LANGHOLM MOOR DEMONSTRATION PROJECT

Summary

1. This paper seeks the Board's support for progressing with the Langholm Moor Demonstration Project.

Action

2. **The Board is asked to:**

   i. Note the background to the development of the Langholm Moor Demonstration Project proposal, involving five partner organisations; and
   ii. Support the proposals for SNH and partners to manage and fund the work at Langholm.

Preparation of paper

3. This paper was prepared by Des Thompson, [redacted] and Colin Galbraith, with inputs from Chris Miles, Iain Rennick, [redacted], [redacted], Roger Burton and Stuart MacQuarrie. The paper is sponsored by Colin Galbraith.

Background

Langholm-Newcastleton Hills SSSI/SPA

4. The management of Langholm-Newcastleton Hills SSSI/SPA is one of the most keenly debated conservation issues in Scotland at present. The SSSI/SPA comprises approximately 7,600 hectares of upland moorland, and was classified as an SPA in 2001 for its breeding hen harrier interest. It was notified as an SSSI in 1985 for its vegetation mosaics, breeding hen harriers, and breeding bird assemblages.

The Joint Raptor Study

5. Langholm was the main study site for the 'Joint Raptor Study' which investigated the relationships between hen harriers, peregrines and red grouse numbers. That study ran between 1992 and 1997. Grouse shooting ceased in 1998. By 1997 numbers of hen harriers had peaked at 20 breeding females, and red grouse numbers declined to 45 grouse per km^2. Since 1997, there has been considerable controversy over what the research at Langholm did or did not demonstrate; the degree and level of land management activity and legal predator control on the moor before, during and after the study has been heavily debated. Monitoring of raptor, grouse and other bird interests has continued on the moor since 1997. In 1998 and 1999 a research trial investigated the impacts of diversionary feeding of hen

harriers on their take of red grouse chicks, and showed that there was a marked reduction in numbers of red grouse chicks taken by those hen harriers which were 'fed' with alternative food.

Scotland's Moorland Forum and the raptor-grouse debate

6. One outcome of the Joint Raptor Study was for SNH to form the Moorland Working Group to try and develop consensus on moorland-raptor issues. That group comprised members from the Game Conservancy Scottish Research Trust (GCSRT), the Game Conservancy Trust (GCT), the Royal Society for the Protection of Birds (RSPB), the (then) Scottish Landowners' Federation, Buccleuch Estates (which owns Langholm) and SNH (as chair). In July 1998, the Moorland Working Group signed a Statement of Intent entitled *Action for Scotland's Moorland* which also bore the signatures of nine further supporting organisations. Following on from this, in March 2002, the Moorland Working Group gave way to Scotland's Moorland Forum, with 24 organisations signing up to a refreshed Statement of Intent. At the heart of the work of the Moorland Working Group and Scotland's Moorland Forum has been a concerted effort to tackle the issues highlighted by the Joint Raptor Study, notably on Langholm. Indeed, the Statement of Intent establishing the Moorland Forum made the following commitment:

> "We shall work together to implement the Birds Directive and Habitats Directive, in our collective desire to improve Scotland's moorland ecosystems. We shall: continue the progress made at Langholm to reduce in the short-term the impact of birds of prey on red grouse. Specifically, we shall further examine through research those management techniques which aim to reduce the impacts of birds of prey on red grouse numbers…".

7. Discussions in the Forum which have focused on raptor-grouse issues have made significant progress in agreeing the nature of the conflict. Different organisations have, however, continued to present their own views on what has happened at Langholm, and what happens to wildlife on grouse moors where raptors are protected. The Moorland Forum has provided an important platform for the debate on these issues, and has succeeded in broadening the debate to consider other, arguably more significant matters, relating to causes of habitat loss and wildlife decline in some moorland areas. Nevertheless, there is a strong feeling amongst some partners that progress with the raptor-grouse debate will not be made until Langholm is revived as an active grouse moor, alongside a hen harrier population.

