



The Moorland Association

## Fact sheet 04: Peatland condition in the UK

### Are 80% of the UK's peatlands damaged?

#### What is the claim?

Many organisations and publications use the statement that 80% of the UK's peatlands are damaged<sup>1-3</sup>. This briefing note looks at the origins of that figure, explores what it really means and considers its relevance to moorland management.

#### Where does the figure come from?

Trying to uncover the original source of this often-repeated figure threw up some surprising findings, and a great deal of uncertainty.

There are three main sources of information regarding UK peatlands that may be used to present a condition estimate, and which are sometimes quoted to support the 80% claim.

1. Two reports from 2011 - one published by the IUCN UK Peatland Programme, and one by the JNCC.
2. Condition reporting for designated areas, such as Sites of Special Scientific Interest (SSSI) or Special Protection Areas (SPA), which should be monitored every six years with an inspection.
3. Habitat classifications based on aerial Land Cover Maps.

The first two of these information sources do not support the claim, and we have significant concerns about the validity of using the third approach in this way.

#### 1. 2011 reports

Many who use the claim incorrectly attribute it to either:

- i) IUCN UK Peatland Programme's 2011 publication "*Commission of Enquiry on Peatlands*<sup>4</sup>".
- ii) Joint Nature Conservation Committee (JNCC) report from the same year entitled "*Towards an assessment of the state of UK peatlands*<sup>5</sup>".

However, neither of these reports is the primary source of the figure. The IUCN report misquotes it from a previous source, and the JNCC report doesn't include it at all.

#### *i. IUCN UK Peatland Programme Commission of Enquiry*

This IUCN report says that the best available evidence suggests less than 20% of the UK's peatlands are undamaged, but it is not work done by these authors. Rather, it cites information from one of the feeder reports they commissioned on peatland biodiversity<sup>6</sup>, which itself refers to a previous paper.

The biodiversity report<sup>6</sup> accurately repeats their figure from a paper published in 1998<sup>7</sup>, presenting the information that:

- only 18% of **blanket mires** in the **British Isles** remain in a relatively natural state

However, this is then misrepresented in the IUCN Commission of Enquiry report as:

- less than 20% of the **UK's Peatlands** are undamaged

Blanket mires in the British Isles are not the same as the UK's peatlands. Peatlands consist of many more environments than blanket bog alone, and the UK doesn't include the Republic of Ireland, which the original paper did, so the figure is incorrect on both fronts.

#### *Tallis 1998*

Looking further back to examine what seems to be the original source of the claim, one has to read the 1998 paper entitled "*Growth and degradation of British and Irish blanket mires*".

This is a 43-page review of what blanket mires are (now more commonly known as blanket bog), their history and distribution, classification, present-day plant cover, hydrology and management practices, threats, biodiversity and so on. It was a comprehensive summary of the author's understanding of blanket bog at the time. The section of this paper dealing with the state of blanket mires in 1998 takes up less than half a page (reproduced below), which made general estimations of the amount of certain kinds of peat in different conditions, and assumed that represents blanket peat across the whole of Britain and Ireland.

Tallis also discussed the terminology of peat condition in his review paper. Even amongst ecologists he surveyed, there was disagreement regarding important terms such as "degraded". To help address this confusion, he recommended that areas of semi-natural blanket bog without obvious signs of damage or erosion should be regarded as "*modified* from

the supposed natural or near-natural state”. The paper also states that a pragmatic view regarding **active** blanket bog (ie. Retaining the capacity to form peat) should be that all areas predominantly covered with certain vegetation communities should be considered active. Modified, heather-dominated peatland areas usually fall into one of the categories included – called “M19 *Calluna vulgaris* – *Eriophorum vaginatum* blanket mire”. Tallis recommended the use of three terms “damaged”, “eroded”, and “modified” to describe different situations, but in recent years those semi-natural areas that were considered modified but active now seem to be included with damaged/degraded.

