DEER MANAGEMENT PLAN FOR THE MORVERN DEER MANAGEMENT AREA 2015-2020

prepared on behalf of the Management Group
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A. INTRODUCTION:

A1.1 The Morvern Deer Management Group area includes in effect all that land to the south of Glen Tarbert (and the A861) and Loch Sunart; bounded to the east by Loch Linnhe and to the south by the Sound of Mull. It divides in effect into two discrete areas to the west, and to the east of the chain of lochs of Loch Teacuis, Loch Doire nam Mart, Loch Arienas and Loch Aline. The entire Management area (excluding towns and villages) extends to some 47000 hectares (11000 ha in the west; 36000 hectare to the east). The area includes land in some 12 main ownerships as well as land owned and managed by Forestry Commission Scotland. Deer Management and associated activities of individual landholdings are coordinated through discussion within the Morvern Deer Management Group [MDMG], which meets formally twice a year (although other meetings may be called as required and much business is transacted via email). All member Estates atempt to have a representative present at all meetings; meetings are also attended by representatives from the Forestry Commission, SNH regional and wildlife staff and local community interest groups by invitation. The Group's constitution is appended to this Plan.

A1.2 The Deer Management Plan adopted by the MDMG in 2007 has recently expired. Following assessment of Group activities and matters addressed within the Group Plan in collaboration with SNH, MDMG has determined to update and revise the former Plan and at the same time bring it into line with the Benchmark for Deer Plans. MDMG endorses the Government's Code of Practice on Deer Management and the ADMG's Principles of Collaboration in relation to Deer Management.

A1.3 After extensive consultation this Plan is presented as an agreed Deer Management Plan for a five year period from 2015-2020. The Plan has been prepared to integrate individual Estate Management Plans, and Long-Term Forest Plans with Group-level commitments and to ensure delivery of both private and public interest.

A1.4 In any Management Area it is impossible to find a period of absolute stasis with all future factors influencing management decisions fully resolved. Indeed in the period of the previous Plan there have been a number of changes of land-ownership and/or objective. This Plan therefore is inevitably prepared against a background context with some remaining 'unknowns' and should not be seen as set in stone. Rather the Plan is seen as indicative, and must allow room for flexibility as circumstances may change.

A1.5 In any event, management for the future is not a precise science. Active management must be accompanied by close monitoring of the condition of deer populations and habitats in order to assess whether management decisions taken are indeed delivering objectives sought. Where such monitoring suggests that objectives are not being delivered as expected, some minor adjustments to proposed policies and action plans may be necessary to meet desired targets.

A1.6 **Annual review of progress and approval of any minor changes in policy in the light of altered circumstances, or in response to results of ongoing monitoring programmes will be made at each Annual General meeting of the Management Group.** After this time, the Plan will undergo full review with an update for the following 5 year period.

A1.7 In development of the actual Management Plan which follows, the Group employed Professor R.J.Putman to collate information on deer populations and habitat condition, to assist in establishing clear definition of objectives as well as help focus discussion on future possible management options within individual Estates or the wider Management Group Area. Information was sought from all estates and from MDMG records on deer counts for the different estates or other land-holdings over the period since the last Morvern Group Plan, recorded calf-hind ratios and cull data.

A1.8 Detailed consultations were undertaken with individual landowners, or their managing agents, as well as all stalkers to establish
i) current deer numbers and distribution on their own estates; movement patterns within Estates and between adjacent properties; past and present management policy and procedures;
ii) current patterns of land use, plans and expectations for the future, as well as exploring aims and objectives of management for their deer for the future.

A1.9 Additional consultation was carried out with other interest groups such as Scottish Natural Heritage and Forestry Commission for Scotland to establish their interests and aspirations for future management of the area.

A1.10 Finally, independent assessments were also undertaken of the condition of the deer herds and the condition of the habitat during a series of visits to all the estates by RP between August and December 2014.

A2. The Morvern Deer Management Area:

A2.1 The Morvern Deer Management area [Map 1] includes all that land to the south of Glen Tarbert (and the A861) and Loch Sunart; bounded to the east by Loch Linnhe and to the south by the Sound of Mull. It divides in effect into two discrete areas to the west, and to the east of the chain of lochs of Loch Teacuis, Loch Doire nam Mart, Loch Arienas and Loch Aline. There is relatively little exchange between the two sub-areas; the division is more emphatic since the western shores of these lochs are entirely covered, from Carna to Lochaline and beyond, by the Forestry Plantations of Barr and Savary, whose boundaries have in the past been securely fenced. Although there may be some small exchange between Rahoy and Drumbuidhe in the north, such exchange is itself limited by the deer fence of Drimnin Estate's Woodland Restoration scheme at Sornaghan.

A2.2 The entire Management area extends to some 47000 hectares (11000 ha in the west; 36000 hectare to the east) and includes the Glencripesdale Reserve (owned and managed by Scottish Natural Heritage), the Rahoy Hills Nature Reserve (part-owned by the Scottish Wildlife Trust and part-owned by Ardtornish Estate), properties owned and administered by the Forestry Commission for Scotland (Barr, Savary, Fiunary and Mungasdail Forests) as well as 12 Estates currently in private ownership.

A2.3 The whole of the open water of Loch Sunart, and its fringing native woodlands, fall within the Sunart Special Area of Conservation (SAC) while the shoreline woodlands of the Sound of Mull and Loch Linnhe, as well as areas along Loch Arienas and up the Black Glen fall within the Morvern Woods SAC. A further SAC protects the upland basalt areas of Beinn Iadain and Beinn na h'Uamha; with the exception of the Uladail Woods within the Morvern Woodland SAC, all these areas are also designated as Sites of Special Scientific Interest (SSSI: A3.1, A3.2).

***Geology*:**
A2.4 The geology of the area is relatively complex for the size of the area as a whole. The principal rock types underlying the north of the area (on the shores of Loch Sunart itself) are metamorphic rocks of the Moine series: an assemblage of sedimentary rocks (mainly quartz-feldspar-granulite, or sandstone and mudstone schists) laid down in shallow waters over a basement of Lewisian gneiss. There are however a number of intrusive basalt dykes, and the area further to the south and east becomes markedly more volcanic in its style, characterised by an intrusive granite, dissected by dykes of more fine-grained volcanic rocks.

In many places the underlying rocks have become exposed and the entire area shows classic effects of glacial scour (U-shaped valleys such as Glen Tarbert) and the deposition of moraines associated with glacial retreat; as such the area is of considerable significance in its clarity of illustration of such glacial features.

A2.5 While thin mineralised soils are present on exposed ground the predominant soil types of the eastern part of the Management Area are peaty gleys, peaty podzols and deeper peats which have accumulated in basins and hollows of the underlying topography. However, around the area of Old Ardtornish, and to the west (on the Drimnin side of the divide) richer soils are developed in many areas, as brown forest soils and brown rankers, weathered from the more predominantly basaltic rocks.

Vegetation:

A2.6 An overview of the vegetational fabric within the MDMG area is provided by Map 2 [Land Cover Scotland], although this offers only limited resolution. In practice, the principal vegetational communities associated with this geology are the classic upland communities of blanket bog, wet grass-heaths, drier heaths and *Festuca – Agrostis* grasslands, although herb-rich grasslands are found in association with the basalt outcrops of Beinn Iadain and Beinn na h'Uamha and the Management Area also supports some very significant areas of native woodland [notably areas of oak-birch woodland (NVC W11 or W17), with patches of ash woodland, or ash with elm (W7 or W9) on more basic, flushed soils.]

A2.7 On the more acid soils and where peat accumulates on shallower slopes, or 'flats' the vegetation is dominated by extensive tracts of deer grass/cotton grass blanket bog (*Scirpus (syn. Trichophorum) caespitosus* - *Eriophorum vaginatum* blanket mire; NVC M17). The most obvious species are deer grass and *Eriophorum*, with ling heather (*Calluna vulgaris*) and bell heather (*Erica tetralix*). In wetter areas a more diverse community may develop containing a number of species of sedge (*Carex spp.*), bog asphodel (*Narthecium ossifragum*), *Drosera* species and locally dense stands of bog myrtle (*Myrica gale*), while in places where the vegetation is relatively undisturbed there may be widespread development of *Sphagnum* moss and other bryophytes.

A2.8 On better drained soils of steeper slopes, the abundance of both bell heather and ling tends to increase and blanket mire gives way to wet heath (*Scirpus caespitosus* - *Erica tetralix* wet heath M15). Superficially similar to M17 this is characterised by the absence of cotton grass and the substantially thinner peat layer. Drier areas are often associated with an increased abundance of purple moor grass (*Molinia caerulea*), dominance of *Calluna* and *Erica cinerea* within the dwarf shrub assemblage, and good development of blaeberry (*Vaccinium myrtilis*). In places, particularly on more exposed knolls or moraines, or steep, very well draining slopes, there are patches of Festuca-Agrostis grasslands (*Festuca ovina – Agrostis capillaris –Galium saxatile* grassland U4 or *Festuca – Agrostis- Thymus* CG10a). In more heavily grazed sites and at higher altitudes these grasslands are commonly invaded by mat grass (*Nardus stricta* U5) . Where basalt exposures run through more acid ground, or on more base-rich soils generally, a more herb rich grassland may develop (herb rich *Agrostis-Festuca* associations or herb-rich *Nardus* grassland)

A2.9 All these various communities tend to grade one into another, with small-scale variations in topography producing a relatively complex matrix of heath vegetation or grass heath on morainic or rocky hummocks within a matrix of mire vegetation on deeper peat. Total area of carbon- rich peatland is assessed by Land Cover Scotland [Map 2] as 22633 ha.

A2.10 More exposed areas with thinner soils and high plateaux support a more montane vegetation type with hummocks of *Racomitrium* moss and *Cladonia* lichens H13, H14), and widespread development of clubmoss (*Lycopodium*), while the higher tops support montane or subalpine assemblages [1206 ha].

A2.11 As noted, the management area also contains significant areas of both exotic and native woodlands [Map 2 and Map3 from the National Forest Index]. There are extensive areas of native broadleaved woodland both along the shores of Loch Sunart and the Sound of Mull as well as further inland, showing a gradation of style from those which may develop on more acidic soils (dominated by oak, birch, and rowan) to those of more base-rich soils (dominated by ash, hazel and wych-elm). These Atlantic oak-birch, oak-hazel and ash-hazel woodlands, which are characterised by a rich bryophyte assemblage, are confined to north-western Britain, and the areas around Loch Sunart and the Sound of Mull are some of the best surviving areas of this woodland left in Europe - underpinning their designation as Special Areas of Conservation.

A2.12 Morvern has also seen extensive planting of commercial forestry, both on land owned and managed by the Forestry Commission (at Barr, Savary, Mungasdail, Fiunary) and on private Estates (Laudale, Glencripesdale, Ardtornish, Kingairloch, etc). These plantations are largely of exotic species such as sitka spruce, or lodgepole pine and larch. Many areas are however currently being felled (or felling is planned in the near future) with a view to restructuring and restocking with native species. This in itself may have major implications for distribution and movement patterns of the local deer populations. Recent plantings of both commercial forestry and native woodlands, funded under various past grant schemes are represented in Map 4.

A2.13 A number of more detailed accounts of the vegetation are available for reference. Thus, for example, a full, detailed (and extremely comprehensive) account of the woodland and open hill vegetation of the Loch Sunart SAC is provided by Cornish and Proctor (1999), while vegetation of the Rahoy Hills Reserve is described by Averis (2005). An extremely thorough habitat survey of Ardtornish Estate was undertaken by Brookes (1992, 1993). While clearly these accounts are specific to the areas surveyed, they nonetheless, collectively, give a very clear picture of the more general vegetation of the Morvern peninsula[1].

Mammals and Birds:

A2.14 Foxes (*Vulpes vulpes*), pine martens (*Martes martes*) and European otters (*Lutra lutra*) are present throughout the Management Area; badgers (*Meles meles*) are present and increasing in number/distribution. Wild cat (*Felis sylvestris*) are present in many areas, but there are also numerous feral domestic cats, and the current genetic provenance of putative wild cats remains uncertain. Water voles *(Arvicola terrestris*) have been recorded in the past in a number of locations but the current status of these populations is unknown.

A2.15 There are significant populations of red deer (*Cervus elaphus*) throughout the area, which provide the main grazing impact over much of the hill ground and also the major sporting interest. Roe deer (*Capreolus capreolus*) are also widespread but at lower density and with a discrete, patchy distribution. Sika (*Cervus nippon*) are increasingly seen, particularly to the northeast of the peninsula towards Glen Tarbert, but also elsewhere within the area. There is a small population of feral goats (*Capra hirca*) between Kingairloch and Kilmalieu, along the shores of Loch Linnhe.

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[1] Averis, B. (2005) **A Survey of the Vegetation of Rahoy Hills Wildlife Reserve**. Scottish Wildlife Trust; Brookes, B. S (1992/1993) **Ardtornish Estate, Conservation Audit and Habitat Survey**. Ardtornish Estate Papers; Cornish, C. and Proctor, K. (1999) **Terrestrial Habitat Survey and Habitat Condition Assessment of the Loch Sunart Woodlands and adjacent areas**. Report to SNH by Quadrat Highland.

A2.16 Notable species of birds recorded as resident and/or breeding within the Management Area include Golden eagle (*Aquila chrysaetos*), white-tailed eagle (*Haliaetus albicilla*), buzzard (*Buteo buteo*), peregrine (*Falco peregrinus*), merlin (*Falco columbarius*), Red-breasted merganser (*Mergus serrator*), red-throated diver (*Gavia stellata),* greenshank (*Tringa nebularia*), Golden plover (*Charadrius apricarius*), siskin (*Carduelis spinus*), twite (*Carduelis flavirostris*) and redpoll (*Carduelis flammea*) (All species listed appear on Schedule 1 of the Wildlife and Countryside Act and are listed in Annex 1 of the EC Birds Directive). Black grouse (*Tetrao tetrix*) and ptarmigan (*Lagopus mutus*) are also recorded, although irregularly, in the eastern part of the area.

A2.17 The area is under-surveyed for reptiles and amphibians, but common toad, common frog, common lizard (*Lacerta vivipara*), palmate newt and slow worm have all been recorded.

Invertebrates:

A2.18 A limited number of surveys have been carried out within the Management Area, although some features are highlighted in the schedules of notification for sites designated as SSSI or SAC. Some sixteen species of butterfly are recorded including the chequered skipper (*Carterocephalus palaemon*), pearl-bordered fritillary (*Boloria euphrosyne*), grayling *(Hipparchia semele*), small pearl-bordered fritillary (*Boloria selene*), dark green fritillary (*Argynnis aglaja*), green hairstreak (*Callophrys rubi*), Scotch Argus (*Erebia aethiops*) and Speckled Wood (*Pararge aegaria*).
None of these is rare, although the chequered skipper is considered nationally scarce and both the pearl- bordered fritillary and the grayling are uncommon on the west coast of Scotland.

A2.19 Seven species of dragonfly and four species of damselfly have been recorded regularly including the nationally scarce Northern Emerald (*Somatochlora arctica*), the Keeled skimmer (*Orthetrum coerulescens*) and Azure hawker (*Aeshna caerulea*) .

Communities and Species of Special Interest:

A2.20 As already noted the Management Area contains a number of communities and species of special interest to which close consideration must be paid in formulating management plans and priorities. Of particular note are the fragments and more extensive areas of native broadleaved woodland scattered throughout the area and particularly fringing the shoreline of Loch Sunart and the Sound of Mull and a variety of upland communities including wet and dry heathlands, blanket bogs herb-rich grasslands associated with basalt outcrops and tall herb ledges of Beinn Iadain and Beinn na h'Uamha.

A2.21 Notable species of vascular plants include the orchid *Dactylorhiza traunsteinerioides*) recorded within the SWT Reserve in 1988, and other arctic-alpine species such as Norwegian sandwort (*Arenaria norvegica*), Northern rockcress (*Cardaminopsis (syn. Arabis) petraea*), Moss *campion (Silene acaulis*), Mountain avens (*Dryas octopetala*), Hairy stonecrop (*Sedum villosum*), Mossy saxifrage (*Saxifraga hypnoides*), Spiked woodrush (*Luzula spicata*) and Holly fern (*Polystichum lonchitis*). On the south side of Loch Sunart, Irish Ladies' *tresses (Spiranthes romazoffiana*) have been recorded in coastal lazy beds (though current status is uncertain); quillwort (*Isoetes echinospora*) occurs at Glencripesdale, and small cow wheat (*Melampyrum sylvaticum*) has been recorded from woodlands at Rahoy. Tunbridge filmy fern (*Hymenophyllum tunbrigense*) and the grass Mountain melick (*Melica nutans*) were recorded by Cornish and Proctor (1999)[2] at Poll Luachain and Drumbuidhe.

A2.22 Of particular interest among the non-vascular plants are the good populations of the oceanic liverworts *Adelanthus decipiens* and *Plagiochila atlantica, P. punctata and P. spinulosa*), the good

[2] Cornish, C. and Proctor, K.(1999) **Terrestrial Habitat Survey and Habitat Condition Assessment of the Loch Sunart Woodlands and adjacent areas.** Report to SNH by Quadrat Highland.

populations of the small liverworts *Phanolejeuna microscopica, Drepanolejeuna hamatifolia, Harpalajeunea ovata, Colura calyptrifolia* and *Rudula aquilegia,* and presence of the nationally rare liverworts *Acrobolbus wilsonii and Radula voluta.* Rare mosses include *Decanodontium denudatum, Sematophyllum micans* and *Sphagnum skyense.* The woods at Laudale are noted as amongst the best in the area for lichens and includes one species at its only known British locality. Woods at Glenscripesdale support all four British species of *Lobaria*, while the woods between Drimnin and Killundine supports one of the most diverse lichen assemblages in the whole of Britain, including no fewer than 10 nationally rare and 55 nationally scarce species.

A2.23 Red-throated diver, Black-throated diver, Golden eagle, white-tailed eagle, peregrine falcon and merlin are listed in Annex 1 of the EC Birds Directive (Directive 79/409/EEC on the Conservation of Wild Birds) and are Red Data Book species. The area also supports locally significant populations of black grouse, as well as dotterel. Pine marten and European otter are both protected species under EU Directive 92/43/EEC on the Conservation of Natural Habitats and are listed at Annex II.

Designations:

A3.1 Any plans for future management within the area must take full account of the fact that large parts of the area are separately designated as of particular conservation value/importance.
Thus the following areas as designated as Sites of Special Scientific Interest [Map 5]

- Sunart SSSI : comprising 5540.16 ha of the shoreline of Loch Sunart itself (including the islands of Carna and Oronsay), including areas of (primarily) woodland on Drimnin, Kinlochteacuis, Rahoy, Glencripesdale and Laudale estates and also embraces the Glenscripesdale National Nature Reserve. The SSSI also includes the separate Caledonian igneous exposure at Carnoch;
- Drimnin to Killundine Woods SSSI : extending to a total area of 184.3 ha, and including the fragments of oak-hazel woodland between Drimnin and Killundine
- Loch Aline SSSI : 85.8 ha of ash-dominated woodland on base rich soils on the eastern flank of Loch Aline
- Inninmore Bay SSSI: An area of 127.3 ha along the basalt cliffs of Aoineadh Mor and Aoineadh Beag (Ardtornish), itself continuous with the
- Garbh Shlios SSSI, extending a further 1004 ha up Loch Linnhe
- Beinn Iadain and Beinn na h'Uamha SSSI (wholly contained within the Rahoy Hills Reserve) and protecting an area of 1619.4 ha of upland plant communities on basalt, as well as the woodlands along the north shore of Loch Arienas

A3.2 The areas of woodland of Loch Arienas, Inninmore Bay, Garbh Shlios and the Drimnin to Killundine Woodlands SSSI are further protected under European Law as the Morvern Woods Special Area of Conservation (SAC); a separate SAC embraces all the land within the Sunart SSSI, while within the Beinn Iadain and Beinn na h'Uamha SSSI the two separate massifs of the hills themselves form a further Beinn Iadain and Beinn na h'Uamha SAC.
Clearly these designations and the accompanying orders of Operations Requiring Consent may in some cases limit the options available for management of deer or vegetation. Full Site Management Statements for all these sites are available at http://gateway.snh.gov.uk/sitelink/

Group Membership and Deer Populations:

A4.1 Estates included within the core MDMG area and covered by this Plan are
Ardtornish Estate (14, 426 ha) owned and managed by the Ardtornish Estate Company
Kingairloch (5590 ha) owned by the Kingairloch Partnership and managed by Mrs Susan Larson
Glensanda (2662 ha) owned by Foster Yeoman, a division of Aggregate Industries Ltd
Laudale Estate (5221 ha) owned and managed by Mr Jonathan Turner [Bayford Group]
Glenscripesdale Estate (1,854 ha) owned and managed by Mr and Mrs Jonathan Greenall
Glencripesdale Nature Reserve (609 ha) owned and managed by Scottish Natural Heritage
Rahoy Estate (1136 ha) owned by Mr Bruce Mickel and managed by Mr Bill Rosier
Rahoy Hills (total area 1764 ha, of which 752.6 are owned and managed by the Scottish Wildlife Trust [the remaining 1011.4 of the "John Raven Extension" is owned by Ardtornish Estate]
Kinlochteacuis Estate (766 ha) owned and managed by Mr Peter Lawson
Carnoch Estate (some 1762 ha within the Morvern Management Area) owned and managed by Mr Steven Fox
Killundine Estate (approx 3240 ha) owned by the Lauder family
FCS Fiunary (includes Savary and Barr) 5917 ha

Property boundaries are indicated on Map 1

A4.2 Drimnin Estate (2855 ha) owned and managed by Mr and Mrs Derek Lewis is also affiliated to the Morvern Deer Management Group. Representatives of the estate attend MDMG meetings and exchange information with other members on counts and culls. This property however lies to the west of the Morvern Group area and is geographically separated from the other estates of the MDMG; it is in addition securely fenced along its landward side. Deer populations here are thus a discrete unit and management within the property does not affect other interests within the Group, nor does management elsewhere within the MDMG Management Area impinge upon deer populations or their management on Drimnin. Drimnin Estate's independent Deer Management Plan has been discussed with members of the main MDMG and is appended to this document for information.

A4.3 The island of Carna, lying across the mouth of Loch Teacuis, while not a full member of the MDMG, is also represented at MDMG meetings and future management considerations are included in these pages.

A4.4 Within the rest of the Deer Management Area we may identify a number of clear subpopulations of open hill red deer. As above, populations of Drimnin (and the adjacent Mungasdail Forest) are effectively isolated from the remaining DMG area by fences, as, for the largest part, is the separate Forestry Commission holding of Fiunary Forest (itself lying between Drimnin and Mungasdail and the core of the MDMG ground).

A4.5 In other areas, hinds within the core of given properties are comparatively well-hefted and in Morvern there is no marked movement between Estates in movement from summer to winter ranges; the majority of animals move between higher and lower ground within the same property. However stags are much more mobile and hinds whose home-ranges are close to the marches between neighbouring estates, or may even straddle such marches, may move to and fro between adjacent properties on a more regular basis.

A4.6 [Excluding Drimnin and FCS Fiunary] we may broadly define 4 subclusters of Estates sharing the same biological population of animals, or at least for whom there is more regular exchange of both stags and hinds on a daily or seasonal basis. Thus deer populations of Ardtornish, east of the A884 show may considerable exchange in the north and east with south Kingairloch and Glensanda and to

some degree with Laudale; animals in that part of Kingairloch north of the B8043 themselves may show localised exchange with both Carnoch and Laudale East. To the west of the A884, we may identify a separate subpopulation of animals moving between the west part of Ardtornish, Kinlochteacuis and the SWT Rahoy Hills Reserve.
Rahoy Estate is relatively well-secured by fencing as is the SNH property of the Glencripesdale Reserve, but there is clear exchange in this northern part of the catchment between Kinlochteacuis, the Rahoy Hills Reserve, Glencripesale Estate, Laudale West and Ardtornish.

