# Approach to Shallow Peatlands

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# Why are shallow peatlands important (part I)?

- They’re carbon-rich
- One hectare of peat only 30 cm deep holds as much carbon as 1 hectare of primary rainforest (Lindsay et al., 2019)
- The extent of shallow peatlands is considerably greater than that of deep peat, so very significant carbon store
- They forms the major peat deposit over considerable parts of the country
- They form the headwaters of vast numbers of watercourses

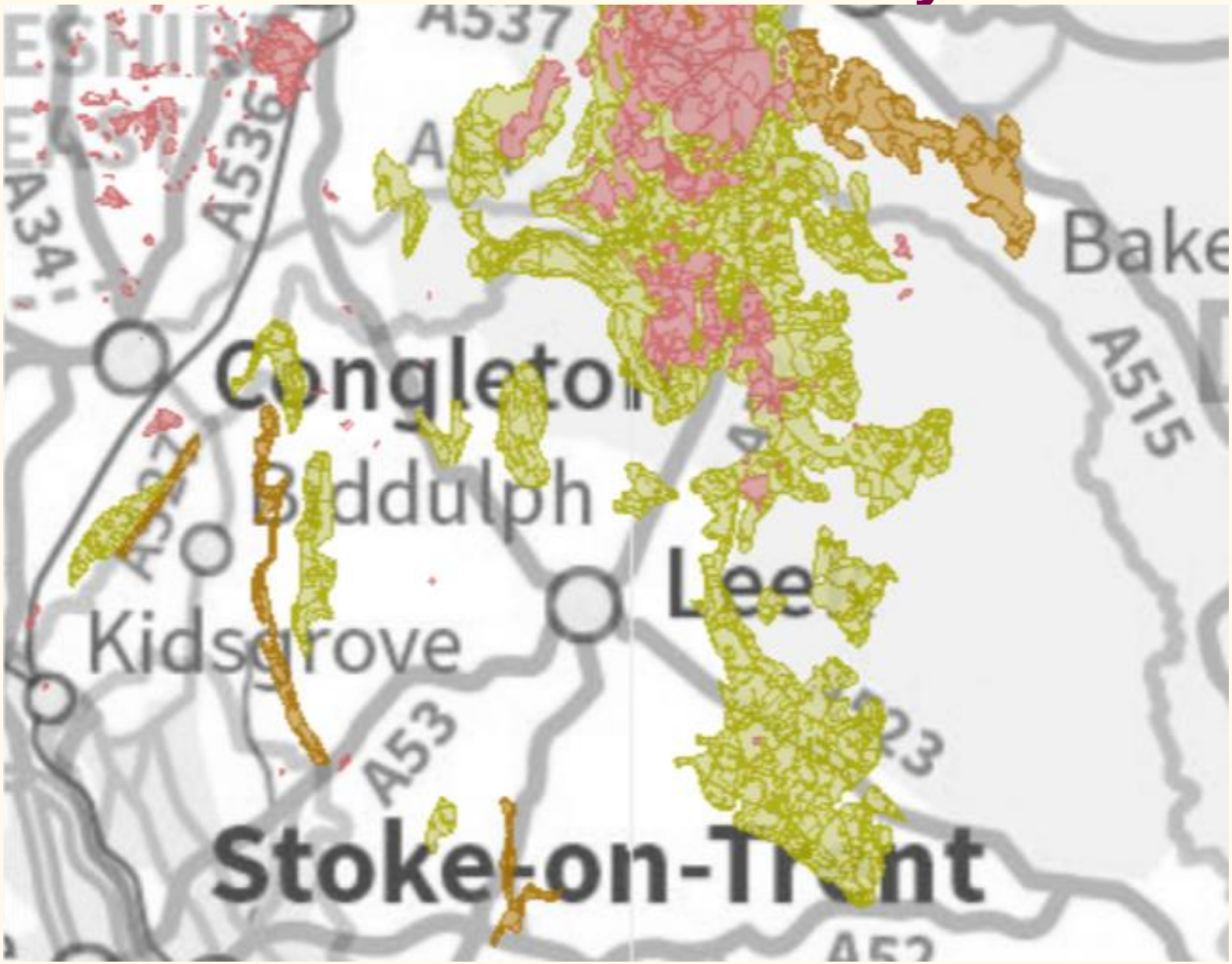
# Why are shallow peatlands important (part II)?