#### **11.1. The current state of blanket mires**

Blanket mires are an important and often dominant component of the landscapes of northern and western Britain, and a natural resource that is currently utilized in a variety of ways (Section 1). Some **very tentative estimates** about the overall state of that resource in the British Isles can now be made from the data presented in Sections 7 and 9, though the incomplete peat inventory for Scotland in particular makes **any conclusions highly speculative**.

(1) Afforestation currently affects ca. 350,000 ha of blanket mire in the British Isles and peat cutting affects ca. 250,000 ha (Section 7).

(2) The extent of eroded peat is probably at least 350 000 ha (Section 9).

(3) The extent of natural/near-natural blanket mire in Wales is ca. 20,500 ha (Yeo 1997) and in the Republic of Ireland is ca. 128,600 ha (Foss and O’Connell 1996). If the same proportion of the total blanket mire resource (17.5%) is assumed to apply to Scotland, England, and Northern Ireland, then for the British Isles as a whole, natural/near-natural blanket mire must occupy ca. 400,000 ha.

(4) The extent of modified blanket mire, used either as sheep walk, grouse moor, or deer forest, is thus, by subtraction (Table 1), likely to be of the order of 900,000 ha.

**Clearly, a very substantial potential error must be attached to this value.**

(5) The total extent of statutorily protected blanket mire sites in the Republic of Ireland and Northern Ireland (Foss and O’Connell 1996) is ca. 38,900 ha (4.3% of the total mire resource). Values are not easily available for England, Wales, and Scotland, but the overall figure for the British Isles is unlikely to exceed 100,000 ha.

Reproduced from Tallis, 1998, p. 109

The author clearly states that the numbers he offers are “tentative estimates”, that “conclusions are highly speculative”, and that the value he offers has “a very substantial potential for error”. However, this estimate was then referenced and reinforced through a series of reports on peatlands during the 2010s and became generally accepted as a robust and accurate figure reflecting peatland condition, way beyond what it appears the author himself felt appropriate. Although the research trail does lead to a suggestion that under 20% of blanket mire in the British Isles were in a “Near Natural” condition over 25 years ago, that was never claimed to be authoritative, and is not a reliable, relevant figure today. This source should not be used to support the 80% claim.

## ii. JNCC 2011 assessment of the state of UK peatlands

The 2011 JNCC report was aptly titled when described as “towards” an assessment of the state of the UK’s peatlands. This acknowledges the many difficulties in providing such an assessment, and although the report draws on various data sources to try and identify the extent, location, usage, and condition of peatland across the UK, it is very clear that the available information is limited, with the following statement concluding their summary at the beginning of the document:

*“There are still insufficient data and information to provide a definitive overview of the state of the UK’s peatland resource as a whole.”*

This report does not support the claim that 80% of the UK’s peatlands are degraded, and should not be used as such, but it is very useful in highlighting the uncertainties and difficulties with providing an assessment.

## 2. Designated area condition reporting

Although the JNCC report doesn’t offer a simple overall statement for the proportion of peatland in a given condition, it does include the table below, presenting the most up to date information at that time for reporting from designated peatland sites such as SSSIs and SACs. Every six years, all EU member states are required to report on the condition of their designated sites. To comply with this, when the UK was in the EU, the JNCC submitted a Habitats Directives Report for habitats and species, which are supposed to have been assessed by site visits.

The following results are given for blanket bogs, which are the most relevant to moorland management of the habitats considered. This suggests that at least half of designated areas on blanket bog are in favourable condition - a much more positive picture than below 20% - although there are clearly still improvements to be made.

Category	Favourable	Unfavourable - recovering	Unfavourable	Destroyed
Blanket bog SSSI/ASSI	58%	15%	27%	0%
Blanket bog SAC	45%	14%	39%	2%

Table 1. Condition data for upland blanket bog protected areas included in “Towards an assessment of the state of the UK’s peatlands”, JNCC 2011.

Despite presenting these figures, the authors focused on the difficulties of carrying out a meaningful assessment of UK peatlands, highlighting the limited information, sparse surveillance and monitoring schemes, different classifications, and lack of data.