The UK Raptor Working Group Report

8. The DETR/JNCC UK Raptor Working Group, which reported in February 2000, provided an important forum for discussion and debate on raptor issues. Its key report made 25 recommendations, which have periodically been reported on to the JNCC and DEFRA. Nine of the recommendations focused on moorland issues. Recommendation 13 specifically sought the establishment of:

"A wide scale demonstration project illustrating the compatibility of good moorland management practices coexisting alongside viable red grouse and bird of prey populations. Langholm has been the focus of these topics over recent years, and it may be appropriate to continue to build on previous work there, as well as to broaden the scope to encompass other areas".

SNH's Species Framework

9. In March of this year, SNH published the public consultation document *Making a difference for Scotland's Species: A Framework for Action*. The hen harrier is listed as one of the 20 species on the 'action' list, notably as a species for conflict management. During the Scottish Parliamentary debate following the launch of this public consultation, the Deputy Minister for the Environment and Rural Development, Rhona Brankin MSP, commented favourably on the work of the Scotland's Moorland Forum and the importance of addressing issues at Langholm. Subsequently, the Minister has agreed to visit Langholm Moor with Forum members at Langholm later in the summer of this year.

Totemic importance of Langholm

10. Langholm Moor has now assumed almost totemic importance to people in forming a judgement on the feasibility of having raptor alongside red grouse interests. There are three broad 'views':

- The first contends that it is near impossible to have a moor with both raptors, especially hen harriers, and driven grouse shooting. This approach suggests that land managers should be permitted to remove some of the raptor interests.
- The second view suggests that grouse shooting is diminishing, and that raptor interests require only minimum habitat management measures. Considerable amounts of heather have been lost in recent decades because of poor moorland management practices. In fact, 25% of Scotland's heather cover has been lost to other habitats since the 1940s, but, as the UK Raptor Working Group Report indicated, the extent of loss has been least over areas where grouse shooting has been retained.
- The third view concludes that it might be possible to manage moors for both interests, and that a win-win outcome would benefit the public standing of moorland areas. The Langholm Moor Demonstration Project has found particular favour with those adhering to this view.

11. Against this backdrop, SNH has been working closely with four organisations to develop a proposal for moving forward the debate regarding Langholm. In June 2005 the Langholm Project Group was formed, chaired by SNH, and comprising Buccleuch Estates, the GCT, RSPB and English Nature. That group has agreed a detailed Demonstration Project Plan which reflects where discussions have reached within the Project Group. Essentially, the group is proposing to establish Langholm Moor as a driven grouse moor with hen

harriers, to meet the nature conservation objectives of the SPA and the SSSI. The Project would employ a team of gamekeepers to undertake the moorland management, and researchers to monitor the consequences of the land management practices.

12. This paper seeks support from the Board to take this Project forward.

Partners

13. There are five partners for this project. The first two are statutory agencies - SNH and EN; a further two partners are NGOs - the GCT and RSPB; and the final partner is Buccleuch Estates (who own 92% of the SSSI). Three of the partner organisations are members of Scotland's Moorland Forum, with the other two (EN and Buccleuch Estates) attending Forum meetings as 'observers'.

Project aims and land management measures

Aims

14. The Project Group has identified a project area embracing almost 12,000 hectares of moorland, and containing the SPA/SSSI.