- Shallow peatlands are created by, and sustain
  - Base-rich (alkaline) fens - EN
  - Molinia mires – EN (Temperate and boreal moist or wet oligotrophic grassland)
  - Acidic fens - VU
  - Wet heaths - VU
  - Wet woodlands - VU
- Marsh fritillary, SPB fritillary,
- Snipe, curlew
- Rare mosses

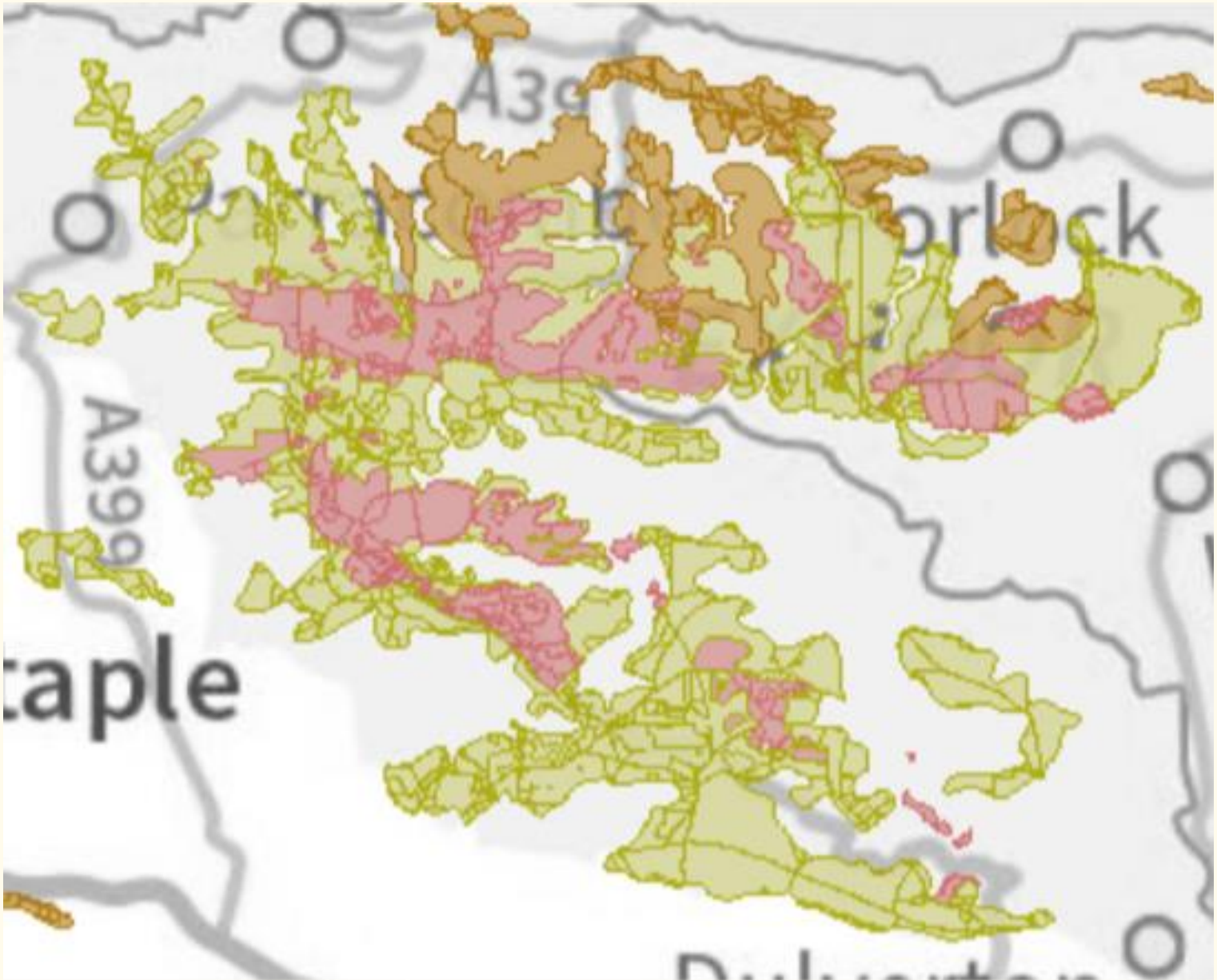
# Summary of organic-rich soils extent (in ha)