This framework of assessing site condition regularly and reporting the findings would provide very useful information for our designated sites, were it a working system. However, our research looking at the last inspection dates for many designated areas in the uplands finds inspections are overdue on 76% of sites as they have not been visited for more than six years, and 72% for more than ten. The manager of one site we spoke to said there has never been a visit from a Natural England inspector.

The most recent full submission available for UK blanket bog was in 2019, when we were still an EU member<sup>8</sup>. It draws on many different sources of information, but the overriding impression is one of limited data. When describing the method used to calculate each parameter for blanket bog, the descriptor “*Based mainly on extrapolation from a limited amount of data*” appears multiple times.

Many academics are concerned about this approach of categorising peatland into a limited number of specific but very broad categories. The foundation of the assessments is Natural England’s “definition of favourable conservation status” guidelines<sup>9</sup>, which are (as per the Land Cover maps discussed below) based on the presence of vegetation or evidence of management, rather than a functional assessment of the ecological ‘health’ of the peatland.

There are considerable criticisms of this guideline document, which uses a one-size-fits-all pass/fail approach, but does not consider important differences between peatland areas. Because of variation in climate, landscape etc, some areas naturally have the potential to be wetter than others, but this fundamental characteristic is overlooked at present and where vegetation reflects drier conditions, it is considered evidence of damage due to management. An alternative approach based on (a) whether an area of peatland is functioning and (b) measurable indicators of whether its condition is improving or declining has been proposed and we feel that would be a more appropriate system.

Very recently, an updated submission has been partly published for the years 2019 – 2025<sup>10</sup>. However, changes in the reporting framework mean that the information will be presented separately for the four countries in the UK, and not all the new information is yet available. The overall status of blanket bog in England is assessed as ‘unfavourable inadequate’, with a deteriorating trend, and in Wales as ‘unfavourable bad’. The information for Northern Ireland and Scotland is still lacking. Concerningly, the data and criteria upon which these habitat assessments are based has not been published to date, so we cannot yet know whether the information it uses and provides is more robust than that from the 2019 submission.

Carrying out site assessments is a huge challenge, especially in remote upland environments, but without recent, robust condition data, accurately reflecting peatland function, it is very difficult to have a reasonable picture about how our peatlands are faring. Therefore, using this to justify any generic statements informing policy is not valid.

### 3. Land Cover Map information

Land cover maps are published every few years by the Centre of Ecology and Hydrology, and are produced by classifying satellite images of the land surface. The most recent uses images from 2024, but reports on this subject utilise earlier versions.

The resulting classifications are based entirely on what is visible from the imagery, without any on-the-ground information about the condition or ecological functions of an area.

#### *What does the LCM show?*

UK peatlands cover many different habitats and areas under a variety of land uses. These include the blanket bog and heather moorland that moorland managers are most familiar with, but also woodland, cropland, grassland and many others. Most of the UK's peat is not found under heather moorland, yet the phrase "80% of the UK's peat is damaged" is frequently used to imply or support the assumption that moorland management is responsible for this claimed damage.

The chart below shows findings from a 2017 report using LCM data<sup>11</sup>. If we accept these classifications, the habitat most relevant to moorland managers is "Modified, heather-dominated". Only approximately 23% of UK peatlands fall into this category. The vast majority is under other management:

