Morvern Deer Management Group

ONGOING AUDIT OF MDMG ACTIONS

The following plan details evidence of Benchmark and Public Interest action points (from the original plan and both 2016 and 2018 assessments) which have been completed or significantly addressed, in addition to outstanding actions required. Following this, supplementary action points have been recognised and addressed using evidence where possible. The fourth section of the report lists working action points which (going forward) the group should review their performance against, on a regular basis, detailing any progress accordingly. Appendices show documents of updated information since the creation of the 2015-2020 action plan, used as evidence against the discussed action points.

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Contents

AUDIT OF ACTIONS

The following section lists the progress and future requirements of the group against criteria that have previously been raised as a concern within the assessment process. The actions/evidence is listed using the following key:

Key	
➢	*Action Point from Original Plan 2015.*
❖	*Action point given from 2016 assessment.*
⁂	*Action point given from 2018 health check*
➔	Outstanding action recognised
✓	**Evidence of progress/completion**

1. OPERATION OF THE GROUP

1.1 Area & Boundaries

Action Point

- ❖ *Define appropriate sub populations where applicable*
- ⁂ *Significant discussion within DMG at present on this subject. Important to clarify so that meaningful population models can be progressed (VC).*

- ✓ **Sub-population map included in appendix 2.1. and sub-populations accounted for in population model.**

1.2 Membership

Action Points

- ❖ *All property owners within a deer range should be members of a DMG, including private and public land owners; also, where possible, agricultural occupiers, foresters, crofters and others on adjoining land where deer may be present. In some cases this may extend to householders with private gardens.*

- ✓ **Though couple of smaller members have dropped off due to cost, most estates have remained largely represented (both public and private landowners). In response to lapsing membership, the group have agreed a reduced membership fee for members shooting under ten deer (see Appendix 1.1).**

1.3 Meetings

Action Points

- ❖ *For effective collaborative management to take place it is important that all DMG Members should attend every meeting or be represented by someone authorised to*

make appropriate decisions on their behalf.

- ⁂ *Participation is generally good, but lot of apologies for July 2018 meeting. Some discussion about who is mandated to represent properties and who not. Need to keep an eye on this element (VC).*

- ✓ **Much fewer apologies at autumn meeting, member participation is being recorded in group audits (see appendix 3.5.)**
- ✓ **Member list updated April 2018 as formal documentation of whom should be representing which properties.**

1.4 Constitution & Finances

Action Points

- ❖ *Constitution in place, budgeting and finance generally good.*
- ⁂ *Should look to produce a budget for spring 2019.*
- ✓ **New constitution & budget to be circulated and approved at spring 2019 meeting**

Any other progress
✓ **Group has agreed a new membership fee structure which offers lower costs for smaller members, in order to raise required additional funds for consultancy and other costs whilst not deterring membership.**

1.5 Deer Management Plan

Action Points

- ❖ *All DMG's should have an up to date, effective and forward-looking Deer Management Plan (DMP).*
- ⁂ *Very detailed and useful DMP, but no population models, so DMP is not yet forward looking. This is a significant priority to address (VC).*
- ✓ **Population model completed early 2019 (see appendix 5).**

- ❖ *The DMP should record all the land management objectives within the DMG area.*
- ⁂ *DMP has a lot of detail on objectives, but this could be better articulated on a map*
- ✓ **Map of main objectives and list of more detailed objectives included in appendices (2.22. and 4.8., respectively).**

- ❖ *Where applicable, the plan should include a rolling 5-year population model*
- ⁂ *The DMG do not have a population model in place, although the intention to have one is there. Uncertainty over sub- areas has prevented this from being actioned.*
- ✓ **Sub-populations have been agreed as per section 1.1. Population model completed and included in appendix 5.**

- ❖ *Appropriate use of maps to illustrate relevant detail.*
- ⁂ *There are low resolution maps incorporated in to main DMP document, but they are difficult to read and interpret. Simple, downloadable maps would be much more effective.*
- ✓ **Many more recent maps have been created (see appendix 2) in downloadable PDF format.**

- ❖ *It should include a list of actions that deliver the collective objectives of DMG Members as well as public interest objectives. These actions should be updated annually*
- ⁂ *The absence of population model makes it difficult to give a green to this element, although at a property level, the advice and analysis is very good.*
- ✓ **Actions are given in each meeting minutes (see appendix 1) and generally followed up. Population model now in place (see appendix 5)**
- ✓ **List of collaborative actions undertaken within group included in appendix 4.9.**

1.6 Code of Practice on Deer Management
1.7 Best Practice
1.8 ADMG Principles of Collaboration

No points of concern have been raised regarding the above three headings.

Any other progress
✓ **Group have recorded awareness of best practice guidance via annual audits (see appendix 3.4)**

1.9 Data & Evidence gathering- Deer Counts

Action Points

- ❖ *Recruitment and mortality counts are also essential for population modelling.*
- ⁂ *Partial data only for 2018.*
- ✓ **Informal but regular discussion of recruitment and mortality (see appendix 1).**
- ✓ **Full spring count and later sample recruitment count planned for 2019, as evidenced in minutes (see appendix 1.1)**
- ✓ **Engagement with SNH seeking guidance on how best to conduct mortality counting, as evidenced in minutes (see appendix 1.1)**
- ✓ **Population model works around recruitment count using 2018 data**

1.10 Data & Evidence Gathering- Culls

Action Point

- ⁂ *Little focus on target densities within DMG, although lot of detail on individual*

properties.

- ⁂ *Historic allocation of culls has been good, but little focus on an agreed overall target population.*
- ⁂ *Done informally. Could be done in a more structured way if population model was utilized to guide discussion.*

- ✓ **Discussion of target densities at autumn 2018 meeting (see appendix 1.1), all above points should be addressed by population model.**

Any other progress
✓ **Available cull data from 2017/2018 season has been collated (see appendix 3.2.)**

1.11 Data & Evidence Gathering- Habitat Monitoring

Action Points

- ❖ *DMGs should carry out habitat monitoring. Habitat Impact Assessments (HIA) measure progress towards agreed habitat condition targets on both designated sites and the wider deer range.*
- ⁂ *HIA carried out on a number of properties, but little overall analysis.*
- ✓ **Majority of open range members now carrying out habitat monitoring, those who are not are planning this for 2019.**
- ✓ **Members carrying out HIA recorded in audit results (see appendix 3.3.) and on various maps (see appendix 2).**

- ⁂ *Good understanding within DMP of where sheep are present, but almost impossible to envisage this in any meaningful way unless mapped.*
- ✓ **Map has been produced showing livestock numbers on properties (see appendix 2.7.).**

- ⁂ *No habitat plan or methods as such. DMG could provide link to this via contractor report.*
- ✓ **Map has been produced showing all HIA plots measured and ongoing (see appendix 2.9.)**
- ✓ **See appendix 4.7. for habitat plan and methods.**

1.12 Competence

No points of Concern have been raised regarding the groups competence.

Any other progress
✓ **Up-to-date training and qualifications have been collated in 2018 audit results (see appendix 3.4)** ✓ **The group have made a commitment to further ongoing training, inclusive or an updated training policy.** ✓ **A comprehensive training log is maintained by vice-chair (SF)**

1.13 Venison Marketing

Action Point

- ⁂ *Membership of SQWV is patchy.*
- ✓ **Improvement in membership, others are considering for future, as per 2018 audit results (see app. 3.4)**

1.14 Communications

No points of concern have been raised regarding the group's communication.

Any other progress
✓ **Website has been updated ongoing with group minutes etc.** ✓ **Meetings have been publicly advertised and group plans to hold more meetings in local village halls in future.** ✓ **Community bodies have been invited to attend meetings, community council member put in apologies for Oct '18 meeting, discussion of booking slot at community council meetings to discuss the work of the group (see app. 1.2).** ✓ **Letter written to Historic Environment Team at Highland Council regarding any potential deer impact (see appendix 4.6.)**

2. PUBLIC INTEREST ACTIONS

2.1 Develop Mechanisms to manage deer

Action Points

- ➢ *Progress under the plan to be reviewed at annual meetings and full plan to be updated in 2020.*
- ✓ **Progress of different elements of the plan discussed at meetings (see app. 1) and full plan will be updated in 2020.**

- ➢ *Group to encourage all owners and staff to seek suitable qualifications and to update records of DMQ qualified staff at annual meetings.*
- ✓ **Training and qualifications have been recorded in annual audits (see app. 4.4), each member has DSC level 1 qualified representative and over half hold DSC level 2.**
- ✓ **Updated training policy produced (see appendix 4.3.)**

- ❖ *Good detailed plan, easily available, but lacks population model, so forward-looking projections of cull etc. are not currently being done.*
- ✓ **Population model completed giving future projections (see appendix 5), will be reflected in 2020 full plan update.**

2.2 Delivering Designated Features in to Favourable Condition

Action Points

- ➢ Group/individual estates to initiate programmes of routine Habitat Impact Assessment.
- ✓ **Most individual members undertaking regular habitat impact assessment (see app. 3.3.).**

- ✓ **Maps showing habitat plots and conditions created (see appendix 2).**

- ➢ Results of ongoing Site Condition Monitoring of designated sites to be reported to group meetings as soon as completed and necessary actions by individual estates/group to be discussed.
- ✓ **Group have liaised with SNH regarding obtaining more recent results of designated site condition.**

- ❖ *Identify and agree actions to manage herbivore impacts affecting the favourable condition of designated sites.*
- ⁂ *Little evidence of focus on desired population densities in an around sites.*
- ✓ **Ardtornish has removed sheep from Beinn Iadain and Beinn Na h'Uamha SAC/SSSI due to deteriorating condition. This is the only significant open hill designated site.**
- ✓ **Recognition at Oct. '18 meeting of the need to set group targets for impacts on designated sites (see appendix 1.1.).**
- ✓ **Maps showing site conditions and details have been produced (appendix 2.20 and 2.21).**
- ✓ **HIA Impact targets and programme detailed in appendix 4.7**

- ❖ *Monitor progress and review actions to manage herbivore impacts affecting favourable condition.*
- ⁂ *This element needs to be sharpened up considerably.*
- ✓ **Maps have been created showing condition of designated sites and impacts/reasons for failure (see appendix 2.20. & 2.21.)**
- ✓ **Summary sheets showing feature conditions have also been created (see app. 4.1) to allow group to monitor progress/compare.**

2.3 Manage Deer to retain existing Native Woodland cover and improve woodland condition in the medium to long term.

Action Points

- ➢ *Impacts in woodland areas to be assessed as part of ongoing Habitat Impact Assessments and reported to the group where collaborative action may be required in future management*

- ✓ **A number of members are undertaking HIA's in woodland areas (see appendix 5.3) and others plan to in near future.**

- ❖ *Identify actions to retain and improve native woodland condition and deliver DMG woodland management objectives.*
- ⁂ *Little evidence of analysis of NWSS results and what could be done about this, but at 61% in low and medium categories, DMG impact levels are already at target.*

- ✓ **Woodland feature condition map produced (see appendix 2.21.).**
- ✓ **Woodland impact targets included in HIA Program (4.7.)**

- ❖ *Monitor progress and review actions to manage herbivore impacts.*
- ⁂ *While some actions are ongoing, not being done at a DMG level.*

- ✓ **As above, individual group members are monitoring habitat in woodland areas**.