| | Shallow peaty or organo-mineral | Deep peaty or organic soil |
|---|---|---|
| England | 738,618 | 679,926 |
| Wales | 359,000 | 70,600 |
| Northern Ireland | 141,700 | 206,400 |
| Scotland | 3,461,200 | 2,326,900 |
| Total | 4,700,518 | 3,283,826 |
| | | (JNCC, 2011) |

# South West Peak – Staffs/Derbys

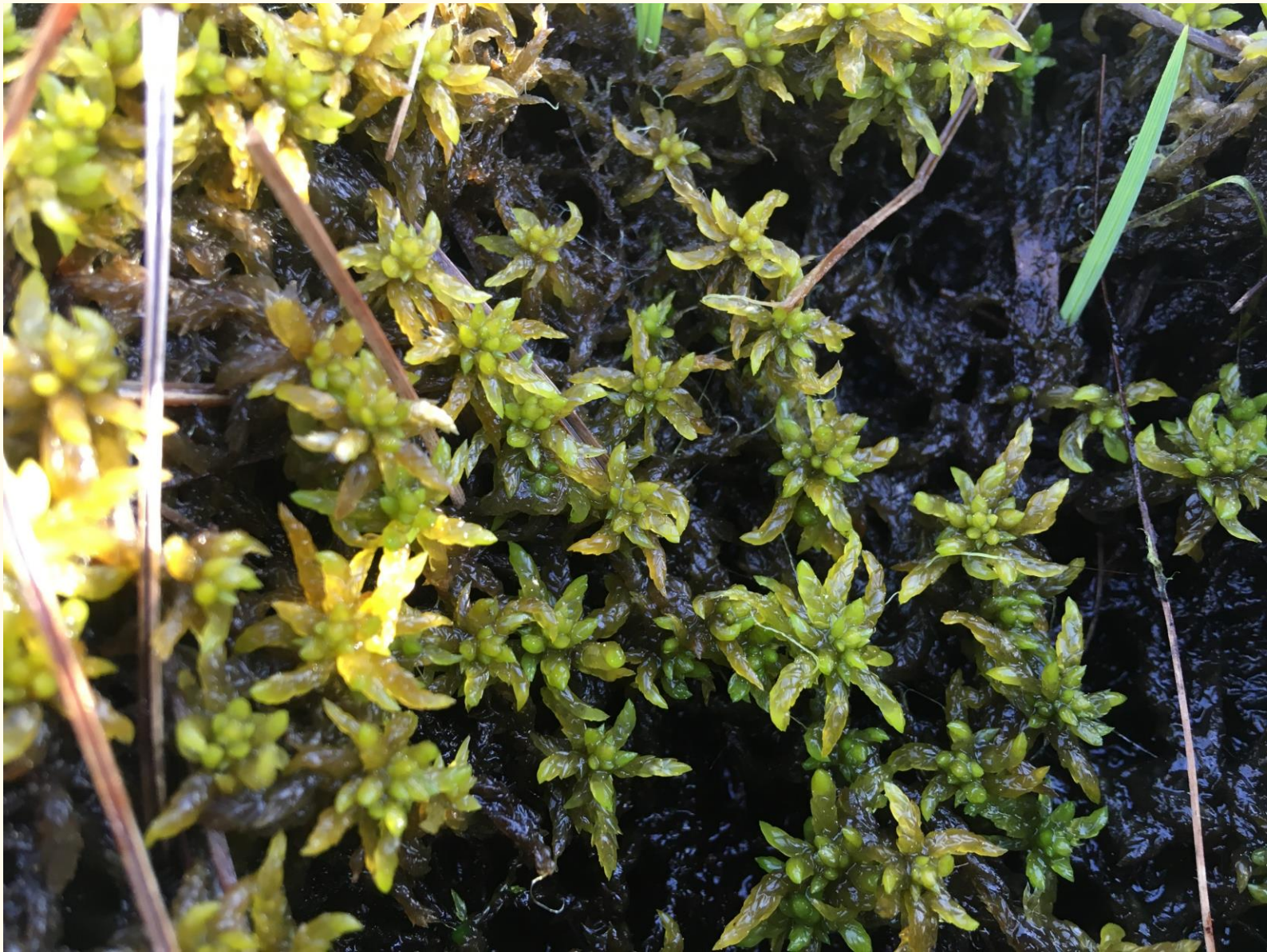


# Exmoor



# *Hamatocaulis vernicosus*

# *Sphagnum platyphyllum*



# Why is ‘shallow’ peat shallow?

**Understanding shallow peatlands**

- There are various reasons for ‘shallow’ peatlands being shallow, both natural and anthropogenic:
  - Topographic, climatic and hydrological constraints on formation of deeper peat
  - Relatively fresh deposits at the outer edge of a larger, growing peat mass that may in time become ‘deep’ peat
  - Peat cutting - which removes some or all of the deposit
  - Other human-induced causes of shrinkage and loss particularly drainage and de-watering, including ditching, pumping, water abstraction, and the effects of trees on or adjacent to already drained peatland, grazing.