A4.7 Members of the Group are well aware of these separate populations of deer and their movement and are committed to coordinating management in each area to ensure no conflict of interest and to deliver effective and integrated management across the entire population in each case.

An Overview of Issues affecting management within the Group Area:

A5.1 The Management Area as a whole includes a wide variety of land ownership and objective. A significant number of the Estates are in private ownership. Of these, in the majority of cases, deer are managed as a sporting asset, though in some cases alongside farming/livestock enterprises, and often alongside commercial forestry. Many of these private estates show in addition a significant commitment to programmes of habitat restoration; in some instances, sporting interests have become secondary to management for conservation or habitat enhancement. Management towards primarily conservation/biodiversity objectives is also the priority on the SNH-owned Glencripesdale National Nature Reserve and the SWT-owned Rahoy Hills Reserve.

A5.2 An additional factor affecting management decisions in some cases, or 'imposing' different balance of *emphasis* in management, is the fact that many parts of the Morvern Area are of especial conservation value and thus designated as SSSI or SAC (e.g. paragraph A3.1). Clearly in these areas also, the balance of management must be skewed towards protection or enhancement of designated features in line with legal and statutory obligations - yet must be done in such a way if at all possible, to deliver those obligations while not compromising other objectives of the same Estate, or different objectives of its neighbours.

A5.3 Results of the most recent Site Condition Monitoring for all designated features are presented in Map 6 although it is noted that this draft is prepared before full results are available from monitoring of the Morvern Woods SAC which is ongoing at the time of writing.

A5.4 In summary:
Sunart SSSI/SAC: The oak woodlands in this site were last surveyed in 2009 and assessed as: unfavourable, no change. However this is a large site (which extends around the coastal fringes both north and south of Loch Sunart and the Site Management Statement does not identify clearly identified where the failures are; a significant contribution to failure is also known to be due to encroachment by *Rhododendron ponticum* rather than herbivore impacts. Browsing impacts are however considered in these pages where these affect individual properties [see for example Rahoy, parts of Laudale etc] north and south of Loch Sunart Asignificant contribution to failure is due to encroachment by *Rhododendron ponticum* rather than herbivore impacts. Browsing impacts are however considered in these pages where these affect individual properties [see for example Rahoy, parts of Laudale etc]
Ash woodlands were more recently surveyed in 2014 and are in unfavourable condition due to rhododendron on the north shore of Loch Sunart, but are generally in acceptable condition on the south side of Loch Sunart (thus within the Morvern DMG Area). Most are in deep gorges/ crevices which are inaccessible to herbivores.

A5.5 **Beinn Iadain and Beinn na h'Uamha SAC/SSSI:** SNH have recently carried out routine site condition monitoring across the site. Site Condition Monitoring was carried out for Species-rich grassland in 2012, and 3 designated features of the SAC/SSSI in 2013, plus site checks for an additional 3 features.

Species rich grasslands were found to be in unfavourable condition due to a combination of undergrazing in some areas, particularly on south facing slopes where sheep are absent, and overgrazing in other areas. SNH is carrying out further investigation into whether erosion impacts are leading to loss in extent of species rich grassland.

A5.6 Plants in crevices in base-rich rocks, Tall herb communities and High altitude plant communities associated with water seepage were found to be in favourable condition. Plants in crevices and tall herb communities are quite inaccessible to grazers, and the water seepage habitats constitute small flushes. The SCM report notes however that there were frequently signs of grazing; much of the surrounding vegetation is grazed and many slopes are heavily eroded with extensive signs of trampling and hoof prints.

A5.7 Overall, there are indications of significant disturbance to the feature in some parts of the site but the overall extent of this is unclear. SNH have therefore decided to carry out further investigation into the condition of this feature, and wider erosion impacts (below)

A5.8 Additional features scheduled for site checks were visited opportunistically and observed from vantage points whilst carrying out SCM surveys. Such visual assessments suggested that **Base-rich scree** is more than 10% disturbed by trampling by sheep and deer while the main factor affecting the **upland assemblage** taken as a whole is also erosion caused by grazing animals.

A5.9 SNH note in response to these assessments for Beinn Iadain and Beinn na h'Uamha that despite favourable condition noted above for the features Plants in crevices in base-rich rocks and Tall herb communities that they believe there is a wider grazing and erosion issue on the site that needs to be addressed.

A5.10 In the previous SCM cycle in 2008 the **upland oak woodland** feature of the Beinn Iadain and Beinn na h'Uamha SSSI was assessed as Unfavourable no change due to a lack of regeneration of trees and a lack of dead wood (both standing and fallen). Areas of the woodlands have been enclosed by deer fencing since 1992 to reduce grazing pressure and allow regeneration of primary tree species (oak). Within the enclosures some regeneration has been recorded, however it was also noted that there was increase in some elements of the ground flora such as bramble and bracken. Woodland outside the fenced area was noted to be grazed with little or no regeneration; however, unfenced areas of this woodland have subsequently been deer-fenced (paragraph B1.23; B9.15).

A5.11 Additional surveys have also been undertaken recently of the current condition and herbivore impact assessment within all woodlands within the Morvern Woods SAC (including the woodlands of Loch Arienas, Loch Aline SSSI, Inninmore Bay, Garbh Shlios and the Drimnin to Killundine Woodlands SSSI. Results are still being finalised but early indications from the raw data suggest that Morvern Woods SAC is in unfavourable condition due to herbivore impacts. Final analysis may Identify particular areas of concern in relation to impact and this may have major implications for future action.

Woodlands and Commercial Forestry

A5.12 Most of the areas of native woodland within the Morvern Management Area fall within the designated sites listed at paragraphs A3.1 and A3.2; condition of these is primarily assessed through such routine Site Condition Monitoring within designated sites and is not separately monitored. However, the in the recent Native Woodlands Survey of Scotland [NWSoS; Map 7] a number of additional sites, outwith designated areas, were noted with High or Very High herbivore impacts. Although there is some ongoing debate about survey methods and the interpretation of recorded impacts we note here, by example, that very high impacts were recorded on native woodland elements within the main commercial plantations of Glencripesdale Estate and these areas have subsequently been re-fenced; below the Allt Duibleac Riabhach on Carnoch (grid reference NM 855700- 862700) and high within the coastal woodlands of Glensanda. Again proposals are already in place for reinstatement of these woodland areas in the Biodiversity Plan developed for Aggregate Industries by the Scottish Agricultural College (SAC Consulting).

A5.13 Forestry Commission Scotland owns and manages a significant area of commercial forestry within the area: the 6030 hectare Fiunary Forest block skirting the western side of Loch Teacuis, Lochan Doire na Mart, Loch Arienas, and wrapping around the line of the main A884 and the B849 Drimnin road to follow that latter road as far as Fiunary. This is geographically central to the Management Area as a whole, and management policies affecting this block -or changes to current management - potentially have significant implications for the dynamics of open hill deer populations and deer movement within a wide area.

A5.14 FCS are not the only landowners whose forests are at a stage where there is a great deal of activity ongoing or planned. It is a notable feature of the Morvern Group area that a number of private Estates are also currently in the process of felling, restructuring and/or restocking established woodland blocks. Thus Ardtornish, Laudale, Kingairloch and Glenscripesdale are currently actively involved in felling of significant areas of mature conifer [felling for extraction, or to recycle] and all estates have plans for enclosure for re-establishment of woodland through planting or regeneration, over the next five years, with, in most cases, formal Long-Term Forest Plans agreed with the Forestry Commission.

A5.15 The actual amount of new (or restored) fencing will not make a significant difference to the overall area of available range in the Group area as a whole and in practice, other areas of woodland, previously exclosed, may have themselves now reached a stage where they are no longer vulnerable and they can be opened to deer (whether by deliberate policy or by default in fence maintenance).

A5.16 However, future management of the Morvern deer population must take full account of the fact that deer distribution and movement over the next few years are likely to be significantly affected by

i) the loss of previous cover in certain areas, with removal of the trees, and
ii) the physical exclosure of the deer from these same areas (and others) by new fencing, and
iii) the provision of new areas of cover by the opening of previously fenced woodland blocks elsewhere

Sustainability of harvests:

A5.17 Given the more (or less) discrete subpopulations of deer recognised at paragraphs A4.4 –A4.6, it is appropriate to consider the extent to which current populations are well-adjusted to sustain current harvest rates for stags and hinds, and by converse how well-adjusted are cull rates to maintain steady populations in these sub-areas or deliver changes in population level which may be sought.

Population	Estimated Numbers				Average Combined Harvest		
	Stags	Hinds	Calves		Stags	Hinds	Calves
Ardtornish East, South Kingairloch, Glensanda							
North Kingairloch Carnoch, Laudale East							
Laudale West, Ardtornish West, Glencripesdale, Rahoy, Rahoy Hills, Kinloch							

Unfortunately, it is not possible to make this assessment on current resolution of data; while counts are separately presented for Ardtornish East (South) and Ardtornish West (North), as also for Kingairloch North and South, counts are not separated thus far between Laudale West and Laudale East. Similarly, while cull figures are distinguished between Kingairloch North and Kingairloch South, cull figures available are not currently divided between Ardtornish West and East, or Laudale West and East, making the analysis proposed above not possible at the current time. MDMG will review past data and determine if 'split' data for counts and culls can be extracted for future analysis. However no count data are available for Glencripesdale which will make any analysis of balance of populations and harvest levels impossible for this third cluster.

A5.18 Discussions have taken place in development of this current Plan to attempt to ensure that appropriate data are collected in future to enable proper discussion at sub-Group level and adjustment of harvests to ensure that future combined stag harvests are sustainable within the different regions of the Management Area, although it is noted that in some cases this has been achieved thus far only through voluntary reductions of harvests on individual key Estates rather than a more general reduction in stag quota throughout affected areas. Collation and analysis of future count data and appropriate population modelling will also that future hind culls are targeted to maintain zero growth or, where appropriate effect some reduction in resident hind numbers.

Deer-Vehicle Collisions:

A5.19 There are relatively few traffic accidents involving deer within the area although occasional incidents are reported on the A884 through the White Glen and along the A861 in Glen Tarbert. Incidents reported in the last 5 years are shown on Map 8. However, clearly the impact that any new fencing proposals may have in funnelling deer to roadsides and potentially increasing the risk of such collisions with vehicles needs to be considered in any future planning. MDMG will continue to monitor the problem and will collate formal records of DVCs noted by members in the area. If DVCs are perceived as an issue in the future, SWDMG will act as a forum to identify and assist in the delivery of appropriate actions and SNH/Transport Scotland/ Local Authority will be involved as required (see also below, at paragraph D3.5, D3.6).

Non-native Species:

A5.20 Sika are occasionally observed in the area and shot on some of the Estates. Sika may cause significant damage to unfenced -or fenced - woodlands, if they break into restoration enclosures. Further, hybridisation between sika and red deer and the potential threat posed to the integrity of native red deer populations, is now a matter of widespread concern. While it is probably not practical to eliminate sika from parts of Scotland where they have become well-established, in areas such as Morvern, where the species is encountered infrequently, it may be possible to maintain control and protect the genetic integrity of local red deer populations. Muntjac are not currently present in the Management Area.

Feral goats also occur in parts of Morvern notably around Inversanda and Kingairloch. In general the goat population not managed since it is static and shows no signs of expansion.

The structure of this document:

A6.1 Since management decisions must be taken (and reviewed) in the context of a proper understanding of the deer populations of the area, their movements, impacts upon their habitat, and in the light of any specific problems perceived in the future management of this resource, this Plan begins with a brief overview description of the 'resource': a description of habitats and deer populations and their condition on individual Estates as well as a brief account of past management practices, as necessary background to formulation of future management. [Section B]. It seeks clear definition of individual and collective management objectives, and explores possible issues arising from past management practices or future management aspirations, as well as necessary constraints on future management decisions.

A6.2 Against that background, in the second part of the Plan, actual management decisions for the next five years are presented for individual land-holdings [Section C] with explanation of how these proposals seek to address any issues identified while seeking to deliver private objectives and public benefits. This theme is expanded in Section D to consider collective activities within the Group as a whole and how combined Group activities deliver against needs and public benefit interests. Tables are added in Appendix to facilitate annual audit of performance against targets set within the Plan of both individual Estates and of the Morvern Group.

B. VEGETATION, DEER POPULATIONS AND CURRENT MANAGEMENT OF INDIVIDUAL ESTATES

B1. Ardtornish

Description

B1.1 Ardtornish Estate occupies an area of some 14, 000 ha in the centre of the Management Group area, straddling the A884 along the White Glen to Lochaline. [Ardtornish land also runs to the west, along the B849 towards Savary, between the FCS plantations of Fiunary and the shore, but these lands are largely fenced as agricultural parks/pastures and are largely separated from the 'open hill' deer range. Considerations in this paper are essentially restricted to that part of the Estate to the north of Loch Arienas and Loch Doire na Mairst, or to the east of the A884].

B1.2 Significant areas of land are fenced away in woodland restoration schemes or for commercial forestry (below); if we exclude areas protected by secure fences, the total effective area open to deer is estimated at 12000ha.

B1.3 Ardtornish marches to the north with Laudale, to the west with the Rahoy Hills Reserve (SWT) and Kinlochteacuis, to the east with Glensanda and Kingairloch. There is an effective, fenced, boundary along the Kinloch road and then south to Lochaline, against land owned and managed by FCS; from Lochaline, the southern boundary is formed by the waters of the Sound of Mull.
All boundaries are shown on Map 1.

B1.4 In management terms we may effectively consider Ardtornish in three discrete sections: the east side of the White Glen between Uillean and the Kingairloch junction; the area south of the Uillean Plantation to the sea, and the area to the west of the A884.

B1.5 Of this latter section we should note that the Reserve area of Rahoy Hills embraces both land owned by SWT and land dedicated to the Reserve by Ardtornish Estate (see paragraph B1.5; B9.4). While land owned by SWT lies to the north of Beinn na h'Uamha and to the west of the Lon Beinn Iadain, the actual boundary of the wider Reserve runs from the eastern end of Beinn Iadain towards the Lochan Dubha and follows the tributary stream skirting Meall Achadh a' Chuirn to the Black Water. Under a Management agreement between Ardtornish and the Scottish Wildlife Trust, the Trust manage the conservation interest of the Ardtornish owned ground (the John Raven Extension), while the Estate manages all other aspects including deer, woodland and farm management. In effect, however management policy is by mutual agreement.

B1.6 Ardtornish is run as a multi-objective Estate, where deer management must be integrated into a variety of other interests including livestock farming (sheep and cattle), conservation, forestry, mining, generation of renewable energy, recreation and tourism. As of November 2014 stock numbers on the whole Estate were 283 cows and followers plus a total sheep flock of 2780. Current sheep numbers represent a significant reduction in stocking since 2000.

B1.7 Hill sheep are run on a traditional low input/low output hill grazing system. The 9 original hirsels have been amalgamated into 3 management areas or hirsels: Old Ardtornish (Inninmore and Old Ardtornish, and Achranich), White Glen (Beach, Altnahonich and Clounlaid), and Acharn (Acharn hill, Crosben and Ben na Uamph). Relatively few sheep utilise the hill ground east of An Dunan (The Table of Lorn) across towards Beinn a' Chaisil.

B1.8 Suckler cows are maintained in in-bye parks for much of the summer, with some hill grazing (young stock and dry cows) in the autumn. Over the winter the animals are put out to the open hill and fed with a concentrate diet of mixed grains and sugar beet pulp.

The cows are fed in lots of around 30, on winter feed sites which are near to the road system and spread though out the farm but mainly in the White Glen.

B1.9 From 2013, the Old Ardtornish unit (including Inninmore hirsel) has been farmed under a registered organic scheme. There are 21 cows and 650 sheep on this unit and the farming system is traditional with hill cows summered on the hill and wintered inbye on home-grown sileage, while sheep run between the hill and inbye grazing.

Vegetation:

B1.10 An extremely detailed inventory of the vegetation of Ardtornish was carried out by the late Brian Brookes as part of a wider Audit of the Estate in 1992, designed to provide a baseline for future conservation of wildlife interest on the Estate. This habitat survey was extremely thorough and no attempt has been made to try and duplicate it here. Vegetational descriptions offered in this section are far more general (effectively in description of habitats and 'deer range' and where further detail is required, reference should be made to Brian Brookes' report. [3]

B1.11 While there is in practice some change in productivity of the vegetation north to south (with the geology and soils of Achranich supporting more productive growth of vegetation) the character of the open hill vegetation, and its composition, is relatively uniform across the Estate, with variations chiefly due to past and current grazing patterns. In Brookes' 1992 survey 1440 ha of unenclosed upland vegetation were classified as grassland; unenclosed moorland was considered to extend to approximately 2200 ha. 7,600 ha were considered as blanket bog (this designation overlaps to a degree with what others might classify 'wet heath') while raised bog and other mires account for 975 ha.

B1.12 For the most part the ground supports, on the lower slopes, a wet grass heath (dominated by *Scirpus/ Erica*), with some *Calluna* apparent on exposed soil (slumps) or on emergent, drier hummocks. In flatter areas, where peat has accumulated and drainage is impeded, this wet grass-heath grades into true blanket bog (*Eriophorum* mire; eg. on the flats beyond Loch an Fhaing and Lochan na Craobh towards Glensanda).

B1.13 On the various meallan (round rocky topped hills) which offer better drainage and more mineralised soils, a shorter sward develops of finer grasses (*Agrostis*, *Festuca*); cover of *Calluna* also increases, but tends to be very prostrate in form, due both to exposure and wind-clip, and the fact that it is clear (from observations both of grazing patterns and dung distribution) that these areas are strongly favoured by deer. This mixture of *Scirpus*, rather prostrate *Calluna*, and *Cladonia* lichens is repeated on the highest ground of the ridge above Garbh Shlios (and the Eignaig woodland block)

B1.14 There are extensive high altitude greens (high altitude *Agrostis-Festuca* grasslands) on the sheer north eastern faces of Glas Bheinn, and also green 'runners' associated with seepage lines and burnsides. Other greens are associated with watercourses or semi-improved ground associated with cleared human settlements and past cultivations - around Crosben in the west, around the old settlement based on Loch Tearnait: with good green ground on the slopes across Guala an Tuir and at Leacraithnaich, and to the south of Strath Shuardail which presents both good alluvial grasslands and grass-rush vegetation.

B1.15 The grassy nature of these areas is in part due to the available mineral soils around the Loch, but these areas have clearly also been enhanced/semi-improved by settlement - and they are now very heavily colonised by bracken. Finally, another notable area of alluvial grassland is associated with the flats of the Allt Strath Shuardail which presents both good alluvial grasslands and grass-rush vegetation.

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[3] Brookes, B.S (1992/1993) **Ardtornish Estate, Conservation Audit and Habitat Survey**. Ardtornish Estate Papers

B1.16 Superimposed upon this underlying structure however, the vegetation is markedly affected by past and present patterns of management: grazing - by livestock and deer, and patterns of past muirburn. In many areas, particularly within those regions grazed primarily by sheep, there has been a quantum change in vegetational structure, with past management practices (and present, continuing, grazing pressure) leading to a significant suppression, or elimination, of heather and encouragement of grasses in the sward. Thus for example, on many of the lower slopes of Achranich (as up towards Ghoirtean Dearg) or at its most pronounced on both sides of the White Glen, there is virtually complete suppression of *Calluna* with conversion of the sward to grass, which commonly shows evidence of strong encroachment by mosses and bracken.

B1.17 Currently 495 hectares are managed as commercial forestry: notably at Clounlaid, BeAch, Uillean and Doire na Mairst. The two blocks at Clounlaid have recently been harvested as has much of the area at BeAch. Parts of these areas have already been fenced and replanted with a mix of blocks of coniferous and broadleaved species While the bulk of the Uillean block may remain intact during the life of this Deer Plan parts have been felled to provide an access track and infrastructure in support of new intakes (Allt Buidhe Mor, Allt a' Chonaich) to increase water intake for the Estate's main hydro-electricity development.

B1.18 Proposals are also in hand for restructuring of the commercial blocks at Doire na Mairst.. It is intended that the lower half of the plantation at Doire na Mairst is to be felled in 2015; the ground is to be refenced along this line and restocked with native broadleaves. The upper part of the block (which has not grown so well and is of questionable economic value) is to be retained - and fences left open so that this remains as available cover for deer in that part of the Estate.

B1.19 Over the past 10 years some 27 ha of commercial plantation have been felled in total with 17.63 ha restocked to date; proposals are in hand to fell a further 80.78 ha and restock these, with possible further expansion of an additional 80 ha.

B1.20 Approximately 2100 hectares of the Estate are devoted to native woodland, with the current LTFP providing for a further expansion of some 20 ha. Extensive fragments of native broadleaved woodland are associated with the more inaccessible slopes of streambeds and gullies (e.g. tributaries of the Allt Strath Shuardail NM738453 or Abhainn a' Ghlinne Ghil at NM 726500, in the gully of the burn above BeAch NM774531), on steeper faces above the shore (Garbh Shlios face, Ardtornish and Inninmore Bays) or as fringing lochside woodlands (around Loch Aline itself). The vast bulk of these have been enclosed in various woodland restoration schemes; most of the larger areas have been designated SSSIs for their conservation interest (paragraphs B1.25 – B1.29 below).

B1.21 Thus the face of Garbh Shlios (SSSI) is **deer-fenced** along the top of the ridge [and down to the sea at Dearg Allt (Inninmore Bay) and Coire na h'Uamha (Eignaig)]; **stock** fencing continues west along the ridge above Inninmore Bay and Ardtornish Bay (Inninmore Bay SSSI) and to link to another **deer fence** protecting the Old Ardtornish agricultural field system and the woodlands on the east side of Loch Aline to Achranich (Loch Aline SSSI), excepting an area of Oak and Birch woodland on the higher ground to the north of the Allt na Samhnachain fossil burn, which is left open for deer shelter.

B1.22 Woodlands behind Ardtornish House (around Tom na Corr' Laraich and Torr Molach) are unfenced, as are those on the western side of Loch Aline, but further **deer-fenced** enclosures protect the 'Tom na Dubh Ghlaic' of Strath Uladail, and the Uladail woodlands themselves from the Black Glen road eastwards up to and including Creag Uladail. More recent exclosures have been established to encourage regeneration and expansion of existing woodlands in the foot of the Black Glen, and as a continuation of the Garbh Shlios scheme eastwards at Eignaig.

B1.23 There are also three fenced exclosures within the Reserve woodlands at Loch Arienas and a fourth at Acharn (all falling within the Beinn Iadain and Beinn na h-Uamha SSSI). The back-fences of the areas originally enclosed at Loch Arienas (fenced in 1993/1994) have now been reduced to stock height, allowing deer access once again to these areas; side fences have been maintained however and new fencing now secures the areas between the original enclosures to complete the restoration plan. These areas were noted as suffering heavy herbivore impacts within the NWSoS survey and the more recent 2014 Site Condition Monitoring within the wider Morvern Woods SAC. However it is anticipated that the alteration to fencelines recently undertaken will address this and ensure renewed regeneration within these blocks.

B1.24 Most recently a number of new native woodland schemes have been established around the margins of commercial forest plantations with 27 ha established at BeAch and up the burn behind the house and a further two blocks (to a total of 44.7 ha) fringing the commercial plantings at Uillean. In addition a number of riparian woodland schemes have been established astride the Allt Beitheach in the White Glen. In total 95 ha of new native woodlands have been planted between 2009 and 2014 with a further 20 ha already committed over the next five years and plans under consideration for further expansion (paragraph B1.54).