✓ **Several members have identified actions to improve or expand existing native woodland (see appendix 3.6).**

2.4 Demonstrate DMG contribution to the Scottish Government woodland expansion target

Action Points

➢ *Future proposals for new woodland creation to be discussed within the group in order to appreciate possible impact of new fencing on deer distribution and movements and also to assess what collaborative management may be required to undertake compensatory culls or address developing impacts*

✓ **Woodland expansion plans have been discussed within the group and recorded within audits (see all minutes and appendix 3.6), namely Ardtornish LFPT. Collaborative management has been seen in the form of sub-population discussions and compromises made to best suit differing member objectives (see app. 1.2.)**

❖ *Consider at a population level the implication of increased woodland on deer densities and distribution across the DMG.*

⁂ *Significant plans now coming forwards. Analysis of these and their likely impact on DMG will be a very significant challenge.*

✓ **This has been well discussed in more recent DMG meetings, as evidence in minutes (see app. 1).**

✓ **New population model will take into consideration current plans for increased woodland.**

➔ **Ardtornish Woodland Management Plan information required to proceed.**

❖ *Implement actions to deliver the DMG woodland expansion proposals and review progress.*

⁂ *Big challenge for DMG going forwards*

➔ **This action is imminent as significant expansion proposals are becoming clearer and more detailed to the group. Progress to be reviewed ongoing.**

2.5 Monitor and manage deer impacts in the wider countryside

Action Points

➢ *Member estates to be encouraged to initiate regular programme of monitoring or herbivore impacts in woodlands and on open hill habitats.*

➢ *Results of assessments to be discussed at annual Group Meetings and implications considered for any necessary changes to management.*

✓ **See sections 1.11 and 2.2.**

❖ *Identify impact targets for habitat types*

⁂ *No information on this. Needs SNH to help provide guidance.*

✓ **Group requested further guidance and training from SNH and were informed there was no budget, funding options are being considered. Feedback has been given to SNH that this would be easier if there was a simple methodology (app 1.1).**

- ❖ *Identify a sustainable level of grazing and trampling for each of these habitat types*
- ❖ *Identify where different levels of grazing may be required and prioritise accordingly.*
- ⁂ *Lot of information within individual properties, this is not obvious at a group level*
- ✓ **Plan/programme and targets have been identified and are listed in appendix 4.7.**

- ❖ *Conduct herbivore impact assessments and assess these against acceptable impact ranges. Identify and implement actions to attain impacts within the range.*
- ❖ *Regularly review information to measure progress and adapt management when necessary.*
- ✓ **Maps created showing HIA plots undertaken and condition where possible. See appendix 2.9. – 2.13.**

2.6 Improve Scotland's ability to store carbon

Actions

- ➢ *It is noted that that there may be opportunities for reprofiling and revegetating areas of hagged peat on some of the higher ground to restore this to better condition. The Group will consider such opportunities further to enhance peatland erosion areas and will explore suitable funding sources opportunities.*
- ✓ **Efforts have been made by several group members to explore and carry out peatland restoration opportunities (see app. 3.7).**

Any other progress
✓ **Muirburn taking place is minimal and monitored at a group level (see appendix 3.7)**

2.7 Reduce or mitigate the risk of invasive, non- native species

Action Points

- ➢ *Group to collate reports of invasive species of deer at annual meetings*
- ➢ *Group also to maintain records of ongoing programmes of rhododendron eradication or other clearance of non-native vegetation.*
- ✓ **Evidence of discussion and actions around this within minutes and audit results (see app. 3.8 and 3.9).**
- ✓ **Spreadsheet distributed to members to collate information at Spring 2019 meeting.**

- ⁂ 2018 assessments identified no issue with non-native species. Very small numbers of sika trying to be contained though not posing an issue.

2.8 Protection of Historic and Cultural Features

Action Points

- ➢ *All fencing proposal will be brought to the group for discussion of potential impacts on*

deer distribution and movement patterns and any necessary compensatory action discussed.

✓ **This has been discussed and actioned ongoing since the formation of the plan.**

➢ *Group will also work with SNH to prepare a map of current fencing within the management area.*

✓ **Fencing Map created (see appendix 2.6.)**

⁂ *This was not recognised as an area of concern in 2018 assessments.*

2.9 Delivering higher standards of competence in deer management

Action Points

➢ Group to encourage all owners and staff to seek suitable qualifications and to update records of DMQ qualified staff at annual meetings. Annual meetings also to discuss new training needs which may be identified and seek opportunities for delivery of training required

✓ **Good level of training evidenced in audit returns (see appendix 3.4). Upcoming training courses discussed at meeting to identify if these can be carried out collaboratively (see appendix 1.)**

✓ **Updated training policy produced (see appendix 4.3.)**

⁂ This was not recognised as an area of concern in 2018 assessments.

2.10 Contribute to Public Health and wellbeing

Action Points

➢ *The group will collate data on Deer Vehicle Collisions (DVC's) reported within the Management Area and upload these to the National DVC database annually. They will also seek annual updates from SNH on the distribution and extents of DVCs within the Management Area, other than those noted by members. Group to advise SNH of any issues identified and discuss appropriate action.*

✓ **This has been actioned ongoing as evidenced in meeting minutes (see appendix 1), very few DVC's in recent years.**

⁂ *This was not recognised as an area of concern in 2018 assessments.*

Any other progress
✓ **Group members have undertaken various meat hygiene courses as well as health & safety and first aid training which will contribute to public health interests.** ✓ **Landowners and staff are encouraged to pursue appropriate further qualifications and CPD ongoing.**

2.11 Maximize Economic benefits associated with deer

Action Points

- ➢ *Group to establish a mechanism for collating and interpreting data available on economic costs and benefits of deer and their management.*
- ⁂ *Info on employees etc. within plan, plus desired sporting culls etc. Could collate better at DMG level*
- ✓ **Economic information has been gathered and reported (see appendix 4.5), this considers employee numbers, cull numbers and resulting economic benefit.**

- ❖ *Identify opportunities to add value to products from deer management (SQWV, venison branding).*
- ⁂ *SQWV uptake relatively patchy within area.*
- ✓ **Greater SQWV uptake and consideration within group, as recorded in 2018 audit (see appendix 3.4)**

2.12 Minimize the economic costs of deer management

Action Points

- ❖ Identify and quantify capital investment in deer management related infrastructure.
- ⁂ No information on this. DMG to collate simple info via audit.
- ✓ **Some data gathered and collated via 2018 audit (see appendix 3.9)**
- ✓ **Certain elements addressed in Economic info (see appendix 4.5.)**

2.13 Ensure effective communication in deer management issues

Action Point

- ➢ *The Group will consider establishing its own website linked to the website of the ADMG. This deer plan will be uploaded to that site together with minutes of regular meetings of the DMG and a brief Annual Report of activities carried out in the preceding period.*
- ✓ **This has been actioned and continues to be updated ongoing, most recent information is available online.**

- ⁂ *This was not recognised as an area of concern in 2018 assessments.*

2.14 Ensure Deer welfare at individual and population level

Action Points

- ➢ *Member estates should report demographic information to annual meetings and also report estimated levels of winter mortality; The Group should also assess formally the implications of any new woodland felling/restocking proposals (and any fencing associated with restocking or woodland creation) in terms of future availability of cover/shelter to local deer populations.*
- ✓ **This has been actioned ongoing and is demonstrated within recent minutes and audit results (see appendix 1.2 and 3.6)**

- ❖ *Agree, collate and review data available within the DMG which might be used as a*

proxy for deer health/welfare i.e. recruitment, winter mortality, larder weights etc.

⁂ *Good intentions to review larder sheet information etc.*

✓ **Spreadsheet distributed to members to collate information at Spring 2019 meeting.**

❖ *Periodically review information on actions to safeguard welfare, identify and implement changes as required.*

⁂ *Done informally, good intentions to do more.*

✓ **Measures to safeguard deer welfare are recorded within audit results (see appendix 3.8), including poaching prevention measures.**

ADDITIONAL ACTIONS IDENTIFIED

3. Supplement to the MDMG Working Action Plan.

The following required actions have been identified and actioned as follows showing also any future action required. Where practical the person who should complete the action and the dates given for completion is specified.

3.1 Required Actions identified: Benchmark Criteria: - **Section 5**

Action completed as below.
Action identified to work towards.
Future Action required: - Group to consider how we will review and update the MDMG DMP.
Action by: - Chair, Group Members.
Date for Action: - DMP update completion by May 2020.

All DMG's should have an up to date, effective and forward looking Deer Management Plan (DMP).

Our current DMP runs until 2020. The plan will need reviewing and updating. It is to be fully consulted on and is to reference and address the 'Code of Practice on Deer Management', the ADMG 'Principles of Collaboration', the 'Benchmark' and the 'Public Interest'.

3.2 Required Action identified: **Public Interest Criteria: - 6.3.**

Action completed as below.
Future Action required: - SNH are invited to promote the ecological and local benefits at the MDMG meeting 29/04/2019.
Action by: - SNH, consideration by Members.
Date for Action: - SNH 29/04/2019. Members to consider.

Identify opportunities for the creation/restoration of peatlands.

Whilst some properties have considered or are carrying out peatland restoration it would be helpful and informative if SNH would promote the ecological and local benefits of carrying this out at our ordinary group meeting.

3.3 Required Action identified: **Benchmark Criteria: - 8.2 13.3.**

Action completed as below. Included in the group audits (appendix 3.4.)
Future Action required: - Review and include in the 2020 DMP update. Vice Chair to re-circulate the Group 'Best Practice Guides MDMG' email from last September.
Action by: - Chair, Vice Chair, Members.
Date for Action: - Re-circulate BPG group email May 2019. Members ongoing.

All Deer Management Plans should reference and follow WDBP which will continue to evolve.

