

Annex 1 – Position Statement: Interventions for restoration of upland blanket bog

A framework to assist Natural England's decision-making

This purpose of this guidance is to clarify the exceptional circumstances where burning and other interventions may be considered for the restoration of blanket bog. It is designed to assist Natural England in deciding whether or not consent for such burning or other interventions should be given. It is not a prescriptive set of pass/fail criteria and cannot be applied automatically, as it is impossible to summarise in a table all possible circumstances and factors that may need to be considered.


This framework identifies circumstances under which management may be considered necessary to accelerate restoration of blanket bog habitat when a trajectory towards favourable condition is impeded, including the use of one-off burning for restoration purposes. It provides more detail relating to the scenarios described in the position statement, and will be used to help in our Habitats Regulations assessments – it sets out factors relating to current management, vegetation composition, condition or 'state' of the bog, hydrology, trajectory of habitat recovery and monitoring, whether management is appropriate, and whether there are sensitive features present.


This decision-framework is colour-coded as follows:



- Red – where restoration management actions that are not burning management, such as hydrological restoration, may be required for the purposes of the Habitats Directive.
- Green – where restoration management may be appropriate if it is necessary to the management of the site for the purposes of the Habitats Directive.
- Amber – circumstances where restoration management may be appropriate if, following a programme of monitoring and evaluation, it is necessary to the management of the site for the purposes of the Habitats Directive

A key to terms used in the table is provided at the end.

Appropriate Management	Vegetation composition	Vegetation composition	Vegetation composition	Vegetation composition	Vegetation composition	How Active is the Bog?	State of Hydrology	Direction of change	Is management appropriate?? Will it facilitate a functioning blanket bog system with structural and vegetative diversity?	Are sensitive features present?
	<i>Sphagnum</i>	Feather mosses	Cotton-grass or purple moor-grass	Heather	Other Dwarf Shrubs	Active Unmodified)/Active (Modified)/less active			Possible Future Actions (in order): Measures to restore hydrology One-off cut for restoration One-off burn for restoration <i>Sphagnum</i> inoculation Monitor change	<i>Sphagnum</i> carpets or hummocks, flushes with rushes/sedges, wet hollows, pools, watercourses and springs (within 10m), hagsgs and erosion gullies,
Grips and gullies not blocked or grazing excessive or burning within the last 10 years	n/a	n/a	n/a	n/a	n/a	Active (Modified)/less active	Drains / gullies active	No change or declining	Management required Block grips and gullies – restore hydrology Establish sustainable grazing regime Monitor change in water tables and vegetation response. Once vegetation stabilizes re-evaluate.	
Grips and gullies blocked recently or suitable grazing established recently, no burning for at least 10 years	n/a	n/a	n/a	n/a	n/a	Active (Modified)/less active	Active drains and gullies blocked but vegetation has not had time to respond	Re-wetting in progress but vegetation response incomplete	Monitor change in water tables and vegetation response. Once vegetation stabilizes re-evaluate.	

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Grips and gullies blocked, sustainable grazing in place. No recent burning.	Frequent, common or abundant Often forming carpets or hummocks Usually multiple species present	Absent or with low cover	Cotton grass Common or Abundant Purple moor-grass rare	Present but not dominate Open canopy Usually less than 50% cover and less than cotton-grass	May be present May include: Cross leaved heath Crowberry Cowberry & Bilberry	Active unmodified Bog) STATE 6 	Intact with all measures already in place No active drains	No Change or Stable	Not required	Yes Active Blanket Bog is a sensitive feature which does not require active management <i>Sphagnum</i> carpets or hummocks, pools , wet hollows

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Grips and gullies blocked, sustainable grazing in place. No recent burning.	Occasional or Infrequent Carpets or hummocks are absent	Occasional	Cotton-grass Frequent to Abundant Purple moor-grass rare	Abundant	May be present	Active (Modified) (Peat forming) STATE 5 	Intact with all measures already in place No active drains	Trajectory of habitat condition uncertain <i>Sphagnum</i> cover increasing Condition good or improving	May exceptionally be appropriate, but unlikely as the habitat may be moving towards State 6 without management. Monitor and re-evaluate. To detect no change or a decline at least two surveys would be required at about five yearly interval. As a minimum a rapid decline may be detectable with two surveys over a three year period.	Avoid management of sensitive features

