

Uplands Management Group

Blanket Bog Restoration Monitoring Task & Finish Group

Summary of Responses to Questions

Questions:

- 1 [What blanket bog features need to be monitored?](#)
- 2 [What is already being monitored, and with what equipment/techniques?](#)
- 3 [What monitoring are practitioners willing and able to carry out?](#)
- 4 [What platform can all the data be stored and shared on to be most useful?](#)

SUMMARY OF RESPONSES TO QUESTIONS

1 What blanket bog features need to be monitored and how frequently?

- 1.1 It was agreed that it is fundamentally important to agree objectives for monitoring from the outset.
 - 1.1.1 Is the purpose: 1) compliance, 2) audit trail, 3) scientific research, or 4) mixture of all, or some, of these issues.
 - 1.1.2 It was also suggested that one of the aims of monitoring should be to permit land managers to prove the hypothesis that intervention improves bog quality.
- 1.2 Monitoring should establish where progress has got to along the trajectory towards better blanket bog condition
 - 1.2.1 The planning process should set milestones on the trajectory to encompass regional variation.
 - 1.2.2 It may also be appropriate to consider adapting the process to take account of local variations in management and the condition of the blanket bog.
- 1.3 A second fundamental point is that the requirements for monitoring must be achievable with the resources of time and experience available.
- 1.4 A wide range of views were expressed about what should be monitored, but some of the more technical monitoring could only be carried out by trained researchers.

- 1.5 A view was expressed that there may need to be a different approach in different areas or on different types of site. There may be a need to trial a range of monitoring approaches, possibly in different parts of the uplands, to establish what works best.
- 1.6 There was a consensus about measuring: peat shrinkage & expansion, peat moisture, water table and vegetation cover. Of these, water table as the most important feature to monitor as a high water table is essential for *Sphagnum* growth.
- 1.7 Some discussion took place about the use of dip wells to measure water table depth but a clear protocol would need to be developed for the number of dip wells and the period for monitoring them.
 - 1.7.1 To obtain meaningful data, quite intensive monitoring might be required during the monitoring period.
 - 1.7.2 It might not be necessary to monitor the dip wells throughout the year and this would reduce the manpower requirement.
- 1.8 Monitoring the water repellency of the peat was also suggested by several people. This was referred to as the ‘baked bean can test’: recording the time for water to soak out of a standard container placed on the peat surface.
- 1.9 Conclusions
 - 1.9.1 Currently, the objectives for monitoring are not clear; they need to be agreed.
 - 1.9.2 The proposed monitoring regime must be achievable with available resources.
 - 1.9.3 Some trials should be carried out.

2 What is already being monitored and with what equipment?

- 2.1 Research at Moor House NNR has been running for over 50 years. Many scientific papers have been published.
- 2.2 A wire method for measuring the growth of *Sphagnum* was developed by Simon Smart and the technique was described in a paper by R S Clymo. (Clymo, 1970)
- 2.3 Chemical assessment of peat core is a possible way to obtain information and offers potential for longer term monitoring. This might be possible to do for a single site but time and cost would limit large-scale use.

- 2.4 Discussion took place about the amount of monitoring that took place and whether it would be possible to monitor a representative sample of moors across a geographical and climatic range, possibly with one site on each SSSI.
- 2.5 This would reduce the risk of rash and sloppy results which would tend to increase as monitoring becomes a burden. Also, the monitoring could be targeted on land where there is enthusiasm and capability to carry out effective monitoring.
- 2.6 A two-tier approach – core & peripheral – might be beneficial. A simpler protocol could be adopted on land where willingness and ability less. For these peripheral sites, the key features to monitor could be changes to water table depth and extent of key species.
- 2.7 Regardless of the agreed protocol agreed, some training must be allowed for. Without training the quality of the data could be low.
- 2.8 The level of risk of damage to the site should be considered when deciding on the number of intervention sites that should be monitored. NE suggested that where the risk is low, monitoring of 10% of the sites might be appropriate.
- 2.9 Year x year photography has been used on one estate and is working well. This was an early monitoring plan and it may need to be changed in line with the requirement for more complex monitoring. However, the procedure to establish photographic records is well-established and accepted by the estate.
- 2.10 **Conclusions:**
- 2.10.1 A range of different monitoring protocols are in use to meet local conditions and experience.
- 2.10.2 There is scope to identify core areas where willingness and capability exists to produce high quality data. This would reduce the amount of information to be processed and reduce the risk of low-quality information being provided by land managers without the enthusiasm or capability to carry out effective monitoring.
- 2.10.3 While a range of approaches may be appropriate these is a question about how data obtained in different ways can be collated to provide a national picture.
- 2.10.4 Training of land managers should be planned.