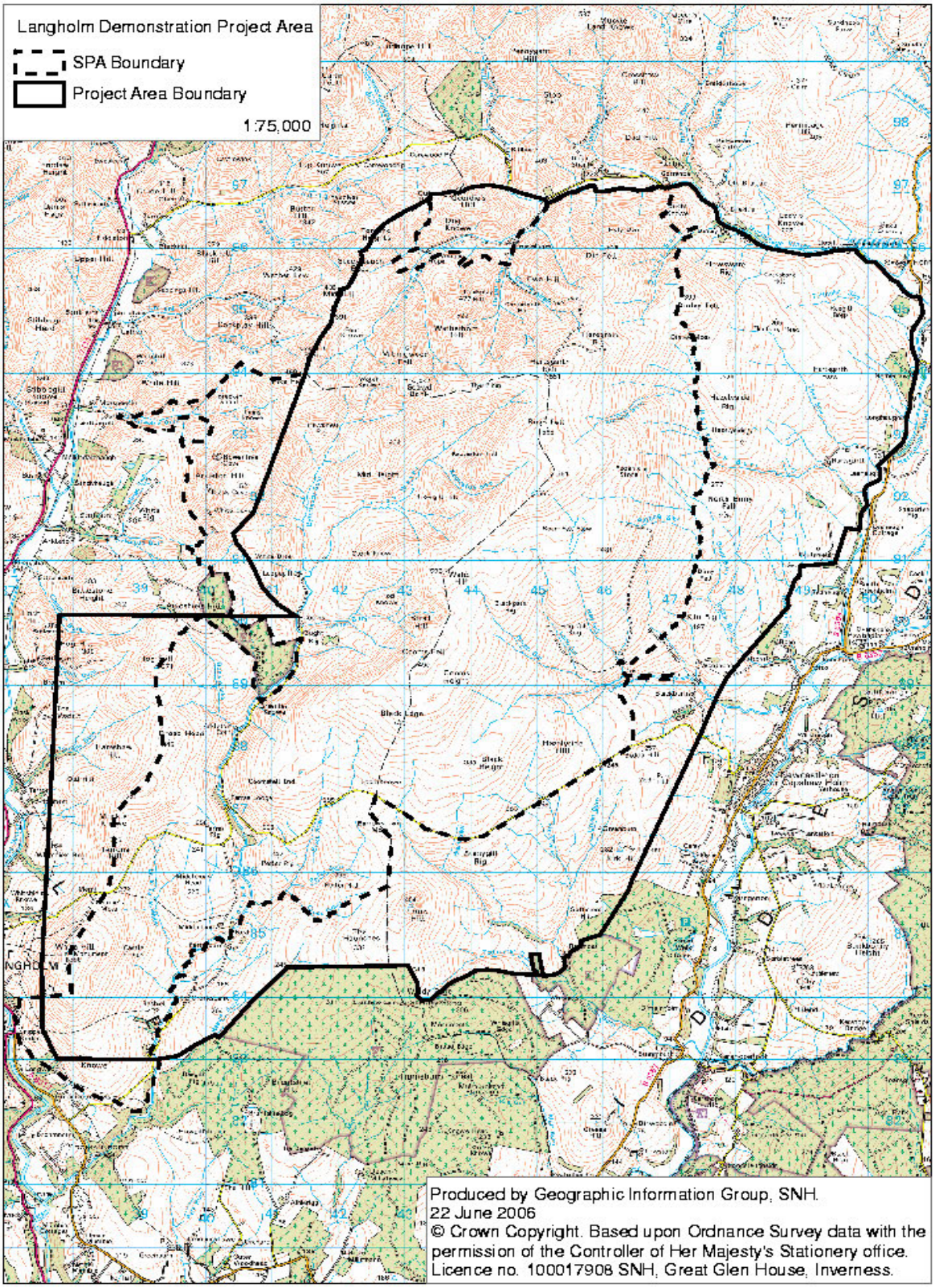


Figure 1: The Langholm Moor project area, embracing the SSSI/SPA.

15. The Project Group proposes the following core objective:

To establish Langholm Moor as a driven grouse moor to meet the nature conservation objectives for the SPA and SSSI.

Under this objective, the following elements would be delivered:

(a) Demonstration of how to resolve conflicts between moorland management for raptors and red grouse;

(b) The hen harrier population would be maintained as a viable component of the SPA;

(c) The heather moorland habitat would be extended and improved beyond its state in 2002; and

(d) The number of grouse shot would be sufficient to ensure the moor reaches a viable number for shooting.

Success criteria

16. The Project Group advises that a ten year timeframe is needed to ensure effective management of the red grouse stocks and moorland habitat extent and condition. Five broad criteria have been developed to evaluate the success of the project in meeting these elements.

