

Loch Lomond Islands

Deer Management Group

Deer Management Plan

2019 - 2024



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Introduction	3
The Purpose of the DMG	3
Objectives	3
Plan Implementation	3
DMG location/Area	4
Management Units	4
Designations	4
Data Gathering	5
<u>Habitat Monitoring - Herbivore Impact Assessment Surveys</u>	5
<i>Historical Monitoring (baseline data)</i>	5
<i>Previous Monitoring</i>	5
<i>Most Recent Monitoring</i>	5
<i>Conclusion of HIA Results</i>	6
<u>Deer Counts</u>	7
Other Herbivores	8
Other Factors Preventing Regeneration	8-9
Density estimates related to targets	9
Cull Information	9
<u>Cull Action Plan</u>	9
<i>Seasons & Authorisations</i>	10
<i>Recommendations</i>	10
<i>Carcass Disposal</i>	10
<u>Cull Targets: Past and Present</u>	11
<u>Cull Targets: Ongoing Reduction</u>	11
Public Access	12
Fencing	12
Sustainable Deer Management and the Public Interest	12
Annual Evaluation and review	13-14
Next Review of DMP	14
Appendix 1 – The 5 Types of Designations in the DMG	15
Appendix 2 - Designated Sites and there Conservation Objectives	16
Appendix 3 – Maps of Deer Counts	17-19
Appendix 4 – Breakdown of Cull Results	20
Appendix 5 – Deer Population Model	21
Appendix 6 – Summary of island landownership	22

Introduction

The Loch Lomond Islands hold one of the few fallow deer populations in Scotland. Deer are free to swim from island to island and to the mainland, with fallow populations also present on the East mainland near Balmaha and the West mainland near Luss. It is assumed immigration and emigration occurs within the fallow deer population naturally at specific times of year and/or due to disturbance. Deer at appropriate densities can be a valuable tool to the management of native woodlands; but where densities are too high this can result in negative impacts. There are several designated sites on the Loch Lomond Islands that are notified for the woodland features, which herbivores, in particular deer, are having a negative impact on. Deer Management is essential in order to assist the sustainable management of the islands, and to protect these special features. Deer control has taken place across the islands for many years, however in 2010, a Collaborative Deer Management Group was formed; this allowed a platform for open engagement for discussing deer management, setting and reporting culls, and any other concerns of islands land managers.

The Purpose of the DMG

The overall aim of the DMG is to achieve natural regeneration of the woodland in the presence of deer; this is achieved by collaboratively managing the deer population (in particular the fallow) on the Loch Lomond Islands, whilst taking the highest regard for deer welfare.

Objectives

- Manage herbivore impacts on natural woodland regeneration and ground flora, by managing the deer densities to limit negative impacts.
- Achieve favourable condition of the designated features.
- Develop a collaborative approach to deer management throughout all the islands.
- To promote deer and deer management to the wider public audience.

Plan Implementation

The DMG require information gathered from habitat monitoring, population census and cull reporting to agree and set culls on an annual basis using population modelling. Each management unit (i.e. island) is committed to implementing the necessary culls to achieve this; though it is accepted that there may be specific geographical areas within the DMG where deer management requires more focus. Collaboration is at the heart of the DMG; together we will deliver the objectives of the plan through our annual meetings and ad-hoc correspondence to discuss deer management issues that arise in the local and wider area.

Loch Lomond Islands Deer Management Group (D.M.G)

The D.M.G lies in central Scotland, and spans three Local Authorities, Stirling, West Dunbartonshire, and Argyll & Bute Regional boundaries (see maps below).

Maps: Location of the DMG within Scotland; and a close up of island positions on the Loch.



Management Units (The Islands)

There are 12 significant islands combining to a total of 488 ha. Within the DMG there are several key memberships (see Appendix 6 –Summary of the landownership). The islands are varied in size from Buccinch at 3.1 ha to Inchmurrin at 114.7 ha. All the islands have woodland cover, with predominantly native deciduous trees, and some islands with native conifers too. The topography of each island also varies from island to island, with some flat low lying islands, such as Clairinsh and Inchcruin, to the more rugged landscape of Inchcailloch and Inchconnachan. The islands are full of history and each island has its own story.

Designations

Designations that the islands contribute to include: (please refer to Appendix 1 for more detail).

1. Loch Lomond SAC
2. Sites of Special Scientific Interest
3. Loch Lomond National Nature Reserve
4. Loch Lomond Special Protection Area
5. Loch Lomond National Scenic Area

The main designated features are:

- a) Upland oak woodland
- b) Western acidic oak woodland
- c) Wet Woodland
- d) Raised Bog

Each designated site has its own Conservation Objectives (see Appendix 2). In general this involves promoting natural regeneration to take place, whilst achieving a healthy ground flora layer to the benefit of wildlife.

Data Gathering

Habitat Monitoring – Woodland Profile Survey (WPS) & Herbivore Impact Assessment Surveys

Historical Monitoring (baseline data)

Originally in 2008, through the Joint-Working Process, a Woodland Profile survey (WPS) and Herbivore Impact Assessment (HIA) of the Loch Lomond SAC Islands (Black, 2008) was conducted. The key aim of this survey was to assess the life-class distribution of the upland oak woodland features, and to assess the nature and extent of herbivore impacts on achieving the conservation objectives of the islands. This survey highlighted that herbivores, along with canopy cover, bracken and non-native fauna and flora were having an adverse effect on the regeneration potential. Damage by herbivores was mainly attributed to deer and to a lesser extent by livestock and wallabies. While some browsing of seedlings/ saplings does benefit the character and conservation value of trees to native woodland, these impacts need to be kept low enough to allow seedlings to establish. Browsing impacts varied across the islands. These results from 2008 were used as a base-line.

Previous Monitoring (2011 -2013)

Additional WPS & H.I.A surveying were conducted by LLTNP, SNH (Jimmy Irvine) and Area & NNR staff in 2011, 2012, and 2013; this approach helps to keep a level of consistency (these reports can be requested from SNH). Please note, it is not annual monitoring as such – it was done for 3 consecutive years to try and get people considering the information and supporting the need to reduce the deer population.

