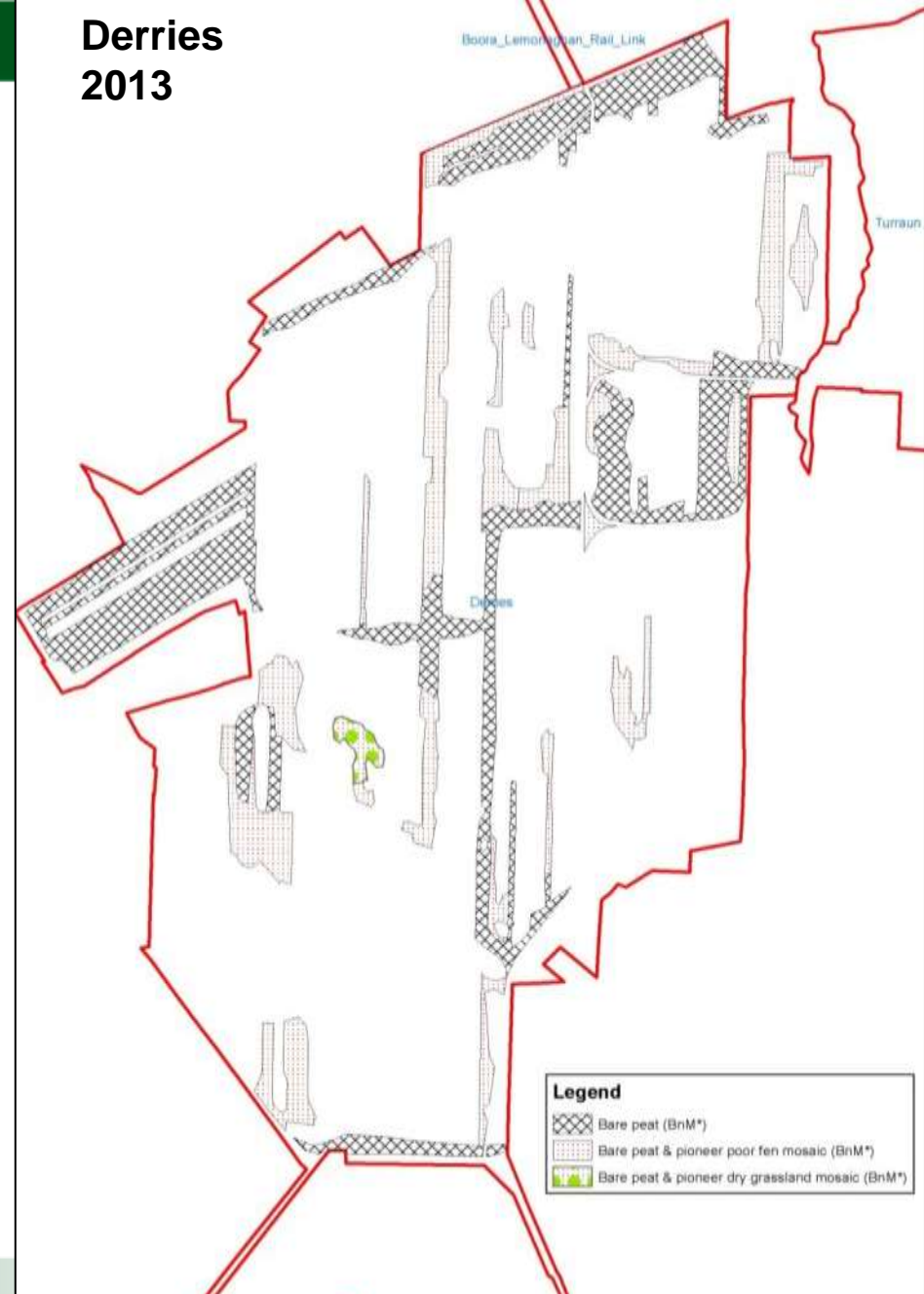


Derries 2009

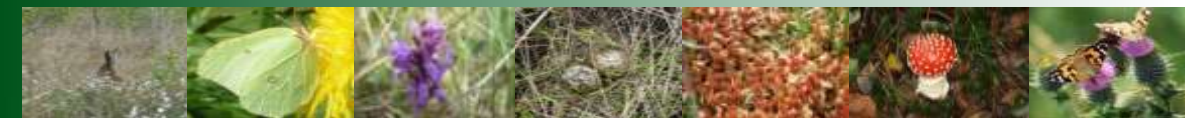


Bare peat – 19%
Bare peat & bare peat/vegetation mosaic – 41%

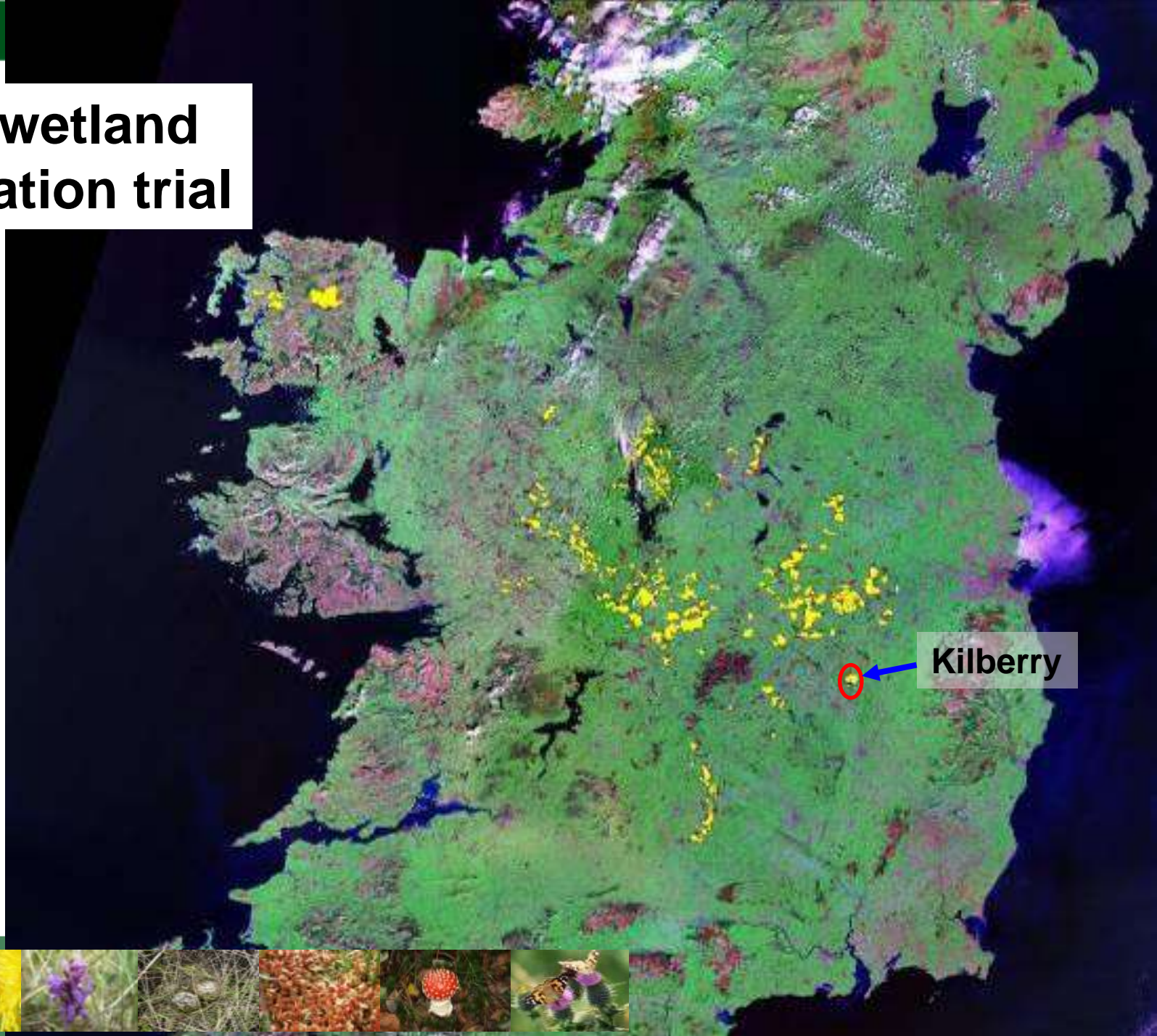
Derries 2013



Bare peat – 11%
Bare peat & bare peat/vegetation mosaic – 22%



Kilberry wetland rehabilitation trial



Kilberry



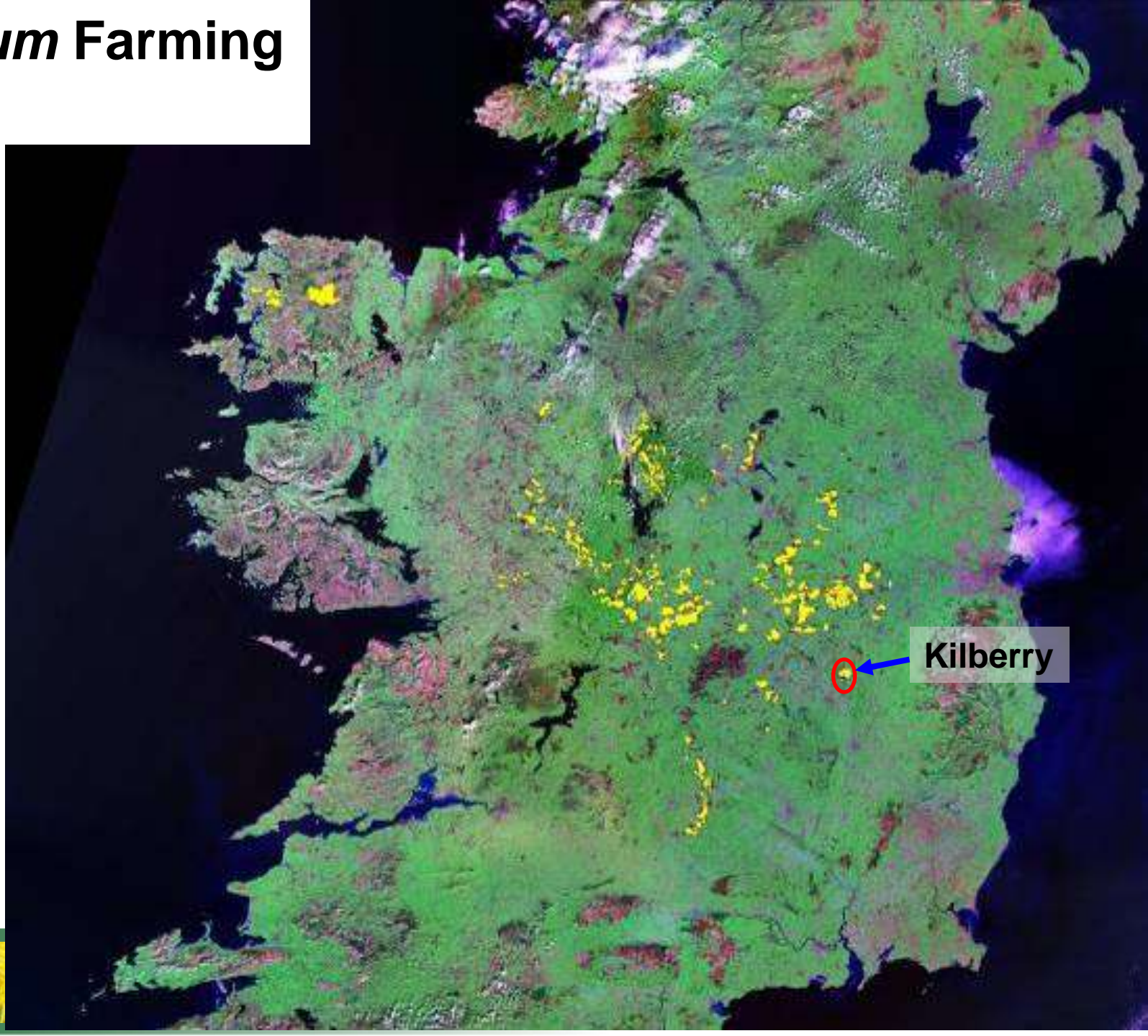
Kilberry

ation trial

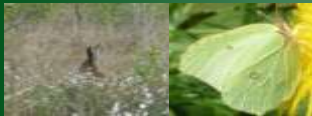




Sphagnum Farming Project



Kilberry



Sphagnum farming trial – Joint project with Innovation Centre BnM

Main objectives

- Can *Sphagnum* be grown easily for use as a potential growing media project?
- Can *Sphagnum* inoculation be a useful rehabilitation tool to enhance *Sphagnum* colonisation?
- (Some work already carried out in Canada, northern Europe, Germany and New Zealand attempting *Sphagnum* farming and using *Sphagnum* for rehabilitation of cutaway)
- Restricted to cutaway with deeper peat (acidic peat) that may have potential after re-wetting (Kilberry, Co. Kildare)
- Typical milled peat cutaway in midlands not acidic enough for typical bog *Sphagnum* species – too much limestone /groundwater influence on cutaway water chemistry
- 2012 – Site preparation (- local Feedstock staff) (24 plots)
- 2013 – 12 plots
- Monitoring growth and environmental conditions