Designated areas:

B1.25 In recognition of the importance of its native woodland cover, five areas on the Estate have been designated Sites of Special Scientific Interest (SSSI).

B1.26 These include the Inninmore Bay SSSI (127.2 ha, notified 1963) and Garbh Shlios SSSI (625 ha, notified 1981) notified for their geological and biological interest. The main biological interest is the ancient broadleaved woodland on the south facing slopes above the sea. Most of the woodland is oak- and birch-dominated, but base-rich woodland of ash, hazel, wych-elm and cherry occurs along the major burns and is more extensive towards Inninmore. Ash woodlands of this type are relatively uncommon in the area, as also in a wider European context. The separate Loch Aline SSSI (146 ha; notified in 1981) was also primarily designated for its geological interest but also for its woodland cover of sessile oak woods and ashwood. Once again, oak-hazel woodland is associated with more acidic conditions, while the outcropping basalt supports a base-rich ash-dominated woodland.

B1.27 In all three areas, the ground flora is diverse and supports over 150 species of flowering plants and ferns, including several uncommon species such as moonwort, hay-scented fern, royal fern, Tunbridge filmy fern, small white orchid, lesser butterfly orchid, narrow-leaved helleborine, thyme broomrape and serrated wintergreen. There is also an extremely rich community of mosses, lichens and liverworts. Over one hundred species of mosses and liverworts have been recorded including three species which are nationally rare and five considered nationally scarce.

B1.28 To the north, the woodlands fringing Loch Arienas, and those in the foot of the Black Glen are included within the separate Beinn Iadain and Beinn na h'Uamha SSSI; these again are included for the quality of their sessile-oak dominated woodland flora although the main reason for designation of the larger 1620 ha site is for the rich upland flora of the basalt exposures of the two massifs of Beinn Iadain and Beinn na h'Uamha themselves which support herb-rich grasslands on their grazed lower slopes, as well as tall-herb communities on the more inaccessible rocky ledges and a number of rare alpine or montane species including the nationally rare Alpine Sandwort *Arenaria norvegica*.

B1.29 SSSI is a national designation. The central areas of the Beinn Iadain and Beinn na h'Uamha SSSI (comprising the two basalt massifs themselves) have also been recognised at a European level as a Special Area of Conservation (SAC; designated March 2005) while the Loch Aline SSSI, Inninmore Bay SSSI and Garbh Shlios SSSI have also been included within the larger Morvern

Woodlands SAC (also designated in 2005). The Uladail Woodlands were designated as part of the Morvern Woodlands SAC, but, unusually, these have never been an SSSI.

B1.30 Clearly these various designations for conservational value impose certain constraints on management. While for the duration of this plan many of these areas will be protected by deer fencing, in others temporary fences are no longer secure and the impact of open range hill deer on these sites may have to be accounted for.

Deer Populations:

B1.31 As noted above, deer share the open hill range with sheep, and winter-grazed cattle. Cattle are fed with concentrates and thus are for the most part concentrated in their impact around feed sites (themselves necessarily close to roads/tracks), but may be grazed out from Achranich towards Tearnait, on the slopes above Old Ardtornish Castle, behind BeAch and in the Black Glen as far as Crosben (see paragraph B1.36).

B1.32 Sheep are currently maintained in three main hirsels around Achranich/Old Ardtornish, in the White Glen between Uillean and BeAch and to the west of the A884 over Braigh Uladail and Beinn Chlaonleud to Crosben . Main concentrations of animals are focused in these areas, although smaller numbers of individuals may wander more widely.

B1.33 At present, deer thus share the grazing with sheep (and, more locally, cattle) in these areas, but have the area between Coire Stabhaig and the eastern boundary with Glensanda (Meall a' Chaorainn to Beinn a Chaisil largely to themselves (an important consideration when assessing impacts)

B1.34 Current distributions of deer also reflect this degree of 'overlap' with sheep and cattle, as well as past and present patterns of culling. Culling efforts past and present are to an extent constrained by logistics of manpower and access. Ardtornish covers a very large area and is managed single-handed by only one stalker; culling has therefore tended to be concentrated in the main where access is relatively rapid and extraction is logistically practical, although access has recently improved with the track through the plantation at Uillean extending now as far as Loch Tearnait. In addition, there have been deliberate attempts to reduce deer populations in particular areas in order to reduce grazing pressure on areas of high conservation status, in protection of woodland restoration projects, or as prophylactic culls to reduce deer numbers in the local area in advance of such schemes.
Through limitations of time and logistics of access, less cull effort has been imposed in recent years in the Black Glen, or in Ardtornish-owned parts of the Rahoy Hills Reserve.

B1.35 In consequence of all this, current deer populations are concentrated in the Black Glen (on the west slopes of Beinn Chlaonleud, over the river to Crosben and across the rising ground to the Leac na Saighde, Meall Lochan nan Lorg, and Meall a Chaise on the march with Laudale), and to the south of the Estate on the slopes above Inninbeg and Inninmore and across the largely "sheep-free" area between An Dunan and Beinn a' Chaisil.

B1.36 Populations within the Black Glen are clearly continuous with those within the Rahoy Hills Reserve (the SWT section of this is stock-fenced but not deer-fenced); movement further west is inhibited by the deer-fence of Kinlochteacuis. Of more significance perhaps, populations towards Crosben and the upper part of the ground are completely continuous with those of Laudale, at the head of the Laudale Glen (Coire Dubh), on the Meall a' Chaise- Tom Aonghais- Beinn Bhan ridge, and on the lower slopes between Lurga and Achagavel (B4.27-B4.29). Deer populations in this area move freely across the march depending on wind, weather and disturbance, and may be considered effectively shared between the two estates. Stags in this western part of the ground tend to draw down into Laudale over winter.

B1.37 Hind populations in the eastern side of the Estate are primarily concentrated towards the south, where they are fairly widely dispersed along the ridge between Glas Bheinn and Meall a' Chaorainn (to Meall nan Clach), feeding down onto the lower slopes across to Loch Tearnait and to Strath Shuardail. Numbers have been increasing over recent years and hinds have also increasingly been colonising the eastern side of the White Glen (to the north of Uillean).

B1.38 Stags also are mainly concentrated in the south of the Estate; in summer, they are, like the hinds, quite widely distributed across the ridge between Glas Bheinn and Meall a' Chaorainn. In winter, stags tend to concentrate more towards the west, on the west and southwest facing slopes of Glas Bheinn and above Old Ardtornish, although in better weather they may still spread out further along the ridge to Mam a' Chullaich and beyond. Curiously, even over winter, the stags tend to occupy the higher ground, and it is the hinds who draw down more to the lower slopes. More recently a separate and independent 'heft' of stags has become resident year-round at Uillean grazing out on the grasslands surrounding the coniferous plantations and drawing back into those plantations for shelter/ cover.

B1.39 While these are the main concentrations of deer within the Estate, that is not to suggest that deer are absent from the rest of the ground. Scattered parcels of hinds and followers are more widely distributed over much of the rest of the area. Stags in summer also move out more widely over the estate. But both stags and hinds tend to congregate around the basalt outcrops (of better vegetation) or the rocky meallan which offer better-drained short-grass/heather swards; thus even within this wider range, there are clear 'hotspots' of increased density/usage. Such preferred areas are very apparent, with swards cropped very much closer, and with a notably higher accumulation of dung than is the average over the wider surrounding area.

B1.40 In addition to animals which may be considered 'resident' within the Estate, Ardtornish also experiences a regular exchange of animals across the eastern marches with Kingairloch and Glensanda. While this is in part a seasonal pattern of movement, with stags moving between the Estates (in and out) at the time of the rut, and with animals also drawing in to low ground overwinter, there is also a more regular movement of animals between the Estates (particularly of hinds and calves); many of the resident hinds on the Estate are hefted close to the marches and they and their calves may move freely across the marches on a daily basis throughout the year depending on wind and weather conditions.

B1.41 Thus there is a regular movement of hinds and followers around the high ground of Beinn a' Chaisil and across the flats of the Allt Doire Dharaich, or around the Lochan an Sula towards Tearnait. Likewise animals resident in the area from Beinn Mheadhion to Meall a' Chaorainn Loch Uisge also move freely to and from across the march between Kingairloch and Ardtornish on a regular basis. Many calves born to hinds in these areas will also migrate and many stag calves, in particular, born to hinds hefted on the periphery of the Estate may not remain on Ardtornish once reaching independence. Frequent and free movement of animals between Ardtornish and Laudale in the west, Ardtornish and Kingairloch/Glensanda in the east also mean that it is difficult to get a consistent estimate of numbers of animals on the ground - even for an Estate the size of Ardtornish.

B1.42 Actual counts returned from 1977 to 2005 are summarised in the earlier Morvern Group Plan. More recent counts are updated below:

Ardtornish North [West of the A884]

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Stags	No	27	33	No	20	57	32	No	44
Hinds	records	198	206	Records	245	129	262	Records	300
Calves		65	67		91	31	105		112
Total		290	306		356	217	399		456

Ardtornish South [East of the A884]

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Stags	No	255	197	No	217	283	283	No	228
Hinds	records	358	262	Records	214	274	274	Records	428
Calves		101	94		84	116	116		171
Total		714	553		515	673	673		827

Combined Total

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Stags	No	282	230		237	340	315	No	272
Hinds	records	556	468		459	403	479	Count	728
Calves		166	161		175	147	221		283
Total		1004	859		871	890	1015		1283

B1.43 Figures translate to an average density of 8.3 deer per 100ha of unfenced open range since 2007 [10.25 on 2014 figures]. Recruitment rates derived from these figures (as surviving calves in late winter counts per 100 hinds) suggest an average recruitment since 2007 of 37.3 calves per 100 hinds; calf:hind ratio in the count of 2012 however is anomalously high suggesting significant mis-classification and an average calculated across the remaining years is a more realistic 35%

Management Objectives and recent past management:

B1.44 The Estate's management policy is "To run a profitable and businesslike estate, to maintain and enrich its natural and cultural heritage, and to develop sustainably its value for the benefit of both the family and the community. To keep the place in good heart, to make it somewhere that feels, looks and is healthy, happy, enterprising and well run. To promote it to visitors and the wider world. To see its natural assets of landscape, wildlife and an increasingly strong community as the foundations of its business success and to ensure that any development does not degrade or erode them." As noted above (para B1.6), Ardtornish Estate operates with a number of separate strands, with investment in commercial forestry, livestock agriculture (sheep and cattle), generation of renewable energy through a number of hydroelectricity schemes, conservation, recreation and tourism.

B1.45 Deer management must be closely integrated with these other objectives, whose balance is currently a matter of debate, but given the strong personal commitment of members of the Raven family to conservation, habitat enhancement and, particularly, restoration of native woodlands, culling targets have been designed to protect and enhance key habitats, as well as deer welfare, while maintaining a sustainable deer and sporting enterprise.

B1.46 Actual numbers of stags and hinds culled over the past 9 years are summarised from MDMG records as: [*xxx + yyy* is "Open hill + Enclosed woodland"]

	2005/6	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Stags	41+4	46+19	45+3	35+9	21+2	30+2	35+3	41+1	50+1	46
Hinds	80+6	78+5	70+4	59+2	19+6	16+6	16+0	27+0	24+0	79
Calves	23+1	24+2	33+3	30+1	6+1	10+3	7+0	8+0	10+0	31
Total	155	174	158	136	55	67	61	77	85	156

Open-hill stags have in the past generally been let to clients or friends of the family. Hind culling is normally undertaken in-hand by the Estate stalker. Reductions of cull levels in recent years reflect a perception from annual counts that deer numbers were declining and the Estate determined to reduce the cull to allow numbers to rise again. This has been achieved from 2014-15 culls have been restored to maintenance levels.

B1.47 No supplementary feed is provided directly for deer, although in local areas animals may have access to feed provided for cattle or sheep over winter. Some controlled muirburn is undertaken in targeted areas specifically for the deer and wider muirburn is carried out from time to time by the farm.

Assessments and Issues to be addressed in Future Management:

B1.48 This Plan is developed at a time when other significant changes are being considered to the balance of management objective at Ardtornish, with consideration once again being given to removal of at least some hirsels of sheep (potentially that the hirsels at BeAch and Alltachonaich may go altogether, or be restricted to hill parks, and that the hirsel at Chlaonleud might likewise be restricted to a larger hill park). The Estate is also considering future initiatives in woodland creation over significant areas, notably within the White Glen and elsewhere. In determining its final objectives for its future management of deer populations on the Estate, the Trustees must seek a balance with decisions taken in relation to these other land-use and economic considerations.

B1.49 Deer management decisions taken must also address ongoing concerns about impacts of grazing on open woodlands, on designated sites and on the wider hill vegetation. Previous surveys of the open hill by RP in 2007 noted that where impacts are primarily due to deer - and there are few sheep other than occasional wanderers, impacts are generally light-moderate or moderate (in certain preferred small patches: moderate-heavy).

Where grazing is primarily from sheep (or the combination of sheep plus deer), grazing was uniformly heavy or very heavy on lower slopes, moderate-heavy to heavy further out (where populations disperse more widely over the available area)

B1.50 SNH have recently carried out routine site condition monitoring across the Beinn Iadain and Beinn na h'Uamha SAC/SSSI, an area grazed by Ardtornish Farms under agreement with SWT. Site Condition Monitoring was carried out for 3 designated features of the SAC/SSSI in 2013 and site checks were carried out for an additional 3 features.

B1.51 **Plants in crevices in base-rich rocks** and **Tall herb communities** were found to be in favourable condition. The Plants in crevices on base-rich rocks feature failed at some sample points due to a lack of indicator species, which is a similar result to the last time the feature was monitored in 2004. It is not clear why the indicator species are not present, but in the recent survey it was observed that the target would be likely to be met over 90% of the feature overall.
The SCM report notes that there were frequently signs of grazing but never on more than 50% of live leaves. Much of the surrounding vegetation is grazed and many slopes are eroded with signs of trampling. It is considered likely that grazing pressure is impacting on the more accessible plant crevice communities leading to a possible loss of diversity of indicator species.

B1.52 **Alpine flush**; high altitude plant communities associated with water seepage were assessed as unfavourable. This community was only surveyed on Beinn Iadain as this was where the feature was encountered and all sample points were gathered opportunistically. However, further analysis by SNH suggests that the small number of samples recorded does not necessarily provides robust evidence for the condition of this particular feature There are indications of significant disturbance to the feature in some parts of the site but the overall extent of this is unclear.
SNH have therefore decided to carry out further investigation into the condition of this feature, and wider erosion impacts (below) [B9.33 – B9.35]

B1.53 SNH note in response to these assessments that despite favourable condition noted above for the features Plants in crevices in base-rich rocks and Tall herb communities that they believe there is a wider grazing and erosion issue on the site that needs to be addressed and the Estate will await the results of further surveys before determining what actions may be required.

B1.54 Additional surveys have also been undertaken recently of the current condition and herbivore impact assessment within all woodlands within the Morvern Woods SAC. A full report is expected shortly but preliminary results suggest a number of areas of concern in relation to impact within the Arienas oakwoods, Morvern Woods SAC ash and oak wood, Lochaline SSSI ash wood, Garbh Shlios SSSI oak wood and Inninmore ash wood. Once fuller details are available the Estate will wish to respond appropriately.[4]

B1.55 It is noted above that the Estate is also considering additional planting of a number of areas of native woodland over the next few years and is currently researching candidate areas across the Estate. Any significant planting may have significant bearing on numbers of deer or other grazers which may be supported on the ground both in the short-term (during enclosure and establishment) and in the longer term (once plantings may be opened for access), while the combined effect of new fencelines superimposed on existing fences may have an effect on current movement patterns and thus subsequent distribution patterns of deer (and livestock). Any further planting (or enclosure) within the White Glen for example, would displace populations of hinds now establishing within this core area and once more push the balance of distribution of hinds to the periphery of the property countermanding a need to establish populations more centrally within the Estate. Such potential consequences need to be taken into account in final selection of candidate woodland areas.

B1.56 The Estate's managers have also been considering changes to future livestock numbers and disposition with consideration being given once again to removal of at least some hirsels of sheep (potentially that the hirsels at BeAch and Alltachonaich may go altogether, or be restricted to hill parks, and that the hirsel at Chlaonleud might likewise be restricted to a larger hill park. However, no major changes are now proposed in the immediate future, in recognition of the new minimum stocking levels imposed by recent CAP reforms.

B1.57 Future decisions about other land-use interests will clearly have a significant bearing on numbers of deer to be held on the ground and how that balances with farming interests for the future, forestry activities and new woodland creation. All these will determine what deer populations will be appropriate for the future and that in turn will dictate what culls are required to maintain current populations, allow modest increase, or effect significant decrease.

[4] It is noted however that while the Arienas blocks failed overall, the policy for these has been enclosures to encourage regeneration. In the previous SCM cycle in 2008 regeneration was recorded within enclosed areas (paragraph B9.36) although it was also noted that there was increase in some elements of the ground flora such as bramble and bracken. It was primarily in areas outside enclosures where little or no regeneration was recorded. Thus, while the Arienas blocks failed overall, this is primarily a result of lack of regeneration in unfenced areas. As part of the original management policy, the first three enclosures have recently been opened up, with the top and bottom fences rolled over now to enclose the gaps left between the original three enclosures (paragraph B1.23). In consequence, measures recently undertaken within existing policy for these woodlands should already have ensured future recovery of areas which have failed the SCM since those sections that will have failed outwith the original enclosures are now themselves enclosed, while increased grazing pressure within the original enclosures will address problems of encroachment by bramble and bracken; see further, at paragraph B9.38].

B2 Kingairloch

Description:

B2.1 Kingairloch Estate (5590 ha) sits astride the B8043 and the Abhain Coinnich as it runs down the glen to Loch a' Choire. It is effectively divided in two by this central glen and from a day-to-day management point of view it is considered in two divisions: North and South Kingairloch. To the north, Kingairloch marches with Laudale and Carnoch; to the north-east and east with Inversanda and Kilmalieu. To the south of the B8043, Kingairloch shares a long march with Ardtornish to the west.

B2.2 Kingairloch has a number of significant areas of coniferous plantation, on both sides of the B8043 towards Kingairloch itself. To the north of the road there is a major block at the foot of Coire Ghardail, with two additional, smaller plantations immediately east; fences of all three are porous and all are scheduled for felling and restructuring. There are additional blocks of more mixed woodland at Camasnacroise, and at the foot of Glengalmadale; fences of all older plantation blocks are porous and deer have free access.

B2.3 To the south of the B8043 there are also significant areas of plantation between the road and the Loch, extending across the Abhainn Coinnich to the northwest of North Corry (Home Farm). Areas below the road at the western end have recently been felled, and once again, there are already plans for further restructuring of all these woodlands contained within the Estate's Long Term Forest Plan. Smaller 'amenity' blocks of conifer are scattered up the Abhainn na Fearna, with an unfenced block of larch marking the limit at the confluence of Allt a' Choire Bhain and Allt Choire nan Each.

B2.4 Kingairloch has relatively little native woodland cover although some patches remain in the steeper (less accessible) ravines and gullies of watercourses running down to Loch Linnhe, and there is a more extensive area of birch associated with the former settlement at Airigh Shamhraidh and on the shoreline at Uamh a' Choilich. Some additional small blocks of native woodland have more recently been planted within new enclosures established up the Abhainn na Fearna behind North Corry.

B2.5 Both north and south of the B8043, the open hill vegetation of the lower ground is largely wet grass-heath, grading to mire in areas of deeper peat where drainage is significantly impeded. Lower slopes are largely dominated by coarse grasses (*Molinia*, *Deschampsia*, *Scirpus*) or rush.

B2.6 There is some inclusion of heather (surprisingly, given the very wet conditions: *Calluna,* more than *Erica*) but present only as rather straggly individual plants within the overall grassy matrix. At higher altitude the proportion of heather within the 'mix' increases somewhat (to perhaps 30%) but the general vegetation remains dominated by coarse grasses, and the only extensive heather cover is restricted to just below the tops, on the steepest ground, below the actual exposed rock of the summit ridges or bluffs.

B2.7 Both north and south of the road, the ground is strongly dissected with deep corries running up between bounding ridges. While Coire Shalachan above Loch Uisge repeats the same basic vegetational pattern described above, the steeper slopes of Coire Ban, Coire nan Each, Coire Riabhach and Coire Reidh to the south, and Coire Ghardail and Glen Galmadale to the north, offer better drained and somewhat greener ground.

B2.8 In all these corries, the lower slopes remain dominated by *Molinia* and other coarse grasses. Although (because of the better drainage afforded by the steeper slopes and the more mineralised soils), there are patches of *Calluna* present, these are not extensive; it is clear that the vegetational character of these corries and glens has been markedly influenced by a long history of heavy grazing by sheep, and repeated (past) muirburn, resulting over time in the virtual elimination of heather from

the lower and middle slopes and expansion of these more aggressive grasses. Only on the uppermost slopes are there areas of high altitude (*Agrostis-Festuca*) grassland with perhaps a somewhat greater inclusion of *Calluna*, but these are relatively small, and still alternating with areas of coarser grass.

B2.9 Perhaps the best greens (and the best heather) on Kingairloch are on the southeastern faces sloping down towards Loch Linnhe. These lower slopes of Sgurr a' Bhuic are themselves quite rocky, with exposed boulders and bluffs and support reasonable grazings, with quite thick heather immediately below the bluffs, on rocky outcrops and in the deeper burns. There are former lazy beds and an larger area of semi-improved ground associated with the old settlement at Airigh Shamhraidh.

B2.10 Kingairloch Estate has a small flock of 50 ewes on inbye ground (with an intention to increase to not more than 80). These sheep are not turned to the open hill, although there is some incursion of sheep coming in across the march from Ardtornish. The estate also has a fold of some 20 cattle and their followers, currently grazed at the foot of Coire Ban and turned out in season into Glen Galmadale. Ground to the west, at Loch Uisge, is leased under an annual grazing lease for cattle, but these animals are enclosed and again do not have access to the rest of the hill ground.

B2.11 There are no designated areas falling on Kingairloch.

Deer Populations:

B2.12 While there are small populations of hinds and stags scattered over much of the ground, the main concentrations of hinds, in the north, are associated with the upper part of Coire Ghardail (Coire Odhar Glas-bheinne) and upper Glen Galmadale. While largely 'resident' on Kingairloch, both groups of hinds may move quite regularly across the marches into Laudale and Carnoch in particular wind or weather conditions. Stags on this side of the Estate are associated with the woodland blocks to the north of the road, and the lower slopes of Beinn na Cille, and tend to concentrate here in winter, although they draw out in the summer onto the western side of Glen Galmadale as far up as the Meall Leac an Fhireoin. and into Coire Ghardail.

B2.13 Both stags and hinds used to make more use of the main glen of the B8043 (with hinds in particular grazing extensively on the southfacing slopes of Ceann na Coille); numbers declined in recent years due to disturbance and targeted culling in this area but are now showing some recovery. Some stags do continue to winter on the coarse grasslands between Steall an Eisg and Tigh Ghardail, below Creagan nan Simileirean and again numbers are beginning to show some increase.

B2.14 While there are again, small parcels of stags, or hinds and followers associated with the ground above Loch Uisge and across to Sgurr Shalachain, the main groups of hinds on this south side of the ground area associated with the Coires, or more particularly with the southeast slopes of Sgurr Bhuic, sloping down to the lochside. These animals move freely across Sgurr Bhuic into Coire Reidh. There has traditionally been recorded regular movement of groups of animals from the head of the Coire Ban and Coire nan Each, around the slopes of Beinn Mheadhoin onto the western face (and thus onto neighbouring Ardtornish), depending on wind and weather, as well as disturbance, as well as regular movement across the march of those animals based around Coire Shalachain.