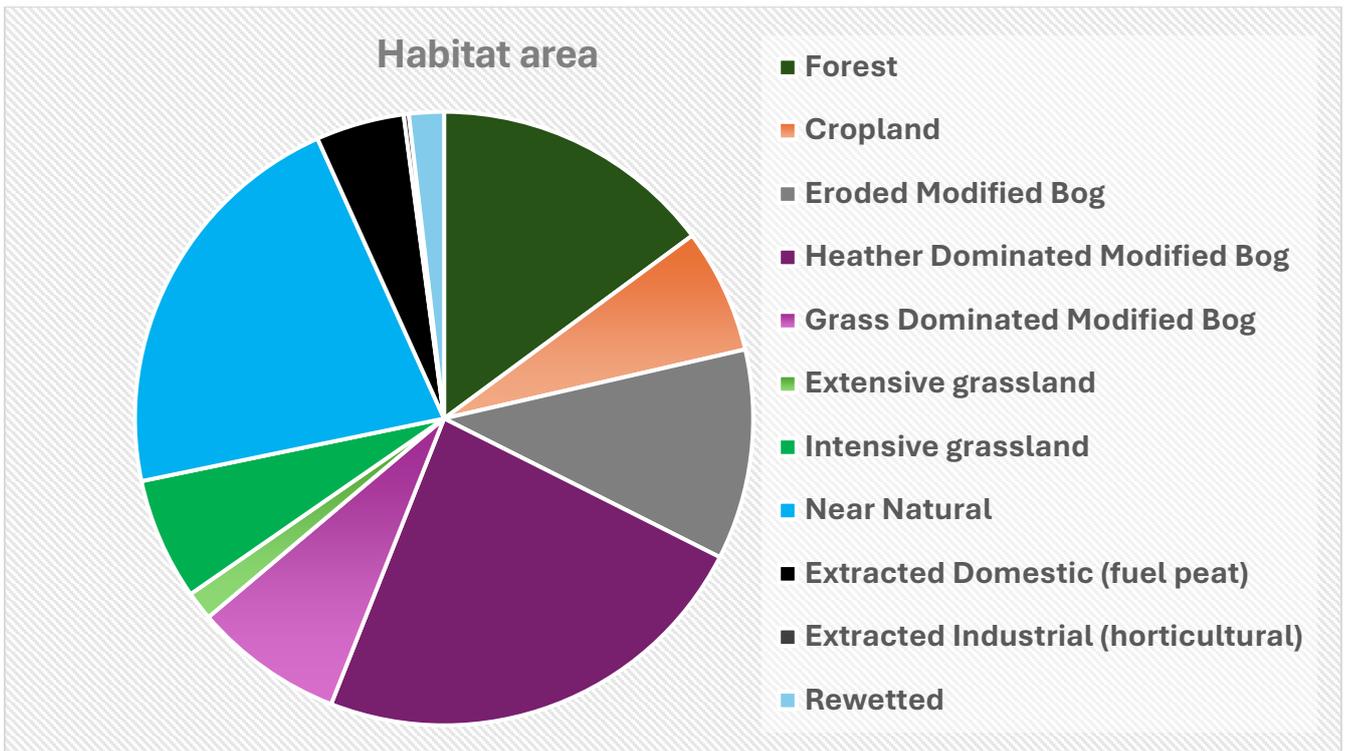


Fig 1. Percent of UK peatland classed in different habitat categories by area

Using this sort of data to determine whether or not peatland is “damaged” is a blunt tool. It is considered by many experts to be unscientific and unevidenced, but is often used. Under that approach, only areas that are considered Near Natural, or sometimes Rewetted, are considered undamaged. All other areas are automatically considered “damaged”.

For heather moorlands on blanket bog, the fact of heather being the dominant species, along with evidence of management, means these areas are considered Modified and assumed to be “damaged” but there is no strong evidence base linking these features to poor ecological function that would justify this assumption.

Publishing the habitat proportions is not the end of the story for this report, in fact it was not even the main focus. The study actually looked at the likely greenhouse gas (GHG) emissions from UK peatlands as a whole, and used the land cover categories described above to guide their GHG estimates.

Although peatland areas were assigned to these categories based only on their visible vegetation cover/evidence of management, rather than an assessment of ecological condition or function, in general GHG emissions from peatlands do tend to correlate with the ‘health’ of the area. More damaged, degraded or eroded peatlands release more GHGs than those which are functioning better. Pristine or near intact areas can be expected to take up more carbon and release less GHG, leading to an overall ‘take up’, although uptake rates can be rather small<sup>7,11</sup>.

The results of the 2017 study demonstrate that the estimated GHG emissions for different categories do not relate to the area that those habitats cover – some habitats release a much greater percentage of total peatland GHGs compared to the proportion of area they cover, and some release much less.