All deer management in the group will be carried out in accordance with Wild Deer Best Practice Guides. An 'MDMG Skills, Experience, Knowledge, Training and Certification Log' is updated periodically and demonstrates the competencies &etc. attained within the group and visually highlights any potential shortfalls of competence. Subscription or online availability is confirmed for deer controllers and managers.
It is noted that "BEST PRACTICE" since 28th May 2018 have discontinued the publication of 'hard copy' Best Practice Guides. Also, they will no longer circulate any information to you. The onus is now on you to find out whether your guides are current or if there have been any new, revised or updated guides etc, then download your own copy.
For your convenience the link to the online guides is https://www.bestpracticeguides.org.uk/

3.4 Required Action identified: Benchmark Criteria: - 5.2. Public Interest Criteria; - 4.2, 4.3, 12.3, 12.4

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Action completed as below. Identified as an imminent group task.
Future Action required: - When the completed Ardtornish DMP and Forest Plans are signed off and issued to the group these are to be reviewed and included in the 2020 DMP update.
Action by: - Ardtornish, Chair.
Date for action: - Following completion and issue of Ardtornish final plans.

The DMP should record all the land management objectives within the DMG area.

There have been no changes to land management objectives since the preparation of our current DMP other than at Ardtornish who are undergoing a major change of their objectives. The group has discussed this in detail both at the ordinary meetings and between via email and phone. Information is not yet fully complete for Ardtornish with their DMP extract arriving 09/04/2019 and their Forest Plan is still to be signed off. Upon receipt of the Ardtornish completed plans we can review their land management objectives for inclusion into the MDMG DMP. Effects on Economic costs and benefits will be reviewed at the same time.

3.5 Required Action identified: Public Interest Criteria; - 10.1

Action completed as below. Identified as an imminent task.
Future Action required: - Update the Estate Audit Sheets. Report as appropriate.
Action by: - Vice Chair. Ongoing reporting from Members.
Date for Action - July 2019.
Identify and quantify public safety issues associated with deer within the DMG area. E.g. DVC's, Airports etc.

Estate annual Audit to be updated to include for gathering data on 'Public Safety Issues' including historic data. Report if necessary, to the appropriate authority.

3.6 Required Action identified: Public Interest Criteria: - 9.1, 9.2, 9.3, 9.4, 10.3, 14.2. Benchmark Criteria: - 8.1, 8.2, 12.1, 12.2, 13.1, 13.2, 13.3.

Action completed as below.
Future Action required: - Review and include in the 2020 on DMP. Continue to update 'MDMG Skills, Experience, Knowledge, Training and Certification Log' periodically. Identify and respond to training needs via meeting agenda or group email communication.

***Updated Training Policy*: SEE APPENDIX 4.3.**

3.7 Required Action identified: Public Interest Criteria: - 6.4.

Action completed as below. Included as an appendix in the Morvern DMG Working Action Plan.
Future Action required: - Review and include in the 2020 DMP.
Action by: - No Action required, other than inclusion into DMP.

***River Basin Management Planning*: SEE APPENDIX 4.4.**

3.8 Required Action identified: Public Interest Criteria: - 10.1, 11.1, 11.2, 11.3 11.4, 12.4.

Action completed as below. Included as an appendix in the Morvern DMG Working Action Plan.
Future Action required: - Review and include in the 2020 on DMP.
Action by: - Chair, Vice Chair, on receipt of new information. Members to inform.
Date for action: - Ongoing.

MDMG Economic Costs and Benefits: SEE APPENDIX 4.5.

4. WORKING ACTION POINTS GOING FORWARD

The following points have been developed for the group to review (and annotate progress against) on an ongoing basis at meetings.

Action Point

- *Consider working plan and action points within the discussion agenda at group meetings, update progress accordingly.*
- *Carry out deer management in accordance with population model. Monitor this and review accordingly.*
- *Endeavour to retain all current membership and consider opportunities to increase participation. Actively encourage new members where possible.*
- *Look to encourage wider community participation, such as community councils and members of public. All such individuals to be given the opportunity to contribute to the agenda of meetings.*
- *Review annually group compliance with MDMG Constitution, consider whether this may need updating.*
- *Continue to produce annual budgets, consider group funding system and requirements accordingly. Aim to have the equivalent of one year's subscription to ADMG in reserve at all times.*
- *Monitor adherence to Deer Management Plan (DMP) by individual members and whole group.*
- *Consider application and relevance of DMP going forward and where changes will need to be made in the 2020 full plan review.*
- *Population modelling and cull targets to be tweaked annually in accordance with population, recruitment and mortality counts.*
- *Ensure an ongoing mechanism is in place which allows local interests to have access to and input in the future development of the Deer Management Plan.*
- *Continue to plan, carry out and record deer population counts as accurately as possible. Endeavour to use helicopters when appropriate and where funding is obtainable (private and/or SRDP) – preferably a minimum of every five years.*
- *When helicopter counts are unmanageable, make an effort to carry out spring foot counts/recruitment and mortality counting.*
- *Group to devise a programme of habitat monitoring and continue to carry out habitat impact assessments accordingly.*
- *The DMG should cooperate with SNH on habitat monitoring in relation to designated sites, in order to help facilitate improvement of feature conditions.*
- *MDMG to identify actions undertaken, or to be undertaken, in order to protect designated sites and review the progress of such actions regularly.*
- *Group to continue to record the presence of sheep or other herbivores, monitoring the impact this may have on habitat areas and designated sites*
- *Training and qualifications to as high a standard as possible to be encouraged ongoing, group to collaborate in facilitating training courses where possible. Continue to collate and record up-to-date information on group training/competence. Review training*

needs annually.

- *Opportunities via SNH and ADMG should be explored and utilised, regarding training and support which may assist in the running of the group and meeting of government objectives.*
- *Maintain an awareness Best Practice Guidance and any ongoing updates, which may issue new techniques or standards.*
- *MDMG to try and improve registration of SQWV members within group, whilst continuing to explore opportunities for better venison productivity and marketing.*
- *Continue to assess the Group against both the Benchmark and the Public Interest Criteria, consider including this in one annual meeting, or sub-group meeting agenda.*
- *Seek opportunities for native woodland creation, consider this collaboratively as a group.*
- *Assess the impact on deer population of any woodland creation and/or fencing proposals.*
- *Achieve a reduction in herbivore impacts to woodland sites, particularly designated woodland sites.*
- *Assess feasibility of peatland restoration within the group area and endeavour to carry out restoration projects where appropriate and possible.*
- *Continue to record and monitor burning and discourage any burning that could impact on peatland sites.*
- *Keep control of small numbers of sika deer so as not to impact deer population.*
- *Consider cultural and archaeological interests in any decision relating to deer management or land-use management, inclusive of woodland creation.*
- *Continue to record Deer Vehicle Collisions (DVC's), maintain communication with council and public regarding these. Take any feasible actions to mitigate such incidents where required.*
- *Ensure ongoing awareness of diseases (in deer and humans) related to deer management (e.g. Chronic Wasting Disease and Lyme's Disease) for group members and visiting public alike.*
- *Welcome and promote (where appropriate) tourism and public visiting the DMG area.*
- *Assess ongoing, and quantify as best as possible, the value of deer and deer management within the group. Promote this where appropriate around DMG area to highlight the positive contribution of deer and the operation of the group.*
- *Consider how the current, and target, deer density/population affects public interest aspects within the area.*
- *Assess the level of investment undertaken by the group with relation to deer management activity. Proactively minimise economic costs of deer management where possible.*

APPENDICES

APPENDIX 1: MINUTES FROM MEETINGS

(Attached separately as PDF's)

1.1. Autumn 2018 Meeting – October 31st
1.2. Summer 2018 Meeting – July 16th
1.3. Spring 2018 Meeting – April 3rd
1.4. Autumn 2017 Meeting – November 1st
1.5. Summer 2017 Meeting – July 20th
1.6. Spring 2017 Meeting – April 18th
1.7. Autumn 2016 Meeting – November 1st

APPENDIX 2: MAPS

(Attached separately as PDF's)

2.1. Member Areas
2.2. Membership Boundaries with Subgroups
2.3. Sub-group population
2.4. Landcover Map
2.5. Designated Sites Landcover
2.6. Existing Fences
2.7. Livestock Map
2.8. Potential Habitat Impact Assessment Plots
2.9. Current Habitat Impact Assessment Plots
2.10. Habitat Impact Assessment Map Ardtornish
2.11. Habitat Impact Assessment Map Carnoch
2.12. Habitat Impact Assessment Map Kingairloch
2.13. Habitat Impact Assessment Map Kinlochteacuis
2.14. FCS Habitat Impact Assessment Map (Browsing)
2.15. FCS Habitat Impact Assessment Map (Trampling)
2.16. FCS Habitat Impact Assessment Map (Dunging)
2.17. Native Woodland Herbivore Impact
2.18. Woodland Survey Map
2.19. SNH Density Map
2.20. Woodland Feature Conditions (Morvern Woods SAC)
2.21. Woodland Feature Conditions (MDMG South SSI's)
2.22. Member Objectives Map

3. APPENDIX 3: AUDIT RESULTS

3.1. Count Data

2018 Helicopter Count

	Stags	Hinds	Calves	Total	Density (Km^2)
Ardtornish	350	559	197	**1106**	**7.9**
Carnoch	61	90	30	**181**	**10.1**
Drimnin	105	130	40	**275**	**10**
FES Lochaline	1	3	0	**4**	**0**
Glensanda	63	161	45	**269**	**10**
Killundine	42	123	39	**204**	**9**
Kilmaleu	66	59	26	**151**	**14**
Kingairloch	249	397	126	**772**	**14**
Kinlochteacuis	42	108	22	**172**	**23**
Laudale	258	343	125	**726**	**14**

2017 Foot count

	Stags	Hinds	Calves	Total	Density (Km^2)
Kinlochteacuis	29	110	48	**187**	**24**

2016 Foot Counts

	Stags	Hinds	Calves	Total	Density (Km^2)
Ardtornish	259	642	211	**1112**	**7.8**
Carnoch	93	28	8	**129**	**7**
Drimnin	91	125	55	**271**	**10**
FES Lochaline	-	-	-	**-**	**-**
Glensanda	-	-	-	**-**	**-**
Killundine	70	161	56	**287**	**16.3**
Kilmaleu	-	-	-	**-**	**-**
Kingairloch	124	300	98	**522**	**9**
Kinlochteacuis	38	81	42	**161**	**21**
Laudale	141	242	109	**492**	**9**

2015 Foot Counts

	Stags	Hinds	Calves	Total	Density (Km^2)
Ardtornish	227	448	140	**815**	**5.8**
Carnoch	26	48	21	**95**	**5.2**
Drimnin	76	94	28	**198**	**7**
FES Lochaline	-	-	-	**-**	**-**
Glensanda				**-**	
Killundine	63	156	69	**288**	**16.4**
Kilmaleu	-	-	-	**-**	**-**
Kingairloch	215	383	123	**721**	**14**
Kinlochteacuis	42	87	34	**163**	**21**
Laudale	112	268	79	**459**	**9**