(a) Compatible management for raptors and red grouse

- The Project Group seeks compatibility between management for raptor and red grouse interests.

(b) Hen harriers and other raptors

- The Project Board seeks to avoid deterioration of the habitats of hen harriers or significant disturbance of them, thus ensuring the integrity of the Langholm SPA is maintained. All raptors will be protected during the course of this project. The SPA will hold a nationally important population of hen harriers when there is 1% of the UK population (currently, 7 breeding females). This project aims to restore moorland habitats, reduce conflicts, and create the other conditions which allow the SPA conservation status to be maintained, and to meet a target of at least 1% of the UK population of female hen harriers. We note that at the time of notification, the site held 13 breeding females (the number used for classification of the site as an SPA).

(c) Red Grouse numbers

- The Project Group seeks an economically viable number of red grouse for shooting.

By way of example, it is standard practice to shoot 30% of red grouse on a moor. A total population of 6000 birds would be needed in the autumn (equivalent of a density of 150 birds per km²) in order to shoot 1,000 brace.

(d) Heather moorland

- The Project Group seeks to increase the extent and improve the condition of heather moorland (dry heath and blanket bog) at Langholm beyond the baseline of that recorded in 2002.

(e) Passerines and waders

- There should be substantial populations of passerines and waders.

Land management practices

17. Five elements of land management have been identified

(a) a programme of measures to benefit the habitat, including heather burning, bracken control, heather restoration, blanket bog management, livestock management (sheep number reductions and sheep herding) and goat control;
(b) legal predator control, notably involving the control of foxes, crows, stoats and weasels;
(c) a programme of medication for disease control (notably to combat stongylosis) in red grouse;
(d) a programme of diversionary feeding of hen harriers, where all nesting hen harriers would be provided with dead rabbits, mice or chickens (it is anticipated that this would be carried out only during the initial phase of the work, whilst red grouse numbers are recovering); and
(e) habitat creation measures to create alternative nesting and feeding habitat for hen harrier, notably in parts where the present extent of heather cover is very low.

18. The bulk of the work entails (a) and (b) above. A detailed Management Plan will be agreed by the Project Group. Activities include:

Heather burning. In compliance with the Muirburn Code, the aim would be to create an intimate mosaic of different aged and small scale patches, with an average 15 year rotation for good dry heather habitats increasing to a 20-25 year rotation for some potentially burnable blanket bog habitats. Overall,

around 2200 hectares of moorland habitats could be burnt over a 15 year cycle, so that approximately 150 hectares would be burnt each year.

Bracken control. Priority areas for bracken treatment should be based on the threat to dwarf shrub habitats and vigour of bracken. Current mapped information indicates that around 42 hectares per annum should be treated.

Heather restoration. Eleven areas of 'white' grass-dominated moor have been identified as potential areas for heather restoration. It is proposed to trial the 'high intervention' heather restoration method (spraying with glyphosphate; preparing the heather seedbed, possibly involving burning and litter removal, and applying heather seed) in some areas, as recently carried out by Geoff Eyre successfully in northern England.

Blanket bog management. Good practice management would be required as per the prescription within the Forth and Borders Moorland Management Scheme, over 540ha. In addition, there may be scope for ditch blocking on the east facing slopes of Roan Fell to Blackgate Rig.

Livestock management. Stock management to encourage heather recovery will be required and this could incorporate stock off-wintering, shepherding to rake sheep over the hills and move off vulnerable areas, and management of supplementary feeding sites. Exclusion of stock is likely to be required in "high intervention" heather restoration areas until the heather is well established.

Other herbivore control. The goat population should be brought down to 200 animals over a 3 year period.

Legal predator control. Control of foxes, corvids and mustelids would be carried out throughout the year, with the main effort being concentrated in the spring for the benefit of ground nesting birds.

Disease control of grouse. Medicated grit would be put out all year (it would be withdrawn in years when grouse are shot). Birds may be caught and dosed with an anthelmintic (worming) drug.