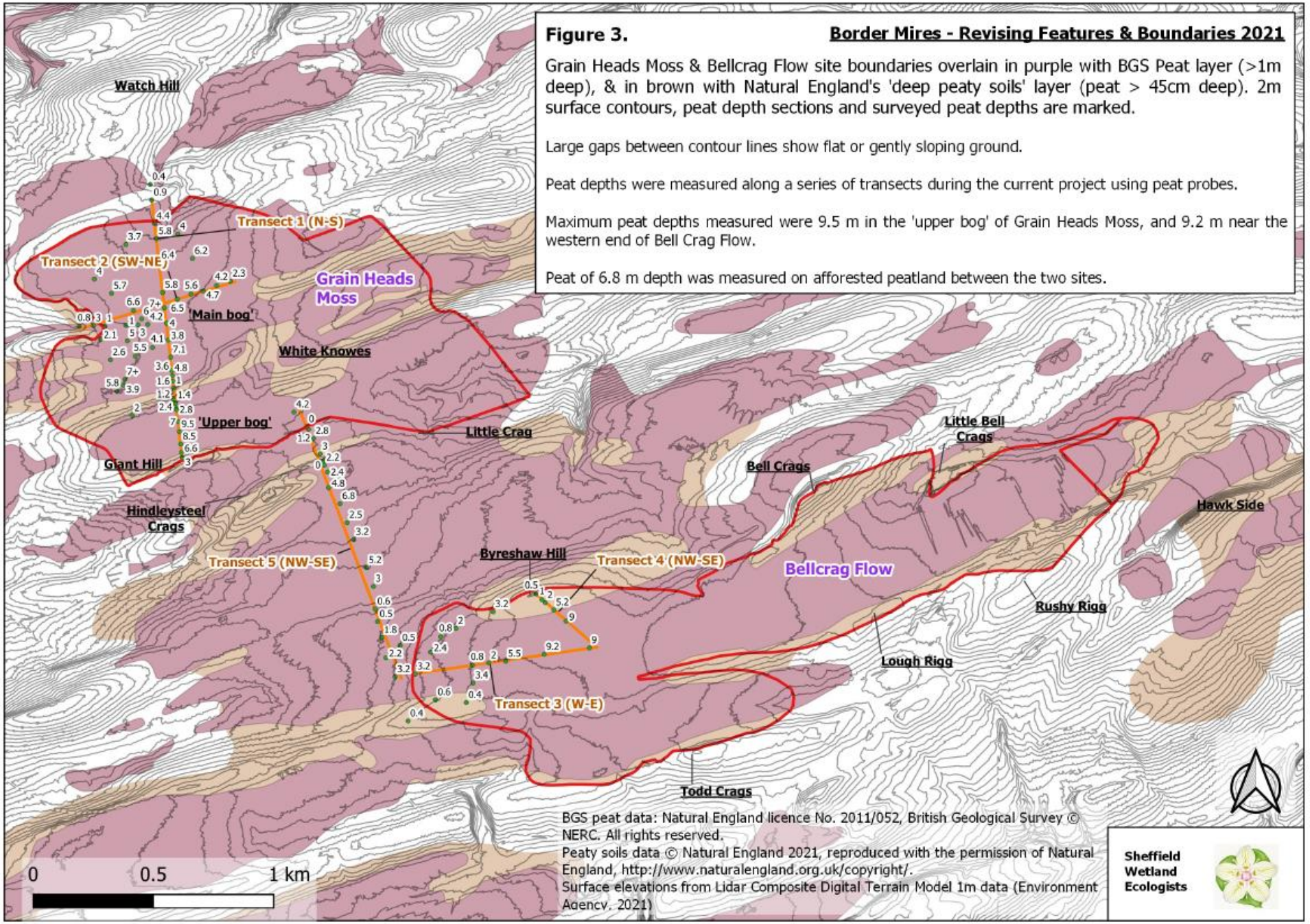



**Figure 3.** **Border Mires - Revising Features & Boundaries 2021**

Grain Heads Moss & Bellcrag Flow site boundaries overlain in purple with BGS Peat layer (>1m deep), & in brown with Natural England's 'deep peaty soils' layer (peat > 45cm deep). 2m surface contours, peat depth sections and surveyed peat depths are marked.

Large gaps between contour lines show flat or gently sloping ground.

Peat depths were measured along a series of transects during the current project using peat probes.

Maximum peat depths measured were 9.5 m in the 'upper bog' of Grain Heads Moss, and 9.2 m near the western end of Bell Crag Flow.

Peat of 6.8 m depth was measured on afforested peatland between the two sites.