2014 Heli & Foot Counts

	Stags	Hinds	Calves	Total	Density
Ardtornish	272	728	283	**1283**	**9.2**
Carnoch	0	47	23	**70**	**3.8**
Drimnin	-	-	-	**-**	**-**
FES Lochaline	-	-	-	**-**	**-**
Glensanda				**-**	
Killundine	32	140	64	**236**	**13.4**
Kilmaleu	-	-	-	**-**	**-**
Kingairloch	190	502	210	**902**	**16**
Kinlochteacuis	54	175	82	**311**	**40**
Laudale	193	286	96	**575**	**11**

3.2. Cull Data

2017/2018

	Stags	Hinds	Calves	Total
Ardtornish	42	103	41	**186**
Carnoch	17	18	8	**43**
Drimnin	19	21	10	**50**
FES Lochaline	78	63	20	**161**
Glensanda	9	16	10	**35**
Killundine	10	26	15	**51**
Kilmaleu	5	8	11	**24**
Kingairloch	31	45	24	**100**
Kinlochteacuis	10	14	3	**27**
Laudale	33	51	29	**113**

2016/2017

	Stags	Hinds	Calves	Total
Ardtornish	**64**	**97**	**48**	**209**
Carnoch	**15**	**11**	**8**	**34**
Drimnin	**8**	**13**	**6**	**27**
FES Lochaline	**52**	**54**	**20**	**126**
Glensanda	**0**	**0**	**0**	**0**
Killundine	10	23	10	**43**
Kilmaleu				**0**
Kingairloch	**31**	**59**	**24**	**114**
Kinlochteacuis	9	11	1	**21**
Laudale	**35**	**40**	**25**	**100**

2015/2016

	Stags	Hinds	Calves	Total
Ardtornish	45	65	23	**133**
Carnoch	10	8	3	**21**
Drimnin	36	21	13	**70**
FES Lochaline				**-**
Glensanda				**-**
Killundine	12	24	6	**42**
Kilmaleu				**-**
Kingairloch	25	45	12	**82**
Kinlochteacuis	9	13	2	**24**
Laudale	32	32	13	**77**

2014/2015

	Stags	Hinds	Calves	Total
Ardtornish	46	79	36	**161**
Carnoch	12	7	2	**21**
Drimnin	14	3	2	**19**
FES Lochaline				**-**
Glensanda				**-**
Killundine	13	22	10	**45**
Kilmaleu				**-**
Kingairloch	41	100	22	**163**
Kinlochteacuis	11	18	4	**33**
Laudale	30	40	17	**87**

3.3. HIA Returns

	HIA	Notes
Ardtornish	159 plots (mapped)	May 2017 survey, 50 from deciduous woodland, 30 from both blanket bog and mat-grass. 26 from dry heath and 23 from wet heath.
Carnoch	22 plots (mapped)	(Carnoch south) 12 native woodland, 3 blanket bog and 12 dwarf shrub heath. 9 remeasured 3 years on in 2017, results near identical.
Drimnin	30 plots	10 plots per year, all dwarf shrub heath.
FES Lochaline	Yes	Assessment Given 2017
Glensanda	Yes	SAC Consultant in charge of habitat monitoring. Full Glensanda Biodiversity plan 2016-2020 completed.
Killundine	No	Aware of concerns about negative impacts on the condition of woodlands within the Drimnin-Killundine SSSI. Accepted that monitoring of impacts within SSSI woodlands needs to intensify.
Kilmaleu	No	None have been done yet - however it is intended to start soon
Kingairloch	6 plots (mapped)	HIA commenced and waiting for futher direction. Visual monitoring of different habitats constantly taking place.No designated site areas, heather looks to be in reasonable condition. Ptarmigan, Woodcock and grouse seen in greater numbers.
Kinlochteacuis	6 plots (mapped)	Plots established in 2016/2017. Aim for 2018 to establish extra plots.
Laudale	30 plots	Monitored annually in spring

3.4. Training and Competence

Courses Undertaken

Course:	Ardtornish	Carnoch	FES Lochaline	Glensanda	Killundine	Kilmaleu	Kingairloch	Kinlochteacuis	Laudale
ATV (sit in)	Y	Y	Y		Y		Y	Y	Y
ATV (sit astride)	Y	Y	Y	Y	Y		Y	Y	Y
DSC 1	Y	Y	Y	Y	Y	Y	Y	Y	Y
DSC 2	Y	Y	Y		Y	Y		Y	Y
Game Meat Hygiene	Y	Y	Y		Y	Y		Y	Y
First Aid (Lone Worker)	Y	Y	Y		Y				Y
Manual Handling Awareness	Y				Y				
Habitat Assessment Training		Y						Y	
Night Shooting		Y							
Deer Management		Y			Y				Y
Lone Working					Y				
SNH Fit & Competant		Y			Y			Y	Y

SQWV Registered

	Registered?	Notes
Ardtornish	No	*Working towards, larder getting upgraded.*
Carnoch	Yes	*Also registered with Highland Council as food business*
Drimnin	N/A	*On site larder not used*
FES Lochaline	Yes	-
Glensanda	N/A	*No larder*
Killundine		*Old questionnaire used, no section including this*
Kilmaleu	No	*Would consider*
Kingairloch	Yes	
Kinlochteacuis	Yes	*Also carries out culling for SWT ground so covers their SQWV requirement*
Laudale	Yes	*Venison Dealers License Also*

Best Practice Guidance

	Aware of Guidance?	Notes
Ardtornish	Yes	*Hard and electronic copy*
Carnoch	Yes	*Confirmed*
Drimnin	Yes	*Confirmed*
FES Lochaline	Yes	*Confirmed*
Glensanda	Yes	*Confirmed*
Killundine	Yes	*Confirmed*
Kilmaleu	Yes	*Confirmed*
Kingairloch	Yes	*Confirmed*
Kinlochteacuis	Yes	*Confirmed*
Laudale	Yes	*Confirmed*

3.5. Member Participation

	Spring '16	Autumn '16	Spring '17	Summer '17	Autumn '17	Spring '18	Summer '18	Autumn '18	Attendance %
Ardtornish	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	**100%**
Carnoch	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	**87.5%**
Drimnin	Yes	No	Yes	No	No	No	No	Yes	**37.5%**
FES Lochaline	Yes	No	Yes	Yes	Yes	Yes	No	Yes	**75%**
Glensanda	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	**100%**
Killundine	Yes	No	Yes	Yes	No	No	No	Yes	**50%**
Kilmaleu	No	No	Yes	No	Yes	No	Yes	No	**37.5%**
Kingairloch	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	**87.5%**
Kinlochteacuis	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	**100%**
Laudale	Yes	Yes	Yes	Yes	Yes	No	No	Yes	**75%**

SNH Glencripesdale is represented at meetings by Lorraine Servant, whom is known to have 100% attendance rate. Though Glencripesdale estate has not yet participated, actions are ongoing to encourage this.

3.6. Commercial and Native Woodland

	Commercial Woodland	Notes	Native Woodland (+Creation)	Notes
Ardtornish	**600ha**	Managed by Andrew Raven Ardtornish Woodland Settlement. Plans to fell 28ha and no current expansion plans, likely to reduce long term.	**1450ha**	(Semi-natural). Plans to increase significantly. 128ha planted by end of 2018 in 4 new blocks. Looking to repeat again in 2019 and 2020.
Carnoch	**None**	-	**907ha**	Established and fenced in 1997. Significant open ground within fence. Several infill areas of NW planned for 2018/2019 planting.
Drimnin	**733ha**	25ha added 2018, no specific plans from addition at present.	**477ha**	10 ha added in 2018 and plans for significant regeneration/supplementary planting for implementation 2019/2020
FES Lochaline	**4400ha**	(Approx. calculated using NFI)	**620ha**	(Approx. calculated from NWSS)
Glensanda	**None**	-	**90ha**	Oak woodland, to be fenced off for preservation of habitat.
Killundine	**460ha**	-	**190ha**	
Kilmaleu	**None**	-	**120ha**	-
Kingairloch	**150ha**	Deer have access to all conifer plantations for shelter	**69ha**	New native woodland created in 3 blocks, open access between so deer can pass through via low ground.
Kinlochteacuis	**5ha**	5ha existing conifer woodland, no additional planned	**120ha**	No plans passed at present, but consideration being given to future woodland extension. Application lodged 2018 for woodland grazing and restoration project.
Laudale	**507ha**	25ha of felling planned	**431ha**	No more planned

3.7. Peatland Restoration and Muirburn

	Peatland Assessment	Notes
Ardtornish	Yes	Feasibility study conducted in Feb 2018. Applied for funding to restore 32 hectares plus grant for further feasibility study in Uieann plantation.
Carnoch	No	Has not yet been properly considered. Intention to look further into this over the coming year.
Drimnin	Yes	Plans for re-stocking and regeneration are being developed/executed in order to restore peatland
FES Lochaline	No	-
Glensanda	Yes	In quarry area
Killundine	-	-
Kilmaleu	No	Not yet considered.
Kingairloch	-	-
Kinlochteacuis	Yes	Survey undertaken Autumn 2017. Application has been made to implement some works outlined to restore peatland habitat and improve moorland grazing.
Laudale	No	

	Muirburn	Notes
Ardtornish	Yes	March 2018: 185ha of rank Molinia in white glen hill park, similar planned adjacent in spring 2019
Carnoch	No	None since 1997 and none planned. Excluding arsonist in 2013 which burnt 52ha native woodland and 22ha hill ground at east of Carnoch south.
Drimnin	No	Undertaking an annual program of cutting rather than muirburn.
FES Lochaline	No	-
Glensanda	No	None since 2000, none planned.
Killundine	No	None takes place due to the threat of damaging surrounding large woodland areas
Kilmaleu	No	None recently and none considered.
Kingairloch	Yes	Map sent showing 2014, 2015 and 2018 burning.
Kinlochteacuis	No	None undertaken and none planned
Laudale	Yes	Spring Molinia grass burning due to loss of heather (caused by overgrazing) being replaced by Molinia
SWT	No	-

3.8. Deer Welfare and Poaching Measures

Member	Deer Welfare Measures
Ardtornish	Farm cleared c.500 sheep from open hill, further reductions considered. Deer population planned to reduct by 510.
Carnoch	800 ewes plus followers removed 1997. Native woodland fenced now porous allowing deer - provides winter shelter. Stock fenced raised to deer fence around regen plot in 2017. Non-native deer culled, older/poor condition beasts targeted. Cull/target population agreed in collaboration with the group.
Drimnin	Deer are being culled in accordance with the DMP which is designed to protect habitat including maintaining zero or minimal population in woodland areas.
FES Lochaline	Cull to reduce density allowing woodland regeneration
Glensanda	Monitoring, selective culling of weak, old and infirm to help preserve native woods.
Killundine	Management remains adaptive, will respond to ongoing monitoring results. Additional counts undertaken during rut for more accurate assessment. Management continues to shoot through ages. Woodland deer populations and culls assessed in line with woodland objectives. Hill ground completely enclosed so cull patterns will not affect neigbours.
Kilmaleu	Cull mature and old stags with poor heads. Old hinds and hinds with poor calves.
Kingairloch	Follow best practice guidance with careful selection process. Keeping sheep off to lessen impact by similar grazers.
Kinlochteacuis	Numbers are variable due to migration, which may also positively skew count figures. Cull targets are agreed with neighbours and other group members. Salt, mineral and energy licks on open hill. 5 acres of re-seeding in Autumn2016, der have access to low ground and woodland for shelter. 1.5km redundant deer fence removed and replaced with stock fence where necessary to give deer access to better grassland.
Laudale	Old & poor stags on hill. SSSI & other woodlands: deer shot in small groups.