Assessing Herbivore Impacts in Woodlands: A Subjective Method (2015)

In 2014, the Woodland Profile Survey (which provided our baseline data) was superseded by the “Assessing Herbivore Impacts in Woodlands: A Subjective Method (Armstrong et al 2014)”. This is a method of assessing and monitoring the impact of large herbivores (cattle, sheep, deer, goats, pigs, horses) on habitats that are already wooded or may develop woodland. The method is subjective in that it is based on observations, not detailed measurements. Instead it depends on the observer paying close attention to the overall appearance of the habitat as well as to particular indicators within the habitat. The method is suitable for land managers wishing to monitor herbivore impacts on a regular basis with the aim of adjusting herbivore pressure, either by deer culling, or by adjusting the stock grazing regime, to achieve a particular woodland condition target.

The method described here involves looking at:

1. **woodland structure**
2. **current herbivore impacts**

Both of these indicators need to be determined whether or not the woodland is currently in an acceptable condition since, as well as helping to assess current condition, they will help to gauge how it might change in the future under current grazing /browsing levels. **Woodland structure** reflects current and past impacts on the woodland, including those of large herbivores, and is a good indicator of current habitat condition. **Current herbivore impacts** play a major role in determining how the woodland is going to change in the future. Current impact is normally, and most easily, assessed on the most recent season’s plant growth. If grazing (by domestic stock and /or deer) is occurring all year round, and the objective is to assess the pressure, overall grazing then the assessment should be carried out at the end of winter before new spring growth has started.

Loch Lomond Islands Deer Management Plan 2019 - 2024

- The results of an HIA are recorded on a scale from **'No impact' to 'very high'**.

The 2015 monitoring was part of a site check/Site Condition Monitoring visit for the Loch Lomond Woods SAC. Full reports were produced and made available to landowners/managers of the Islands and relevant agencies.

- Please note that, the old WPS included an HIA assessment, and whilst this is not 'exactly' the same methodology as the newer HIA (Assessing Herbivore Impacts in Woodlands: A Subjective Method (Armstrong et al 2014)”) we can still compare the results; i.e. we still get an idea of the level of herbivore impacts present.

Most Recent Monitoring (2019)

In April 2019 the islands were once again surveyed using this new HIA method; The HIA Methodology is 18 pages long, thus it was deemed too large to be attached in the appendices. If you are interested in learning more about HIA, the easiest way is to search for it in google (it appears on the first search page) or contact SNH and they will email you a copy of the full methodology free of charge.

- In October 2019 Inchfad joined the DMG, prior to this no HIA was done on Inchfad. Moving forward, HIA will now be conducted on Inchfad.

H.I.A Summary for Loch Lomond SAC Islands

Table: HIA results from 2008 – 2019. This table collates the results of the HIA's from 2008 till 2019.

Islands	Year of HIA summary						Trends
	2008	2011	2012	2013	2015	2019	
Clairinch	Medium	Medium	Medium	Medium	High	Medium/High	improving
Creinch	Medium/High	Very High	High/Very High	High/Very High	Low	Low	same
Inchacailloch	Low/Medium	Low/Medium	Medium/High	Medium/High	Low	High	declining
Inchconnachan	Low/Medium	High	Medium/High	Medium/High	High/Very High	Medium/High	improving
Inchtavannach	Medium	Medium	Medium/High	Medium/High	Medium/High	Medium/High	same
Inchlonaig	Medium	Medium	Medium	Medium/High	Low	Medium/High	declining
Torrinch	Low	Medium	Medium	Medium/High	High	Low	improving
Inchmoan	Not Surveyed	Not Surveyed	Not Surveyed	Not Surveyed	Not Surveyed	High	n/a
Inchcruin	Not Surveyed	Not Surveyed	Not Surveyed	Not Surveyed	Not Surveyed	Medium	n/a
Inchmurrin	Not Surveyed	Not Surveyed	Not Surveyed	Not Surveyed	Not Surveyed	Low/Medium	n/a
Bucinch	Not Surveyed	Not Surveyed	Not Surveyed	Not Surveyed	Not Surveyed	High	n/a

Interpretation of HIA results

- In order for regeneration to succeed, SNH require each island to have an HIA result of 'Low' impact.
- 'Medium to Very High' - indicates that herbivore pressure is too high; and the natural regeneration of the woodland and ground flora is being negatively impacted.

Conclusion of HIA Results

Loch Lomond Islands Deer Management Plan 2019 - 2024

- The Trends indicates that some islands are improving or stayed the same since 2015 – this is good news! Unfortunately some are declining since 2015.
- **Overall most islands are still failing their HIA's.**
- Deer pressure is ultimately too high, and needs reduced.
- Inchconnachan was recorded as High for Wallabies and Medium for deer.
- Inchtavannach was recorded as Very High for cattle and horses, but Medium/High for deer
- Inchmurrin passed the HIA, but cattle ground disturbance was concerning.
- Results from any future HIA will be analysed and compared against known cull data for the area. This will highlight any particular problems or hotspots that should be targeted. This information will be critical to inform annual cull targets.

Deer Census

Whilst the HIA survey is the primary means of assessing herbivore impacts, it can also be useful to have an estimate of the current deer populations across the islands. Deer Counts can provide a snapshot of the population for that moment in time. Three deer counts have been conducted, these occurred on 4th & 5th March 2008, 12th & 13th March 2012, and 11th & 12th December 2018. The counts of 2008 and 2012 occurred in March, so this reflected the deer population 'Post Cull' of the female does. Having the deer count in March is sensible from a deer management view point. The deer count of 2018 was shoehorned into December (which was not ideal). The reason for this was that the Loch Lomond National Park Ranger Service could not accommodate a March count; this was due to staff shortages i.e. staff were busy enforcing the new camping byelaws introduced in 2017. Therefore, it is worth pointing out that the results of the 2018 deer count are 'Pre Cull' figures. The results of the three counts are displayed in the table below. Please refer to Appendix 3 of this report for the maps from each count; these show the route walked and a more detailed breakdown of deer numbers.