B2.15 There are perhaps comparatively fewer stags in this part of the ground, although they regularly use an area of immediately adjacent ground on Glensanda below Dearg Uillt, and move to and fro between this area and the heads of Coire Riabhach, Coire Ban and Coire nan Each.

B2.16 Actual numbers of deer recorded in late winter counts since 2005 are summarised below.

Kingairloch North

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Stags	270	No	146	190	166	217	99	95	No	102
Hinds	401	records	202	269	209	225	250	245	Count	356
Calves	133	?	93	103	58	102	118	90		124
Total	804	?	441	562	433	544	467	430		582

Kingairloch South

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Stags	72	No	80	78	87	74	111	106	No	88
Hinds	89	records	178	99	139	155	208	203	Count	146
Calves	29		54	32	52	72	88	67		86
Total	190	?	312	209	278	301	407	376		320

Kingairloch Whole Estate:

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Stags	342	No	226	268	253	291	210	201	No	190
Hinds	490	records	380	368	348	380	458	448	Count	502
Calves	162		147	135	110	174	206	157		210
Total	994	?	753	771	711	845	874	806		902

B2.17 Because any one-day count only offers a snapshot of what animals are on the ground on the day of the count itself, numbers inevitably vary somewhat from year to year simply depending on whether animals resident close to marches happen to be on Kingairloch on that day, or happen to have moved across the march on the day of the count onto neighbouring properties such as Laudale or Carnoch in the north, or Glensanda and Ardtornish in the south. However, average figures over the longer-term give a better idea of what populations are more typically present on the ground. We may note that from 1999 to around 2005 wintering numbers since 1999 appear to be relatively stable at around 310-320 stags [range 236-386 in a very high count of 2001], 520 hinds [range 490-590] and around 175 calves, an effective density per hectare of open range of 18.2 deer per 100 ha.

B2.18 By contrast, longer term average numbers of stags post 2006 are again quite consistent between years, but around an average of only 200 [range 190-268]. Hind numbers over the same period [2006-2013; table above] showed some initial decline from 2005 figures but have subsequently shown a consistent *increase* back to numbers currently estimated around 500.

Objectives and Recent Past Management:

B2.19 While the Estate also has interests in renewable energy resources, and in commercial forestry, the main focus of the management of the deer is as a sporting resource and in terms of maintaining animal condition and welfare. In the past Kingairloch was run as a single entity with the neighbouring Glensanda.

B2.20 Over past years some 50 stags per year have been taken from the combined estates of Kingairloch and Glensanda - with the major proportion (average 38- 40) coming from Kingairloch. The current aspiration is for an average annual quota of 35 mature stags from Kingairloch itself (whatever else may be taken on Glensanda) extending to up to 40 stags in those seasons where numbers permit.

B2.21 Given a current shortage of mature stags on the ground however (as elsewhere within the wider Morvern catchment), the Estate has voluntarily imposed a reduction of harvests, with only 30 stags taken from Kingairloch in 2013. The Estate is prepared to continue this reduced level of 'take' in the short- to medium- term, if necessary, in order to allow stocks to recover and grow through, returning to the long-term objective of 35 stags per year only when satisfied stocks can support this level of harvest.

B2.22 Between 6 - 8 stags are shot early in the summer [July and August] to supply venison to the Really Wild Venison Company; the remainder are taken in traditional recreational stalking from September onwards. Some hind shooting is let, but under the current model only to a maximum of 3 days in any week, leaving three days for the stalker to 'catch up' on numbers if required

B2.23 Actual cull figures since 2005/06 are summarised below

Kingairloch North

	2005/6	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14
Stags		27	30		20	21	17	10	18
Hinds		46	50		22	38	32	41	27
Calves		23	17		3	12	11	10	11
Total		96	97		45	71	60	61	56

Kingairloch South

	2005/6	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14
Stags		15	23		12	12	15	25	11
Hinds		25	40		42	20	29	29	18
Calves		11	10		7	7	9	5	10
Total		51	73		61	39	53	59	39

Kingairloch Whole Estate:

	2005/6	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14
Stags	52	42	53	50	32	33	32	35	29
Hinds	152	105	90	65	64	58	61	70	48
Calves	73	45	27	20	10	19	20	15	18
Total	277	192	170	135	106	110	113	120	95

B2.24 Hind culls have generally been quite low [with a maximum of 105 taken in 2006/07]; average harvest over the period 2005-2014 (for those years where records persist) has been 68.5 hinds per annum. This is somewhat below maintenance and, as noted, hind numbers have gradually increased towards pre-2005 levels.

B2.25 Winter feeding has customarily been provided for a proportion of the stags from mid December to the end of March. Silage is provided *ad lib,* in two main areas on Kingairloch, on the flats at the mouth of Coire Ban, and stags also have access to silage provided for cattle overwintered in the mouth of Glen Galmadale. No concentrates are provided Mineral licks are put out all around the Estate and are well-used. Little or no vegetation management, by muirburn, was carried out for a period of time but efforts have been renewed to undertake annual burning in such areas as Coire an Sneachda towards Sgurr a Bhuic, in Coire an t'Seasglaich towards Fuar Bheinn and from Coire Ban towards Sgurr Shalachain. In 2014 a large area was burnt up towards Cean na Coille.

B2.26 Plans for significant restructuring of the estate's coniferous woodlands are presented within the Estate's Long Term Forest Plan, recently endorsed by the Forestry Commission. So far, the area of conifer between the B8043 and Kingairloch House has already been felled, and the main part of the

block of conifers to the west of the House and North Corry is also scheduled for removal within the next five years, as is the self contained block of woodland immediately to the east of the main Ghardail Plantation (centred NM840535).

B2.27 Within the same Forest Plan, the bulk of the upper ground in the main Ghardail Plantation is scheduled for long-term retention of conifers; the lower ground is scheduled for felling sometime between 2015 and 2020; restocking here will be primarily with mixed conifers, but there will be a soft boundary of broadleaves established at low density. Areas below the B8043 towards Tigh Ghardail, and above the road at NM 846533 are also scheduled for removal within 6 -10 years.
Restocking here and in the main areas west of the House, will largely be with native broadleaves around existing clumps of conifer retention, but there may be some replanting of mixed conifer between the B8049 and the main Estate track.

B2.28 All restocking proposed is to be largely contained within the current woodland boundaries, but the plantations to the east of Ghardail (NM840535 and NM 846533) are to be reduced in size (extending from the road up to a lower contour) as is the area to the west of Kingairloch House and North Corry. To ensure that, on the Estate as a whole, a similar area will be restocked to that which is felled, broadleaf planting will be extended further to the south west towards the existing small block of larch at the foot of Coire Ban, with 69ha planted in 2009. There are also new proposals for a possible native woodland planting flanking the southern and western shores of Loch Uisge, which might also be presented as part of that 'trade-off'

B2.29 It is noted that this may have a significant effect on the distribution of resources available to the deer - particularly in terms of cover, but also in terms of some loss of forage area. Since fences have not been maintained for a number of years, blocks scheduled for felling are currently open to deer and certainly the Ghardail blocks are extensively used by wintering stags. Following harvesting, these areas are to be refenced in order to protect new plantings, thus animals will be losing not only the shelter and thermal cover provided by the trees themselves, but will subsequently also be fenced out of these areas during the re-establishment phase. Since additional areas are to be fenced in the foot of Coire Ban in 'compensation' for areas to be left unplanted elsewhere, this may have a pronounced effect on the overall distribution of resources available to deer in this central area.

B2.30 In the longer term, when woodlands can all be safely opened to deer, it is felt that the restructuring achieved will improve overall resources available to deer on the Estate. It is noted that the woodland below the B8043 is already open to deer and within two years the House Wood will also be able to be opened.

Assessments and Issues to be addressed in Future Management:
B2.31 As discussed at paragraph B2.8, it is clear that the composition and character of the vegetation over much of the area has been markedly affected by a long past history of heavy grazing from sheep and associated muirburn. Impacts surveyed by R.Putman over winter 2005/06 were considered as somewhat patchy but with general levels of usage moderate or moderate heavy, suggesting that deer population numbers at that time were perhaps towards the limit of what the vegetation could sustain without damage. More recent survey during February and March 2014 confirm this impression.

B2.32 Thus areas of grass heath to the west of the B8043 on the lower slopes of Meall a' Chaorainn Loch Uisge, in Coire Shalachain and around the Creagan nan Simileirean are light or light moderate (although it is noted that this low ground has been subject to high levels of disturbance over recent months during construction of the Hydroelectricity dam and associated infrastructure).

Areas at higher altitude, where better drainage combined with less peaty soils supports more heather within the sward, offer 'better quality' grazing and would be expected to be more preferred by the deer; increased abundance of dung confirms that these areas are indeed more heavily used, and grazing impacts here might be considered moderate, or moderate-heavy.

B2.33 Observation suggests that grazing pressures are once again moderate or moderate heavy on the upper slopes above Loch a' Choire and Loch Linnhe-side, while the abundance and vigour of heather on the lower slopes above Loch Linnhe suggests that these sustain moderate or light-moderate impact.

B2.34 Finally, although the current composition of the *Molinia*-dominated vegetation of Coire Ghardail, Glen Galmadale, Coire Ban, Coire nan Each, Coire Riabhach and Coire Reidh is attributed largely to past patterns of grazing and muirburn, current grazing impacts might be assessed generally as moderate or moderate-heavy; upper slopes and the 'heads' of Coire Reidh, Coire Riabhach, Glen Galmadale and the Coire Odhar Glas-bheinne of Coire Ghardail however show signs of heavier usage -(possibly at its heaviest on a more seasonal basis).

B2.35 The exception to this general pattern might be considered the lower part of Glen Galmadale, where vegetation is becoming somewhat lank, and deer usage appears somewhat less than might be expected. Although deer do use the upper slopes of both east and west flanks of the glen, and certainly use the head of the glen and the upper corries quite extensively, comparatively little use appears to be made by hinds of the flats around the river towards the lower end of the glen. It is suggested that this may be a consequence of heavy culling and associated disturbance in the past and that it might be appropriate to reduce intensity of culling of hinds in this particular area to allow populations to settle and perhaps build up on this lower ground.

B2.36 As already discussed, ongoing activity for woodland restructuring could potentially have a serious impact on deer welfare, as well as distribution patterns and movement. It is the estate's intention to minimise the effects of this by attempting to open up equivalent areas of cover and feeding (through the removal of fences), wherever and whenever an existing area of woodland is to be felled and fenced.

Deer population numbers:

B2.37 It is accepted that numbers of animals censused on Kingairloch in formal counts will show significant variation between years because of chance movement onto, or off the ground by animals whose home ranges straddle marches with neighbouring properties, but running averages estimated over a number of years will tend to give some idea of what animals are more typically present on the ground. In this regard longer term average numbers of stags post 2006 are actually quite consistent between years, but vary around an average of only 200 [range: 190-268]. Hind numbers over the same period [2006-2014; table above] showed some initial decline from 2005 figures but have subsequently shown a consistent *increase* back to numbers currently estimated around 500 in 2014.

B2.38 It is the Estate's objective of supporting in the longer term an average annual harvest of 35 stags per year (aged 8 years or older). To support such a harvest would ideally require a resident population somewhere of the order 240-250 stags (of varying age above the age of calf). The 2014 helicopter count would suggest populations at only 190, and as above, even average numbers counted over the entire period 2006-2014 offer an average count of only 200 [range: 190-268]. Although there is indubitably movement onto the ground (especially during the rut) there is equally a degree of movement off the Estate onto neighbouring properties. It is recognised that current stag populations are thus perhaps pretty marginal, particularly since they appear to be poorly structured with a preponderance of younger beasts.

B2.39 In the longer term of course, ongoing harvests of mature stags are underpinned by recruitment of sufficient stag calves to enter the bottom end of this age-structure. Were the Estate in some way ring-fenced and entirely dependent on its own production, an annual harvest of the order of 35 (to 40) adult stags would require recruitment of some 45-50 stag calves each year entering the population (or given a 50:50 sex ratio of calves, a total recruitment of some 100 calves). Given average recruitment rates of the order of 33 surviving calves (still surviving at the end of winter after winter mortality has taken its toll) per 100 counted hinds, recruitment of 100 calves per year would suggest a need for a hind population on the ground of the order of around 300. Notwithstanding reservations about placing too much emphasis on a single count: the helicopter count of 2014 returned a figure in excess of 500 – considerably greater than required for maintenance of the quota defined and potentially counterproductive given that grazing pressures on the Estate are already towards the limit of what may be sustainable without vegetation damage.

B2.40 Some part of Kingairloch's 'problems' of management are due to the fact that a very significant proportion of its deer population is concentrated towards the marches (with Laudale, Carnoch, Inversanda and Kilmalieu in the north (B2.12), with Ardtornish and Glensanda in the west and south (B2.14; see overall paragraphs B2.12-2.15).

B2.41 Greater 'control' over numbers, and emigration (and thus greater independence of management) could be exercised if deer populations were instead concentrated more towards the core of the Estate (in summer as well as in winter). For example, some benefit might be gained if numbers could be built up in the main glen of the Coinnich (as formerly), below Sgurr Shalachain and Ceann na Coille, and in the lower part of Glen Galmadale allowing subsequent, compensatory reduction of numbers at the head of (for example) Coire Ghardail and Glen Galmadale and along the long march with Ardtornish. Muirburn over recent years in these areas (paragraph B2.25) has been specifically targeted in an attempt to restore population numbers in these same areas.

B3. Glensanda

Description:

B3.1 Glensanda Estate (2662 ha) is owned by Aggregate Industries plc trading as Yeoman Glensanda Ltd) and lies immediately to the south of Kingairloch with which was formerly managed as a single unit. Glensanda is bounded to the south east by Loch Linnhe, and to the west and south-west by Ardtornish. This latter march runs south from the lower slopes of Beinn Mheadhion along the Eas na Fidhle before skirting the foot of Caol Bheinn to the Lochan nan Craobh. A few metres up the burn the march then turns south east to run up the western face of Beinn a' Chaisil to Loch na Clach, thence to the Lochanan Dubh and down the Allt na Criche to Camas Eignaig.

B3.2 The north-eastern part of the Estate is dominated by the extensive Glensanda quarry and associated infrastructure. Within the defined boundary of the site, quarrying activities take priority - and dominate both landscape structure and vegetation. Much of the ground which is currently being worked is bare of vegetation although end benches of completed quarry works are recovering to natural vegetation and are beginning to be used again by deer. The quarry has recently been extended to the northeast, although stone is still extracted via existing routes.

B3.3 Areas outwith the actual quarry workings are largely wet acid grassland, dominated by *Molinia* and *Scirpus*, but with extensive moss cover (especially on the higher ground towards Lag Mhaim). A comprehensive vegetational description is offered by Averis (2013) who offers, in overview:

"The patterns of vegetation are typical of this part of the west Highlands, with its wet oceanic climate and generally acid, nutrient-poor rocks and soils. Most of the terrain is covered with peat of varying depths and the predominant types of vegetation are wet heath, *Molinia caerulea* grassland and blanket bog. There are also smaller areas of woodland, grassland, dry heath, damp heath, bracken and montane communities, as well as a range of springs, flushes and mires.
There is some local base-rich flushing, most notably on the northern side of Beinn a' Chaisil where there are swards of herb-rich *Festuca-Agrostis-Thymus* grasslands, *Carex-Saxifraga* mires and tall herb ledge communities. There are smaller stands of these types of vegetation elsewhere on the site, most notably on the northern slopes of Glen Sanda. Relict semi-natural woodland clothes the steep slopes along the rocky shore and extends inland up the glens and stream-courses. This varies from mossy and acid to herb-rich, and includes a wide range of tree species. On the lower slopes there are extensive patches of *Pteridium-Rubus* scrub with a rich array of spring-flowering woodland herbs and other plants under the canopy of bracken."[5]

B3.4 The bulk of the ground (Glen Sanda itself and to the south west) is largely wet Molinia heath, dominated again by *Molinia* and *Scirpus*, but with greater inclusion of bell heather and cross-leaved heath (*Erica tetralix* and *E.cinerea*). There is some heather apparent on the outcrops of Meall na h-Easiche (Meall MacArthur), but this is not extensive elsewhere, except on the coastal cliffs [paragraphs B3.6-3.8].

B3.5 Glen Sanda itself rises as a series of hummocky ridges. The further up the Glen one progresses, the greater becomes the proportional inclusion of ling heather (*Calluna*) within this overall mix, though this tends to be close-cropped and rather suppressed in growth form. *Calluna* is however largely absent from the lower part of the Glen, which is dominated by Molinia and Scirpus, with some sparse and straggly stems of *Erica* heath; this lower ground, undoubtedly semi-improved in the past, also suffers significant encroachment by bracken.

B3.6 *Calluna* increases again on the higher south-facing slopes of Beinn a' Chaisil, while the steep and freely-draining, north facing slopes dropping towards the Caol Lochan at the very head of Glen Sanda support classic 'high-altitude greens' (*Agrostis-Festuca* grasslands). Towards the south, on the flatter tops towards Loch nan Clach and the Allt nan Lochanan Dubh, the ground becomes more sour once again as the depth of peat increases; these areas support a *Scirpus*- and *Molinia*-dominated wet heath, grading to true blanket bog on the actual flats.

B3.7 Perhaps the best greens (and the best heather) are on the southeastern faces sloping down towards Loch Linnhe, with *Calluna* heath apparent on the rockier outcrops or bluffs above the loch, or in the steeper ravines and gullies, and patches of native woodland also apparent within the steeper gullies. Thus good growth of heather is apparent on the bluffs towards Eignaig (grid-reference NM 798445 and NM 798448), and along the actual shoreline at NM 805445 - but in practice there are scattered patches all along the coast on exposures and outcrops.

B3.8 There is also notably strong heather together with patches of native broadleaved woodland to the north of the quarry site, between Uamh a' Choilich and the boundary burn (Dearg Uillt) - along the shoreline itself, but particularly associated with the ravines of the two burns themselves (with strong heather in the more northerly of the two (NM839488) and heather with native broadleaves in the more southerly of the pair (NM838485).

B3.9 There are other fragments of woodland elsewhere along the coast, on the shoreline itself towards Eignaig and between the Castle and Camas Chronaig (fringing the Camas Leim an Taghain).

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[5] Averis, A. (2013) **Vegetation Survey of Glensanda Estate Argyll, June 2013: A survey for the Scottish Agricultural College**; Glensanda Estate papers

This latter area of birch and oak links to the woodlands to the north of Camas Chronaig. Fingers of woodland also extend from here inland, up the burns, but that to the north is stronger than the area to the south, which is in practice very open and 'patchy'. There are in addition a number of rather better patches or fragments of birch and birch-oak woodland in Glensanda itself extending up the steep gullies of the two tributaries of the Glensanda River (at NM805474 and NM803476). All are unfenced and are reported as suffering high deer impacts in the NWSoS [Map7]. These areas are however scheduled for restoration as part of the wider Biodiversity Action Plan for Glensanda [SAC, 2014].

B3.10 There have been a number of recent initiatives in expanding the native woodland resource on the property with an enclosure of 1 ha established at NM822466, south of the old landing strip approximately 20 years ago and two recent schemes established in 2012 in the lower part of Glen Sanda itself to a total area of 15 ha on either side of the access track. These native woodland schemes have been planted with areas of oak (supported with downy birch, hazel, holly, rowan) and areas of downy birch and Scots pine (again with a small inclusion of rowan); there are some smaller patches of birch-alder woodland.

B3.11 Finally, we should notes an area of former improved ground associated with the old settlement at Camas Chronaig (similar to that at Airigh Shamhraidh); this, like the lower part of Glen Sanda itself is overgrown with bracken, over the open flats towards the sea and over the lower slopes and ridges behind.

Other Wildlife:

B3.12 Species recorded on the site either by casual observation (collated by Bibby, 2014)[6] or more formal survey (e.g. Averis, 2013)[5] include otter, pine marten, red fox and occasional sighting of wildcat. Significant bird species include White-tailed eagle, merlin, cuckoo and presumed breeding populations of greenshank, dunlin, golden plover, ptarmigan and red grouse. There are oystercatchers and black guillemots along the shore. Black-throated divers have also been recorded on the larger lochans although their status is uncertain

B3.13 Common frog, common toad, viviparous lizard and slow worm all occur within the site and Averis (2013) reports newts in Loch nan Clach. The invertebrate fauna is also rich: there are colonies of chequered skipper in lower Glen Sanda, and another small one in the bogs around the lochan at NM 7894 4495, in the south-east of the site. Pearl-bordered fritillary are plentiful on the warm slopes along the coast, and also in Glen Sanda. Small pearlbordered fritillary and dark green fritillary, green hairstreak and small heath are also common throughout the site. Argent and sable, Narrow bordered bee-hawk moth were both recorded and verified in a survey by the Butterfly Conservation Scotland in 2010.

B3.14 Glensanda is also notably rich in dragonflies and damselflies associated with bog pools and wet channels in the bogs as well as with the larger streams and lochans. The large red damselfly *Pyrrhosoma nymphula* and common blue damselfly *Enallagma cyathigerum* are ubiquitous in the acid bogs, and the golden-ringed dragonfly *Cordulegaster boltonii* and four-spotted chaser *Libellula quadrimaculata* are also common too. The Beautiful demoiselle *Calopteryx virgo* has also been recorded. This is a species of clean, fast-flowing upland streams and is uncommon in Scotland except in the south-west Highlands.

[6] Averis, A. (2013) **Vegetation Survey of Glensanda Estate Argyll, June 2013**: A survey for the Scottish Agricultural College; Glensanda Estate papers; Bibby, H. (2014) **Aggregate Industries Glensanda Quarry Biodiversity Action Plan**

Objectives:

B3.15 While clearly quarrying activities are the owners' predominant interest on the site, there is also a clear, expressed wish to work to enhance the overall biodiversity of the Estate and, outwith the quarry site itself develop the Estate as a Living Landscape. Based on surveys, summarised above AI have developed a Biodiversity Action Plan for the property (Bibby 2010, 2012).

B3.16 Within this Action Plan, priority habitats are denoted as:
Running Water, Broadleaved Woodland, Freshwater lochans and Upland communities including Blanket bog, heaths, fens and flushes. Specific plant species highlighted as target species for attention include field Gentian, frog orchid and juniper.

B3.17 Glensanda's Biodiversity Action Plan also identifies as key target species:

- Otter, Pine marten; wildcat.
- White tailed sea eagle, cuckoo, skylark, reed bunting, song thrush, willow warbler, grasshopper warbler, greenshank, golden plover, house martin; and amongst the invertebrates:
- Chequered skipper, Pearl bordered fritillary, Argent and sable, Narrow bordered bee-hawk moth and Marsh fritillary. [This last species is not recorded on site but vegetational conditions suggest it should be present]

B3.18 Within the context of this wider biodiversity plan, there is a clear wish to maintain deer populations at appropriate levels and manage population numbers and distribution in such a way as to deliver appropriate grazing levels to parts of the site which will benefit from grazing and trampling, while reducing impacts on areas whose vegetation may be more sensitive to such impacts.
There is also an expressed wish to maintain and some level of sporting interest across the property, where this is compatible with conservation objectives.

Deer Populations:

B3.19 Over recent years, Glensanda must be considered primarily a hind forest, with relatively few resident (mature) stags present except those which are hefted to the heather slopes towards Eignaig and those by the Dearg Uillt - and these latter animals tend to move to and from the heads of Coires Reidh and Riabhach on Kingairloch rather than into Glensanda. Stags do draw onto the ground in the late summer; but stalking is largely restricted to the 3 weeks of October, since it is largely dependent on an influx of stags during the rut. It is noted that in the past the Estate did support larger populations of stags for much of the year.