	Poaching Measures
Ardtornish	Gated and locked tracks to estate interior. Staff encouraged to be vigilant.
Carnoch	Local knowledge and word of mouth. Regular site presence. Vehicular gates to hill tracks kept locked. Police presence on A861/A884.
Drimnin	There have been no known instances of poaching owing to the remote location.
FES Lochaline	None
Glensanda	Constant vigilance - none witnessed to date.
Killundine	Liaison with police & fellow deer management group members, local word of mouth. Presence on site.
Kilmaleu	None
Kingairloch	Not perceived as a problem, all residents are well used to keeping an eye on all vehicle movements.
Kinlochteacuis	Vehicular hill track gate is locked, pedestrian gate open to allow walkers.
Laudale	Spotlighting for vermin control shows presence and studying deer behaviour in spotlight.

3.9. Other Public Interest Benefits

	Other Public Benefits
Ardtornish	Visitor business employing 5 full-time and 3 part-time staff. Hydropower and biomass contributing to carbon capture as well as woodland plans.
Carnoch	Carbon capture through peatland, woodland and hydro. Venison production. Ragwort and Rhododendron control. Provision of local housing. Trade for local shops, restaurants, attractions and other businesses through estate work and guests.
Drimnin	Public access is encouraged and existing footpaths have been waymarked. Now footpaths have been created and more planned. Bracken control is being undertaken each year.
FES Lochaline	All Land Managed for public access
Glensanda	Isolated industrial site with no road access. Right of way maintained and walkers are welcomed.
Killundine	
Kilmaleu	
Kingairloch	Host chainsaw felling courses, timber is used for biomass systems. Footpaths/mountain biking trails have been built with signage and parking provided. Up to 50 guests weekly in self-catering or bed and breakfast. 10 full time residents enjoy seeing deer, photographing and stalking. Venison is processed and use in Boathouse Bistro.
Kinlochteacuis	Plan in place with SWT to reduce grazing pressure on SSSI. 25 acres of reduced rush cover by topping, spraying and weed wiping. Ragwort and Japanese Knotweed eradication programme. Domestic livestock removed from SSSI salt marsh. Bracken trampling 2015/2016 3 acres. Collaborated increasing book with local estate walks. Access track created 2016 east of main hill road. Hydro-electric scheme contributing to carbon targets. Production of Venison. Local employer. H&S: Lone working Spot gen alarm and procedures in place.
Laudale	Local shops, hotels and estates used by stalking guests.

See appendix 4.9. for public access facilitation details.

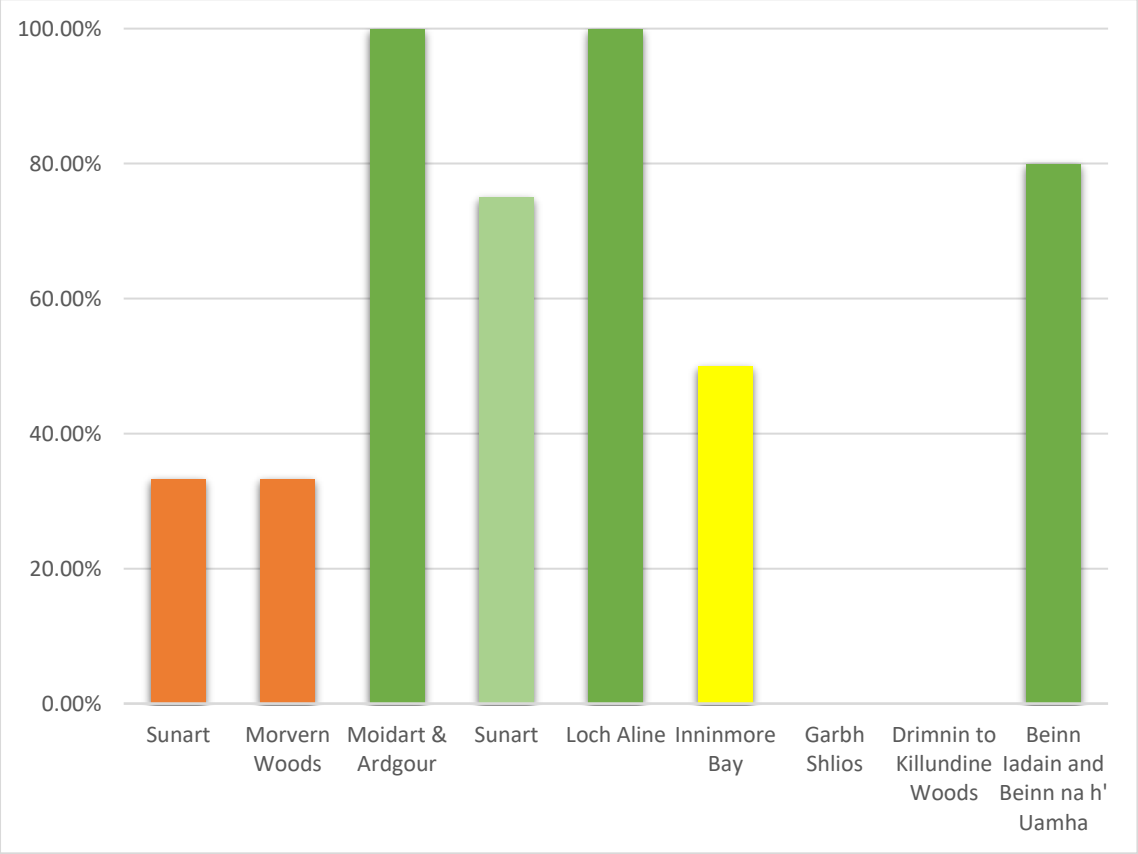
4. APPENDIX 4: OTHER DOCUMENTS

4.1. Designated Sites Condition Summary

Summary of Designated Sites

Site Name	Designation	Sitelink No.	No. of Features	Site Size (ha)
Sunart	SAC	8389	6	5,519.13
Morvern Woods	SAC	8331	3	1,924.86
Moidart & Ardgour	SPA	10115	1	41,426.37
Sunart	SSSI	8174	16	5,519.13
Loch Aline	SSSI	1653	3	86.05
Inninmore Bay	SSSI	810	2	127.94
Garbh Shlios	SSSI	8118	1	1,003.93
Drimnin to Killundine Woods	SSSI	530	2	187.45
Beinn Iadain and Beinn na h' Uamha	SSSI	8199	5	1,616.38

Percentage of Features in Favourable/Recovering Condition by Site:



Summary of Site Conditions:

Site Name	***Features***	***Features Favourable /Recovering (%)***	*Avg. Year of Assessment*
Sunart (SAC)	6	33.33%	2011
Morvern Woods (SAC)	3	33.33%	2013
Moidart & Ardgour (SPA)	1	100.00%	2010
Sunart (SSSI)	16	75.00%	2009
Loch Aline (SSSI)	3	100.00%	2008
Inninmore Bay (SSSI)	2	50.00%	2011
Garbh Shlios (SSSI)	1	0.00%	2014
Drimnin to Killundine Woods (SSSI)	2	0.00%	2014
Beinn Iadain and Beinn na h' Uamha (SSSI)	5	80.00%	2011

4.2. Designated Woodland Features Summary

Name	Feature	No. of Plots	No. of Targets Failed (of 14)	Target No (% of plots failed): 1	2	3	4	5	6	7	8	9	10	11	12	13	14	Herbivore Impact
Beinn Iadain and Beinn na h-Uamha (SSSI)	Upland Oak Woodland	10	5	20.0%	0%	50.0%	0%	0%	0%	0%	70.0%	80.0%	60.0%	0%	0%	0%	0%	**High**
Drimnin to Killundine Woods (SSSI)	Upland Oak Woodland	6	5	16.7%	0%	33.3%	0%	0%	0%	0%	83.3%	66.7%	50.0%	0%	0%	0%	0%	**Moderate to High**
Drimnin to Killundine Woods (SSSI)	Upland Mixed Ash Woodland	14	4	42.9%	0%	0%	0%	0%	0%	0%	78.6%	57.1%	57.1%	0%	0%	0%	0%	**Moderate to High**
Garbh Shlios (SSSI)	Upland Oak Woodland	11	5	0%	0%	90.9%	0%	0%	0%	0%	100.0%	90.9%	81.8%	0%	0%	0%	0%	**High to Very High**
Inninmore Bay (SSSI)	Upland Mixed Ash Woodland	9	4	11.1%	0%	0%	0%	0%	0%	0%	100.0%	77.8%	77.8%	0%	0%	0%	0%	**Moderate**
Loch Aline (SSSI)	Upland Mixed Ash Woodland	10	4	30.0%	0%	0%	0%	0%	0%	0%	90.0%	40.0%	90.0%	0%	0%	0%	0%	**High**
Morvern Woods (SAC)	Western Acidic Oak Woodland	27	5	7.4%	0%	51.9%	0%	0%	0%	0%	85.2%	74.1%	63.0%	0%	0%	0%	0%	**High**
Morvern Woods (SAC)	Mix. Wood. Feature and Atlantic Hazelwood	36	4	27.8%	0%	0%	0%	0%	0%	0%	81.6%	66.7%	75.0%	0%	0%	0%	0%	**High**

4.3. Updated Training Policy

MDMG is committed to increasing standards of competence and to offer and deliver, or to encourage, any necessary training for persons in relation to MDMG management practices in order to facilitate delivery of effective deer management. The group will support and encourage CPD through Best Practice Guidance which is considered the 'industry standard'.