Diversionary feeding of hen harriers. Work would be carried out in accordance with the practice described in *'Substitute Feeding of Hen Harriers on Grouse Moors'* (Moorland Working Group 1999).

Habitat creation. This would entail the creation of potential nesting habitat for hen harriers through very localised, small scale scrub creation. In some parts of the UK hen harrier range small conifer plantations and brush/scrub have provided important nesting habitats.

19. The Project Group has taken external advice on the level of land management activities required. The Group recommends that five land managers, who are

primarily keepers, should be employed within the project area to undertake the above management measures. SNH staff feel that with a sustained management input a significant reduction in numbers of foxes, in particular, could be achieved.

Current Arrangements with Buccleuch Estates

20. SNH currently have a Management Agreement with Buccleuch Estates over 3,183 ha of the SSSI which commenced in 1990 and is due to expire in 2020. At the start of the Agreement, the Estate agreed to reduce sheep numbers and NCC agreed to pay the capital cost of fencing. Subsequently, an annual payment of £800 has been made by SNH towards fence maintenance costs. Other payments have been made for measures including control of bracken and purple moor grass, research and monitoring and legal predator control. The amount funded by SNH under the Agreement since 1990 for these measures amounts to approximately £8,125 per annum.

21. Farming activities are managed by Buccleuch Estates through their farming company, which is a separate legal entity. The Estate has recently taken in hand an additional 1700ha of SSSI. Effective grazing management is critical to the recovery of the heather moorland habitat, which is currently in unfavourable condition. Previous SNH work has gone a long way to determine the most appropriate solutions but further discussions are required with the Estate, using updated habitat condition assessment information, to determine and agree the most appropriate changes in grazing practices for the full recovery of the heather. These are likely to include more intensive shepherding across the site, together with an adjustment in numbers. As part of the Project Plan, the Estate will develop an Action Plan for this element of work, and discuss and agree this with the Project Group to ensure an integrated approach to all land management practices. The Project Group would then manage this element of work.

Scientific monitoring

22. A programme of scientific monitoring has been devised, which involves monitoring the red grouse, raptors, other bird interests, and habitat condition.

a) Red grouse

Abundance & breeding success: Grouse would be counted twice per year: first in late March and early April to determine pre-breeding densities, and again in the second half of July to assess breeding success, autumn densities and an index of adult mortality (difference between consecutive March and July counts of adults).

Grouse mortality: Monthly searches would be made for signs of dead grouse within each of 15 survey plots, and probable sources of mortality assigned (raptor / fox / parasites).

***Parasite burdens*:** All autumn shoot days would be attended to estimate both the number of birds removed from each plot and to estimate parasite burdens (strongyle worms).

b) Hen harriers and other raptors

The number of hen harriers breeding annually would be recorded by watching for displaying males from a series of vantage points in March. Checks would be made regularly until June to ensure that no late breeders were overlooked. For this reason, supplementary harrier nests would be found by watching and listening for food passes in those areas where displaying males had been observed. Nests would be monitored to determine hatching success, and all successfully hatching clutches would be provided with further supplementary food from chick hatching to dispersal (during the initial phase of the Project, as grouse numbers recover). At least one 5-hour watch would be made at each nest per week over the 5 weeks from hatching: prey brought to the nest would be classified into supplementary or natural food. Scottish Raptor Study Group members would help with this monitoring.

c) Birds other than grouse and raptors & small mammals

Birds: The abundance of all birds, but predominantly passerines and waders would be estimated annually within 25 Breeding Bird Survey (BBS) plots, each comprising two parallel 1 km transects. Currently, there are 15 BBS plots at Langholm, surveyed annually since 1992.

Small mammals: Small mammal abundance would be estimated annually through snap-trapping in April and June.

d) Predator abundance & management

Foxes: A relative estimate of red fox abundance would be derived through the use of scat transects. A fox scat transect would be surveyed on foot in March in each plot in each year as a clear-up round with subsequent monthly repeat surveys until June.