Table: Deer Count Density from 2008, 2012, and 2018.

*This figure is Pre-Cull of Does, thus, not directly comparable to the other two count densities.

Date	Species	Buck	Doe	Fawn	Unclassified	Total	Area (km ²)	Density (deer km ²)
4 March 2008	Fallow	37	86	33	86	242	4.886	49.5
12 March 2012	Fallow	21	82	17	0	120	4.886	24.6
11 December 2018	Fallow	33	66	20	2	121	4.886	24.7*

In 2008, in addition to the fallow deer recorded, there were also two Roe deer counted (buck and Doe), and one Sika stag also. Only fallow were recorded in 2012 and 2018.

In April 2019, the stalker reported a cull of 28 fallow deer for 2018/19. We can subtract this figure from the 121 counted, and we have an estimated total of 93 and density of 19 fallow deer in 2019.

- Of particular note were 40 fallow deer recorded on Inchfad. This equates to 88.6 deer/km², and was the highest deer density across all 12 islands.
- In October 2019 Inchfad joined the DMG. From December 2019, Deer control is now in place (using the same stalker that's covering ALL the other islands), and we should see a substantial decrease in density.

These counts were conducted through the collaboration of SNH, FES, LLTNP, and several volunteers. There was full co-operation from island landowners/managers, and this contributed to the success of the count operation. Looking forward, Informal deer population monitoring by landowners/ managers will provide information of calving rates, deer movements and areas of increased deer impacts; all of which help to build a picture of the deer population.

Other Herbivores

It is recognised that managing deer is only part of the solution to managing herbivore impacts. Deer damage needs to be differentiated from other herbivores – livestock, goats, wallabies. Further management of grazing animals will be required to assist in delivering the desired objectives.

Livestock

Changes in livestock management can help deliver the required land management objectives – both agricultural and conservation. Inchtavannach is the only island that has had livestock either historically or at present. Past management has included sheep, but these have all been removed and there is no plan to re-introduce them. The tenant of this island does still have cattle and horses on the island all year round, and whilst it was thought that these animals could contribute to a net positive effect on woodland condition through impacts on bracken, and soil disturbance, the recent HIA has shown that this may not be the case after all. SNH therefore intend to work with both the landowner and the tenant farmer to discuss their management aspirations for the island and what measures can be implemented to improve the condition of the woodland.

Wallabies

Wallabies are found only on Inchconnachan (although they can swim); they are both grazers and browsers and therefore can cause serious impacts to the flora of Inchconnachan. Since 2008, the wallaby population has reportedly been reduced; however the recent HIA results indicate that their numbers are still too high. In response to the failing HIA, an informal Thermal Imaging Camera wallaby count was conducted. This count occurred in April when the vegetation was tall and dense and spotting wallaby was extremely challenging. The count resulted in a total of 7 wallabies. We need to bear in mind that there is potential for both doubling counting of wallabies, and also missing wallabies due to vegetation and terrain. Wallabies are a non-native species and as such careful consideration needs to be given to managing their population on the island.

Geese

Canada geese are resident on the islands, and it has been suggested that the population has been steadily increasing over the years. The geese are most obvious on Torrinch and Inchlonaig, where these islands seem to be preferred breeding locations. The geese are herbivores and do eat the vegetation, but the failing HIA's have not placed the blame on the geese. At present there is no geese control occurring on any of the islands. In the future, if the DMG feel that geese control is required, then Canada geese are covered by the General Licence.

Other Factors Preventing Regeneration

It is also recognised that herbivores are not the sole factor in preventing sufficient regeneration from occurring. Practical management must also take place on the islands to limit or prevent other factors from inhibiting regeneration.

Canopy Cover

Native woodland canopy cover will dieback naturally allowing open spaces to be created; this is a natural process and will continue to occur in due course.

Bracken

Bracken management should be pursued to create open areas and prevent competition.

- Inchlonaig does suffer from bracken encroachment, and whilst control has taken place previously, no follow up treatment nor active management has occurred recently; so the extent of the bracken is as bad as ever.

Non-Native Plant Species: Beech

Non-native plant species should be removed where possible, either by felling of trees, or through pulling up seedlings and saplings.

- In 2015, Inchtavannach was subject to INNS Beech tree management, where roughly 145 Beech trees were ring-barked/injected with Glyphosate; the majority of these trees were in the South West of the island. In 2019 further management is planned to remove these 'dead' trees.

Non-Native Plant Species: Rhododendron

Rhododendron removal will be key to ensuring suitable ground conditions for favourable condition.

- Inchmoan and Inchconnachan have a significant issue with Rhody's but no active management is being carried out.
- Inchmurrin is in the process of removing rhododendron from the designated site area, further work is carried out on Luss estates islands to remove rhododendron and their seed source.
- Inchtavannach has previously had Rhody control and this was pretty successful and almost eradicated the problem. There has been no active management since 2014 and so the rhody re-growth has returned.

Deer Density estimates related to Targets

Based on current knowledge of natural regeneration in the presence of deer, this can occur at levels between 8-12 deer km² in some areas of Scotland. Due to the transient nature of this islands deer population we are currently unsure at what deer density will be required to allow sufficient regeneration to occur. Evidence from the baseline report in 2008, suggested that the historical densities of ~ 50 deer km² was too high to allow regeneration to occur. An initial target to work towards was agreed at 15 deer km² (c.56 deer) across all islands (excluding Inchmurrin) to allow any regeneration to occur. However, in recent years deer are now present on Inchmurrin, and when we include this islands 'area' into the mix, we arrive at 11.5 deer km². As of April 2019 we know the estimated population density is 19 deer km² (c.93 deer).

Regardless of the estimated deer population, the appropriate deer density will be informed through HIA to assess deer impacts on preventing regeneration. This method of habitat monitoring is more accurate and informative than simply aiming for a density target. Nevertheless, by reaching this lower population level it will be easier to manipulate the population from certain islands to promote regeneration, whilst ensuring the fallow presence on the other islands.