The DMG recognise that members or staff carrying out deer control should achieve DMQ DSC1 or equivalent qualification as a minimum. 'Trained Hunter' status is also required to certify deer carcasses as fit for public consumption and DSC1 updated or attained WEF 01/01/2006 or the equivalent satisfies this requirement.
The DMG also recognise that members or their staff completing deer management work should attain DMQ DSC2 status.

All members deer controllers are encouraged to safeguard deer welfare by following the Best Practice Guidance and MDMG will encourage that DSC level 1 should be attained by anyone one undertaking practical deer control within the group.

The majority of retained stalkers or managers on individual MDMG properties hold DMQ DSC1 and a significant number DMQ DSC2 as well as other qualifications.
An 'MDMG Skills, Experience, Knowledge, Training and Certification Log' is updated periodically and demonstrates the competencies &etc. attained within the group and visually highlights any potential shortfalls of competence.

MDMG recognises that Deer managers supplying venison for public consumption are required to certify carcasses as fit for human consumption and to demonstrate due diligence and therefore the "Trained Hunter" status is required for carcass certification. The Group is committed to promoting "Trained Hunter" status and encouraging those handling carcasses to obtain suitable training.

MDMG will respond to suggestions or requests to assist with or arrange specific training for members or staff.

Examples of training offered for group members and staff have included SNH HIA Training, ATV Sit Inside Training and Certification, ATV Sit Astride Training and Certification.

4.4. River Basin Management Planning

There are no catchments in the MDMG area identified as a priority for completion of a River Basin Management Plan during the next SEPA working period of 2015-2027. However, DMG members who are involved in local fisheries management will be delivering some of the wider actions of the national RBMP.

Some members of the MDMG have confirmed that they have granted permission to SEPA to complete basic river habitat monitoring work.

MDMG have considered this and concluded that no further action is required at this stage, however, the members will, of course, contribute to River Basin Management Planning as appropriate should Sepa make any request.

4.5. MDMG Economic Costs and Benefits

ADMG, the LDNS and the Scottish Gamekeepers Association commissioned a study by ‘’Public and Corporate Economic Consultants’’ (PACEC) titled ‘The Contribution of Deer Management to the Scottish Economy’. The key findings relevant to Scotland for 2013/14 were:

Economic headlines from the report show:

- £140.8m of expenditure in Scotland is reliant on deer management.
- Of this, £43.1m is directly due to deer management activities.
- There were 2,532 jobs in deer management of which 1,372 were known to be paid and 966 unpaid. The full-time equivalent is estimated at 845 FTEs.

More detail and the full report can be found via the following link: -

http://www.deer-management.co.uk/deer-management-scotland/value-to-the-scottish-rural-economy/

Deer stalking continues to grow in popularity with increased domestic and international demand for stalking opportunities. Some of this demand for deer stalking is satisfied in the Morvern area with many landholdings offering deer stalking on a commercial basis.
The annual group cull is forecast to be around 300 stags and 550 hinds/calves. Using average values for a day’s stalking stags and hinds/calves we see a potential group value in excess of £200k. p.a.

With a venison value to the producer of £2.00 per kilo, the value of venison culled within Morvern annually is IRO £80k. p.a. Game dealers and following trades/retailers add value to the venison processing it into healthy sustainable food and maintaining yet more jobs in the deer sector and contributing further to the local and national economy. Some of the Morvern venison is processed through a local business established 20+ years located in a neighbouring DMG area which is adding value by producing a quality branded product.

Deer stalking visitors, both domestic and international contribute to the local economy through the MDMG area with money spent in local hotels, B&B’s, self-catering, shops, garages & etc. and while the value is difficult to quantify this is a valuable revenue stream to local businesses much of which is particularly useful as it is often outside of the main tourist seasons.

Many domestic and international tourists come to Morvern in the hope of seeing wild red deer, as well as the other wildlife, landscapes, flora and fauna our remote area has to offer. Most DMG members will offer advice on where best to walk or cycle as well as offering other activities that may be enjoyed. Guided walks or tours are offered within the DMG area to enable tourists to get the very best from the area and wildlife. Again, this tourism contributes to the local economy with money spent in local hotels, B&B’s, self-catering, shops, garages & etc. and while the value is difficult to quantify this is a valuable revenue stream to local businesses.

Within the MDMG area, a number of people are engaged in deer management some full and some part-time. It is estimated that there is 12 Full-Time Equivalent (FTE) jobs. Using

standard values, we see a potential group value of £480k. p.a. It is anticipated that the imposition of sporting rates will have a negative effect on employment prospects within the MDMG. With many landholdings having submitted appeals until these are resolved it will be difficult to quantify the negative effects.

Taking the above quantifiable economic benefits into account and allowing for a local multiplier to account for the supporting and supported trades, businesses &etc. we see a total benefit to the Morvern area in the region of £1.5m. p.a. providing much-needed revenue and employment to the fragile local economy.

Deer stalking and deer management are only one of a number of ways many of the Morvern landholding businesses generate economic benefits for the area. Farming, hydro-electricity, forestry, tourism, fishing, housing (provision of, construction & maintenance) and other integrated activities etc. all play an important role in the economics of the area, bringing investment, revenue and much-needed employment to the fragile local economy.

There is some larder sharing where practical. In one case a local deer management business is responsible for the deer management on several properties with carcasses from these Morvern landholdings processed with those from other local landholdings through a single larder located in a neighbouring DMG area. In other cases, deer management is carried out by a neighbour who processes all deer carcasses from each landholding through a single larder. Consideration was given to other opportunities for further larder sharing at meetings in the past, but issues arise over practicality including SQWV registration. e.g. It would not be possible for non SQWV accredited personnel to process carcasses through an SQWV registered facility whilst maintaining SQWV compliance. Or, for a SQWV producer to process carcasses through a non SQWV larder. Most other landholdings now have their own deer larder and chill and with SQWV encouraged within the MDMG many of these are now SQWV registered or with registration pending.

The selection of game dealer is discussed and negotiated via the MDMG periodically with members agreeing on and using the selected game dealer. This helps maximise benefits from venison production whilst at the same time reducing carbon costs. One negative of this policy of ‘all our eggs in one basket’ is, should the selected game dealer become insolvent the whole group potentially loses its venison income for a period and this has occurred three times in recent history.

Actions to minimise the economic cost of deer and ensure deer management is cost-effective.

Throughout the Morvern DMG capital investment has been made in infrastructure, plant and equipment. Notable amongst these are deer larders/chillers, off and on road vehicles. Collectively these would have an approximate capital purchase value of £500,000. It should be noted that on many landholdings much of this capital equipment will be used for other purposes as well as deer management with e.g. both on and off-road vehicles used in farming, forestry etc.

There is some larder sharing where practical. In one case a local deer management business is responsible for the deer management on several properties with carcasses from these

Morvern landholdings processed with those from other local landholdings through a single larder located in a neighbouring DMG area. In other cases, deer management is carried out by a neighbour who processes all deer carcasses from each landholding through a single larder. Consideration was given to other opportunities for further larder sharing at meetings in the past, but issues arise over practicality including SQWV registration. e.g. It would not be possible for non SQWV accredited personnel to process carcasses through an SQWV registered facility whilst maintaining SQWV compliance. Or, for a SQWV producer to process carcasses through a non SQWV larder. Most other landholdings now have their own deer larder and chill and with SQWV encouraged within the MDMG many of these are now SQWV registered or with registration pending.

There are extensive hill roads and tracks throughout Morvern, often built for forestry, farming and hydro-electricity generation schemes &etc. which facilitate ease of access in many cases for deer management purposes.
There is an extensive fencing network throughout Morvern much was originally livestock fencing subsequently raised to deer fence. Other deer fencing was raised to deny access to the deer from their range in order to create or re-generate forestry and woodlands or for agricultural purposes.

Some woodland and forestry interests are being impacted by deer, notably the designated sites on Ardtornish and on the FES woodlands where fences are porous. Ardtornish is progressing with a programme of deer and domestic livestock density reduction in conjunction with fencing to address their issues. FES continue to maintain their culling effort also utilising out of season and night shooting culling to minimise the impacts. It is noted here that emigration of deer, particularly stags from open range into woodlands through porous fences coupled with the reduction in deer density on Ardtornish will have a negative effect on the economic interests of some sporting enterprises.

Otherwise, there are no instances of agricultural damage reported for the MDMG area although this will be kept under review and should there be any agricultural damage reported to the MDMG appropriate action will be considered and taken to resolve the problem.

There are relatively few instances of DVC's reported for the MDMG area although this will be kept under review and should there be an increase in DVC numbers appropriate action will be considered and taken to control the problem.

The selection of game dealer is discussed and negotiated via the MDMG periodically with members agreeing on and using the selected game dealer. This helps maximise benefits from venison production whilst at the same time reducing carbon costs. One negative of this policy of 'all our eggs in one basket' is, should the selected game dealer become insolvent the whole group potentially loses its venison income for a period and this has occurred three times in recent history.

Scottish Governments recent imposition of Sporting Rates is seen by many members to be an unwarranted and unwelcome additional cost which will have a negative effect on deer management both locally and nationally. It is also anticipated that this imposition of sporting rates will have a negative effect on employment prospects within the MDMG. Morvern DMG has encouraged all members to appeal against their individual Sporting Rates Levy. With many landholdings having submitted appeals, until these are resolved it will be difficult to

quantify the negative effects. A summary of the final rates imposed across the group will be prepared after the outcome of the appeals. The membership is of the opinion that properties that are members of and comply with DMG actions should in any case be exempted from Sporting Rates on the basis of the increased costs of compliance with Government requirements on the ‘Benchmark’ and the ‘Public Interest’.

Up to date information on the above will be gathered on the Morvern DMG annual audits, considered and reported on.

4.6. Letter to Historic Environment Team Highland Council

P Lawson
C/O Kinlochteacuis,
Morvern, Highland,
PA80 5XE.
26/03/2019

Historic Environment Team,
Highland Council,
Glenurquhart Road,
Inverness,
IV3 5NX.

Dear Historic Environment Team,

I am writing as chair of the 'Morvern Deer Management Group' MDMG. We, as a group manage the deer in Morvern bounded to the North by the A861 from Carnoch to Inversanda and by the sea on all other sides.

More information about our group can be found on the following link http://morverndmg.deer-management.co.uk/ where you can find our current Deer Management Plan, contact details and other information.