For example, cropland covers only 7% of the UK peatland resource but releases 33% of its total emissions – five times more emissions than the proportion of area that it covers. The following graph shows the percentage area and percent emissions for each peatland habitat type:

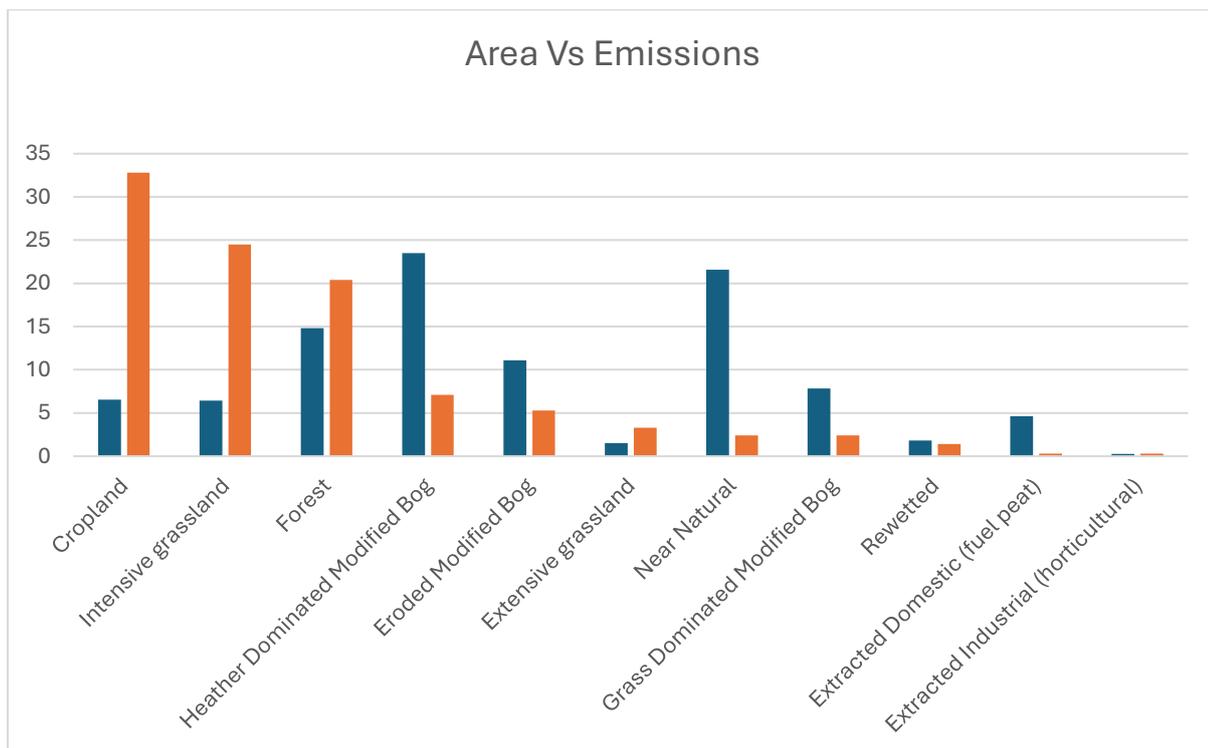


Fig 2. Percent of total peatland area (blue) and estimated GHG emissions (orange) for each habitat type

Looking at the area of the different habitats and their GHG emissions, it is clear that areas of “*modified, heather dominated*” peatland produce much less GHGs than may be expected. Twenty three percent of peatland supports modified, heather dominated bog, but it releases only seven percent of the total peatland emissions – less than a third of its proportional area. Peatland under almost every other land use contributes a greater proportion of GHG emissions compared to their area.

We can use this information to understand whether each habitat is releasing more or less emissions than the proportion of peatlands that it covers by calculating an “Emissions Ratio”, as shown in the following graph, where a ratio of one shows that the area covered and the emissions released are equivalent.