B3.20 Hinds occur throughout the Estate. Notably, there are scattered parcels all the way up the lower part of Glensanda both on the east and the western slopes. The area below Druim na h-lubhraich is a favoured calving area. There is a further concentration of animals around Beinn a' Chaisil; while these are particularly associated with the north-facing greens above Caol Lochan, they are scattered all around the Beinn itself. There is much exchange here, between Glensanda and Ardtornish with regular and quite extensive movement deep into Ardtornish, not simply passage to and fro across the march itself, depending on wind and weather. Finally, there is another group of hinds hefted on the slopes and lower ground around Camas Chronaig, with animals using all the lower slopes of Meall nam Fiadh and the old improved grasslands of the settlement itself. although numbers here have been reduced in recent years.

B3.21 Actual numbers censused in late winter counts to 2005 are summarised in the 2007 Morvern Group Plan; more recent counts are summarised below from MDMG records:

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014**
Stags		38	59		48	65	72		9
Hinds	No	132	145	No	191	193	197		110
Calves	Count	54	39	Count	76	74	73		59
Total		224	243		315	332	342		178

** 2014 figures presented in the table derive from an aerial count carried out by Iain Thornber on 9th February 2014.

B3.22 Counts in 2014 return low figures for both stags and hinds; we have noted however that a significant proportion of Glensanda's animals are distributed towards the marches of the property, suggesting perhaps (given relatively consistent counts in previous years) that on the particular single day of the count a significant number of animals may have been across the marches into Ardtornish or Kingairloch. An independent helicopter count carried out the previous week (4th February) over Kingairloch and Glensanda, in association with SNH, reported figures on Glensanda of 53 stags, 187 hinds and 84 calves, figures more in keeping with those of previous years.

B3.23 Discounting 2014 figures where calf:hind ratios seem somewhat anomalous, counts over recent years suggest a recruitment rate (surviving calves post-winter per 100 hinds) of 36.8.
Assuming an area of 2662 ha counts between 2010 and 2012 imply an effective density of animals overall of around 12.4 deer per 100 ha [or 13.5 per 100ha if the area of the quarry site and workings (225 ha) is excluded]

Recent past management:
B3.24 Management for Glensanda as a whole is primarily dominated by the quarry workings, but the Estate is keen to manage the Estate to enhance its wider biodiversity and to manage the deer populations over the rest of the Estate as a sporting resource so far as is compatible with those conservation objectives .

B3.25 While the sporting tenants and MDMG records continue to combine cull returns for Glensanda with those of Kingairloch (with which it was formerly managed), original record sheets suggests that culls explicitly relating to Glensanda are as follows

	2005/6	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14
Stags	?	13	?	?	18	19	16	15	10
Hinds	15	20	?	?	22	26	13	10	10
Calves	5	11	?	?	7	6	10	5	3
Total	?	34	?	?	47	51	39	30	23

B3.26 There is no active management of vegetation for the deer although there has been in the past some limited bracken spraying in Glen Sanda. In the past some winter feeding was provided up the track within Glen Sanda in former agricultural ground in the valley bottom . This was not designed so much to improve condition or increase overwinter survival, but rather as a diversionary measure to try to hold animals away from the quarry workings; feeding has more recently been discontinued.

Assessments and Issues to be addressed in Future Management:
B3.27 Vegetation of Glen Sanda itself shows clearly the legacy of past heavy grazing with loss of heather cover and expansion of coarse grasses particularly on the lower ground. Current grazing pressures remain moderate, and in places moderate-heavy. In fact, while Ericas are much more obvious within the sward than *Calluna*, closer examination reveals a reasonable proportion of *Calluna* remaining within the matrix (especially further up the Glen) - but kept very short by close grazing so

that it is suppressed to a very prostrate mat-like growth. No routine measurements have been made of grazing and trampling impacts across the site; however, analysis of detailed assessments of the relative species composition of fixed transects across the site (undertaken in 2004, 2005, 2006, 2008, 2012) do not reveal any consistent trends of species increase/decrease which might relate to grazing pressures experienced (SAC Consulting, 2013).[7]

B3.28 The suppressed growth form overall (prostrate mats of plants) clearly suggests that the heather patches are heavily and regularly grazed, but observations would suggest that rather than sustaining a continuous heavy grazing pressure year-round, (which probably would be sufficient to cause progressive loss of heather cover overall), impacts are strongly seasonal, with heavy impacts during the late winter, sufficient to keep plants in a suppressed state, but unlikely to cause long term loss.

B3.29 What is notable however is the significant encroachment of bracken over much of the lower part of the Glen, despite previous efforts at spraying. There is also extensive encroachment of bracken on old settlement areas above Loch Linnhe (in general, but specifically on the ground around the old settlement of Camas Chronaig).

B3.30 Managers are aware of the poor condition of many of the fragments of native woodland within the property and restoration of native woodland is highlighted as one of the key objectives of future Biodiversity Action.

B3.31 Glensanda is primarily hind ground ; stalking is largely dependent on an influx of stags to the ground during the rut and thus is **currently** restricted to a rather short period in October, although it may be possible to increase the Estate's capacity for stags, and extend the stalking somewhat earlier in the summer. A major 'problem' with management of the deer population is that a significant proportion of the hinds are concentrated in the west of the ground close to the march with Ardtornish, and indeed regularly move to and fro across the march. This large-scale movement compromises Glensanda's ability to manage a self-contained sporting population. For these reasons, it would be helpful to effect some re-distribution of deer populations back into the core of the Estate as far as is possible. A further constraint is imposed by the need to keep animals away from the quarry workings (for reasons of human health and safety). Any efforts to focus the main centre of population in the south west in this way might also help to address the problem of animals wandering into the quarry site, by effectively drawing them further to the west.

B3.32 Some redistribution of animals across the ground would also be of advantage in supporting wider biodiversity initiatives, in delivering some heterogeneity of grazing pressures across the ground, thus creating, even within any one given habitat type, patches subject to lighter or heavier grazing impact enhancing overall biodiversity values.

B3.33 Such redistribution may best be achieved by a combination of targeted culling in areas where population reductions are desired (at the head of Glen Sanda, around Beinn a' Chaisil, around the quarry workings themselves) coupled with management measures designed to 'entice' animals into the areas where some build up of populations is to be encouraged. These habitat management measures, as well as assisting in supporting some redistribution of deer populations across the property will also support Aggregate Industries' wider aspiration of more general enhancement of habitats and wider biodiversity across the property - another major objective of future management.

[7] SAC Consulting (2013) **Glensanda Environmental Monitoring Programme: Terrestrial Monitoring Report 2012.** Glensanda Estate papers/Aggregate Industries

B4. Laudale

Description:

B4.1 Laudale Estate flanks the southern shore of the eastern end of Loch Sunart and straddles the main A884 as this turns inland towards Liddesdale. While there is indubitably some traffic of deer across the road, hinds, in particular, probably form largely distinct populations to west and east, with populations in the east interacting with populations of neighbouring Carnoch and Kingairloch, and populations to the west interacting separately with those of Ardtornish, Rahoy Hills and Glenscripesdale. Laudale's stags of course range more widely during the rut, but for the rest of the year, the populations east and west of the A884 are tend to move relatively independently. In understanding the 'dynamics' of Laudale's deer within the wider Morvern area therefore it is important to bear in mind the presence of these discrete sub-populations and this separation is likely to be further consolidated with future fences along the east side of the Midland Bank plantation proposed under the Estate's Long Term Forest Plan.

B4.2 Laudale ground extends along the southern shore of Loch Sunart and stretches from the waters of Allt na Creiche at Loch-head in the east, right across to the (fenced) march with the Glencripesdale NNR in the west at the burn which drains the Dubh Lochan below Lochan Dhonnachaidh. From this most westerly point, the march runs southwest alongside the Glencripesdale NNR before joining the line of the old pony path /"Coffin Trail" to the Lochan Dhonnachaidh on Glencripesdale Estate. The continuing march with Glencripesdale Estate is also marked by a deer fence which is continuous with that of the march fence of the NNR.

B4.3 The march then follows the line of the forestry fence across to the summit of Meall an Damhain before turning almost due south along the line of hill lochans of Bac an Lochain and the lochan below Mam na Ceire. From the Lochan of Mam na Ceire, and now with Ardtornish to the south, the actual march follows the curve of the high ground above Coire Dubh, at the head of the Laudale Glen, across to Meall a Chaise. From Meall a Chaise the march then runs virtually due south into the Black Glen (just to the east of Crosben) before following the Black Water to the A884 at its junction with the B8043 Kingairloch road. [Map 1]

B4.4 From here, Laudale's eastern portion marches to the south with Kingairloch Estate - running behind the tenanted farmstead of Loch Uisge and effectively following the watershed to the summit of Glas Bheinn, before turning due north to run down the eastern 'leg' of Allt na Creiche to Loch-head.

B4.5 Much of the shore line along Loch Sunart is wooded - with an alternating pattern of both native broadleaved woodland and commercial conifer plantations. The higher ground of the eastern part is relatively flat (or more accurately, hummocky) terrain rising gently towards the steep slopes of Glas Bheinn to the east. The ground to the west is dissected by the Black Glen and the Laudale Glen.

B4.6 The Black Glen runs west from the Devil's Acre plantation in the junction of the A884 and B8043 [Compartment 38], past Achagavel and towards the old lead mines at Lurga, skirting the lower slopes of Beinn nam Beathrach and its deep gullies. The Laudale Glen to the west is a deep, steep-sided glen with a very distinct ridge around it - the high ground of Meall an Damhain and the march with Glencripesdale to the west, Mam Na Ceire and the watershed which curls around the head of Coire Dubh to Meall a' Chaise, Tom Aonghais Ruaidh and Beinn Bhan.

B4.7 Of crucial importance to management on Laudale, all of the shoreline and the intertidal ground falls within the Loch Sunart SSSI/ SAC, which also extends to embrace the largest areas remaining of native broadleaved woodland on the north facing slopes between the Laudale River and Rubh an t'Sabhail; and around Aird Beitheach.

Vegetation

Laudale East:

B4.8 To the east of Liddesdale, much of the sloping ground above the lochside is fenced, and has been deliberately planted with conifers or with native broadleaved woodland. For convenience these plantations are referred to by compartment numbers identified in the Laudale Long-Term Forest Plan. While much of the roadside fencing is in good repair, and fences have been renewed around recently restocked areas (such as compartments 21 (Native broadleaves) and 19 (native broadleaf, conifer with some open ground on the lower slopes), fencing of older compartments (conifer blocks 34 and 20; Achleek Plantation) is porous, and deer from the open hill currently have free access to these blocks.

B4.9 There remain within these planted areas a number of pockets, or fringing 'borders' of older, native woodland. Thus, there is, for example, a significant area of native birch around Loch-head (and continuous with that area of A'Chreag on Carnoch). There is a further significant stretch fringing the lower edge of Achleek Plantation along the road to Rubha na Sroine; another extensive patch established in the more open ground behind the fish farm and extending up the Allt na h'Airigh and a small pocket of natural regeneration establishing at Doire nan Gad on Liddesdale Hill.

B4.10 Behind the woodland margins, the bulk of the high ground of this eastern sector is Atlantic wet heath or blanket bog in a complex mosaic, but *Agrostis-Festuca* grasslands are apparent on one or two ridges (even lower ridges) where base rich intrusions decrease the acidity of the soil (e.g. around grid reference NH 800588), and become more dominant as the ground rises more steeply in the east towards the highest ground of Glas Bheinn.

B4.11 The ground is generally rather hummocky in nature (with low ridges interspersed with peatier 'troughs'); the ridges are often quite grassy and places there is significant inclusion of *Calluna* within the matrix; this *Calluna* is younger and is clearly in a phase of active development and increasing percentage cover, following the removal of sheep from the ground some years ago.

B4.12 Such vegetation is largely confined to the more freely-draining ridges, with development of *Scirpus*/*Molinia*, or true blanket bog vegetation in the deeper peat of the intervening troughs. Much of this lower lying ground is 'choked' by an accumulation of coarse grass and litter. Within the former deer fence behind Achleek and the Midland Bank plantations (within the fence but above the existing tree-line) there is a stronger presence of *Calluna*, but in this case the heather is lank and somewhat overmature.

Laudale West:

B4.13 Once again, much of the lower ground above Loch Sunart is wooded, although a much higher proportion is of ancient (= unplanted) woodland. In this case designated as SSSI/SAC [Compartment 31], the woodlands of the very steep north-facing slopes dropping down to the loch from Creag Dubh and Meall a' Chuilinn are predominantly native birch woodlands (with some oak). This belt of, largely unfenced, native woodland stretches from Rubh an t'Sabhail right out to the west to the Laudale River.

B4.14 Management for conservation and restoration of the rather open-based woodlands within this area has in the past been based on a policy of rolling enclosure, so that they are for the main part not fenced, and are accessible to deer. There are however a number of smaller enclosures within this more extensive woodland block [e.g. along the lochside at Coire a' Chuilinn and below Creag Dubh (at the jetty); and on the eastern side of the Laudale River at Bad nan Ceann-fionn]. Survey of the entire woodland area within the NWSoS survey recorded this area as suffering very high herbivore impacts [Map7].

B4.15 Also lying within land designated as part of the Loch Sunart SSSI/SAC, areas around Aird Beitheach (Compartments 24, 28 and 30) have more recently been restructured (by removal of exotics) and enclosed for native woodland restoration schemes. Compartment 26 at the head of the Laudale Glen is also of native broadleaved woodland, scheduled for long term retention.

B4.16 Outwith the SSSI, some patchy remnants of broadleaved woodland extend up the lower part of the Laudale Glen; although these are for the most part overmature with no current evidence of regeneration, they are linked to a series of three stronger areas in the sites of former small exclosures higher up the Glen (around NM 726587). Further areas of unfenced woodland are restricted to steeper gullies and ravines of burns, or tributaries of the Laudale River.

B4.17 Other areas of woodland are largely plantation conifer with an area extending west of the Laudale River towards the boundary with the Glencripesdale NNR (compartments 23, 25, 27), a separate 'island' area at Liddesdale (compartment 33) and an isolated block (compartment 38) opposite the Kingairloch road end (where Kingairloch, Ardtornish and Laudale meet). Fencing of none of these blocks is secure, and all must currently be presumed open to deer. There are however plans in hand for active restructuring within all these woodlands, and the composition of the woodlands and the pattern of secure fencing is likely to change significantly in the future, thus altering over time the availability and distribution of cover (and forage) within the Estate. These changes are summarised within the Estate's Long Term Forest Plan.

B4.18 The character of the vegetation of open hill ground here is strikingly different from that further East (B4.10- B4.12) and may be summarised in description as essentially grass moor [acid grassland dominated by *Scirpus, Molinia, Deschampsia caespitosa* and other coarse grasses]. In places (and especially on the lower ground) there is also evident considerable encroachment by bracken and moss]. *Calluna* is present in patches (primarily restricted to higher slopes) but is even then localised and sparse. Summit 'plateaux' tend to present an undulating series of low ridges or hummocks, with heather and grass present, as before, on the ridges and slopes, and development of wet heath or *Scirpus*-dominated mire in the intervening troughs. The whole gives the distinct impression of a series of habitats shaped over a long history of heavy grazing by sheep (and associated regular and extensive muirburn).

B4.19 In the main Laudale Glen, the heather is extremely sparse on the lower slopes, where the ground is really dominated by coarse grasses (and dense litter). Bracken is well-established on the better grazing areas and the alluvial flats of the lowest ground (on the river flats around the Laudale River) are dominated by coarse grasses with extensive cover of rushes.

B4.20 Heather is at its best (in terms both of vigour and percentage cover) on the middle or upper slopes, but even here is notably suppressed and prostrate in growth, suggesting in these areas at least a reasonably heavy grazing impact still continues. Heather vigour declines on the actual tops (the summit ridge encircling the Coire Dubh; this is in part a response to exposure and wind-clip, but also clearly reflect that these are the areas where the heaviest grazing pressure appears to be concentrated. There are some high-altitude *Agrostis-Festuca* 'greens' on the steeper, high faces around the head of the corrie, but these are not extensive or of particular quality.

B4.21 Over the higher summit ground towards Glencripesdale, summit 'plateaux' , as before, tend to present an undulating series of low ridges or hummocks, with heather and grass present on the ridges and slopes, and development of wet heath or *Scirpus*-dominated mire in the intervening troughs. Similar grass-heath with heather eliminated or suppressed by past grazing covers the south-facing slopes of the Black Glen above Lurga and Achagavel and round the eastern face of Beinn nam Beathrach above the A884.

A notable area of sweeter grassland is however associated with a change in soil and geology on a low hill beside the road itself just to the southwest of the Liddesdale Plantation at NH 771586. Bracken-encroachment is once again apparent on extensive areas of all these lower slopes.

Designated sites:

B4.22 As noted above (paragraphs B4.13-B4.15) the broadleaved woodlands of the lower ground above Loch Sunart form part of the Sunart SSSI/SAC. This belt of, largely unfenced, native woodland stretches from Rubh an t'Sabhail right out to the west to the Laudale River. Also lying within land designated as part of the Sunart SSSI/SAC, areas around Aird Beitheach (Compartments 24, 28 and 30) have more recently been restructured (by removal of exotics) and enclosed for native woodland restoration schemes.

Objectives:

B4.23 Laudale has traditionally been managed as a sporting Estate. Under the current ownership the priority remains focused on the stalking of red deer, but there is a wish to integrate this more closely with forestry interests and the Estate's agricultural interests. Clearly there is also a need to ensure that management is compatible with favourable condition of the SSSI woodlands and where practicable an enhancement of conservation values throughout the Estate.

B4.24 For the immediate [i.e. short- to medium- term] future, the aspiration is to shoot 35 mature stags each year; these will be taken by the family or let to sporting clients. Some small numbers of hinds may also be let to clients.

B4.25 Laudale's future deer management policy has to be framed to address a number of distinct objectives. These include

i) Maintenance and development of deer populations towards sustaining the Estate's sporting interests
ii) Protection of the native woodlands within designated areas of the Estate (SSSI/SAC) ensuring that impacts within currently unfenced areas within the SSSI/SAC woodlands within the core of the Estate do not build to levels where they cause further deterioration of the condition of these habitats
iii) Protection of any other new plantings or areas of natural regeneration proposed under the present LTFP, while at the same time ensuring that deer welfare is not compromised by removal of traditional foraging areas or areas of thermal cover.

B4.26 In the past the Estate maintained a small fold of Highland cattle. However these have recently been dispersed. A small number of sheep are also maintained in lochside parks, but these are not turned to the open hill.

Deer populations:

B4.27 It is appropriate to consider resident populations of **deer** as effectively distinct between west and east sides of the A884. To the west, while there are small populations based on/associated with the lochside woodlands and possibly partly resident within these, the bulk of the open hill animals are concentrated on the higher ground fringing the Coire Dubh to the west (Mam na Ceire, Meall a Chaise, Tom Aonghais Ruaidh and Beinn Bhan), and at the western end of Beinn nam Beathrach, and around the lower slopes of the Black Glen between Lurga and Achagavel. Patterns of grazing pressure observed, as well as patterns of dung accumulation fully support such a view, with indeed, heavier use apparent over the ridges to the west and south than in the upper part of the Laudale Glen itself. A number of stags winter in the lochside parks around Laudale House and increasingly remain here for much of the year.

B4.28 This current pattern reflects something of a change from past patterns of distribution, noting a significant recent decline in animals using the lower part of the Laudale Glen, an increased concentration on this high ground towards the marches with Glencripesdale and Ardtornish, and in particular a very noticeable increase in the number of animals in the Black Glen west of Achagavel.

B4.29 Populations in this part of the estate are largely continuous with those of Ardtornish to the south and west, and there is considerable movement of animals between the two estates on a regular basis in this particular area; hind populations in particular may be considered to some extent 'shared' between the Estates, moving freely to and fro across the march, in relation to wind and weather conditions. There is also apparent, significant movement between the top of the Laudale Glen and the adjacent open hill ground of Glencripesdale estate. Movement lower down, between Laudale and SNH Glencripesdale, is prevented by fencing, although occasional animals may swim round the fence-end.

B4.30 In the east of the Estate, there may again be some 'sharing' of populations with Carnoch, with movement to and fro across the Allt na Criche depending on local weather conditions. However, it is clear that the greater exchange (and in effect, for both Laudale and Carnoch itself) is with populations of deer from Kingairloch, concentrated in the upper part of Coire Ghardail, and Glen Galmadale.

B4.31 There is however, indubitably, also a resident population of deer on Laudale itself , which use the open plantations behind Achleek for cover and draw out onto the open hill to forage. Numbers of animals involved are however unknown simply because of the difficulty of counting deer in closed cover; maximum numbers observed on the open hill at any one time (animals which when disturbed draw back into Achleek Plantation) are estimated at 50-60.
Additional animals may however be permanently resident within the Plantation and others may be now becoming established within the wooded areas of the Midland Bank Plantation (compartments 1-18; 35). We should note however that the part of the population resident within woodland areas will change over the next few years as blocks are felled and fenced for restocking in the first phase of the Estate's Long Term Forest Plan. Marginal areas of cover will be left for longer term retention (new fences will be set back within the existing woodland fringe) thus allowing hill populations access to some fringe of woodland cover, but resident populations will be eliminated.

B4.32 Actual counts of open hill deer (from DCS or DMG counts at the end of winter) are summarised in the earlier Morvern Group Deer Management Plan from 1977 to 2005. Counts are updated here from 2007 [No count is recorded for 2006]

Year	2007	2008	2009	2010	2011	2012	2013	2014
Stags	167	196	172	173	101	150	187	193
Hinds	280	290	248	295	123	361	294	286
Calves	87	100	67	102	44	75	119	96
Total	534	586	487	570	268	586	600	575

B4.33 Proportion of calves to hinds in late winter counts over this period suggest an average recruitment rate (of surviving calves per 100 counted hinds after the main period of imposed and natural winter mortality) as approximately 32 surviving per 100 hinds

Recent Past Management:

B4.34 The numbers of animals shot in each of the last 9 years are summarised from MDMG records. Figures are presented as [Open Hill + Woodland]:

Year	2005/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14
Stags	16+26	30+12	25+13	29	26+15	22+5	21+15	36+6	30+6
Hinds	30+23	45	55	28	26+16	35	24	41+1	42
Calves	8+9	8	15	14	15+1	13	8	29	23
Total	112	95	108	71	99	75	68	113	101

B4.35 Over recent years an average of some 35 stags have been shot each season. [This figure includes animals which have broken into woodland exclosures and are shot as marauders, above]. The number stalked on the east side is usually 10 or less, leaving some 25 stags to be shot, on average, on West Laudale. Stalking is not restricted to older stags and there is a deliberate policy to select animals throughout the age-structure. Culling of hinds in particular tends to be targeted in particular areas to try and reduce the numbers of animals using more sensitive areas (such as the SSSI woodlands) and maintain areas of locally-reduced impact - through actual mortality and through disturbance.

B4.36 Supplementary feeding has traditionally been provided overwinter, on the west side of the Estate, in the lochside parks below the House, with 60 tonnes of whole sugar beet and concentrates provided from mid December until the end of April. There is an active and ongoing programme of muirburn in different areas of the Estate on a regular rotational basis as and when weather conditions permit.

Assessments and Issues to be addressed in Future Management:

B4.37 Sporting aspirations for the Estate are to maintain current quotas of around 35 stags per annum. Current populations of both stags and hinds seem well-suited to sustain this, especially since, as above, stag culls are taken right through the age-structure of the population.

B4.38 Final resolution of a Whole-Estate Management Plan must integrate sporting and livestock interests with forestry interests and the Estate is in the process of finalising a new Long-term Forest Plan. Here, the greatest issue is to ensure that when woodland areas are felled and/or fenced for restocking, adequate woodland remains available to deer for cover and winter shelter, and that any new fencing does not interrupt regular movement corridors or cause fragmentation of populations.