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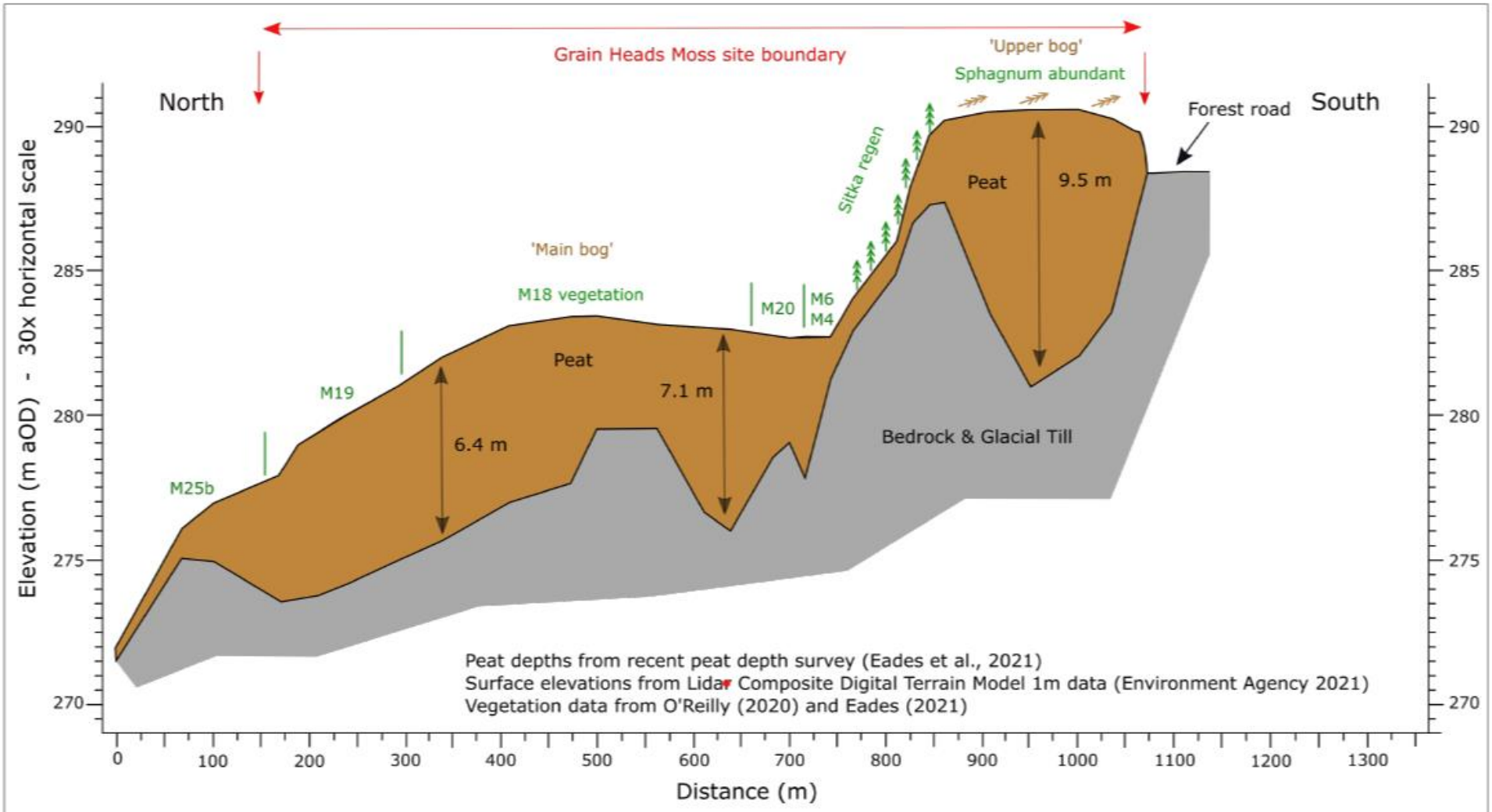


**Figure 4.**
**Grain Heads Moss**
**Peat depth section:**
**Transect 1 (N-S)**

Created: 16 April 2021

Legend

- Peat
- Bedrock & Glacial Till
- Conifers
- Felled conifers
- M4, M6, M18, M19, M20, M25b - NVC vegetation types

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# Shallow peatland on the ground

- Overall, probably in a worse state than deeper peatlands
- Fundamentally, shallow peat should be considered in the same way as any other peatland
- Need biological, hydrological, peat surveys to properly evaluate
- Understand the ecohydrological environment in which the peatland developed
- Is the peatland modified? What are the pressures?
    - Drains?
    - Grazing?
    - Turbary?
- How can these modifications be reversed to restore natural hydrological function?

# ..and where do trees fit in?

- Trees are/would have been a natural component of many naturally shallow peatlands
- Trees can be vital in regenerating stream-mire systems by creating blockages to flowpaths, roots stabilising channel beds etc
- Add structural diversity and complexity
- Add dynamism to the system – e.g. fallen trees
- Understand ecological and hydrological context
- Always seek first to restore hydrological system
- For tree establishment need to consider why, what, where, how and when