Cull Information

Cull Action Plan

- In order to meet designated site conditions and prevent damage from occurring, landowners/managers should appoint competent and knowledgeable individual(s) to carry out deer control on their behalf. SNH can advise on suitable individuals who would be able to carry out this control if required. All control will/should follow the appropriate legislation and Wild Deer Best Practice Guidance.
- Prior to 2017, deer control on Inchcailloch, Torrinch, Clairinsh and Creinch was conducted by the Forest Enterprise on behalf of SNH. Since 2017 to the present day (2019) SNH have employed a local stalker. This same stalker also controls the deer across the Luss islands.
- In October 2019 Inchfad joined the DMG. They are using the same local stalker that is covering the other 12 islands. This is great news and will certainly help the stalker reduce the deer population.
- At present there is no deer control happening on Inchcruin (land owner doesn't allow), Inchmurrin (very few deer), Buccinch (too small, and vegetation too thick).

Recommendations

1. Despite the deer population reducing to ~93 fallow, the HIA's have highlighted that over all the islands are still in unfavourable conditions. Therefore, Deer culling must continue, and we should base the **minimum** cull targets on the Deer Population Model (see Appendix 5). There is no harm in aiming to cull more than the minimum proposed culls, as this will help us reach a lower density faster.
2. Inchfad is key to the success of the DMG objections. The DMG needs to keep an eye on this island and listen to the feedback that the stalker supplies.
3. Due to its small size and structure, deer control is not an option on Buccinch; no action is required.
4. Historically there hasn't been a deer problem on Inchmurrin, but should this change then we may consider culling on this island too.
5. It would be beneficial to have some deer control on Inchcruin, where this would assist us in reaching our target density quicker. However, the landowner is not keen at all; furthermore we have demonstrated that we are reducing the population without access to inchcruin. Therefore, unless we find a renewed justification to control deer on inchcruin, we could probably just continue with our current approach.

Seasons & Authorisations

Loch Lomond Islands Deer Management Plan 2019 - 2024

Fallow deer open seasons:

Bucks: 1st August – 30th April

Does: 21st October – 15th February

Out of season and Night shooting Authorisations can also be potential tools to ensure population is managed sustainably to prevent damage to woodland. The use of Out of Season Authorisations have been used since 2017 across the some islands.

Carcass Disposal

Deer carcasses and grallochs should be removed from the islands where possible. This will assist in safeguarding public perception and ensure deer control is carried out discretely in high public access areas. Individual landowners/managers should make suitable arrangements per their island(s) regarding deer control/ extraction/ sale of carcasses etc. A collaborative approach for control/ extraction/ sale may be possible, and should be encouraged.

Cull Targets: Past and Present

As discussed earlier in this document, the three deer counts and HIA surveys have highlighted that the deer population remains too high to allow for sufficient natural regeneration of the woodlands. A reduction of deer numbers is still required to achieve favourable conditions of the designated sites. Once the deer population has been reduced to a level that allows regeneration to occur, the cull will become dynamic to meet the management objectives, most likely reverting to a cull of the recruitment level. The table below displays the cull data from 2010 – 2020. For additional information please refer to 'Appendix 4' which shows the culls split across the different landowners.

Table: Cull Summary 2010 – 2020: This table shows the Total combined cull figures for the entire DMG. See Appendix 4 for a breakdown of culls by landowner.

Row Labels	Sum of Bucks	Sum of Does	Sum of Fawns	Sum of TOTAL
2010 - 11	15	30	8	53
2011 - 12	10	21	0	31
2012 - 13	9	10	4	23
2013 - 14	14	15	3	32
2014 - 15	4	15	5	24
2015 - 16	1	6	0	7
2016 - 17	10	8	1	19
2017 - 18	14	17	2	33
2018 - 19	14	11	3	28
2019 - 20	18	26	6	50
Grand Total	109	159	32	300

Cull Targets: Ongoing Reduction

Given the 2018 deer count and subsequent reported culling it is estimated that the population is reducing slightly year on year. The deer population has dropped from ~242 deer in 2008, to ~93 deer in 2019. Using the population model (calculated using the 2019 population model – Appendix 5) we can estimate the time frame it should take reach the short term target density (11.4 deer per/km²).

Cull data recording

Cull data will be recorded and shared annually with the other relevant landowners, to provide a sound base on advising on future deer management. Recorded data should include; date and location, species killed, sex, estimated age class, body weight, and female reproductive status.

Cull data will continue to be reviewed bi-annually, particularly in the early stages of addressing the reduction cull.

Public Access

- The islands and surrounding landscape are open to public access. Both mainland shores are heavily used, especially along the route of the West Highland Way. The islands are also used, although access is restricted. There is a risk that viewing of firearms, carcasses etc. can cause potential for conflict with members of the public regarding deer control. An openness and non-conflict approach by individuals carrying out control will be required to help promote the understanding of deer management across the area.
- All deer controllers must be aware of the public access to all areas, including water users and ensure a safe backstop before any shot is taken and deer control is carried out to Best Practice.
- Visitor numbers to the islands are steady from March till December (visitors can still be found outside these months). On some islands there have been reports of semi-permanent campsites. This is a challenge for the stalker who must be aware that people maybe present all year round on the islands. The National Park is aware of these campsites, but the situation is complicated (legally), and it's not very easy to move these people off the islands.

Fencing

- Following Joint-agency fencing guidance due to the size and nature of the islands, and public access, fencing is not a realistic/viable option to aid regeneration.

Sustainable Deer Management and the Public Interest

The management of deer at a landscape population level as set out in the Code of Practice on Deer Management (The Deer Code) <https://www.nature.scot/professional-advice/land-and-sea-management/managing-wildlife/managing-deer/code-practice-deer-management> requires a collaborative approach. Deer are regarded as a natural resource and as such all those who manage them have a 'responsibility' to:

- a) Manage deer as a resource sustainably;
- b) Minimise negative deer impacts on public interest;
- c) Safeguard deer welfare;

The members of the DMG are aware of their responsibilities as set out above.