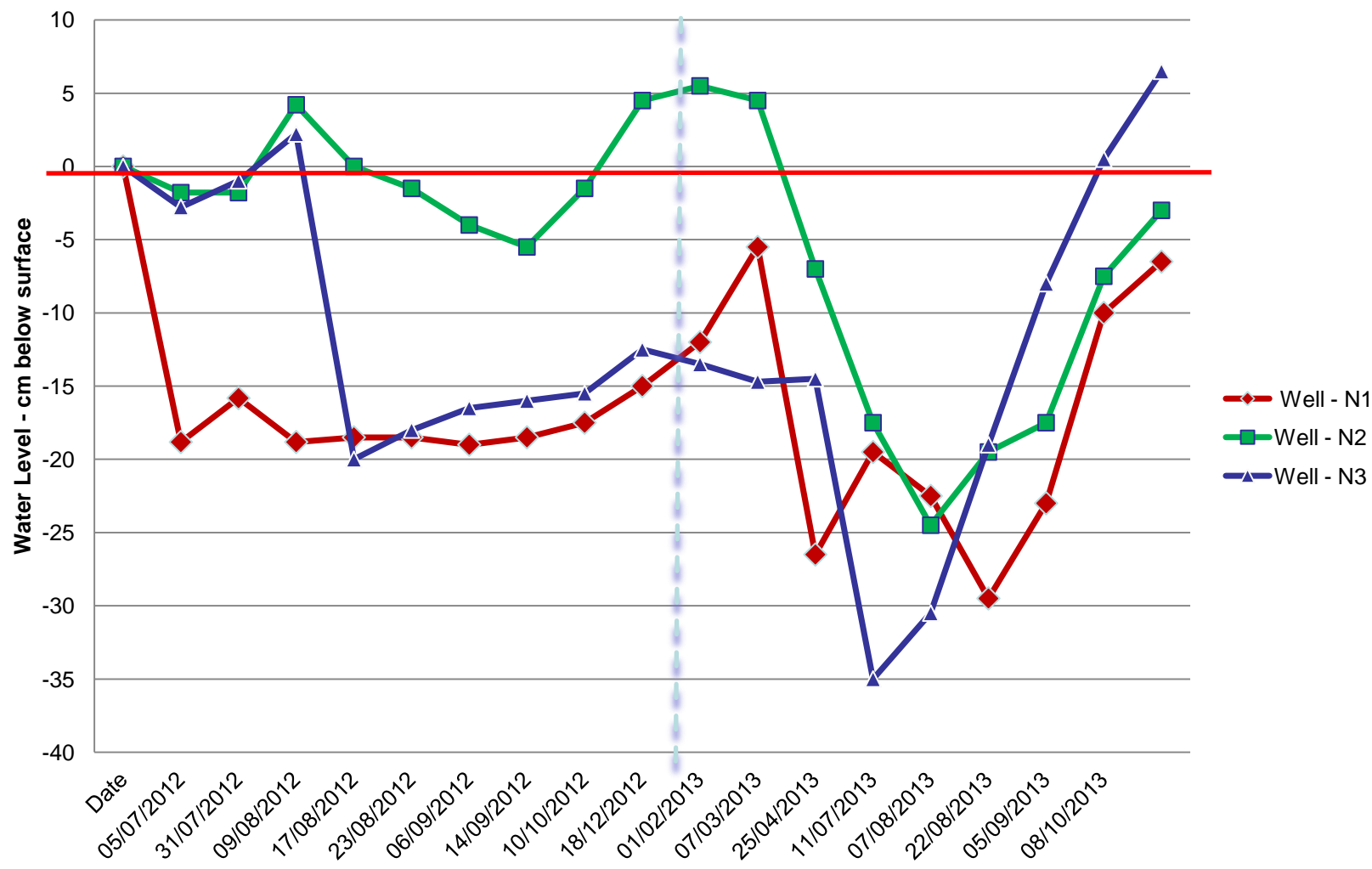
2012 Trial
March 2013



2012

Kilberry Water Levels

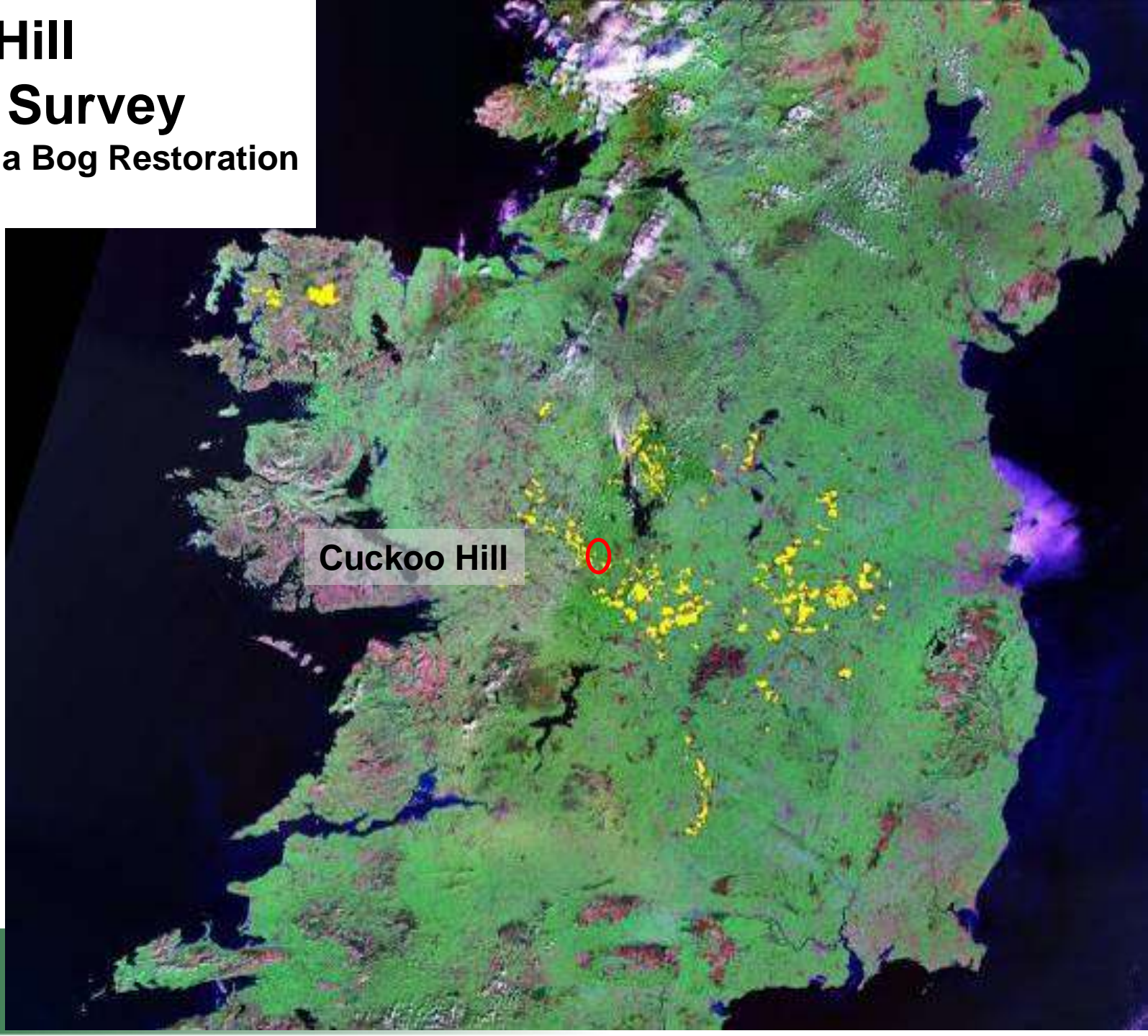
2013



Cuckoo Hill

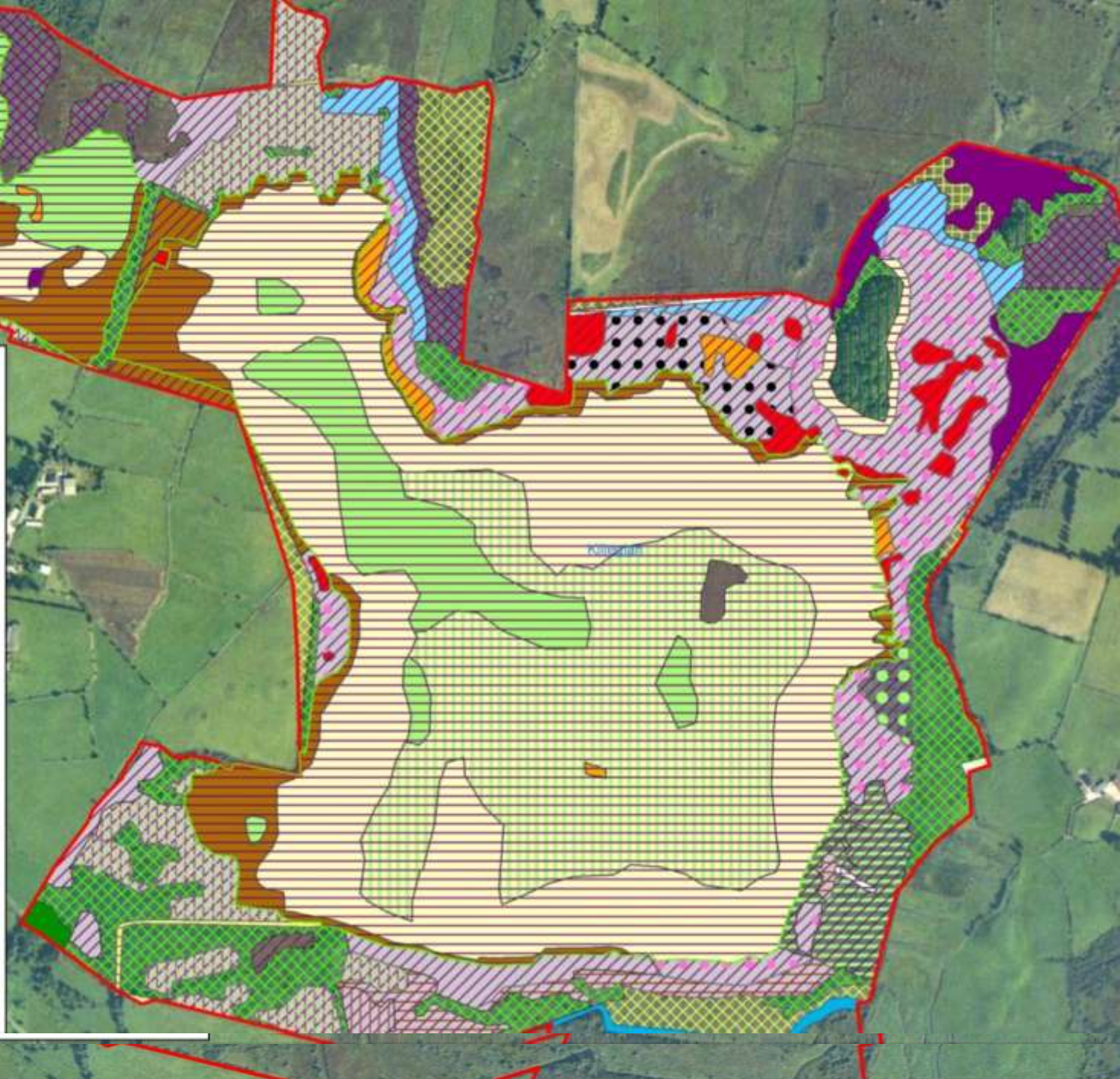
Ecotope Survey

(Bord na Mona Bog Restoration Project)



Legend

-  Secondary PB4 - Heather and scrub (FBW51)
-  Secondary PB4 - Heather, poor fen, and scrub (FB/PF2W51)
-  Secondary PB4 - Heather and poor fen (FB/PF2)
-  Secondary PB4 - Molinia dominated (like PF2)