Whilst we give consideration to deer and deer management impacts to the historic environment on an ongoing basis, I would ask that should your team become aware of any negative deer or deer management impacts in our management area that you make contact with the MDMG via the contact details on the website so that we may address any issues.

Yours sincerely,

Peter Lawson.
Chair MDMG.

4.7. HIA Plan and Grazing Impact Targets

INTRO:	
The role of MDMG is to guide a broad-brush approach to deer grazing impacts within the Peninsula and the defined sub groups. The monitoring methodology should be appropriate to the skill set of stalkers and deer managers.	
METHODOLOGY:	
For the sake of consistency, the following habitats should be monitored by the group to SNH BEST PRACTICE GUIDANCE methodology.	
TRAINING:	
Has been provided from SNH based on Best Practice Guidance. Blanket bog (BB) and Shrub Heath (SH) training took place in 2017. Training for Native woodland (NW) monitoring is required and has been requested to SNH, this is to be confirmed.	
NUMBER OF PLOTS:	
30 plots of each habitat type randomly selected across each sub group (it is expected this will average in the region of 1plot/100Ha).	
AIM:	
To assess baseline data by 2020, aim to reach targets by 2025 or to reach 'Unfavourable, Recovering', due to management.	
S-specific	Yes
M-measurable	Yes
A-agreed upon by stakeholders	TBC at Spring meeting (23/04/19). Has been circulated.
R-realistic	Yes
T-time bounded	Yes
TARGETS	
1. *Designated woodland sites*	80% low/medium impacts (currently 37%)
2. *Designated upland sites*	80% low/medium impacts
3. *Salt marsh*	Generally medium impact
4. *Upland open range (including non-designated site)*	70% low/medium impact (<30% high impact) Blanket bog: <30% high impact
5. *Native woodland (non-designated sites)*	60% low/medium impacts (currently 67% for native species wood and 76% for

	PAWS).
6. Other woodland *a. Commercial Forestry* *b. Continuous Canopy Forestry*	 NO target for established woodlands 60% low/medium impacts

This plan is not intended to replace more detailed monitoring that individuals may wish to undertake, but rather to provide a holistic overview of the grazing impact within the Morvern Deer Management Group Range. Landholdings will need to engage individually with SNH where they contain SSSI or SAC sites and may need to agree more stringent targets. It is recognized that the most robust method for the protection of designated sites is often by the exclusion herbivores by deer fencing

4.8. Detailed Table of Member Objectives

	Upland Farm	Lowland Farm	Native Woodland	Commercial Forestry	Upland Conservation	Venison Production	Commercial Stalking	Renewables	Peatland Conservation	Salt marsh	Tourism	Quarrying	Distillery
Ardtornish	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes		
Kingairloch	Yes		Yes	Yes		Yes	Yes	Yes			Yes		
Glensanda			Yes		Yes	Yes						Yes	
Laudale		Yes	Yes	Yes		Yes	Yes	Yes			Yes		
Carnoch		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		
Kinlochteacuis	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
SWT	Yes	Yes	Yes								Yes		
Drimnin	Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes		Yes
Killundine	Yes	Yes	Yes	Yes		Yes							
Glencripesdale			Yes	Yes									
SNH Glencripesdale			Yes										
Morvern Commmunity Woodland			Yes	Yes							Yes		
Carna			Yes								Yes		
Oronsay Island			Yes										
Scottish Forestry		Yes	Yes	Yes	Yes	Yes	Yes	Yes					

4.9. MDMG Public Access Facilitation

- Members of the MDMG have been consulted on and cooperated with the production of a book of Morvern Walks.
- All land holdings (with road access) provide some parking often in multiple sites.
- Notice boards have been erected to identify primary paths.
- SWT have descriptive boards at the Acharn car park.
- Suitable signs are displayed during culling activities to direct access.
- Pedestrian access has been provided beside cattle grids & styles have been erected over deer fences.
- Members have collaborated to facilitate group expeditions – Duke of Edinburgh, cycling, Walking and equestrian trekking.
- Horseback travellers have been given access to paddocks and grazing.
- Properties liaise with wildlife tour operators and SWT provide ranger guided walks.

Table of Member Public Access Facilities:

	Parking	Marine Access	Walking Tracks	Signage	Gates Beside Cattle Grids	Pedestrian Gates	Styles
Ardtornish	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kingairloch	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Glensanda		Yes	Yes	Yes			
Laudale	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Carnoch	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kinlochteacuis	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SWT	Yes		Yes	Yes	Yes	Yes	Yes
Drimnin	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Killundine	Yes	Yes	Yes	Yes		Yes	
Glencripesdale		Yes	Yes		Yes	Yes	Yes
SNH Glencripesdale	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Morvern Commmunity Woodland	Yes	Yes	Yes			Yes	Yes
Carna	Yes						
Oronsay Island	Yes						
Scottish Forestry	Yes	Yes	Yes	Yes	Yes	Yes	Yes

4.10. List of MDMG Collaborative Deer Management Action

1. *Kingairloch, Laudale and Ardtornish have shared monthly hind cull data to help deliver a sustainable cull and ensure there is not over persecution or under culling on their marches.*

2. *Kinlochteacuis and SWT: Kinlochteacuis has taken the hind cull for SWT. There has been monthly feedback on count data collected by SWT warden. Cull data has been given to SWT. There has been discussion on modifying cull targets and collaboration on HIA monitoring including calibration between surveyors.*

3. *Kinlochteacuis has removed and stored redundant fencing wire for SWT*

4. *East loch Shiel and MDMG regularly share information*

5. *Kingairloch help Glencripesdale with culling in enclosures*

6. *FCS maintain good boundary fences and are good at keeping gates closed and repairing breeches in fences- discussed at past mdmg meetings*

7. *Kinlochteacuis has facilitated access for Ardtornish to remove sheep from SWT ground.*

4.11. Invasive Species Action Summary

This document details the current presence of Rhododendron, Japanese Knotweed, Bracken and Ragwort within the member properties of MDMG, in addition to eradication/control actions being undertaken. This is to be reviewed annually at Spring meeting.

Rhododendron

	Present	Action
Ardtornish	Yes	Trying to eradicate
Carnoch	Yes	V. small amount
FCS	Yes	Active
Glensanda	No	No action required
Killundine	Yes	-
Kingairloch	Yes	Arrival cut & spray regrowth
Kinlochteacuis	No	No action required
Laudale	Yes	Very small amount sprayed/removed
SWT	Yes	-
	70%	

Japanese Knotweed

	Present	Action
Ardtornish	Yes	Regular spraying
Carnoch	Yes	
FCS	Yes	Active
Glensanda	No	
Killundine	No	
Kingairloch	Yes	
Kinlochteacuis	No	Eradication programme completed 2017 - reviewed annually
Laudale	Yes	Regular on small amount
SWT	No	
	50%	

Ragwort

	Present	Action
Ardtornish	Yes	
Carnoch	Yes	
FCS	Yes	Active
Glensanda	No	
Killundine	Yes	
Kingairloch	Yes	Digs pull burn nearly gone
Kinlochteacuis	Yes	Eradication nearly completed
Laudale	Yes	Removed, but reseeding as quick as removed
SWT	No	
	70%	

Bracken

	Bracken	Action
Ardtornish	Yes	Some spraying
Carnoch	Yes	Used to pull out but pointless with seed source on neighbours. Replenishing each year.
FCS	No	
Glensanda	No	
Killundine	Yes	
Kingairloch	Yes	Would like to spray
Kinlochteacuis	Yes	To be considered under AECS 2019-20
Laudale	Yes	
SWT	No	
	60%	

4.12. Deer Condition Record 2018/19

	Hinds and Calves			Stags		
Estate	**% Good Condition**	**%Poor Condition**	**Notes**	**% Good Condition**	**%Poor Condition**	**Notes**
Ardtornish	25%	75%	Poor at start of season but improved up to Christmas	90%	10%	
Carnoch	50%	50%	Good generally at the start of the season falling back towards the end	75%	25%	
FCS	100%	0%		100%	0%	
Drimnin	70%	30%	Calves average	90%	10%	
Killundine	90%	10%	Calves very good	90%	10%	
Kingairloch	50%	50%		80%	20%	
Kinlochteacuis	50%	50%		85%	15%	
Laudale	50%	50%	More old hinds shot than normal, calves poorest since 2011	90%	10%	Lack of mature stags
SWT	50%	50%				
SNH Glencripesdale	80%	20%	Good condition, fewer calves than normal			None shot
Glencripesdale Estate (enclosed)	90%	10%		90%	10%	
AVERAGE:	64%	36%		88%	12%	

APPENDIX 5: POPULATION MODEL

4.1 Historic Count and Cull Data

(Attached separately as PDF)

4.2 Forward Looking Population Model

	2019				2020		
	Stags	**Hinds**	**Calves**		**Stags**	**Hinds**	**Calves**
West	450-470	590-700	244		490-510	650-660	230
North East	262-292	355-365	100-120		262-292	345-355	115-120
South East	460-465	670	240-260		470-480	620-630	235-240
Summed Catchment	1190-1210	1715- 1730	600-625		1250-1265	1620-1640	580-590
Whole Catchment model	1110	1690	610		1155	1630	580-590
	2021				**2022**		
	Stags	**Hinds**	**Calves**		**Stags**	**Hinds**	**Calves**
West	525-540	640	224		550-570	600-610	212
North East	260	330-350	113-118		260-290	320-335	108-114
South East	480-490	570-580	215-220		475-480	600-610	230
Summed Catchment	1270-1285	1545-1560	550-560		1300-1320	1530-1545	550-560
Whole Catchment model	1190	1560	560		1200	1480-1490	530-540

4.3 Explanatory Document

***The process*:**

1. OK. In reading through all this please be aware that population modelling is not a precise science (particularly where some of the input variables may change through time as the populations respond to what is being done to them).

2. Further: the models developed here are inevitably constrained by the data available to me as inputs, which in places remained patchy. For some properties I have had to work around the fact that there were no count or cull data available at all; in other cases there were formidable gaps between counts (especially when combined to try and arrive at composite estimates for a wider, regional area - when absence of one property in one year makes the 'group' count incomplete). Finally, even where counts were available, as I worked through the figures it became clear that some of them were obviously inaccurate – or strongly influenced by immigration into and area or emigration from that area of groups of animals on that particular day of the count, such that counts were not representative of what was more typically resident on the ground. [This becomes obvious when numbers counted in a given year, whether of stags or hinds, simply cannot be biologically possible, given previous numbers counted and known culls].