Annual Evaluation and review

Are we meeting our Group Objectives?

1. *Manage herbivore impacts on natural woodland regeneration and ground flora, by managing the deer densities to limit negative impacts.*

- We have successfully demonstrated that we are managing deer densities. The evidence for this is the reducing deer population from ~242 deer (2008) to ~93 deer in April 2019. A population model suggests that we could achieve our short term target of 56 deer by the summer of 2021.

2. *Achieve favourable condition of the designated features.*

Currently we have not achieved this objective. There are 9 wooded islands with designated features; only two islands are currently in favourable condition with regards to their designated features. Herbivore pressures are the main reason that these features are unfavourable.

The main designated features are:

- Inchconnachan – Upland Oak Woodland - Unfavourable Declining
- Inchtavannach - Upland Oak Woodland – Unfavourable Declining
- Inchmoan – Raised Bog – Unfavourable No Change
- Inchloniag – Upland Oak Woodland – Unfavourable No Change
- NNR islands:
- Inchcailloch – Upland Oak Woodland – **Favourable Maintained**
Please Note: SCM has not taken place on Inchcailloch for a few years, and whilst it is recorded as F.M, the HIA results show that this island is not currently in good condition.
- Torrinch - Upland Oak Woodland – Unfavourable Declining
- Creinch - Upland Oak Woodland – Unfavourable Recovering
- Clarinch - Upland Oak Woodland – Unfavourable Declining
- Inchmurrin – Wet Woodland – **Favourable Recovered**

3. *Develop a collaborative approach to deer management throughout all the islands.*

- We have developed a collaborative approach. Although we only meet annually, we do keep in touch via email and phone. SNH, FES, and LLNTP have a good collaborative working relationship and are all involved within the DMG.
- Inchfad has joined the DMG in October 2019; this was the only island that was not in the group. This last key island is vital to our success moving forward.

4. *To promote deer and deer management to the wider public audience.*

- We probably could be more pro-active here, and this is something that the members may wish to discuss in future AGM's.
- The deer count of 2018 did allow the DMG to interact with many volunteers and we used this opportunity to discuss our deer management with a wider public audience.
- In autumn 2019, Kevin McCulloch (via his role in SNH) attended a Royal Highland Education Trust event at Luss. There were 300 primary school pupils visiting over 2 days. Kevin discussed deer management in general, but used this chance to highlight the good work from the Loch Lomond islands DMG.
- In 2020 this D.M.P went online via the National Park website. This will promote the DMG to the wider public.

Overall Conclusion

The overall aim of the DMG is to *“achieve natural regeneration of the woodland in the presence of deer”*. Still more work to do, but all things considered, we are moving in the right direction.

Next Review of DMP

- Progress on the Deer Management Plan should be reviewed annually in the autumn, with full co-operation from all landowners/ managers.
- There will be a review of the success of the Deer Management Plan in 2024 in delivering the management objectives outlined above. At this point an agreement on future deer management should be sought.

Within the DMG area there are five different types of Designations and each designated site has its own Conservation Objectives. In general this involves promoting natural regeneration to take place, whilst achieving a healthy ground flora layer to the benefit of wildlife.

National Nature Reserve (NNR) = Inchcailloch

The first National Nature Reserves were designated 50 years ago, and at that time they were the cornerstone of nature conservation policy, safeguarding sites of national conservation importance as well as providing interpretative material and allowing the public to enjoy these sites. These days although NNRs must be well managed for wildlife, people are also encouraged to enjoy these special places too. Visitor facilities are designed and managed to ensure that people can enjoy the reserves without harming or disturbing the wildlife that lives there. There are currently 41 National Nature Reserves in Scotland.

Sites of Special Scientific Interest (SSSI) = Inchconnachan; Inchtavannach; Inchmoan; Inchmurrin; Inchcruin; Inchlonaig; Inchcailloch; Torrinch, Clairinch; Creinch.

Sites of Special Scientific Interest (SSSI) represent the best of Scotland's natural heritage. They are 'special' for their plants, animals or habitats, their rocks or landforms, or a combination of such natural features. Together, they form a network of the best examples of natural features throughout Scotland, and support a wider network across Great Britain and the European Union. Scottish Natural Heritage chooses sites after detailed survey and evaluation against published scientific criteria.

Special Protection Area (SPA) = Inchconnachan; Inchtavannach; Inchmoan; Inchcruin.

A Special Protection Area (SPA) is an area of land, water or sea which has been identified as being of international importance for the breeding, feeding, wintering or the migration of rare and vulnerable species of birds found within the European Union. Together with SACs, Special Protection Areas are designated under the European Wild Birds Directive which forms the NATURA 2000 network of sites. A number of SPAs include areas notified as SSSIs and the additional SPA designation affords these areas enhanced protection.

National Scenic Area (NSA) = Every Island in the DMG lies within this designation.

National scenic area (NSA) is a conservation designation used in Scotland, and administered by Scottish Natural Heritage (SNH). The designation's purpose is to identify areas of exceptional scenery and to protect them from inappropriate development. Scotland is renowned for its outstanding scenery, and 40 of its very best areas have been designated as National Scenic Areas (NSAs). Legislation defines these as areas "of outstanding scenic value in a national context"

Special Area of Conservation (SAC) = Loch Lomond SAC (Inchconnachan; Inchtavannach; Inchlonaig; Inchcailloch; Torrinch, Clairinch; Creinch).

Special Areas of Conservation (SACs) are areas designated under the European Directive commonly known as the 'Habitats Directive'. Together with Special Protection Areas, which are designated under the Wild Birds Directive for wild birds and their habitats, SACs form the Natura 2000 network of sites. Most SACs on land or freshwater in Scotland are also underpinned by notification as Sites of Special Scientific Interest (SSSIs). The additional SAC designation is recognition that some or all of the wildlife and habitats are particularly valued in a European context.