Stoats & weasels: An index of small mustelid abundance would be obtained using footprint tracking tunnels set in locations likely to be used by stoats and weasels.

Corvids: Crows would be recorded within the 25 BBS plots

Keeper trapping effort*:* Gamekeeper records of numbers of pest species killed per trapping effort would be maintained and collated monthly by the scientists. In addition, all animals killed would be logged and mapped, and carcasses made available for analysis. Gamekeepers would be asked to keep a daily log of agreed observations.

e) Habitat condition assessments

Monitoring would be specifically targeted towards gauging changes in heather cover and blanket bog condition arising from modifications to existing grazing and burning

regimes. In addition, aerial photographs would be analysed and compared with earlier photographs to assess extent of dwarf shrub habitat.

Project management structure and costings

23. The Project Group is proposing a management model which integrates the work by the five keepers and the scientific staff, who would be line managed by a Project Manager. The scientific staff would comprise a senior ecologist and two part-time ecologists (one concentrating on raptor, wader, passerine and habitat monitoring, and the other concentrating on monitoring and radio tracking red grouse). The senior ecologist and a part-time ecologist would be GCT staff secondees, and the other part-time ecologist would be a RSPB staff secondee. The Project Manager would report to a Project Board, which would be chaired by SNH. The Project Board would also direct and oversee a Science and Technical Advisory Group (STAG), which would meet once a year and advise on the scientific and technical aspects of monitoring and land management activities. A Partnership Committee would meet periodically and provide a strategic steer for the project. The Project Group proposes that the chair of this committee would rotate. **Figure 1** outlines the proposed management structure.