-  Secondary PB4 - Calluna dominated (like Facebank ecotope)
-  Secondary PB4 - rich fen (PF1)
-  Rich fen (PF1)/ Raised bog (PB1) transition
-  Secondary PB4 - rich fen patches (PF1) in cutover bog
-  Secondary PB4 - Sphagnum-rich communities
-  Secondary PB4 - Sphagnum-rich communities in pools
-  Secondary PB4 - degraded raised bog communities with Molinia
-  Secondary PB4 - degraded raised bog communities, no Molinia
-  Secondary PB4 - Molinia/Myrica dominated (like PF2)
-  Rich fen and flush (PF1)
-  Poor fen and flush (PF2)
-  Transition mire and quaking bog (PF3)
-  Oak-Ash-Hazel woodland (WN2)
-  Bog woodland (WN7)
-  Scrub (WS1)
-  Improved grassland (GA1)
-  Dry calcareous and neutral grassland (GS1)
-  Wet grassland (GS4)
-  Dry heath (HH1)
-  Dense Brecken (HD1)
-  Recolonising bare ground (ED3)
-  Depositing rivers (FW2)
-  Raised bog PB1 - Facebank ecotope
-  Raised bog PB1 - Marginal ecotope
-  Raised bog PB1 - Marginal ecotope with sub-marginal patches
-  Raised bog PB1 - Sub-marginal ecotope
-  Raised bog PB1 - Sub-central ecotope
-  Riparian areas (streams/streams with fringing habitats) (BnM')
-  Access (tracks or railways with adjacent habitats) (BnM')





Overall <i>Sphagnum</i> cover	Permanent Quadrats				
	1	2	3	4	5
2011	10-20%	5-10%	20-30%	20-30%	1%
2013	50%	5-10%	30%	30-40%	<5%



Sphagnum subnitens