Appendix 2 - Designated Sites and their Conservation Objectives

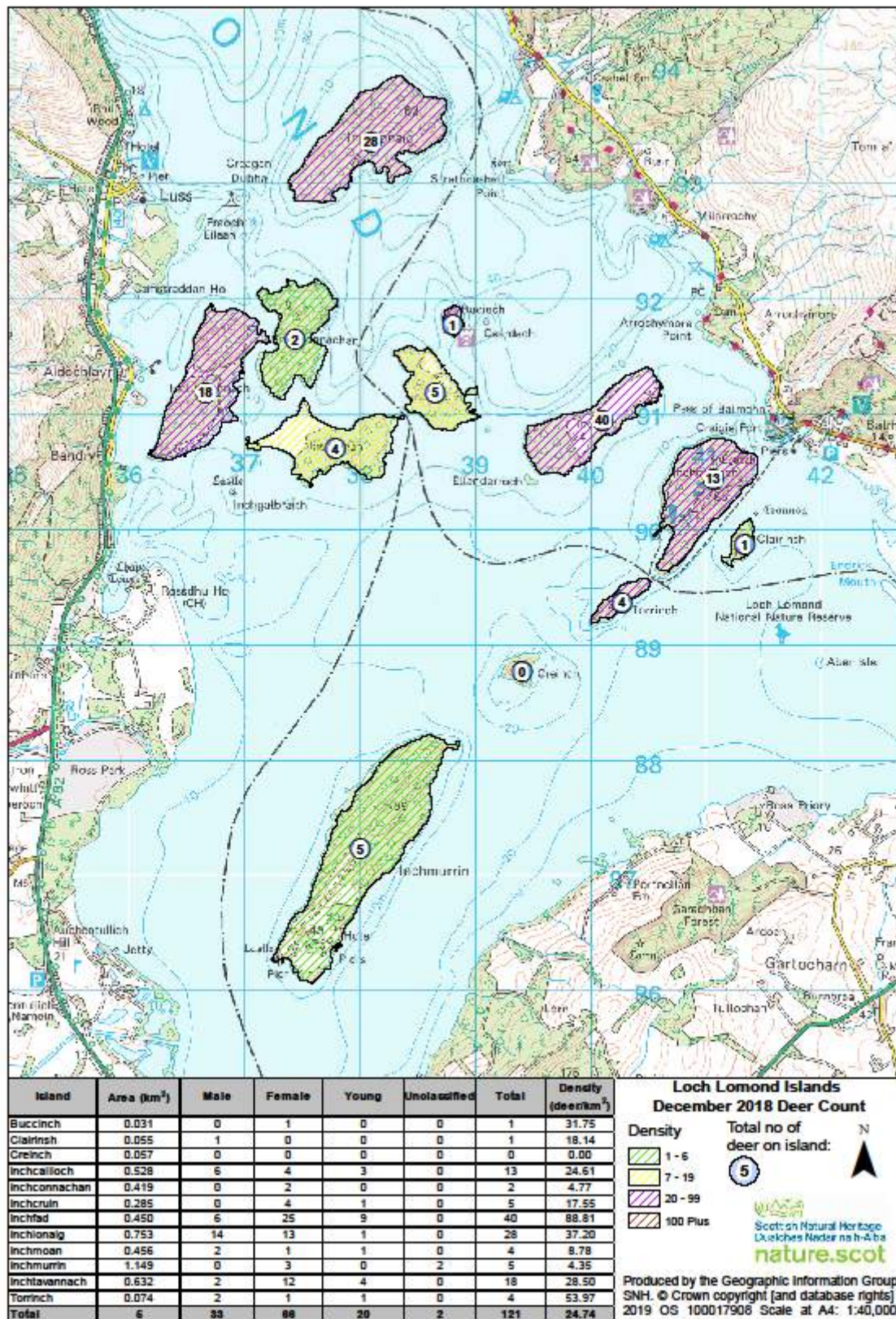
Loch Lomond Islands Deer Management Plan 2019 - 2024

Table: Designated Sites Summary. The data included in this table was collated from the SNH Site Condition Monitoring webpage, and also from Site Link website (<https://sitelink.nature.scot/home>).

Site	Designation	Natural Feature	Feature Condition	Last Assessed	Management Objectives
Inchconnachan	SSSI	Upland Oak Woodland	Unfavourable Declining	Jun-15	1. To improve the condition of the upland oak woodland habitat. 2. To minimise disturbance and maintain suitable breeding habitat for Capercaillie
		Capercaillie Breeding	Favourable Maintained	Mar-00	
Inchtavannach	SSSI	Upland Oak Woodland	Unfavourable Recovering	Jun-15	
		Capercaillie Breeding	Favourable Maintained	Mar-00	
Inchconnachan & Inchtavannach	SAC	Otter	Favourable Maintained	Aug-03	Maintain otter populations and distribution within the SSSI.
	SPA	Greenland White Fronted Goose Non-Breeding	Favourable Maintained	Feb-09	N/A
Inchcruin	SSSI & SPA	Capercaillie Breeding	Favourable Maintained	Mar-02	1. To maintain a density of Capercaillie Population. 2. To minimise disturbance to Capercaillie. 3. To prevent damage to and deterioration of Capercaillie habitat
Inchmoan	SSSI	Raised Bog	Unfavourable No Change	Oct-07	To maintain and enhance the raised bog habitat where this does not conflict with Capercaillie requirements.
	SPA	Capercaillie Breeding	Favourable Maintained	Mar-02	1. To maintain a density of Capercaillie Population. 2. To minimise disturbance to Capercaillie. 3. To prevent damage to and deterioration of Capercaillie habitat
	SPA	Greenland White Fronted Goose Non-Breeding	Favourable Maintained	Feb-09	N/A
Inchlioniag	SSSI	Upland Oak Woodland	Unfavourable No Change	Mar-02	1. To promote regeneration of oak, and a more diverse and extensive shrub and ground flora. 2. To promote the regeneration of Yew.
	SAC	Otter	Favourable Maintained	Aug-03	Maintain otter populations and distribution within the SSSI.
Endrick Mouth and Islands	SSSI	Upland Oak Woodland	Unfavourable Declining	Jun-08	To maintain the extent and improve the age structure of the oak woodland and increase the understory shrub layer.
		Bryophyte Assemblage	Favourable Maintained	Aug-05	
		Beetle Assemblage	Favourable Maintained	Jul-11	To maintain the extent of deadwood on the islands that supports the rare beetles which live on the islands.
	SAC	Otter	Favourable Maintained	Aug-03	Maintain otter populations and distribution within the SSSI.
	SPA	Capercaillie Breeding	Unfavourable Declining	Mar-13	To maintain the habitats for roosting geese and breeding birds and ensure minimal disturbance.
Inchmurrin	SSSI	Wet Woodland	Unfavourable Declining	Mar-02	1. To eradicate rhododendron so that the natural flora may re-establish. 2. Leave standing and fallen deadwood (including dead tree limbs) wherever it is safe to do so. 3. To manage the uncommon white-haired bracken.