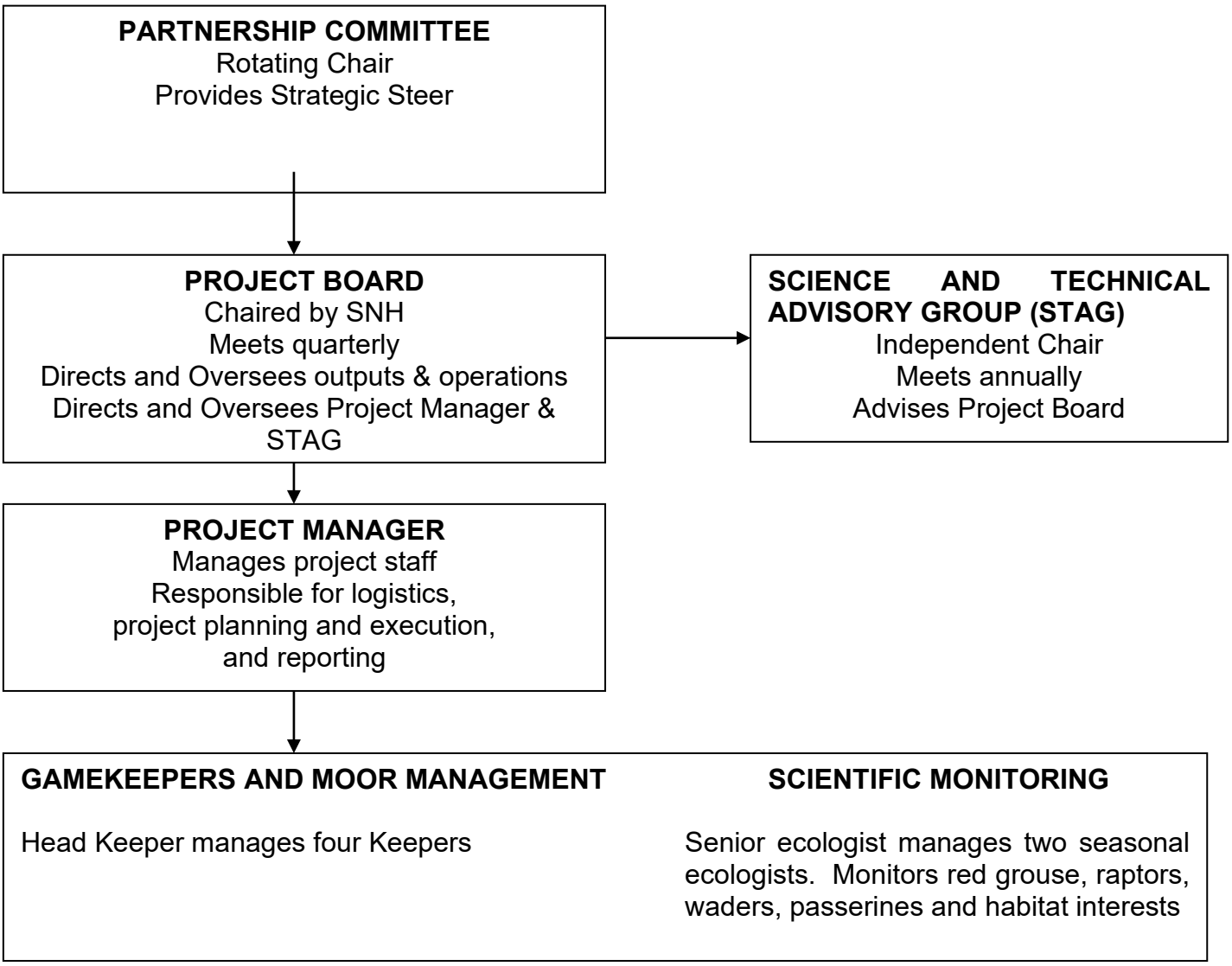


Figure 1: Proposed project management model

24. The total moorland management costs amount to almost £215,000 per annum. There has been considerable discussion within the Project Group on these costings, which have been reduced by negotiation and argument from a much higher figure. Over 90% of this cost derives from keepers' salaries and their support costs.

25. The scientific monitoring element amounts to £75,150 per annum, and the project management and support costs amount to £15,800 per annum, giving an overall annual cost of £305,680 per annum. The project plan covers a 10 year duration, giving an overall total projected cost of £3,424,621 (assuming 2.5% annual inflation).

26. The Project Group has agreed that a Company should be formed of the funding Partners and that SNH would chair this. This Company would employ all the staff.

Contributions to costs

27. Following protracted negotiations within the Project Group, there are three main funders, covering 85% of the costs, and two smaller funders.

Table 1. Proposed share of expenditure for the Langholm Moor Demonstration Project. It should be noted that formal approval by Boards at these organisations has not yet been sought.

	Annual Cost	Total cost over 10 years*
SNH	£86,893	£973,491
Buccleuch Estates	£86,893	£973,491
GCT	£86,893	£973,421
RSPB	£30,000	£336,096
English Nature	£15,000	£168,052
Total Cost	**£305,680**	**£3,424,621**

*Assumes 2.5% annual inflation

28. English Nature is offering to contribute £15,000 per annum. RSPB is proposing to contribute £30,000 per annum, and have stipulated that this should principally cover the costs of raptor, wader, passerine and habitat monitoring. The residue of the project expenditure has been split three ways between SNH, Buccleuch Estates and GCT. The only stipulation that GCT have made is that the senior, full-time ecologist responsible for scientific monitoring should be a GCT staff secondee.

29. The Project Group has noted that should red grouse numbers increase, there is the prospect of revenue from driven grouse shooting by as early as year 5. The total annual expenditure could be reduced, at year 10, by £28,500 (if the grouse population recovers at a rate of 10% per annum), or by as much as £95,000 if there is a high rate of recovery (equivalent to 33% annual rate of increase in grouse numbers). To date, these potential savings have not been incorporated in the Project Plan costings. A full Business Case would address this and more detailed financial aspects. However, within the timeframe of the project, the Project Group has proposed that any income generated should be offset against the project costs, and partner contributions reduced on a *pro rata* basis.