B4.39 By converse, we must factor in to deer management proposals, considerations that deer impacts on restocked areas or any unfenced areas of forestry are not such as to cause damage to growing or vulnerable crops. The Estate also acknowledges a responsibility for restoration of the SSSI woodlands, encouraging regeneration to ensure these return to favourable condition.
The oak woodland feature was assessed unfavourable in Site Condition Monitoring in 2009 because of the lack of regeneration and the risk of loss of woodland canopy in long term. The feature "Lichen assemblage" also failed when monitored in 2010 because some areas of birchwood are moribund and require regeneration (of birch, hazel and rowan) to halt decline in canopy tree cover. The survey concluded that browsing levels within the woodland are too high for the necessary regeneration over the majority of the woodland. There are a number of existing enclosures above the road but these are comparatively small.

B4.40 As noted in the vegetation description above, there are many areas of the hill ground which are becoming choked by an overgrowth of coarser sedges and grasses and an accumulation of dead leaf litter, as well as some areas (e.g paragraph B4.12) where heather is becoming overmature and in poor condition (and potentially represents a fire-risk to existing or future forestry initiatives).

Although the Estate has decided to disperse the current small fold of Highland cattle (due to problems with overwintering), consideration will be given to possible issue of seasonal grazing licences to third parties for summer grazing of cattle in targeted areas.

B5 Glencripesdale Estate

Description:

B5.1 Glencripesdale Estate (1854 ha) embraces a broad sweep of ground running up from the shores of Loch Sunart, eastwards to the high ground above the upper Laudale Glen. The Estate was formerly owned by the Forestry Commission, and much of the ground was planted up for commercial forestry. The Estate was purchased from the FC in 1993 by Nils Tandrup, who owned the adjoining Kinlochteacuis Estate. The present owner purchased Glencripesdale in 2012.

B5.2 Currently there are some 625 hectares of commercial forestry and 155 hectares of native woodland across the Estate. A further 48 hectares of native broadleaves is partially planted and additional planting is anticipated in the future. The main glen is bounded to the north and east by a further area (approx. 777 ha) of open hill ground, lying to the north towards the former Glencripesdale NNR (owned by SNH) and to the east (marching with Laudale, Ardtornish and the SWT Rahoy Hills Reserve); there are currently additional areas of open ground within the main Glen, but these area scheduled for restocking [below paragraph B5.7].

B5.3 Glencripesdale's western boundary is defined by the waters of Loch Sunart. From Camas Glas, the Estate marches with Rahoy; it is a fairly complex march, west-east and then due south, but it is well-defined by deer-fencing. This same perimeter fence, which skirts the southern side of Glencripesdale's main forestry blocks also runs along a short march with Kinlochteacuis and with the SWT-owned ground of the Rahoy Hills Reserve; fences here are less secure and at present deer can move freely between the Estates. From the southeastern tip of the Forestry blocks, the march then runs across (now with Ardtornish to the south) to the hill lochans below Mam na Ceire, before following the high ridge which skirts the western side of the Laudale Glen.
Glencripesdale Estate's northern boundary then runs along the top of the SNH ground back to (approximate) grid reference NM673603 [Map 1].

B5.4 The forestry blocks of the upper Glen are rather like a hammer head on the 'handle' of the main Glen itself. From the western tip of the northern extension of the 'head', a new deer fence runs across to link with the fenced boundary between Laudale and the SNH Reserve. This fence effectively separates the open hill ground lying to the north towards SNH Glencripesdale, from that to the east marching with Laudale, Ardtornish and SWT's Rahoy Hills Reserve (paragraph B5.2); however the fence is interrupted by a gateway which is currently left open, maintaining continuity of the area at the present time.

B5.5 To an extent, then, the main glen of Glencripesdale is thus 'isolated' from much of the neighbouring ground by fences. Fences between the estate and Rahoy Estate are relatively deer-proof (and regularly maintained by that latter Estate); the fence between Glencripesdale Estate and the SNH Reserve to the north has numerous gaps and deer can travel freely north to south, although plans are in hand for this fence to be repaired.
The woodland blocks which adjoin Kinlochteacuis and the SWT Hills Reserve are fenced, but the fencing is old and completely porous, so that there is considerable movement of deer between these estates. Finally, the march with Laudale is for the most part unfenced, and although there is an old fence line 'set-back' within Glencripesdale, along the eastern edge of the forest block, this is in a poor state of repair and allows free movement.

B5.6 There is also a complex network of fences within the Estate protecting old and recent woodland blocks. Of significance, a major deer fence runs internal to the "hammer-head" (bounding Compartments 12,13, and 14 from the Estate's LTFP; a new fence linked to that strikes back along the northern side of Compartment 14 to the current woodland edge and follows the northern side of the Glencripesdale Burn westwards, before angling through compartments 18 and 21 to join with the new outer fence of the SNH Glencripesdale Reserve. This new section of deer fencing [hereafter, the Whittle fence] effectively separates all areas to the north and east from areas south and west of the fence. Deer are present on both sides of the fence, but densities 'below' the new fenceline are significantly reduced.

B5.7 Recent forestry work has also resulted in fencing and restocking of Compartment 6; some trees at the East were planted in 2013 but most were planted, and the area ring-fenced in 2014. A further new enclosure was established around Compartments 8 10 and most of 9 (apart from a strip bordering South of the Burn); this has also been restocked. Finally a further area is proposed for enclosure during 2015 which will include Compartments 16, 17, that part of 18 already above the new deer fence and Compartment 23. The intention will be to restock the west end and north first. Such additional enclosure and subsequent restocking has reduced (and will continue to reduce) the unfenced area within the main Glen available to deer. Already the recent enclosure of Compartments 6, 8, 9 and 10 resulted in exclusion of deer from most of the recently felled ground south of the Burn, within the area defined by the "Whittle fence". Only a section of young conifer planting (Compartment 7) remains accessible to deer on this southern side. Proposals for enclosure, on the northern side of the Burn, of Compartments 16, 17, 18 and 23 will restrict deer access on this side also meaning that deer below the "Whittle fence" will be confined to the coastal strip [Compartments 1, 2, 3, 4] and within the main Glen to the young conifer block of Compartment 7; Compartment 19 and the mature broadleaved woodland of Compartment 20.

Vegetation:

B5.8 The vast proportion of the lower ground is wooded. As noted above, much of the ground has in the past been planted up for commercial forestry; as noted at B5.1 currently there are some 780 hectares of woodland within the Estate, being a diverse mixture of commercial conifers of mixed age, open space and native broadleaves.

B5.9 In the upper part of the Glen (east of a grid line around easting NM690) this is largely plantation conifer. The dominant species is Sitka Spruce with Lodgepole Pine as a secondary species. There are also clumps of Japanese Larch and some native broadleaved species, particularly associated with watercourses. To the west of this line (and north of the Glencripesdale Burn) is also largely commercial plantings; although some of these have been felled most are scheduled for restocking in the coming years (paragraph B5.7) with a more significant inclusion of native broadleaves.(There is already a small native woodland planting between the track and the Glencripesdale Burn towards the eastern end). To the west Compartment 20 already offers a mixed area of mature conifer with significant native broadleaves, especially oak

B5.10 Finally, the woodland north of the Burn, fringing the shore, is largely native broadleaved woodland, continuous with that of the Glencripesdale NNR to the northeast. This latter area lies within the Sunart Area SSSI/SAC.

B5.11 South of the Glencripesdale Burn, there has been extensive felling of plantation conifer in Compartments 6, 8, 9 and 10- and this has been restocked - largely with native broadleaves (oak, birch, rowan and alder; paragraph B5.7). Towards the shore Compartment 2 and parts of Compartment 3 have also been felled although there has to date been no restocking.

Compartment 1 is a primarily coniferous block but with some native broadleaves, particularly associated with watercourses. This had previously been badly encroached by *Rhododendron ponticum* although much has now been cleared.

B5.12 Open ground is effectively restricted to the top plateaux towards Laudale, Ardtornish and Rahoy Hills in the east and the Glenscripesdale NNR in the north (paragraph B5.2). The slopes leading up to these summit plateaux from the upper edge of the forestry are quite grassy, with a mix of areas of *Agrostis-Festuca* 'greens' with some prostrate *Calluna*, interspersed with coarser areas dominated by *Molinia* and *Deschampsia.* The plateaux themselves are not flat, but present an undulating summit of low ridges interspersed with hollows and water filled basins. The troughs and basins are filled with accumulated peat and support a rather grassy wet heath (dominated by *Scirpus* and *Erica*, with *Molinia* and some *Deschampsia*, with significant areas of *Sphagnum* moss), grading in places to true mire. The ridges or hummocks are generally stony with areas of exposed rock. Cover of heather is increased on these more mineralised soils, but always with a greater or lesser inclusion of *Erica*, rather than pure *Calluna* heath; it is also notable that the heather cover is never continuous but always patchy, interspersed with areas of *Scirpus* or *Deschampsia* or other coarse grasses between discrete patches of heather, and with these coarse grasses also increasingly intrusive into the heather patches themselves.

B5.13 The growth form of the *Calluna* is mat-like and prostrate rather than showing a more developed 'drumstick' form. In part this is a function of altitude and exposure, but the whole nature of the vegetation suggests its development under a history of heavy grazing (the loss of heather and its restriction to 'patches,' themselves increasingly invaded by grasses; the dominance of the less palatable *Ericas* where heather is present at all, in place of the more palatable *Calluna*, etc.). However, current grazing pressures on this open hill ground are assessed as generally moderate, rather than heavy.

Deer Populations:

B5.14 Data on resident deer populations are limited. No counts have previously been undertaken within woodland areas and such counts as have been undertaken in the past counts were restricted to animals on the open, hill ground to the east only (thus east of the "Laudale" fence (paragraph B5.4).

B5.15 Populations west and south of the "Whittle fence" are probably lower than those to the east, judging by the significantly reduced browsing pressure apparent on younger conifers and indeed signs of recovery where these have been extensively topiaried by past browsing - and by significant evidence of regeneration of broadleaves within the SSSI area.

B5.16 To judge from browsing impacts and presence of dung, higher densities of deer occur within woodland areas to the east of the "Whittle fence" and significant numbers are known to move in and out of the second rotation forestry blocks [Compartments 33 -51] adjoining Kinlochteacuis and the Rahoy Hills.

Objectives and Recent Past Management:

B5.17 The current owners of Glencripesdale intend to restore woodland within the main Glen, with plantings dominated by native species and especially oak. All plantings are fenced and as additional protection trees are individually protected within 600mm growth tubes.

Deer management is considered within this context of woodland expansion and in terms of protection of woodlands within designated areas. with ongoing management of the deer to be in sympathy with that.

Thus deer management would be focused on :

i) ensuring that numbers are in balance with the available grazing area (which will of course decrease through time with further enclosure in the main Glen) - thus keeping a close eye on numbers and available area to ensure health of the deer population overall
ii) further securing health of the deer populations and ensuring welfare by selectively culling older or poorer animals
iii) delivering acceptable levels of regeneration within the coastal SSSI and designated Ancient Woodland areas within the property
iv) ensuring that management is, as far as possible, in sympathy with the objectives of neighbouring properties.

B5.18 Since Glencripesdale has changed hands only comparatively recently, the only available records are those returned to the MDMG. Figures are summarised in the Table below. All stalking was carried out by the Estate's stalker/manager and has been aimed at population control/control of impacts within woodland, rather than any sporting purposes.

	2005/6	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14
Stags	21	40	31	43	31	29	25	28	22
Hinds	36	13	27	11	27	25	0	2	0
Calves	7	5	6	10	8	9	0	2	2
Total	64	58	64	64	66	63	25	32	24

No culling was undertaken in 2014 except within planted enclosures.

B5.19 In addition to population management there is a regular ongoing programme of checking and repairing fences. Some supplementary feeding is provided in bad winters and provision of mineral blocks to maintain animal health and reduce bark stripping**.**

Potential issues and factors likely to influence Future Management:

B5.20 Much of the impact on open hill vegetation, to the east and to the north (in the open range areas beyond the forestry blocks (paragraphs B5.2, B5.4), is probably due to animals resident within the forest blocks (or using the woodland edge for shelter) and foraging out onto the open ground beyond. Thus impacts are to a large extent determined by numbers of animals using these extensive forest blocks. Impacts on open hill range however, were assessed in 2007 as moderate only.

B5.21 Impacts were not thoroughly assessed within coniferous plantations, since the majority are mature and not susceptible to significant damage. Significant browsing impact was noted above the "Whittle fence" on self-set regeneration which was heavily 'shrubbed' by past and present browsing, however it is noted that this is by the track where deer are likely to congregate. Impacts within areas of native broadleaved woodland in the lower Glen and beside the shore were patchy, but stringent control of population numbers has ensured that in many places there is vigorous regeneration (current and recent past). Issues within area of the SSSI are considered more associated with invasion and establishment of *Rhododendron ponticum* and bracken than from deer browsing.

B5.22 While fences between Glenscripesdale and Rahoy Estate, or Glenscripesdale and the SNH Reserve are maintained and relatively deer-proof, there is clearly deer movement through the porous fences of the 2nd rotation blocks of the south-east 'hammer-head', planted in the early 1990s. Movement is most pronounced between here and the open ground at the eastern edge of Kinlochteacuis. It is clear that although these blocks have been fenced away from the mature woodland of the remainder of the upper Glen they offer harbourage to significant numbers of deer.

B5.23 Fences between the more mature woodland blocks of the upper Glen and neighbouring open ground of Laudale and Rahoy Hills are also porous and movement is recorded between these woodland areas, Glencripesdale's own open moorland to the east and neighbouring ground of Ardtornish, Rahoy Hills and Kinlochteacuis. Management activities on Glencripesdale have the potential to have a significant effect on deer populations ranging over the wider area. Future management should thus take careful note of this continuity of populations.

B5.24 Within Glencripesdale itself and below the "Whittle fence" impacts are lower, although further enclosure and restocking of woodland compartments will further restrict existing deer populations to smaller and smaller areas, increasing effective densities if numbers are not controlled. It is important that impacts on regeneration within the Sunart Area SSSI/SAC or within areas scheduled in the LTFP as Ancient Woodland sites are maintained at low levels and should not increase. The enclosure of much of the "ancient woodland" site is already showing considerable establishment and regeneration.

B5.25 Few data are currently available on deer numbers and distribution within the property which hampers strategic management planning. No counts were carried out under previous ownership of the estate. This will need to be addressed and future planning will need to be flexible to respond to results of accumulating information from future monitoring of deer numbers and impacts.

B6. Glencripesdale Nature Reserve

Description:

B6.1 Formerly a National Nature Reserve, SNH's property at Glencripesdale falls between Laudale and Glencripesdale Estate and covers an area of 609 hectares. The Reserve was formerly owned by the Forestry Commission who purchased part of the Glencripesdale estate and adjoining land in the 1950s; the site has been owned by Scottish Natural Heritage since 1992.

B6.2 The Reserve area is completely enclosed by deer fencing with its marches with Laudale to the east and Glencripesdale estate to the south and west therefore clearly defined. While this fence has become somewhat porous over the years, the entire perimeter is to be refenced early in 2016.

B6.3 The area rises from the lochside, on mainly north-facing slopes, to an elevation of approximately 280m above sea level and consists of a belt of native broadleaved woodland along the lower contours, including oak, birch, ash, hazel, rowan and alder, with an area of open hill (largely wet heath and blanket bog) behind. Changes in soil type moving from east to west across the property greatly influences the tree species present. In the east, the more acidic soils have a greater proportion of oak and downy birch growing on them. Alder and willows dominate in wetter acidic areas. To the west, the more base-rich, fertile soils support ash, hazel and wych elm. Humid conditions and fertile soils also create an ideal environment for a great variety of flowering plants, mosses and lichens.

B6.4 Existing native woodland extends to a total of 315ha of the site consisting of 279ha Upland Birchwood or Upland Oak BAP Priority Habitat and 36ha Upland Mixed Ashwood or Wet Woodland BAP Priority Habitat. Restoration of upland planted ancient woodland sites (PAWS) has added an additional 73ha consisting of 43ha post- clearfell open ground and 30ha native woodland habitats restored to date [see B6.8].

B6.5 Glencripesdale is one of the top three woods in Britain for its mix of bryophytes. One hundred and fourteen species of moss have been recorded on the site, including twenty-four species with a restricted British distribution. Of the sixty-six species of liverwort recorded on the site, four species are nationally scarce and twenty-nine species have a restricted British distribution.

Glencripesdale is, therefore, considered to be of national importance for its moss and liverwort communities. The nationally scarce liverwort Wilson's pouchwort (*Acrobolbus wilsonii*) is a priority United Kingdom Biodiversity Action Plan (UKBAP) species.

B6.6 Among the one hundred and forty-two species of lichen which have been recorded on the site, fourteen species are nationally scarce. Fourteen species have also been recorded which have a restricted distribution, including all four of the *Lobaria* species known to grow in the British Isles. The lichen assemblage at Glencripesdale is also, therefore, considered to be of national importance. The nationally scarce Norwegian Specklebelly (*Pseudocyphellaria norvegica*) is a priority BAP species.

Designations:

B6.7 Glencripesdale Reserve forms part of the Sunart Site of Special Scientific Interest (SSSI), notified in 2001. It was previously part of Glencripesdale SSSI (notified 1995). The entire area is now declared as an SSSI and is now part of the Sunart Special Area of Conservation (SAC). Qualifying features within this part of the SAC include the following key Annex 1 features: Old oak woods with Ilex and Blechnum, Tilio-Acerion forests of slopes, screes and ravines, and both lichen and bryophyte assemblages. There is a high otter population and adjacent to the Reserve there is further SAC-qualifying marine habitat in the form of inter-tidal and sub-tidal reefs. Both wet and dry heaths are also mentioned as features but are considered of lesser priority in management than the deciduous woodland and associated lichen and bryophyte assemblies.

B6.8 During its former ownership by the Forestry Commission parts of the area were planted with commercial conifers: one on the eastern march with Laudale and the others to the west at Torr na Moine and above Camas Salach. These have now been felled (during the period of the 2007 Plan). Deer browsing was inhibiting regeneration of these areas and pending renewal/ replacement of the perimeter fence the decision was taken to erect a separate internal enclosure of 19.7 ha within the eastern section and to undertake some supplementary planting within this area. However a central area was left unplanted as it was deep peat bog.

B6.9 Above the woodland on the higher ground to the south (effectively above about the 200m contour), the ground opens out to an area of wet heath dominated by purple moor-grass (*Molinia caerulea*) and deer grass (*Scirpus caesitosum*) with ling heather (*Calluna vulgaris*) and cross-leaved heath (*Erica tetralix*). Proportional inclusion of *Calluna* is surprisingly high and it is clear that it is actively increasing under low grazing pressures of current management - with clear signs of active new growth, expanding its cover and reclaiming ground lost when the area was previously more heavily grazed. Small areas of true 'dry heath' are scattered over the slopes of the Reserve though they are mainly found on rocky outcrops and knolls to the east. Elsewhere, where drainage is further impeded, wet heath grades to mire or blanket bog.

Deer Populations:

B6.10 When originally purchased from the Forestry Commission in 1992, deer densities were extremely high, with local densities estimated up to 40 deer per 100 ha. A major culling programme was initiated in 1996 to reduce populations. The area is not included in counts undertaken by the MDMG. However, as part of the cull contract [paragraph B6.14] a count is now undertaken by the contractor at the end of the season and submitted with the final paperwork.
The reported counts at the end of March 2014 was of 12 stags, 12 hinds and 5 calves [total 29].

B6.11 Deer usage of the area is reported as patchy, with strong preference shown for the open woodland areas and open ground at the western end (against the fence with Glenscripesdale Estate) which has always seemed, traditionally to be a favoured area. Otherwise, highest usage tends to be along the upper edge of the woodland itself, where animals use the woodland for cover and forage out

onto the open hill beyond. Over the years, perimeter fencelines have become porous and there is clearly some movement into and out of the area from open hill ground of neighbouring properties although the extent of such movement or the level of 'permanent' immigration which may result is unclear; some mature stags also move onto the ground during the rut. Fences are however scheduled for replacement/reinstatement early in 2016.

Objectives and Recent Past Management:

B6.12 Primary objectives for the site were originally the protection and enhancement of the lochside native woodlands and associated lower plants. The first management plan for Glencripesdale NNR was completed in 1990. The plan included the following key objectives:

- To maintain and enhance the outstanding woodland resource at Glencripesdale and the associated plants and animals through habitat restoration.
- To encourage the native woodland to extend to suitable adjacent ground where possible.
- To protect the Reserve, particularly the key features of the woodland, and the lower plants from all damaging influences.

B6.13 Current objectives remain very much the same with priority given to protection and enhancement of the native woodlands. While low deer numbers are required to encourage regeneration in native woodland areas, some level of grazing and browsing are actively required to maintain the open hill habitats (wet heath, dry heath and blanket bog) in favourable condition and prevent transition to scrub. As noted however, where there may be conflict of objectives, protection of the woodlands and the associated lichen and bryophyte assemblages takes priority.

B6.14 Deer management is currently contracted out on an annual basis, with cull targets set by SNH. These targets are set in relation to ongoing monitoring of browsing impacts [paragraph B6.16] and annual cull levels are increased or decreased around former levels in response to observed changes in impact. Current cull levels are set at 10 stags, 20 hinds and 10 calves. Roe are also present on the site and are taken when seen.

B6.15 Recent cull figures are summarised as:

	2005/6	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14
Stags	7	6	8	10	10	5	6	5	6
Hinds	4	9	16	10	7	10	6	17	26
Calves	0	2	2	2	3	2	4	9	15
Total	11	17	26	22	20	17	16	31	47

B6.16 SNH undertakes its own regular monitoring of the site. Although regular assessment of deer densities and distribution from dung counts has now been discontinued, rates of regeneration (and browsing damage on that regeneration) are recorded along fixed transects within the woodlands. There is also a less formal assessment carried out, on a more irregular basis, of the condition of open hill habitats as part of general site-condition monitoring. A recent habitat impact assessment was undertaken for a woodland plan that is nearing completion.

Assessments and Issues to be addressed in Future Management:

B6.17 In recent Site Condition Monitoring within the wider Sunart SAC, the following features were recorded as being in unfavourable condition within the SNH Reserve: upland oak woodland - unfavourable due to conifer regeneration and scattered patches of rhododendron; lichen assemblage-unfavourable, no change due to scattered patches of rhododendron.

B6.18 Failures within the Glencripesdale Reserve would appear to be related primarily to the presence of non-native species within each assemblage and the amount of regeneration in woodland areas. Subsequent to this assessment, SNH have carried out a more detailed Herbivore Impact Assessment across the site. This seems to indicate that the grazing pressure is mainly low to medium with localised high pressure at the east end of the site. The HIA indicated the upland Ash areas were not under pressure from deer browsing and the regeneration appears plentiful. However the issue relating to non-native plants applies here as well as within oak woodlands. Presence of non-native invasives is also cited as the main issue for unfavourable condition of the lichen assemblage.

B6.19 In relation to impacts from deer, some regeneration is apparent but this is noted to be patchy. Transects established to monitor recruitment suggest an average increment to 2006 of between 5 and 10% per annum (since 1998). However, reinstatement of the perimeter fence should secure the site in the future from immigration and continued management of residual deer populations within the fence will be better able to keep control of both numbers and browsing impacts.

B6.20 Some establishment has now been secured within a 9.7 ha internal enclosure on the site of the former exotic plantation at the east of the property [paragraph B6.7]. This enclosure will be maintained even after replacement of the perimeter fence until the end of its effective life. The regeneration within this enclosure is now strong. In other areas some regeneration is becoming apparent but this is noted to be patchy. The need for protection of open-hill habitats and features is however in itself an additional justification for managers being prepared to accept relatively low rates of woodland regeneration overall - because it is necessary to balance that regeneration against maintenance of adequate grazing pressure on heathlands and bogs.