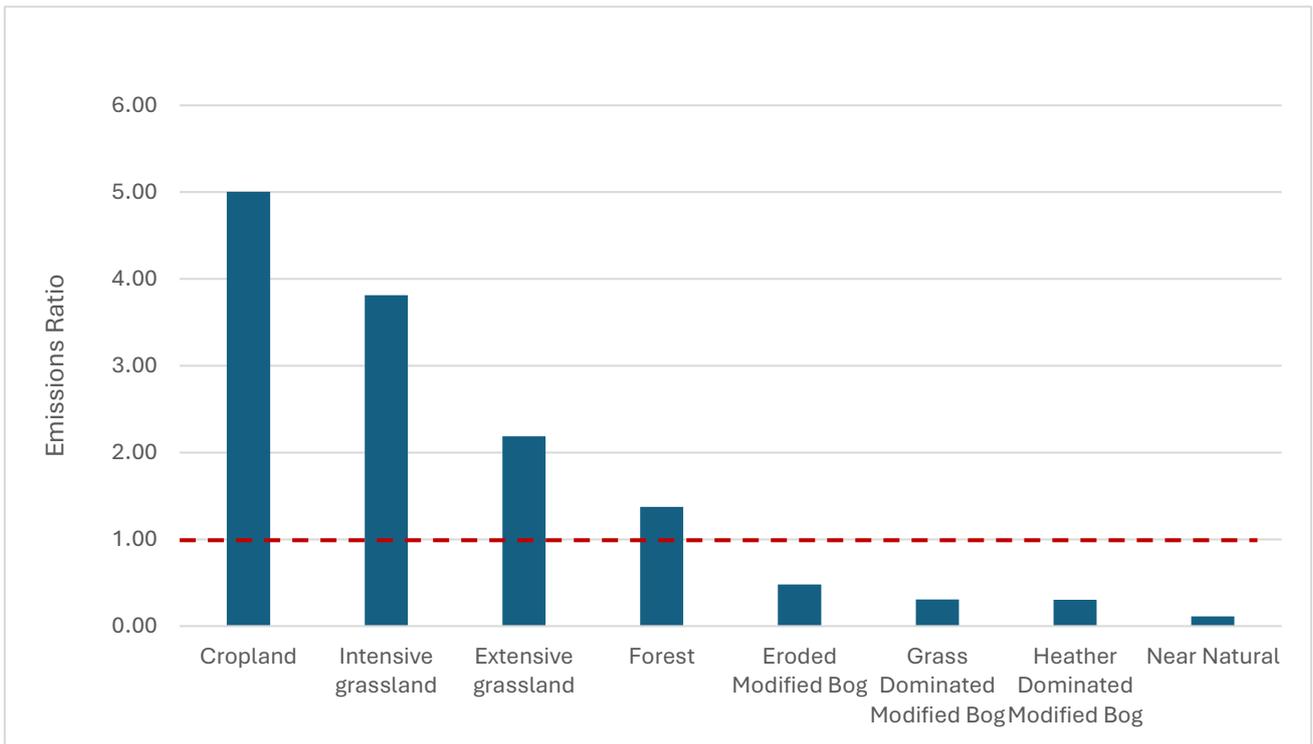


Fig 3. Ratio of percent of total peatland emissions to percent of peatland area for habitat type (any category accounting for 1% or less of either emissions or area has been excluded)

Those habitats with a ratio above one, namely Cropland, Grasslands, and Forests, are punching above their weight in terms of GHG release compared to area. Those that release less than their area have a ratio below one. This suggests that Modified Heather Dominated Bog is second only to Near Natural areas of blanket bog.

This analysis suggests that focussing on those habitats that are releasing larger proportions of the UK peatlands emissions may be beneficial for reducing overall GHG emissions. It is of course important to minimise GHG emissions from all possible sources however, and further reductions from all habitats should be the aim. Total GHG emissions are heavily influenced by the area of each habitat and as there are large areas of semi-natural blanket bog, we agree that it is important to reduce these where possible. However, it is imperative that this is balanced with the increased risks of calamitous GHG release resulting from wildfires, which are likely to increase as management policy leads to increasing fuel loads.