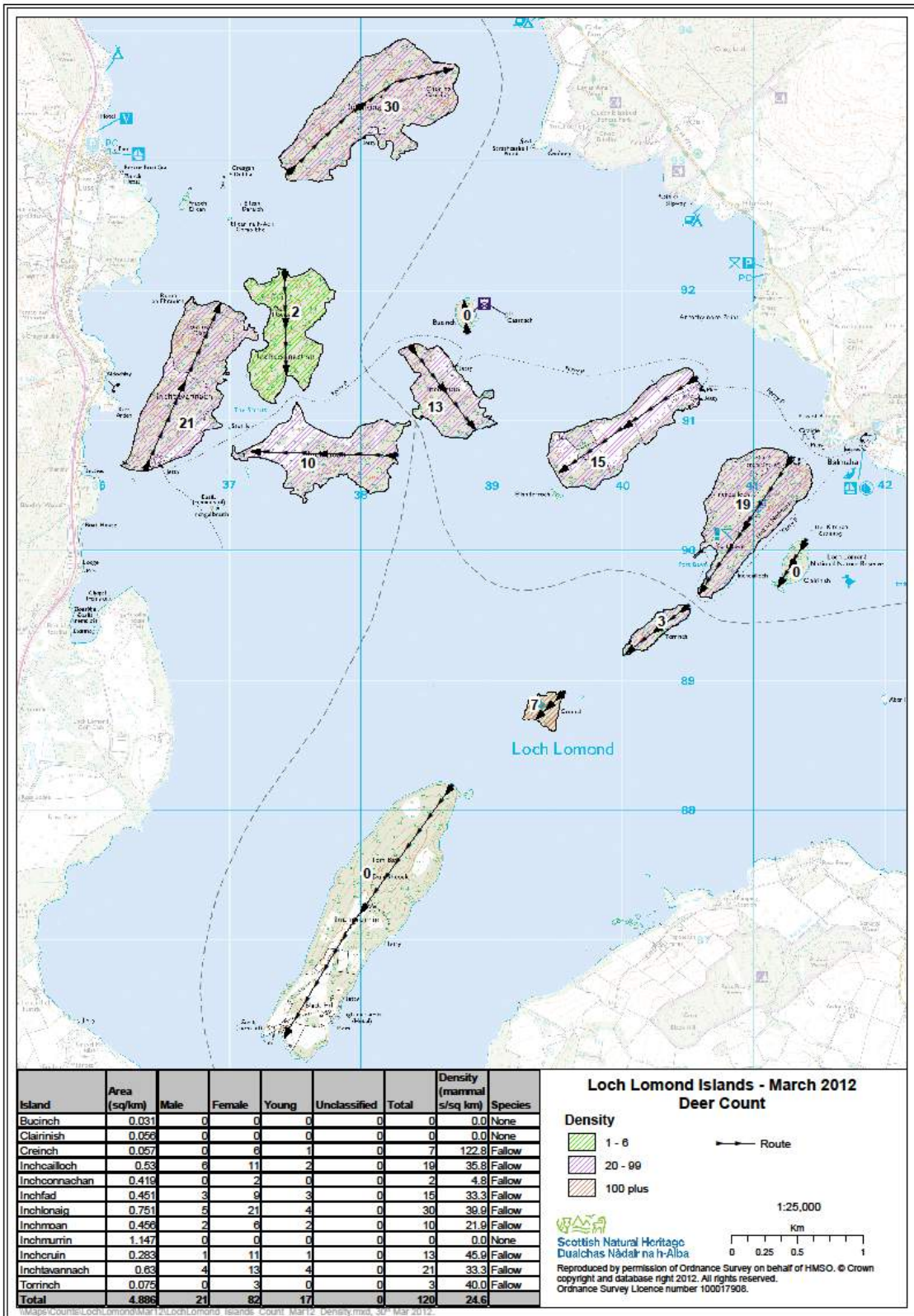
Appendix 3 – Maps of Deer Counts

2018 – Deer Count Map



2012 – Deer Count Map

Loch Lomond Islands Deer Management Plan 2019 - 2024



Loch Lomond Islands Deer Management Plan 2019 - 2024

Appendix 4 – Breakdown of Cull Results

2019/20	Total	Bucks	Does	Fawns		2014/15	Total	Bucks	Does	Fawns
Luss Estate	21	9	10	2		Luss Estate	21	4	12	5
NNR islands	7	4	2	1		NNR islands	2	0	2	0
Inchfad	21	4	14	3		Inchfad	0	0	0	0
Inchcruin	0	0	0	0		Inchcruin	0	0	0	0
Inchmurrin	0	0	0	0		Inchmurrin	0	0	0	0
East Mainland	1	1	0	0		East Mainland	1	0	1	0
2018/19	Total	Bucks	Does	Fawns		2013/14	Total	Bucks	Does	Fawns
Luss Estate	22	11	8	3		Luss Estate	18	11	7	0
NNR islands	6	3	3	0		NNR islands	13	3	7	3
Inchfad	0	0	0	0		Inchfad	0	0	0	0
Inchcruin	0	0	0	0		Inchcruin	0	0	0	0
Inchmurrin	0	0	0	0		Inchmurrin	0	0	0	0
East Mainland	0	0	0	0		East Mainland	1	0	1	0
2017/18	Total	Bucks	Does	Fawns		2012/13	Total	Bucks	Does	Fawns
Luss Estate	24	11	13	0		Luss Estate	6	3	3	0
NNR islands	9	3	4	2		NNR islands	8	2	4	2
Inchfad	0	0	0	0		Inchfad	0	0	0	0
Inchcruin	0	0	0	0		Inchcruin	0	0	0	0
Inchmurrin	0	0	0	0		Inchmurrin	0	0	0	0
East Mainland	0	0	0	0		East Mainland	9	4	3	2
2016/17	Total	Bucks	Does	Fawns		2011/12	Total	Bucks	Does	Fawns
Luss Estate	15	8	7	0		Luss Estate	29	10	19	0
NNR islands	0	0	0	0		NNR islands	2	0	2	0
Inchfad	0	0	0	0		Inchfad	0	0	0	0
Inchcruin	0	0	0	0		Inchcruin	0	0	0	0
Inchmurrin	0	0	0	0		Inchmurrin	0	0	0	0
East Mainland	4	2	1	1		East Mainland	0	0	0	0
2015/16	Total	Bucks	Does	Fawns		2010/11	Total	Bucks	Does	Fawns
Luss Estate	6	0	6	0		Luss Estate	23	8	15	0
NNR islands	1	1	0	0		NNR islands	31	7	15	8
Inchfad	0	0	0	0		Inchfad	0	0	0	0
Inchcruin	0	0	0	0		Inchcruin	0	0	0	0
Inchmurrin	0	0	0	0		Inchmurrin	0	0	0	0
East Mainland	0	0	0	0		East Mainland	0	0	0	0

Appendix 5 – Deer Population Model

Loch Lomond Islands Deer Management Plan 2019 - 2024

Updated in April 2020

The population model is based on the 2018 deer count (including the cull of 2018/19) and provides an overview for how the target population can be reached, indicating proposed (and actual) deer culls for 2019/20, 2020/21, 2021/22, 2022/23, and 2023/24 cull targets, and assumptions based on mortality and calving rate. The target of 56 deer could be achieved by summer 2021.

	Bucks	Does	Fawns	Total
2019 Spring Population	19	57	17	93
2019 Summer Population	28	66	23	116
2019/20 Actual Cull	18	26	6	50
2020 Net loss	1	3	2	7
2020 Spring Population	8	36	15	59
2020 Summer Population	15	44	15	74
2020/21 Proposed Cull	10	13	3	26
2021 Net loss	1	2	2	4
2021 Spring Population	5	28	11	44
2021 Summer Population	10	34	12	56
2021/22 Proposed Cull	3	3	2	8
2022 Net loss	1	2	1	3
2022 Spring Population	7	29	9	44
2022 Summer Population	11	33	12	56
2022/23 Proposed Cull	1	5	1	7
2023 Net loss	1	2	1	3
2023 Spring Population	9	27	10	45
2023 Summer Population	14	31	11	56