B6.21 Cull levels over recent years have proved largely satisfactory, but replacement of the perimeter fence will clearly alter the extent of movement of deer into and out of the area from surrounding Estates which may have occurred in the recent past, restricting numbers for the most part to populations actually resident within the reserve area. This may be expected to "reset the clock" to some degree in determining what future cull levels may be required.

B7 Rahoy Estate

Description:

B7.1 Rahoy Estate is a private estate of some 1136 ha owned by the Mickel family. It lies sandwiched between Glencripesdale Estate to the north and east and Kinlochteacuis Estate to the south; both boundaries are fenced. The march fence with Kinlochteacuis was completely replaced in 2000, while that with Glencripesdale was fully refurbished at that same time

B7.2 The boundary with Glenscripesdale runs a few hundred metres up the burn from Camas Glas before running almost due east along the edge of the Glencripesdale forestry blocks to grid reference NM689584; then south to NM 685573. The boundary with Kinlochteacuis then strikes back due west towards the summit of Beinn Ithearlan, (passing to the north and west) before dropping down the ridge (south westerly) to follow the enclosure fence at Carnliath. [Map 1]

B7.3 To the west, Rahoy is bounded by the sea, with Loch Sunart and the Carna Strait (Caol Charna) to the north and Loch Teacuis to the south. Largely around this coastal strip, the Estate retains very significant areas of native broadleaved woodland. These woodland areas are primarily of birch on north or west facing slopes; nearer the coast there is good inclusion of sessile oak on more acid soils, particularly in the south, while at higher altitudes, on more basic soils of the basalt exposures in the north, there are patches of ash and wych-elm.

Within ravines and gullies of watercourses (as in the gorge of the Allt Ard Charna) there is a more mixed woodland community and there is commonly a strong understorey of holly.

B7.4 This coastal woodland area falls within the Sunart SSSI and SAC and its conservation and restoration is a major priority of the Estate's overall management objectives. A WGS/LIFE scheme established in August 1999 sought to consolidate the existing woodland area and as far as is possible expand woodland cover between existing patches to complete a 'horseshoe' around the entire coastal promontory; the scheme also seeks to establish some woodland cover further inland along the northern boundary with Glencripesdale. The total area of native woodland is assessed at 556.56 ha.

B7.5 Elsewhere within the Estate, the vegetation is extremely diverse, in large part due to a diversity of geology and soil. Thus, much of the hill ground above the upper margin of the woodlands to the west, supports a rather acidic Atlantic wet heath, particularly on the lower slopes and the lower 'tops' to the south, grading to blanket bog where deeper peat has accumulated in hollows and basins. However this is dissected by a long ridge of basalt (east to west: from Beinn Ithearlan on the eastern boundary with Kinlochteacuis, across Beinn Ghormaig and thence southwest to Am Biod and Druim nan Sgalag.

B7.6 Towards the west therefore, with thicker, peatier soils and poorer drainage, there is a predominance of wet heath; on the lower slopes (to the southwest and south) this is dominated by tussocky *Molinia* and, on the lowest ground, there is some noticeable encroachment of bracken.

B7.7 Higher up, where the soils become thinner and more mineralised, the *Molinia* becomes somewhat sparser (and no longer present in discrete tussocks) and there is some increase in cover of *Calluna*. In places *Molinia* continues to encroach, especially along the west and north sides of Druim nan Sgalag and the best heather is developed on the rockier outcrops and bluffs as for example below Beinn Ghormaig at grid reference NM 657570, on the exposed faces of Torr nam Broc, or on the steeper south facing slopes of Druim nan Sgalag.

B7.8 Actually on the shoulder and ridge of Beinn Ghormaig and the other basalt 'tops', the more base-rich soils support a mixed sward of short grasses and abundant, but more prostrate heather (*Agrostis-Festuca* /*Calluna*). This same mixture of finer grasses and somewhat stunted heather is repeated all along the basalt, from the Beinn Ghormaig, across Meall nan Cnaimhean to ridge of Monadh Rahuaidh, and again, on the **tops** of Am Biod and Druim nan Sgalag. While the prostrate nature of the heather is in part due to exposure and wind-clip, it is also indubitably partly due to browsing. There is a quantum increase in the amount of dung associated with all these basalt 'tops' and it is clear that these are areas highly favoured/preferred by the deer.

B7.9 Further east (at the East End, or Pan Handle, east of Beinn Ghormaig), the ground is different again, with notably much thinner soils, and a considerable increase in the exposure of bare rock. These areas support a cover of rather sparse dry heath, with *Calluna* and deer grass (*Scirpus*), quite distinct from the tussocky and Molinia-dominated wet heath towards the coast.

B7.10 Finally, around the coastal strip, where woodland is not yet established, there is a *Scirpus*- and *Molinia*-dominated wet heath reaching towards the shore. Where watercourses flatten towards the lochside (as at the mouth of the Allt Ard Charna), small fans of coastal grassland and saltmarsh have developed. There is also one area of formerly improved grassland in a gap within the woodland, by the vitrified fort behind Rahoy House.

Designations:

B7.11 All woodlands of the coastal strip fall within the Sunart SSSI/SAC.

Deer Populations:

B7.12 Because the Estate is effectively ring-fenced, populations are resident year-round, although (below: B7.18, B7.19) there is evidence to suggest significant recent immigration. The basalt ridge thrusting east-west through the Estate, supports a sward of fine grasses (*Agrostis-Festuca*) and good *Calluna* (above paragraph B7.8) and it is clear that these areas are strongly preferred by deer, so that there is some patchiness of use of the open hill ground.

B7.13 There is a group of some 30 stags on Monadh Rahuaidh and Coire Bhuidhe, who seem to be resident here for most of the year. There is a larger, separate group at Bealach Ban, who also seem to stay in the area of the Panhandle [Beinn Ghormaig to Bealach Ban] for most of the time. There is reported a group of 40+ hinds on the lower ground, around Torr nam Broc which is believed to move along the Northern shore from there to Camas Glas and Allt Ard Charna. There are also 25 to 30 hinds on Meall nan Cnaimhean and a couple of smaller groups of 10-15 individuals in the gullies between Beinn Ghormaig and Bealach Ban. In the past, hind numbers were comparatively lower in this area, and restricted to a few parcels of animals scattered across the ground. More recently it would appear that numbers of hinds have been increasing both here and within the Pan-handle [Beinn Ghormaig to Bealach Ban].

B7.14 The previous stalker/manager Paul Smith considered that the deer within the Estate are highly mobile and that the bulk of the entire population ranged freely over most of the ground. This may have resulted from the heavy culling pressure imposed in initial reduction of population size and current reports suggest more settled patterns of use and establishment of distinct geographical hefts, with especially a separate 'pocket' of deer more permanently resident in the woodlands of Camas Glas and around the Coire Buidhe.

B7.15 Rahoy is effectively ring-fenced on the landward side against neighbouring Glencripesdale, and Kinlochteacuis. Fences are maintained on a regular basis. However, the Estate is open along the lochside (Lochs Sunart and Loch Teacuis, and the extent of immigration which may occur through animals swimming in from Forestry Commission ground to the west, or (via Carna) from Ardnamurchan to the north, is uncertain.

B7.16 Counts of (red) deer from 1991 to 2005 are summarised in the 2007 Morvern Deer Plan. Counts are updated below:

Year	2006	2007	2008	2009	2010	2011	2012*	2013	2014
Stags		26	21	20	16	27	61	72	82
Hinds	No		18	16	32	41	57	48	106
Calves	Count	25	4	5	12	17	15	17	40
Total		51	43	41	60	85	131	137	228

Roe deer are also present within the woodland areas but are currently at relatively low density.

B7.17 A significantly higher total count is apparent from 2012 and in interpreting these figures we should note that between 2011 and 2012 there was a change of stalker. Higher counts from this time suggest that there may have been an element of undercounting in the past. However relation of each years' counts to those counted in previous years, as well as known culls in the interim shows reasonable consistency of counts from 2008-2011 (given the limitations of the model) with populations recorded in previous years.

B7.18 Despite a higher count overall in 2012, projections from 2011 to 2012 are in fact not totally inconsistent with numbers counted and thus not biologically improbable. Projections from 2011 to the following year 2013 are also not improbable. Both projections however underestimate stags present in actual counts. This has been a recurring pattern throughout, although the discrepancy is particularly exaggerated here, and suggests that in general past counts have significantly undercounted stags present on the Estate or that there is each year a significant net immigration of stags from neighbouring properties. Such mismatch also suggests hind numbers may have been underestimated in the past (although to a lesser extent), because clearly the number of stag calves being added to the population each year has been higher than we have predicted (and thus there must have been more hinds, as mothers to those calves). Such a conclusion is further validated in that, although there is some internal consistency in the actual and predicted counts of hinds from 2007 - 2012, projections have tended to underestimate subsequent actual hind counts as well as counts of stags.

B7.19 Counts in 2014 are inconsistent with ANY previous counts (even that of the year before: 2013) and while suggested stag numbers are credible, hind numbers are in excess (double!) what would have been expected from previous counts, even those of 2011, 2012, 2013. Ruling out any double-counting thus would appear to suggest that the Estate has suffered a significant immigration of hinds in 2014.

Objectives and recent Past Management:

B7.20 The primary objective of management on Rahoy is directed towards conservation and restoration of the native woodlands within the Loch Sunart SSSI and SAC (paragraph B7.4, B7.11). although the owner and his family would wish to retain some small level of sport stalking on the open hill ground if this is compatible with woodland interests.
The main goal of management has thus been to reduce and thereafter maintain deer populations at levels where there is a significant level of regeneration within the target woodland area.

B7.21 Actual culls taken since 1994/95 are recorded in the Estate Management Plan and summarised to 2004/04 in the 2007 Morvern Group Deer Management Plan. Figures are updated here as:

	2005/6	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14
Stags	8	6	11	6	5	3	2	11	8
Hinds	16	3	4	0	0	3	3	7	6
Calves	6	0	1	0	0	0	3	0	2
Total	30	9	16	6	5	6	8	18	16

B7.22 In support of the estate's commitment to habitat restoration, regular monitoring of vegetation condition was undertaken by fixed point photography and also by recording the number of trees (and evidence of browsing damage) along five fixed transects which are assessed once a year (in May). On such transects the number of stems recorded above, or below, the height of the surrounding ground vegetation, is separately noted for each different tree species recorded, as well as an estimate of the percentage of stems showing signs of browsing damage.

B7.23 Since April 2012 monitoring within woodland areas has transferred to methodologies developed by the Deer Initiative and subsequently to the SNH Best Practice methods since 2014. Given the sensitivity of open hill habitats, monitoring has also been extended to include regular surveys of the condition of these habitats in addition to woodland surveys using Best Practice methodologies supplemented by fixed point photography.

Assessments and Factors Influencing Future Management:

B7.24 Regeneration within the SAC woodlands has generally been encouraging, with vigorous regeneration apparent all along the shore line (and with extension of cover to produce 'infill' of open spaces between existing woodland blocks, right around to the Allt Ard Charna Gorge. Thereafter while there are obvious patches of mature woodland (as shown on the OS map) these are rather open and generally rather sparse. Rates of regeneration are much lower in this northern zone.

B7.25 Notwithstanding the high herbivore impacts previously recorded in the NWSoS [Map7], SNH assessed the ash woodlands within the SSSI/SAC area in June 2014 as in Favourable condition. However, these tend to occur in fairly inaccessible ravines, and impacts appeared to be higher in the surrounding oak woodland from Coire Buidhe to the north around Camas Glas.
Here there remains little or no regeneration and such 'advance regeneration' as is present is heavily browsed and suppressed. The reason for the relatively poorer establishment of trees in the area to the north (from Allt Ard Charna around to Camas Glas) is uncertain - whether this is due to aspect, soil fertility, or deer browsing - or a combination of the three. We might note that the impact of even a light level of deer browsing is far greater where trees are already growing more slowly due to poor soils, or exposed conditions - (while more fertile areas, supporting explosive and vigorous growth will 'get away' even in the face of considerably higher browsing impacts).

B7.26 In this context we should also note however, that the wooded area around Coire Buidhe offers good shelter and is strongly favoured by deer anyway; there may indeed be a small group of animals permanently hefted in this area (paragraph B7.13). Culling efforts have been concentrated in this area in recent years, but due to the nature of the ground, this is an extremely difficult area in which to stalk effectively. Management is (properly) concerned about currently disappointing rates of woodland re-establishment between Allt Ard Charna and Camas Glas, and for this reason would wish to continue heavy culls in this area.

B7.27 Maintenance of stable populations at reduced density in the longer term is to a degree constrained by the unknown effect (and extent) of immigration due to animals swimming across the lochs. Perhaps of more concern is the integrity of Rahoy's fenceline against landward neighbours. Although fences along the Kinlochteacuis march are new, those along the much longer march with Glencripesdale were merely repaired, not replaced, and are becoming elderly; although a recent review did not reveal any holes.

B7.28 While committed to protecting the woodlands of the SSSI and restoring these to Favourable condition, the Estate also wishes to sustain a modest sporting quota of perhaps 8-10 stags a year. The Estate notes that the bulk of the woodland area is now moving towards favourable condition although concerns remain about the areas around Camas Glas. Future management effort will thus need to be concentrated there, but the rest of the Estate moves towards a period of consolidation.

B8 Kinlochteacuis

Description:

B8.1 Kinlochteacuis occupies a part of the former HIDB Rahoy Deer Farm (which used to comprise both this Estate and neighbouring Rahoy); it was bought by the current owner in 2004. The Estate extends to some 1890 acres (765 ha) at the head of Loch Teacuis, marching to the north with Rahoy Estate and to the southeast with the Rahoy Hills Reserve and the Doire na Mairst plantation. It shares a short march to the south west with Forestry Commission ground at Barr, and a short, but strategically significant boundary with Glencripesdale Estate in the north east [Map 1].

B8.2 The march with Rahoy is fully fenced and runs from Carnliath in the west along the side of one of Kinlochteacuis' own woodland restoration areas, before climbing the ridge to the summit of Beinn Ithearlan and then east to the edge of the Glencripesdale Estate 2nd rotation forestry blocks (Nils Tandrup plantations] at NM684573.

B8.3 A short, but porous fenceline divides Kinloch from Glencripesdale at this point, before the march strikes back southwest over Meall Garbh and the Coire Beinn na h-Uamha in almost a dead straight line to the western edge of the Doire na Mairst Plantation on Ardtornish. This march is also fenced (as one of the original fencelines of the old deer farm) but the fence is no longer secure and there is ready movement across the march into the Rahoy Hills Reserve and the upper part of the Doire na Mairst Plantation.

B8.4 Kinloch's boundary crosses the road at this point and runs up the edge of the FCS holding to Ardantiobart, before following the eastern shore of Loch Teacuis itself back to Carnliath. A section of ground extending to 21.37 has recently been sold around the School House but the Estate retains stalking rights over this area also.

B8.5 While the boundary itself is open to the sea at this point, there is a deer fence on the eastern side of the access road through to Rahoy, which closes off the Kinloch hill ground above the road; this is not impermeable however with animals able freely top pass under the bridge spanning the Kinloch River- and stags in particular often come onto the fenced parks below the road. The head of the loch saltmarsh is a SSSI feature – currently in favourable condition with moderate grazing impacts.

B8.6 Various woodland restoration initiatives have made use of existing fences of the former deer farm. Thus a major block (of 56.4 ha) is fenced in the north west (towards Carnliath) and a separate large enclosure protects a woodland regeneration scheme of 169.7 ha on the west-facing hill slopes above the Kinloch River to the south. A further WGS block is established in the small section of the estate which lies to the west of the public road, at Garbh Doire (23.3 ha; a part of this was sold to the School House October 2012; paragraph B8.4).

B8.7 There is relatively little woodland apart from these areas already set aside for regeneration. There is an additional small area just beyond the hill gate behind Kinloch House, and some further small patches associated with steeper gullies and burnsides (as for example adjacent to the Carnliath block but further up the Allt an Inbhre). Total areas are reported as approximately 120 ha of native woodland plus 5 ha of former commercial conifer plantation.

B8.8 Fencelines across the Estate are, to say the least complicated, as a legacy from the Estate's old deer farm days. While the fence dividing Kinloch from Rahoy is largely secure, there is some movement around the seaward end and most of the other fences are old and must be presumed porous. Certainly there is free movement of animals between Kinlochteacuis and the SWT's Rahoy Hills Reserve (and particularly around the Doire na Mairst plantation); in the north-east corner of the Estate the short stretch of fence where Kinlochteacuis marches with Glencripesdale is largely down and there is free movement here between Kinloch and the 2nd rotation forestry plantation in this part of Glencripesdale; animals may also move between Glencripesdale and Kinlochteacuis through the open boundary between Glencripesdale and the Rahoy Hills Reserve.

B8.9 Internal fences are also largely porous with free access by deer into both the Carnliath woodland block and that south of the Kinloch River. The woodland block at Garbh Doire is separately fenced as a discrete unit; an internal stock fence marks the boundary on the southern and eastern sides of the portion sold away; the back fence against the FCS ground was renewed in 2010.

B8.10 The vegetation of the open hill is largely a mixture of wet heath and deer grass (*Scirpus*) on acid soils, with heavy domination by *Molinia* on lower slopes and on areas of flatter deeper peat. Even in the wetter areas however (eg. at the northeastern end towards the march with Glencripesdale), there is considerable inclusion of *Calluna* within the sward (although this is somewhat suppressed by heavy grazing) and there are some better greens on hummocks and knolls of the lower ground where drainage is improved and mineral soils are closer to the surface (e.g on either side of the main hill track leading out to the Glencripesdale march). It is believed that these latter areas may have been limed and even reseeded in the past (during the deer farm's ownership of the estate) and thus may be a hangover from that time; they now show signs of severe encroachment by bracken.

B8.11 This pattern of generally acid communities is characteristic of lower slopes and 'flats' where peat has tended to accumulate. On the higher ground, thinner soils and better drainage are associated with the underlying ridge of basalt stretching across from Beinn Iadain to Beinn Ithearlan, and also apparent in small outcrops elsewhere within the Estate. There are some steep 'faces' and screes exposed right up against the Rahoy march, but for the most part this basalt is present as round topped summits, or summit ridges. This supports a strikingly different vegetation of finer grasses, with notably reduced dominance of *Molinia* and *Deschampsia* (although not entirely absent).

B8.12 There is also a more obvious inclusion of *Calluna* on these basalt areas, but this is, as much as anything, an increase in actual apparency *per se*, since the percentage cover of *Calluna* is actually quite high over the area as a whole - even within areas classically considered as wetter heath - and is lost only in the pure tussock *Molinia* stands of real flats or hollows.

B8.13 Kinloch is run as a mixed Estate, with farming interests linked to those of Glenbrook Farm in Co. Down, also owned by the Lawsons, and some sporting. 20 store cattle are turned to the hill over the summer, and these are wintered inbye in the agricultural parks below the road before being sold off at the back end of the winter. Red deer populations on the hill ground are actively managed and the woodlands provide a small woodcock shoot.

Deer Populations:

B8.14 Kinlochteacuis has resident populations of both stags and hinds throughout the year. Hinds tend to be scattered in small groups all the way up both sides of the hill track (commonly associated with the old improved 'greens' as foci; paragraph B8.9). A larger group seems hefted around the basalt of Beinn Ithearlan and towards the Rahoy march.

B8.15 While this latter march is recently refenced, those animals towards the north-east may move to and from across the march fence between Kinlochteacuis and the northern part of the Rahoy Hills Reserve to the flats on either side of Beinn Iadain. There is also a regular movement of animals between Kinloch and the Glencripesdale forestry blocks in the north-east corner of the Estate (with regular movement confirmed by evident tracking to and fro), although the extent to which this movement involves hinds rather than stags is unknown.

B8.16 Fences around Kinloch's own woodland restoration enclosures are, as noted, also somewhat porous and there is an additional (unknown) number of beasts in the more northern block (towards Carnliath) and in the Kinloch River block; these latter animals also use the open hill behind (to the south) and again may move freely between this hill ground and the flats below Beinn na h-Uamha, or into the Doire na Mairst Plantation on Ardtornish.

B8.17 Stags are resident on the Estate all year. These tend to be on the hill ground behind the Kinloch Woodland Scheme, and move freely across the march with Ardtornish, making extensive use of the cover provided by the Doire na Mairst Plantation. Similarly, a significant number of stags currently 'commute' between the open hill ground of Kinlochteacuis and the forest blocks of Glenscripesdale (para B8.15).There would also appear to be a significant number of stags using, or resident within the north-eastern section of the Carnliath woodland block; towards the eastern side of this, even within the fences, there is an extensive area of heathery open ground and it is clear that this is regularly used by stags. Stags make regular use of the low ground parks throughout the year.

B8.18 MDMG minutes record results of a count of unenclosed ground in 2001 as 50 stags, 52 hinds and 22 calves. An informal Estate count of open ground, in 2005, recorded 73 stags, 45 hinds and 20 calves although this must be taken as a minimum estimate since counts did not include woodland areas. More recent counts from 2006 are summarised below:

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014
Stags		67			5	21	28		79
Hinds		43	No	Count	71	30	7		149
Calves		21			29	9	2		52
Total		131			105	60	37		280

B8.19 The enormous variation in counts between years emphasises the high mobility of deer populations (particularly hinds) between Kinloch and neighbouring properties on an almost daily basis depending on wind, weather and levels of disturbance - and also highlights the importance of regular counts. On the basis of the paired 2014 counts we may suggest that a genuine population is of the order of between 50 and 60 stags (possibly as high as 70-80) together with a core hind population of the order of perhaps 100. This last figure is however extremely difficult to confirm and in reality it is probable that combined hind populations of Kinlochteacuis and the Rahoy Hills should be considered as a single resource at between 100 and 150 hinds.

Objectives and Recent Past Management:

B8.20 Kinloch is run as a mixed Estate, with farming interests linked to those of Glenbrook Farm in Co. Down, also owned by the Lawsons, and some sporting. 20 store cattle are turned to the hill over the summer, and these are wintered inbye in the agricultural parks below the road before being sold off at the back end of the winter. Stalking and other deer management is entirely carried out by the owner, his family and his guests. Recent culls are summarised:

Year	2005/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14
Stags	10	7	8	5	7	9	7	9	9
Hinds	0	4	1	1	2	6	6	6	10
Calves	0	0	0	0	0	0	0	0	1
Total	10	11	9	6	9	6	13	15	20

B8.21 There has been no recent muirburn, or other improvement to grazings, and there is currently no winter feeding provided.

B8.22 Established under former Woodland Creation schemes, Kinlochteacuis supports 120 ha of commercial plantation [with a further 2 ha retained at Garbh Doire] and approximately 5 hectares of native woodlands. All Woodland Grant schemes are complete (December 2005) so that the Estate's responsibility for maintaining fences is discharged.

Assessments and Factors Influencing Future Management decisions:

B8.23 In a survey of the Estate on 28th December 2005, open hill ground grazing pressures were assessed as generally moderate throughout, though due to inevitable patchiness of usage, light-moderate in certain less favoured areas and moderate-heavy to heavy particularly in association with areas of basalt exposure. Heather on this basalt greens was prostrate in growth form, partly due to wind-clip but also due to browsing pressure. Although there were no obvious signs of recent browsing (freshly-bitten shoots of current year's growth) growth form was strongly branching, and overall structure clearly suppressed .