If we accept this classification approach to understanding peatland condition (which we believe has fundamental flaws), 23% of UK peatlands assessed in 2017 were either Near Natural or Rewetted, therefore the remaining 77% would be considered damaged. Most of this peat (over two thirds of that 77%), and the heaviest GHG contributors, is damaged because it has been used for forestry, or completely transformed into grassland or farmland. The semi-

natural areas of modified, heather-dominated bog make up less than a third of that 77% and contribute very low levels of GHGs.

## Conclusion

**Q: Is 80% of the UK's peatland damaged?**

**A: We don't know**

Almost all publications in this area discuss the limited information, lack of monitoring, and general unreliability of our knowledge about peatland condition. This demonstrates the fundamental problems faced by those trying to understand how UK peatlands are faring, and whether efforts to restore them are working.

Of the three information sources discussed here, the first two do not support the 80% claim. If we accept broad estimates using the Land Cover Map data, just under 80% of UK peatland would be considered damaged, but we have fundamental concerns about this approach. The classification system does not include any on-the-ground assessment of condition or ecological functions, it relies entirely on vegetation and management indicators visible from satellite images, assuming areas that are dominated by heather have been modified, and that heather cover and its management is damaging. We (and several scientific publications) disagree with this approach and statements and will address these issues further elsewhere.

We believe that an area can be functioning in terms of accumulating peat and providing the various ecosystem services that are associated with healthy peatland such as carbon uptake and storage, clean water and rich biodiversity, whilst under suitable heather management. For example, when carried out in appropriate circumstances, controlled burning has been shown to be compatible with these characteristics, crucially while reducing the risk of wildfire – a much greater threat to habitats, biodiversity, water quality, and GHG emissions. The evidence base does not support many long-held beliefs about the damaging aspects of such heather management<sup>12</sup>.

Furthermore, even the limited condition assessments that are occasionally carried out on peatland for designated areas do not take into account the *function* of that peat habitat, rather they also focus predominantly on the vegetation present, sometimes considering the hydrology of the area, and assume indications of management to be damaging (e.g., evidence of fire)<sup>13,14</sup>.

There are many challenges to this system, not least what many academics consider to be flaws in the definition of Favourable Conservation Status. However, using the limited data that is available from this source (as per the JNCC 2011 report), it is in fact likely that closer to half of designated peatland areas are in favourable condition.

One fundamental difficulty faced by those managing areas of upland peat is the general assumption that all blanket bog is the same and can or “should” look a certain way. The imagined ideal condition is one in which the water table is at or near the surface year-round, that the ground is so wet that heather cover should naturally die back, and that *Sphagnum* mosses should be plentiful everywhere. However, not all areas of blanket bog are the same, and there are considerable differences in their natural potential for wetness. Despite maximal rewetting by the reversal of drainage, or in some cases where drainage has never been implemented, some peatlands are naturally drier and cannot reach the very high water table levels that are held up as the ‘gold standard’. This is discussed at length in various scientific publications<sup>12,15</sup>, but often appears to be ignored. Essentially, while some peatland areas function like a “soup bowl” – an area that holds the rain which falls on it and surrounding areas, others function like a “leaky slope” – where this rainfall is naturally not retained as well and therefore water tables are lower. Given the climatic changes seen in recent times, more extreme weather such as summer droughts etc, it is no surprise that modern conditions may result in lower water tables than have been seen in the distant past. Finally, there is no evidence to support the assumption that if water levels are raised, heather will die back sufficiently everywhere so that it is no longer dominant in the vegetation<sup>12,14</sup>. We believe that the widespread adoption of such an approach at the expense of heather management is a dangerous strategy, further increasing fuel loads and the already higher likelihood of severe wildfire.

The most consistent opinion expressed in almost all publications in this area is that the information on peatland extent and condition is simply not good enough to draw reliable conclusions. We don’t have a robust enough system in place to monitor our peatlands and their functions, particularly those in the remote upland areas, to be able to confidently estimate their condition. Therefore, we strongly suggest it is inappropriate and misleading to continue repeating the claim that 80% of UK peatland is damaged, and those references here shown to be inaccurate should not continue to be cited in this way. Such general statements are not supported by robust evidence and are being misused in opinion presented as facts.

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