3. **Thus although outputs appear rather precise (exact figures) this precision is illusory and figures are indicative approximations at best.**

4. By way of preamble: My 'concerns' about the model currently used by SNH is that for correct application it requires information about summer calving rates and calf mortality over the first year of life. Neither metric is commonly recorded by managers and thus in common usage, SNH staff insert end of winter recruitment rates in the model place of the actual summer calving rate. This is in practice a) applied to the wrong population of hinds; and b) means that in effect they remove overwinter mortality of calves twice (since a later element of the model asks for that mortality).
In consequence the modelling offers an underestimate of the rate at which hind populations in particular will grow under given circumstances. My models are based instead on application of the actual end of winter recruitment rate (surviving calves per 100 hinds in end of winter counts) applied to the end of winter population of hinds. This avoids the above error and actually, by the same token avoids the need to estimate calving rate, or overwinter mortality of calves (whether natural mortality or imposed (cull) mortality, since it conveniently integrates the whole lot.

5. In addition the SNH model makes no allowance for immigration or emigration (or other unexplained losses). My models attempt to take account of that immigration and emigration and indeed to make an estimate of additional 'unexplained' losses from a population. In our case here, this enables us to get around the issue that we have no count or cull figures for some properties within the catchment and also makes some adjustment for animals 'caught up' in Forestry Commission culls where they may have got into FC enclosures.

6. In effect one can make an estimate for these 'unexplained losses' by running the model over a period of known counts and culls, making adjustments to certain of the parameters until the predictions accurately track the actual counts recorded in successive years. This is known as 'training' of the model over a period of known counts until it 'fits' a run of known counts satisfactorily.

7. The process also highlights years (as above) where counts must be inaccurate or unrepresentative since they are simply not biologically consistent with counts of the preceding and succeeding years
(indeed in some cases counts are simply not biologically possible given the counts of the immediately preceding years and known culls).

8. The way it works is this: If you take as a starting population the actual count recorded in Year X, you can estimate what should be the expected population count in Year X+1 by adding the average calculated level of expected recruitment (which we know from long runs of count data for each subGroup area) and removing the known culls. From any starting point using this same recruitment rate and known culls in successive years, you can roll forward and project expected population counts in Year X+1, X+2, X+3, X+4 and so on.

You cannot be sure that the actual recorded count in any start year X was accurate/representative of the true resident population, so it pays to do these projections forward from a number of different start years.

9. In many cases projected numbers in future years may be slightly higher (for hinds) or

substantially higher (for stags) than the numbers actually counted on the ground. This mis-match then gives you an estimate for losses which must be occurring in the population from other causes . Natural mortality (at about 2% per year) usually accounts for most of the 'unexplained' losses in hinds, but stag losses are often substantially higher than this and contain a measure of the losses through emigration. For the models introduced below I can estimate these and "train" the model by using counts (and known culls) from 2010 to 2016 and then 2018. I adjust the figure included for 'unexplained losses' until there is a reasonably good match between the models predictions for any year and actual counts. This then allows us to calculate some "average" estimate for net losses and gains other than through recruitment and known culling.

10. As above, it also allows us to highlight years where the counts simply are not biologically credible, or consistent with counts of years immediately prior or immediately following, allowing us to exclude these counts from model training and forward projections. These will be noted below

11. OK, we now have estimates for rates of unexplained losses to stag and hind populations under stable conditions which can be added to known culls and makes the model more realistic. [The only caveat I might offer is that they are calculated under management for stable state. The values MAY alter as things change. For example, as Ardtornish start their reduction culls rates of emigration of hinds may rise in the short term due to the disturbance. Similarly, changing population of hinds and changing distribution of those hinds on Ardtornish may affect movement of stags within the catchment. But we simply cannot predict these changes we have to go with what we have got for now].

12. Using those figures (and with the model thus "trained" on annual population counts from 2008 to 2018), we can then project forwards. But remember (and I must emphasise) that the model is now fixed and we are assuming that rates of recruitment as well as rates of immigration and emigration do not change from those established as averages over the period 2010-2018. We cannot be sure that this is valid: models are only as good as the assumptions you insert!

13. Models presented relate only to the discrete area north of Lochaline, thus do not extend to Drimnin or Killundine. In addition they exclude consideration of Kilmalieu and Inversanda as marginal to the main Group area. The properties included are therefore those of Ardtornish, Kingairloch, Glensanda, Laudale, Carnoch, Kinlochteacuis and the Rahoy Hills Reserve. Rahoy Estate are no longer members of the Group; this ground and that of SNH Glencripesdale were excluded because they are purportedly independent populations separated by secure fences from the main hill area. No data were made available from Glencripesdale Estate and I have had to accommodate that by adjustment of the "unexplained losses".

14. Models are separately developed for the discrete subpopulations identified in the MDMG management plan. It is accepted that there may be some movement between these areas at times, but argued that they are primarily comparatively self-contained – sufficient to allow separate models to be developed for the separate areas. In this case

- **West** includes that part of Ardtornish West of the road through the White Glen, Rahoy Hills Reserve, Kinlochteacuis, (Glencripesdale) and the West part of Laudale (west of the road)
- **South East** includes that part of Ardtornish to the East of the road through the White Glen, Glensanda and Kingairloch South
- **North East** includes the North part of Kingairloch, Carnioch and the East side of Laudale

[I have in fact tried other variations including combining North and South parts of Kingairloch into a single entity, but the above structure produced the most intelligible results]

I further developed predictions for the **Entire Catchment** both from developing a specific, catchment-wide, model and also by combining the predictions for the sub-areas listed above.

Model training and future projections:
15. By using runs of data between 2010 (sometimes 2012) and 2018, in each case trying to predict each subsequent count year, from a range of different starting points, I was able to establish:

West: Counts were in fact highly variable. Counts in years 2015 and 2016 were inconsistent with the rest of the population trajectory through time, suggesting significant undercounting of hinds over that period. A start year of 2012 gave the best prediction for 2014 and 2018 with an average 'unexplained loss rate' [natural mortality and other losses] at 0.035 of summer populations of hinds and 0.07 of summer stag populations [SNH usually accord a loss rate through natural mortality of 0.02] .

South East: In this case (and despite it having been a helicopter count) the count of 2018 is simply not credible given counts and culls of earlier years. By converse the count in 2010 is broadly consistent with the shape of the population trajectory in 2011, 2012, 2014 (remembering that 2014 was also a helicopter count in this area). In future models therefore I have used the 2010 starting year and subsequent trajectory rather than begin from what appears to have been an unrepresentative 2018 count. Unexplained losses were set at 0.04 for hinds and 0.11 for stags since such figures gave best fit to actual counts between 2010 and 2014. This high figure for 'export' of stags is consistent with models developed previously for both Ardtornish and Kingairloch as individual Estates and suggests significant losses of stags into the Forestry grounds.

North East: Counts were, again, highly variable between years (2014 returned an improbably high count of hinds, 2015 an artificially low hind count for consistency with all other count years). In this case I have run models forward into the future from both the 2012 and 2018 start points, with, in both cases, 'unexplained losses' at 0.01 of the summer hind population and 0.02 of summer stag numbers.

Whole Catchment: Here again, reported counts were somewhat erratic. On paper there appears to have been a sudden drop in populations between 2014 and 2015 with those lower figures sustained in 2016. But one simply cannot get to the reported 2018 figures from either 2015 or 2016 so one must suspect these were underestimates on the day. Predicting future populations, I have rolled forward from both 2010 and 2018 counts using an unexplained loss rate of 0.02 for hinds and o.09 for stags. I have also prepared predictions based on

summation of the separate outputs for models of the separate subpopulations (West, South East and North East) described from their individual models. Note that the 'additive' model predicts slightly inflated stag numbers when compared to the actual model run explicitly for the Whole Catchment, but hind numbers are broadly identical.

16. For all projections into the future I have used proposed cull figures presented by individual Estates or, where these were not available (in some cases Estates volunteered proposed culls for stags but not for hinds), I have inserted average culls taken on those Estates over the past 5 years.

17. I have presumed that while Ardtornish has proposed increased hind culls over the next 3 years in order to effect a reduction in hind population number and overall density, culls will return to maintenance in the season 2021/2022. In a similar way I have presumed that the small hind cull to be imposed on the Rahoy Hills Reserve over the next few years will not be sustained after 2021/22.

Results:

18. I have spreadsheets recording all the 'training runs' and (separately) the forward predictions in each area for 2019, 2020, 2021, 2022 if anyone needs them, but summarise the results in the table attached. Note that because in some cases I have projected forward from 2010/2012 and separately from the count in 2018, I offer approximate ranges within which numbers might be expected to fall. [I have NOT offered estimates for individual properties]; see table attached.

Interpretation: Working on the actual long-term sporting aspirations declared by each property (total number of stags to be shot each year added together for the component properties in each area), we can see that in the long term.

19. The **West subGroup** wishes to sustain a sporting harvest (total) of 40 stags per year. Presuming that this is to be met by mature stags of 7 years or older this would require from 2021 a stag population of the order 280; in practice predicted populations are well in excess of this requirement
Long term support of such a quota would require a hind population of around 250 mature hinds; once again projected numbers are well in excess of this minimum requirement.

20. The **North East subGroup** wishes to sustain a combined sporting harvest of 54 stags per year. By the same calculation this would require from 2021 a stag population of 375-380 to sustain a harvest of stags older than 7 years or around 325 stags if stags are harvested once past age 6. Projected numbers are slightly below this target required numbers are actually well within the margin of error associated with the model's predictions. Hind populations required to sustain this level of offtake in the longer term are calculated at between 330 and 350 mature hinds, which is virtually what the model is predicting will be present from 2021.

21. The **South East subGroup** wishes to sustain in the longer term (and after the reduction culls on Ardtornish are completed) a combined harvest of 48 stags per year. Equivalent calculations suggest a minimum requirement from 2021 of between 286 and 336 stags and some 300 hinds. Numbers projected from 2021 lie comfortably above these levels.

22. When considered at the level of the **Whole Catchment** as defined at paragraph 13, a total

stag harvest is required of around 200 stags per annum. This would require populations from 2021 of 1200 stags (if harvests are to be based on animals of 6 years or older) or 1400 stags if harvests are taken only of animals of 7 years and older. Required hind populations are of the order of 1270 for the catchment as a whole. Projected stag numbers fall towards the lower end of this requirement, but once again are well within the margins of error necessarily associated with any predictive model. Numbers of hinds projected (at around 1560 are slightly in excess of overall requirement, but again we should remember that there are inevitable margins of error associated with any forward projection given the necessary assumptions made in the model, and thus we might be comfortable that projections are broadly on target.

23. Overall, looking at the model projections through from 2019 to 2022, we may be reassured that proposed hind culls from 2022 are appropriate for stability at 2021 levels.

Rory Putman, December 2018