2023/24 Proposed Cull	3	4	1	8
2024 Net loss	1	2	1	3
2024 Spring Population	10	26	9	45
2024 Summer Population	15	30	11	56
Target Population				56

- Spring fawn population is split 50:50 between summer bucks and does.
- Calving = 35%
- Net Loss is mortality, poaching and migration
- Net Loss = 5% bucks, 5% does & 10% fawns (based on taking account of possible illegal control and out migration)
- **Short term target = to reach a spring density of 11.5 deer km² (~56 deer) across all islands (including Inchmurrin)**

Appendix 6 – Summary of island landownership

Loch Lomond Islands Deer Management Plan 2019 - 2024

Table: Summary of the islands of the L.L.I.D.M.G.

*Inchfad is included in this summary, but the island is not presently a member of the DMG; but we would encourage inchfad to join the group and we hope this will come to fruition.

Island	Description	Size ha	Ownership	Managed/Tenant
Inchcailloch	Probably most accessible island to public (20,000 visitors annually). Wealth of vegetation and wildlife, carefully maintained nature trails. Picnic and campsite.	53	SNH	LLTNP
Clairinch	Very flat island. Covered in oaks and thickets of holly. Has INNS Few Flowered Leek.	5.6		SNH
Creinch	Part of the NNR. Rises steeply from the water. Ivy draped trees.	5.7		SNH
Torrinch	Part of the NNR. At its South West, conglomerate rock reaches 100ft high from the loch. Bamboo present. Birches, Heather, and Aspen.	7.5		SNH
Inchconnachan	Wooded with numerous bays. Scots Pine common. Once held capercaillie. It's a designated site (SSSI).	41.9	Luss Estate	
Inchlonaig	Steep terrain. Numerous Yew trees scattered. There is a cottage/holiday home. It's a designated site (SSSI).	75.1	Luss Estate	Mr Hardie
Inchmoan	Flat island. Thickets of rhododendron, birch, gorse, alder. There is a history of peat extraction on the island. It's a designated site (SSSI)	45.6	Luss Estate	
Inchtavannach	Long wooded and rises to a rocky summit. Non-native tree species such as Beech and Sycamore. Planted area of Norway spruce. There's a house and the owner lives there all year round. Live stock are present. It's a designated site (SSSI).	63	Luss Estate	Mr Rodgers
Bucinch	Bucinch rises fairly steeply from a rocky coastline to a fairly central summit. Densely covered in trees and bushes.	3.1	National Trust For Scotland	
Inchcruin	small and mostly wooded. There is a solitary house surrounded by fields. It's a designated site (SSSI).	28.3	Mrs Paton and Mrs Douglas	
Inchmurrin	Largest of loch lomond islands. Woodland and meadows, thick in bracken and Rhododendron. Cattle and sheep present. Hotel on the island. It's a designated site (SSSI).	114.7	The Scott Family	
Inchfad*	Grass fields with woodland edges. There are stone cottages and a modern timber bungalow.	45.1	Mr Harding	Throughout the year there can be visitors using the holiday cottages.