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Grips and gullies blocked, sustainable grazing in place. No recent burning.	Occasional or Infrequent Carpets or hummocks are absent	Occasional	Cotton grass Frequent to Abundant Purple moor-grass rare	Dominant	May be present	Active (Modified) (Peat forming) STATE 5  or STATE 3 	May have hydrological issues	Monitoring evidence demonstrates that the blanket bog is becoming less active and or Condition declining	May contribute to restoration IF monitoring demonstrates that natural recovery has stalled ie that heather remains dominant and <i>Sphagnum</i> remains occasional or is declining (see Annex 2). A one-off cut or burn for restoration purposes and <i>Sphagnum</i> \Cotton-grass inoculation\seeding may be appropriate IF all other issues have been addressed and after sufficient time, it is considered that natural succession to the characteristic vegetation of an unmodified blanket bog is being impeded. Sufficient time must be allowed for recovery since previous management actions and to be certain that vegetation response is not simply due to the heather cycle. Cutting is a first option but burning could be used where cutting is not practical. Careful consideration of the context and relative extent of blanket bog in different states that may influence the trajectory of the area in question is required. You should discuss this context with the estate when deciding how this applies. Consideration of local topography, slope and hydrology will also be required. Monitoring evidence to show that vegetation change indicates that the bog is not improving in condition will be required and comprehensive monitoring of the effects of management carried out (see Annex 2) Check that hydrology is restored and that there is no artificial drainage Remove heather canopy by one-off cutting or burning, aiming to reduce heather dominance Re-introduce <i>Sphagnum</i> Record starting conditions, decision making and action taken Monitor success, repeat inoculation if <i>Sphagnum</i> is not colonising the area	Avoid management of sensitive features

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Grips and gullies blocked, sustainable grazing in place, no recent burning	Absent or occasional If only <i>Sphagnum fallax</i> is present then consider <i>Sphagnum</i> absent. Note - correct identification of <i>Sphagnum fallax</i> is critical – check if unsure.	Frequent	In heather dominated stands cotton-grass and purple moor-grass may be present but sometimes just a few strands. Some areas may have dominant cotton-grass or purple-moor-grass	Dominant, usually with a dense, closed heather canopy often more than 30cm height. Where cotton--grass or purple-moor-grass are dominant, ie State 4, heather may be rare	Absent to Occasional	Less active (Modified) (very limited peat formation) May be stable or with heather density increasing STATE 3  Or state 4.	May have hydrological issues but all obvious improvements have been made and time allowed for vegetation to respond. Appropriate techniques for improvements can be trialled	Currently less active No Change May be stable or with heather density increasing.	Restoration management may be appropriate Remove dominant heather one-off cutting or burning, aiming to open the canopy to facilitate <i>Sphagnum</i> introduction Cutting is a first option but burning could be used where cutting is not practical. Dominant cotton-grass or purple moor-grass could be cut to create open conditions Re-introduce <i>Sphagnum</i> and other blanket bog species where they are absent Record starting conditions, decision making and action taken Monitor success, repeat inoculation if <i>Sphagnum</i> is not colonising the area	Avoid management of sensitive features

Key to terms used in the table:

Braun-Blanquet symbol	Description	Familiar Term
0	Not present within the area	Absent
r	Very rare and with negligible cover (usually a single individual)	Very Rare
+	Present but not abundant, with a small cover value (<1% of the quadrat)	Rare
1	Numerous but covering less than 1% of the quadrat, or not so abundant but covering 1-5% of the quadrat	Occasional
2a	Covering between 6-12% of the quadrat, independent of abundance	Infrequent
2b	Covering between 13-25% of the quadrat, independent of abundance	Frequent
3	Covering between 26-50% of the quadrat, independent of abundance	Common
4	Covering between 51-75% of the quadrat, independent of abundance	Abundant
5	Covering between 76-100% of the quadrat, independent of abundance	Dominant

Note 1: Typical Blanket bog

Typical (characteristic) vegetation of blanket peat masses includes NVC types M1, M2, M3, M15, M17, M18, M19, and M20. The variation in vegetation community reflects the varied topography of blanket peat masses (e.g. slopes, flat areas, hummocks) and this variation is reflected at micro and macro scales. Rodwell (1991) draws a key phytosociological distinction between these types and other mire types: “at least some *Sphagna* constant and often forming an important structural element in the vegetation” (Rowell, 1991, p31). The descriptions of these various communities recognises that species such as heather, purple moor-grass and cotton-grasses are naturally occurring constants that can occur at high cover. These are plant communities in which specialised plants often occur at low frequency within the community matrix.

Sphagnum species are recognised ‘cornerstone’ species of blanket bog vegetation communities. Within the framework for appropriate restoration burning interventions and the monitoring of blanket bog recovery, *Sphagnum* species are a proxy for the bio-physical ecosystem services and characteristic flora communities: they represent more than themselves and the whole vegetation community should be considered.