SNH Budget Position

30. It is proposed that SNH contributions would come from a mixture of the Area Management Agreement budget and the Research budget. Monitoring costs form approximately 25% of the total Project costs. Consequently, it is proposed that the SNH annual funding required for the Project (excluding the existing Management Agreement) would be as follows:

Area management agreement budget:	£65,168
Research budget:	£21,725
Total:	£86,893.

Benefits to SNH

This project offers SNH at least five key benefits:

(a) There is an opportunity, through a partnership approach, to meet the natural heritage targets of an iconic moorland SPA/SSSI. The proposed partnership between two government bodies, two NGOs and an estate owner is unique, and offers the deployment of considerable experience and expertise in land/conservation management and in scientific monitoring.

(b) The Langholm Moor Demonstration Project would be cutting edge as a 'demonstration' site It offers scope for demonstrating how one can integrate management for grouse moor, biodiversity and agricultural enterprises. The site is in the media spotlight, and the results and outcomes of the work will be eagerly observed by many partners.

(c) The project addresses 'head on' the oft reported conflict between raptors and red grouse, and seeks to reconcile these interests. If the project succeeds in meeting the targets this has very considerable implications for the management of other moorland/upland areas in Britain. Indeed, this benefit is potentially far reaching, because the management approach prepared for Langholm may prove attractive and effective for other upland areas. A successful project should reduce the risk of raptor persecution in moorland areas managed as grouse moors.

(d) The bulk of the project spend is in salary and support costs, and the project is clearly creating employment opportunities in a rural area.

(e) The proposed funding schedule offers SNH considerable leverage, with the SNH contribution amounting to 28% of the total cost.

Risks

31. Seven key risks have been identified for this project proposal, and each is outlined in turn.

(a) **Partnership viability.** The difficult discussions which have taken place during the development of the Project Plan have highlighted some concerns about the viability of the sustained contribution to the partnership. A very tight and clear Project Agreement is being developed to bind the partners together over the 10 years of the work.

(b) **Meeting the targets for hen harriers/biodiversity, red grouse management, and conflict resolution.** The Project Plan sets out ambitious but realistic targets. However, there is the risk that one or two of these will not be met, or some project partners will provide a different 'spin' on the results of the work as it emerges. The Project Group has deliberately avoided reference to an 'exit strategy' and has viewed the targets as forming a holistic package, with the projects

succeeding only if it meets all of the project elements. The Project Group would have 3-year reviews of progress and targets.

(c) **Quality of land management practice.** Much of the variability and the success or otherwise of grouse moor management is down to the quality and durability of keepering effort. This is a risk which needs to be managed through the appointment of skilled and energetic keepers, and a management regime which ensures sustained effort and effectiveness.

(d) **Realising the potential for heather moor restoration.** Whilst discussions are ongoing with the Estate, there is a risk that SNH will not fully meet its expectations to address shepherding and livestock removal requirements, and thereby not maximise the potential for habitat improvements. However, recent dialogue with the Estate has been constructive in this regard. In addition, the scope to address this across the SSSI has improved with the Estate taking more land in-hand.

(e) **Understanding the link between land management and natural heritage elements.** The Project Board will put in place a means of ensuring that the ecological monitoring does not just monitor birds and habitats, but will also critically evaluate the impacts of land management practices on these measures.

(f) **The effectiveness of the demonstration element of the project.** The risk here is that some parties ignore the results of the work if it does not provide the answers they expect or anticipate. One of the attractions of the Project as it stands is that two of the most effective and vocal proponents in the raptor-grouse debate are involved – GCT and RSPB. Given their resourcing for this project, these and other partners will want to ensure that the work is well reported.

(g) **Communications and PR.** A strong Partnership Agreement will address any communications made to other parties regarding progress and success of the work. In some ways, this is the risk that concerns SNH staff most regarding the progress of the work, and the Partnership Agreement will be drafted to take account of this.

Next steps

32. It would be helpful to have the Board's views on the above risks, and of course on the overall proposed funding levels, including the contribution sought from SNH. The Board is asked to support the proposals for the development of the Langholm Moor Demonstration Project