3 What monitoring are practitioners willing and able to carry out?

- 3.1 The T&F Group welcomed the suggestion that a protocol for practitioner should take account of the following features – monitoring should:
 - 3.1.1 Be simple, quick, repeatable, comparable with sites elsewhere and
 - 3.1.2 Be able to generate data that can be used to demonstrate progress with blanket bog restoration at a national level.
 - 3.1.3 Make use of the tools readily available to the practitioners (e.g. smartphone peat stick, handheld GPS).
- 3.2 It was suggested that practitioners will not be able or willing to undertake lots of rigorous scientific quadrat-based work with plant identification, etc. that might be expected of academic research organisations or statutory nature conservation organisations. This view was supported by the T&F Group.
- 3.3 In other discussions, it was suggested that a basic dataset be established at all sites, with more in-depth study on core moors. The core moors would be invited to record water table depth monthly and key vegetation species.
- 3.4 Vegetation monitoring
 - 3.4.1 Key vegetation species to monitor are: heather, cotton-grasses, *Sphagnum* moss, other mosses & herbs.
 - 3.4.2 Assessing a quadrat by a lay person would be expected to take 15mins and be carried out once each year. July / August would be the best time.
 - 3.4.3 Photographs are good for validation but not for species identification, as quality is an issue.
- 3.5 A power analysis was proposed to establish the level of recording needed to assess progress. This would help to determine how many plots to monitor but it is also necessary to ask practitioners how much monitoring they are able to do.
- 3.6 At the time of the interviews, Natural England was carrying out a power analysis on existing data, to include quadrats from Moorhouse NNR.
- 3.7 If every intervention is monitored in detail, the amount of data produced will be enormous and it is unlikely that the resources are available to monitor such a large volume of information.
- 3.8 The merits of using practitioners to carry out the monitoring work was questioned. There is a danger that citizen science will generate lots of meaningless data, especially if every intervention is monitored.

- 3.9 Need to consider how to monitor grazing management and the interaction between grazing and burning.
- 3.10 During the interviews, a consensus developed within the T&F Group to support the two-tiered approach to monitoring that had been discussed during various interviews.
 - 3.10.1 This would provide a basic level of monitoring in some ‘peripheral’ places, balanced by a higher level of monitoring, in ‘core’ places.
 - 3.10.2 If this was agreed, a further suggestion would be to combine the higher level with the Common Standards Monitoring programme.
 - 3.10.3 Due to lack of resources, it was thought that very little monitoring takes place under this programme and this approach would provide encouragement to increase the amount of monitoring taking place.
- 3.11 In some parts of the country there are volunteers who might be keen to help. Where this resource exists, it would be worth exploring this option.
- 3.12 An alternative approach would be to rely on contractors to carry out the high-level monitoring, but this input would need to be funded.
- 3.13 In the future, it is possible that use remote sensing could have a monitoring role and therefore the information that is collected now should be in a form that can link to other information in future. This is especially important when considering peat systems due to their very long response times.

Land Managers

- 3.14 There was a wide-ranging discussion with Land Managers.
- 3.15 There was agreement that keepers could take fixed point photographs but that it would not be possible, due to shortage of time, to do anything more involved.
- 3.16 The role of farmers (and commoners) should be considered alongside gamekeepers.
- 3.17 In discussion about re-wetting, it was agreed that that this can take place as a bottom up or a top down process and which process occurs will depend on the local site conditions.
- 3.18 It was agreed that the monitoring protocol must match local conditions.
- 3.19 It was agreed that the decision to intervene must remain with the practitioner.
 - 3.19.1 Practitioners are uniquely placed to make the best decision. They have experience of the site and they have all the local information available to them.

3.20 Conclusions

- 3.20.1 While there is a willingness to undertake some monitoring, due to other calls on their time and a lack of skills, there is a reluctance from practitioners to get involved in detailed, technical monitoring.
- 3.20.2 A two-tiered approach is recommended. Basic monitoring that can be carried out everywhere by practitioners, and detailed monitoring carried out by specialists in a few locations selected to be representative of the area.
- 3.20.3 Use of fixed point photography has its limitations, but it has some value if carried out to an agreed protocol. Practitioners will be able and willing to carry out this level of monitoring.

4 What platform can all the data be stored and shared on to be most useful?

- 4.1 It was noted that any such data repository requires a long-term view and funding.
- 4.2 The storage and sharing of data must be considered at the outset. NE needs a budget for data storage and a long-term commitment to maintaining the information.
- 4.3 Ownership and control of the data must be considered before data starts to be collected. This may affect what data can be collected and how it is stored.
- 4.4 In discussion, a range of storage options were suggested. These are listed below:
 - 4.4.1 iAuditor app – designed for use in property audits and adapted for recording restoration interventions. Simple easy evidence collection. In use on an estate in Lancashire.
 - 4.4.2 IUCN UK Peatland website alongside the information on peatland restoration.
 - 4.4.3 BASC Green Shoots web-page. An app accompanies this that marks features on a map.
 - 4.4.4 National Biodiversity Network.
 - 4.4.5 NE platform under development. This will be in place ‘shortly, and it will be possible to share information.
 - 4.4.6 iRecord. This system has been set up for biological records - it may not be able to handle other information.

4.4.7 Peatland Data Hub - web application with storage. Development of this hub is being supported by a mix of practitioners (Moors for the Future) and academics.

4.4.8 CEH data base – CEH already holding large amounts of data.

4.5 **Conclusions**

4.5.1 A wide range of options has been proposed. Further work is required to consider the advantages and disadvantages of each option.

4.5.2 A funded, long-term solution is required, before data starts to be collected.