B8.24 Preference for the basalt greens imposes some zonation of pressure across the Estate, with heavier usage apparent towards the Rahoy march (and Beinn Ithearlan), lesser usage towards Kinloch itself, and comparatively lighter grazing impact apparent on areas of wet heath towards Glencripesdale in the east. There is however very evident tracking across this region, leading directly from obvious holes in the Glencripesdale forest fence across to the basalt grazings, and it is evident that there is significant movement of animals to and fro.

B8.25 There was another area of significant tracking apparent across the tributary of the Allt an Inbhre at the north-eastern corner of the WGS. The fence is broken in this part of the enclosure and animals are clearly moving regularly in and out of the woodland in this corner. Significant tracking continues within the enclosure, and there is heavy browsing on regeneration, as well as (local, but severe) antler damage to younger trees. There is clearly a substantial usage of this corner of the woodland block - either by animals regularly visiting this corner of the WGS, or now resident within the woodland and going out onto the adjacent hill ground to graze. Browsing and antler damage are sufficient significantly to compromise survival of regeneration in this corner of the enclosure (north west of the Allt an Inbhire and in the gully of the burn itself), although damage is primarily apparent in areas where trees are struggling anyway because of exposure, poor soils and a north-facing aspect.

B8.26 Fences of all WGS blocks are in a poor state of repair, and it is clear that there is regular usage of deer in all of them. For the most part this does not appear to be causing problems, but in such areas where the regeneration is in any case 'struggling' it may compromise establishment. All WGS's are now signed-off, and this raises an issue for the Estate of whether or not to attempt to retain fences for a longer period (even though this is not a formal requirement) to allow regeneration a longer period for proper establishment.

B8.27 While it is acknowledged that populations of deer on Kinlochteacuis are highly mobile and continuous with populations on neighbouring properties, current estimates of probable usage of the Estate (based on 2014 counts) are of a population of up to 80 stags, 150 hinds and perhaps 50 calves: a total of 280 beasts.

B8.28 In practice the Estate is not isolated and even established populations, especially where hefted close to the marches, may regularly range over adjacent ground. Thus, as noted there is regular exchange between Kinlochteacuis and the conifer plantations of upper Glen Cripesdale, while animals on the open hill ground above the Kinloch River WGS regularly move to and from across the march into Ardtornish and may benefit from the shelter offered by the Doire na Mairst Plantation. There is also regular movement of animals to and fro across the march with the SWT section of the Rahoy Hills Reserve (below) and it is acknowledged that management on Kinloch may have considerable significance for controlling herbivore pressures on that reserve area.

B9 Rahoy Hills Reserve

Description:
B9.1 The Rahoy Hills Wildlife Reserve extends to a total area of 1764 ha to the east of Kinlochteacuis, lying between Beinn Iadain in the north and Loch Arienas in the south. It includes the massifs of both Beinn Iadain and Beinn na h-Uamha, and the 1619ha of this and the surrounding area is designated as an SSSI. The pattern of ownership is somewhat complex since the Reserve embraces an area of 752.6 ha owned by the Scottish Wildlife Trust (SWT) and a separate section of 1011.4 ha, owned by Ardtornish Estate.

B9.2 The main part of the SWT section (the Rahoy Hills: 696 ha) was purchased by the SPNC (later RSNC) in July 1975, from the Kinlochteacuis and Rahoy Estate, owned at that time by Mr A.E. Willis. The purchase was largely funded with donations from the J C Cadbury Charitable Trust and from Mr Henman of Ben More Coigach. An additional area of 56.6 ha, covering the northern slopes of Beinn Iadain was purchased from the Forestry Commission in June 1978. The combined area was initially leased to the SWT from April 1986 for a period of 21 years, but following the death of Christopher Cadbury in 1995, the RSNC elected to transfer all their reserves into the ownership of the relevant county, or area Wildlife Trusts; thus ownership of the Rahoy Hills area was transferred to SWT on 1st April 1998. [This combined area hereafter referred to as Compartment 1 as defined also in the Reserve's own Management Plan]

B9.3 This transfer imposed on SWT certain conditions and obligations, some formal, some less so. The most significant of these is the fact that Christopher Cadbury himself wished the area to remain a sanctuary for wildlife, which has in the past been interpreted as implying some presumption that no deer should be culled on the Rahoy Hills section of the Reserve. It is further noted that the transfer of the land from RSNC to SWT also carried forward burdens imposed on the original sale to RSNC in 1975, in particular a stipulation that although the shooting and fishing rights were included in the sale, that these should not be exercised without the consent of the proprietors of the remainder of the Kinlochteacuis and Rahoy Estate, "except insofar as it might be necessary to implement appropriate conservation measures within the area sold". These proprietors are currently the respective owners of Rahoy and Kinlochteacuis Estates.

B9.4 SWT also has a management agreement with the Ardtornish Estate Company over an adjacent area (approx 1011 ha) known as the John Raven Extension [identified within the Reserve's own Management Plan as Compartment 2]. This agreement had a duration of 25 years from February 1988 and was further extended by 25 years from 2001. Under this agreement this area is to be managed as an extension of, and in conjunction with the original RSNC area lying immediately to the north.

B9.5 Fuller details of these agreements and the conditions imposed are included in the Rahoy Hills Wildlife Reserve Management Plan (completed November 1998)

B9.6 The effective area covered by the (combined) Reserve is that ground to the east of Kinlochteacuis across to the Black Water at Acharn. The eastern boundary follows a line from the eastern edge of Beinn Iadain across the Lochanan Dubha below Monadh Meadhoin. More formally, the boundary to the west runs from the edge of the Doire na Mairst Plantation, against Kinlochteacuis, in what is almost a straight line North east to the edge of the Glencripesdale plantations at NM685568, at the western edge of Beinn Iadain.

B9.7 The march then follows the fenceline of the Glencripesdale forest block east, towards Coire Riabhach, before skirting the eastern edge of Beinn Iadain and running across flatter ground to the Lochanan Dubha. From this point it follows the burn at the outflow of the more southern of the two lochans, to its confluence with the Black Water and follows the Black Water itself to the bridge just north of Acharn. The southern boundary of the John Raven Extension follows the shoreline of Loch Arienas west towards Doire na Mairst, before linking back to the north west corner of the Doire Na Mairst Plantation. [Map 1]

B9.8 While the whole Reserve area is managed by a Reserve Committee on behalf of SWT, it is perhaps worth noting that the part of the ground formally owned by SWT includes the bulk of the northern part of the whole Reserve, but is bounded to the east by the edge of Beinn Iadain itself and a line down the Lon Beinn Iadain to the Lochan Beinn Iadain. The southern boundary of SWT-owned section of the Reserve then runs from the south of the Lochan Beinn Iadain, west across the summit of Beinn na h-Uamha and back to the Kinloch march.

Ecology

B9.9 Beinn Iadain is the highest basalt summit in Lochaber. These basalts cover the most complete succession known of the Upper Cretaceous sediments of western Britain and it was the Beinn Iadain series that enabled them to be dated. This was the reason for the original SSSI designation, but the extended designation of this and the neighbouring Beinn na h-Uamha as SSSI/SAC was largely in recognition of the high altitude plant communities of these base-rich soils which do not occur widely elsewhere and which include several species which are nationally rare, or nationally scarce. The Reserve boasts no fewer than 6 UK BAP 'Priority' habitats; 53 'Nationally Important' species; 200 'Regionally Important' species and 12 'Priority' species]

B9.10 The vegetation of the steeper slopes and unstable screes is dominated by species rich grasslands. While these were probably originally more classic *Agrostis-Festuca-Calluna* swards, (with a strong presence of *Calluna*, interspersed with patches of *Agrostis-Festuca* grassland), a long history of grazing has suppressed the heather and reduced its percentage representation, with a corresponding expansion of the grassland; these expanding grasslands have subsequently been colonised with a wide variety of herbaceous species to become species-rich. The area is also considered of conservation significance because of the tall herb communities of the high altitude cliff ledges, again containing a number off species which are nationally or regionally extremely rare.

B9.11 The designation statement reads:

" The open hill summits, open stony flushes, unstable screes and cliff ledges on the Tertiary basalt support a rich calcicolous montane flora including Mountain Avens *Dryas octopetala*, Globeflower *Trollius europaeus*, Holly fern *Polystichum lonchitis*, Northern rock-cress *Cardaminopsis petraea* and Hairy stonecrop *Sedum villosum*. On the slopes below the crags is a herb-rich subalpine bent/fescue (*Agrostis/Festuca*) grassland with abundant Alpine lady's mantle *Alchemilla alpina*.

B9.12 " Lower down, on the more acidic Moine rocks, grasslands dominated by Mat-grass *Nardus stricta* and Heath rush *Juncus squarrosus* give way to Purple Moor-grass/Heather heathland on shallow blanket peats. The fen vegetation of Lochan Beinn Iadain with its sedges, rushes and tall herbs contrasts with the more nutrient-poor Dubh Lochans which contain Awlwort *Subularia aquatica*, Quillwort *Isoetes echinospora* and Water Lobelia *Lobelia dortmanna*.

B9.13 "The outstanding assemblage of montane plants includes the nationally rare Arctic Sandwort *Arenaria norvegica*."

Other notable arctic-alpine species include mossy saxifrage, *Saxifraga hypnoides*, Moss campion *Silene acaulis*, spiked woodrush *Luzula spicata*, and the very rare Lapland orchid *Dactylorhiza lapponica*, the last associated with flushes among the wet heath areas, but in patches which receive base-enriched flushing from the basalt slopes.

B9.14 There is an extensive stretch of native broadleaved woodland along the northern shore of Loch Arienas, with a further area in the bottom of the Black Glen. These woodlands are dominated by Sessile Oak, *Quercus petraea* with *Ilex* and *Blechnum spicant* (this recognised as community rare at a European level). A number of exclosures were been set up to encourage regeneration, with three located within the Arienas woodlands (erected between 1990/91 and 1992/93: Compartments 2a, 2b and 2c) and another at Acharn (erected 1993/94; Compartment 2d), as well as one at higher altitude around a small remnant of native woodland in the gully of the Coire Beinn na h-Uamha, erected in 1996 (Compartment 1a).

B9.15 Regeneration within the protected areas has been reasonably successful at Arienas and back fences of the original 3 enclosures have recently been lowered to stock-height allowing deer access to these blocks; side-fences and those to the lochside have however been maintained and new deer-fencing erected to secure the previously unfenced corridors between the original enclosures. In this way deer are excluded from the areas previously unfenced, but still have access to woodland since they can now gain access to the former enclosures. Lochside fences are however maintained and were erected some distance back from the margin of Loch Arienas itself. Deer coming down through the woodlands thus are prevented from reaching this marginal strip, which can only be accessed along the shoreline itself from the eastern end; this strip thus also enjoys some measure of protection from browsing.

B9.16 The area is in general well-recorded; a more detailed account of its ecology is presented in the Reserve Management Plan, and will thus not be duplicated here. The most recent survey of the vegetation of the Reserve, commissioned by SWT in 2005 recorded a total of 255 vascular plant species and 233 bryophyte species (Averis, 2005)[8], while a total of 119 mosses and 65 species of liverworts were recorded in the Arienas and Black Glen woodlands alone (Averis, 2005). Of particular interest are several uncommon oceanic bryophytes including *Glyphomitrium daviesii, Hedwigia integrifolia, Sematophyllum micans, Sphagnum skyense, Acrobolbus wilsonii, Plagiochila atlantica* and *Radula voluta* (Averis 2005).

B9.17 Parts of the Reserve are grazed by sheep and also some cattle alongside its wild populations of red and roe deer. For a period, from 1997, the entire Reserve was included within a Habitat Enhancement and Grazing Project (jointly funded by SNH and the EU), to demonstrate the effects of different grazing regimes (cattle, sheep and deer and different combinations of these) and different seasonalities of grazing on upland vegetation. At this time parts of the Reserve were stock-fenced so that they were accessible to deer only; other parts were open to grazing by sheep and/or cattle. At the end of the Grazing Project, gates were opened and sheep currently have access once again to the entire open hill ground of the Reserve, although the Arienas woodland blocks remain stock-fenced (in part) or deer-fenced (paragraph B9.15).

Designations:

B9.18 As noted almost the entire area of the (whole) Reserve is designated as an SSSI (the Beinn Iadain and Beinn na h-Uamha SSSI), was first notified in 1962, later re-notified under the 1981 Act in October 1986, while an area around each of the main massifs was separately declared under European legislation as a Special Area of Conservation in 2005. The woodlands along the shore of Loch Arienas and in the Black Glen are also identified as part of the Morvern Woods SAC.

[8] Averis,B. (2005) ***A Survey of the Vegetation of Rahoy Hills Wildlife Reserve***

Deer Populations:

B9.19 Roe deer are restricted to the deciduous woodland along Loch Arienas and in the Black Glen. Numbers have increased over recent years (following the success of enclosures in encouraging regeneration) and roe are now present in a number of the enclosed areas.

B9.20 Red deer occur widely over the open hill parts of the Reserve, but it is difficult to assess actual numbers. Deer can move freely between the Reserve area and the wider Ardtornish Estate along the eastern boundary. In addition, the fencelines along the march with Kinlochteacuis to the west and Glencripesdale to the north (and also the tip of Laudale) have not been maintained, and there is regular movement of animals across these marches also.
Further, counts undertaken by the Morvern Deer Group as a whole score only the animals recorded in the SWT-owned part of the Reserve (Compartment 1) - while those counted in the rest of the Reserve (the John Raven Extension area) are not separately identified, but are simply included in the total count returned for the north part of Ardtornish.

B9.21 Thus figures presented below therefore relate in the main only to that part of the Reserve area actually owned by SWT (south to the midline of Beinn na h-Uamha), and on past data it has not been customary to estimate animals recorded within the John Raven extension (although for this report, data have been extracted retrospectively from count maps where available).
In general, however, management decisions for the Reserve are made for the entire Reserve Area as a whole (SWT-owned ground plus the John Raven Extension) not for the two parts separately. It is agreed therefore that in future, counts should be returned as "xx stags, yy hinds and zz calves recorded in the Rahoy Hills Reserve as a whole, of which kk stags, jj hinds and ff calves were counted on SWT-owned ground and bb stags, cc hinds and dd calves were recorded in the John Raven Extension".

B9.22 Counts within the SWT-owned Compartment 1 are shown below

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Stags	3	No	3	2	No	2	2	3	No	9
Hinds	15	records	11	13	Count	74	68	45	count	45
Calves		?	6	6		27	23	21		21
Total	18	?	20	21		103	93	69		75

B9.23 As noted, data have been extracted retrospectively from Ardtornish count maps in some previous years to note animals counted in the John Raven area as:

2012: 16 stags, 29 hinds and 16 calves
2014: 17 stags, 41hinds and 16 calves
2015: 25 stags, 29 hinds and 10 calves

This suggests that something like 20-25 stags (outside the period of the rut) and perhaps 80-100 hinds and 35-40 calves regularly make use of the overall reserve ground.

B9.24 The Reserve as a whole is indeed seen primarily as hind ground, with some young stags in summer. There is however a significant influx of mature stags in late summer /autumn, and there is a strong rutting ground established along the southern slopes of Beinn Iadain, and (to a lesser extent) on Beinn na h-Uamha.

B9.25 Distribution for the rest of the year is patchy. Exclusion of sheep from one section of the Reserve (Compartment 1b) from 1997 during the Grazing Demonstration Project (paragraph B9.18) perhaps led to an increased use by deer of that part of the ground (to the western side of the SWT section of the Reserve) and perhaps a slight decrease in use of areas to the east of that fenceline, although as noted, gates are now open and sheep have access to the entire hill ground. Hinds resident towards the west of the Reserve move across the march to Kinlochteacuis, and there is also some considerable movement between the Reserve area and the Glencripesdale forestry blocks to the north of Beinn Iadain.

B9.26 South of the stock fence, there are fewer deer, but those which are present tend to be concentrated on the western edge and southern slopes of Beinn na h-Uamha, above the Arienas woods and the Doire na Mairst plantation; relatively fewer exploit the north face of Beinn na h-Uamha. Elsewhere, to the east (around Meall Achadh a' Chuirn and on the flatter ground around the Lochanan Dubha and Lochan Beinn Iadain to the west of Monadh Meadhoin) there is a much more mobile population, more or less continuous with the rest of Ardtornish and the Black Glen.

Objectives and Recent Past Management:

B9.27 Management of the Reserve is clearly primarily directed towards maintenance in favourable condition of its designated habitats and maintenance or expansion of its rarer species of plants. The Reserve Management Plan (1998) lists as specific Long Term Objectives

1. To protect, maintain and where appropriate, enhance the full range of montane habitats, with particular regard to the important species-rich grassland and arctic-alpine communities
2. To integrate commercially sustainable estate management with conservation of the natural heritage
3. To protect, enhance and, where appropriate restore and extend the native woodland
4. To protect, maintain and, where appropriate, enhance populations of notable species
5. To carry out and encourage research and survey work within the Reserve, particularly where it will help realise objectives 1-4
6. To welcome visitors to the site, but only in so far as access does not compromise the nature conservation interest

B9.28 The agreement between SWT and Ardtornish Estate (1988) also specifies that any Management planned for the John Raven Extension will take into account the existing and future management practices of the Estate and thus that the Estate may continue to operate (or has the right to operate) commercial enterprises in the form of farming forestry and sporting enterprises within the John Raven Extension, if these are in acceptable in relation to the SSSI and SAC designations**.**

B9.29 In practice therefore the Reserve is grazed by sheep and some cattle alongside its populations of deer. The Reserve Management Committee does not control the stocking of sheep on the Ardtornish estate-owned land, nor does it control densities or numbers of deer on the Ardtornish part of the Reserve.

B9.30 To date no cull of deer has been taken on the SWT section of the Reserve since its acquisition by SPNC in 1975. As already noted above (B9.3) there has indeed been in the past, a presumption against any such cull in order to honour the original wishes of Christopher Cadbury. Although Ardtornish Estate retains the shooting rights over the John Raven Extension no cull has been carried out in this area either, since the late 1980s.

Assessments and Factors likely to influence future Management:

B9.31 While there is extensive monitoring carried out within the Reserve area for e.g. birds and butterflies, there has been no formal monitoring in the past of vegetational impacts beyond those carried out by SNH of designated features within the SSSI/SAC area.

B9.32 Site Condition Monitoring within the SAC was most recently carried out in 2013 on behalf of SNH by Haycock and Jay Associates Ltd (2014). Site Condition Monitoring (SCM) is a six-year programme of assessment of the state of all notified features of interest on designated sites. Reporting is based on feature types and is performed to the common standards used across the four UK country conservation agencies. In 2013 Site Condition Monitoring was carried out for 3 designated features of the Beinn Iadain and Beinn na h'Uamha SAC/SSSI and site checks were carried out for an additional 3 features.

B9.33 The three designated features assessed were Plants in crevices on base-rich rocks; High-altitude plant communities associated with areas of water seepage (Alpine Flush); and Tall herb communities. As noted above, in addition to delivering the SCM data, wider contextual information was presented for three non-target habitats:Base-rich scree;Upland Assemblage;Upland Oak Wood.

B9.34 As above (paragraphs A5.5 – A5.7) Plants in crevices in base-rich rocks, Tall herb communities and High altitude plant communities associated with water seepage were found to be in favourable condition. Plants in crevices and tall herb communities are quite inaccessible to grazers, and the water seepage habitats constitute small flushes. The SCM report notes however that there were frequently signs of grazing; much of the surrounding vegetation is grazed and many slopes are heavily eroded with extensive signs of trampling and hoof prints.

B9.35 Species rich grasslands were found to be in unfavourable condition due to a combination of undergrazing in some areas, particularly on south facing slopes where sheep are absent, and overgrazing in other areas. SNH is carrying out further investigation into whether erosion impacts are leading to loss in extent of species rich grassland.
Overall, there are indications of significant disturbance to the feature in some parts of the site but the overall extent of this is unclear. SNH have therefore decided to carry out further investigation into the condition of this feature, and wider erosion impacts. SWT will expect to respond to the results of this further survey in terms of controlling grazing pressure in the future, if appropriate.

B9.36 In the previous SCM cycle in 2008 the **upland oak woodland** feature of the SSSI was assessed as Unfavourable no change due to a lack of regeneration of trees and a lack of dead wood (both standing and fallen). Areas of the woodlands have been enclosed by deer fencing since 1992 to reduce grazing pressure and allow regeneration of primary tree species (oak). Within the enclosure visited some regeneration was recorded, however it was also noted that there was increase in some elements of the ground flora such as bramble and bracken. Woodland outside the fenced area was noted to be grazed with little or no regeneration, however, this woodland was considered to have a ground flora more typical of upland oak dominated by *Quercus petraea-Betula pubescens-Oxalis acetosella* and *Quercus petraea-Betula pubescens- Dicranum majus* woodland communities.

B9.37 Condition of the woodland areas has been re-assessed as part of the NWSoS [Map 7] and also more recently as part of a wider re-assessment of condition of all woodland areas within the Morvern Woods SAC. Full results of this survey are not to hand, but it is understood that the Arienas blocks are considered to remain in Unfavourable condition. It is noted however that in earlier survey (paragraph B9.36) regeneration was recorded within enclosed areas although it was also noted that there was increase in some elements of the ground flora such as bramble and bracken. It was primarily in areas outside enclosures where little or no regeneration was recorded.

Thus, while the Arienas blocks failed overall, this is primarily a result of lack of regeneration in unfenced areas.

B9.38 As part of ongoing management (and of the original management policy), the first three enclosures have recently been opened up, with the top and bottom fences rolled over now to enclose the gaps left between the original three enclosures. In consequence, measures recently undertaken within existing policy for these woodlands should already have ensured future recovery of areas which have failed the SCM since those sections that will have failed outwith the original enclosures are now themselves enclosed, while increased grazing pressure within the original enclosures will address problems of encroachment by bramble and bracken.

B10 Carnoch

***Description*:**

B10.1 Carnoch Estate lies to the north of the Morvern Management Area, and in practice comprises land both to the north and the south of Glen Tarbert. The Estate thus falls within two Deer Management Areas: Morvern and East Loch Shiel; only that section which lies to the south of the A861 falls within the Morvern DMG. In description of deer populations and movement patterns of stags it will be necessary on occasions to 'cross the road', but for most practical purposes the two parts of the Estate are relatively self-contained. Fences along the roadside separating the northwestern and southern parts of the Estate were very 'leaky' in the past, but have recently been repaired, or replaced, such that the two areas are now largely independent.

B10.2 That part of the Estate which falls within the Morvern Management Area lies south of the A861 between its junction with the A884 and a cattle grid in the A861 at approximate grid reference NM 896604. To the east, the Estate marches with Inversanda, and on the high ground with Kilmalieu, but the bulk of the boundary with Inversanda is fenced along the lower ground as the boundary of an extensive woodland scheme. To the west, Carnoch lies adjacent to Laudale, with a shared boundary up the Allt na Creiche at Lochhead to the eastern summit of Glas Bheinn. Finally, with Kingairloch now to the south, the march strikes east from Glas Bheinn along the top of the ridge to Creach Bheinn and Maol Odhar to the head of Coire Sgreamhach. Skirting Coire Meal Challuim, it then follows the high ground to Meall a' Choirean Luachraich before following the burn down to the road (and the cattle grid) to the east of Lochan Clothrum.

B10.3 Almost all the ground is north-facing, sloping down from the march with Kingairloch towards Glen Tarbert, but there are also two extensive high corries on either side of Meall Bhainaiche as the "Black Corrie" (Coire Dubh) and the "Green Corrie" (Coire nam Frithallt). The total land area within the Morvern Deer Management Area amount to some 1830 ha.

B10.4 Within Glen Tarbert, an area of 907 ha in total has been set aside for establishment of (mixed) woodland. This covers most of the lower ground within Glen Tarbert and extends up to the 400m contour. It includes some existing fragments of native woodland [eg. the Black Wood at NM860600; and at the march with Laudale around the lower slopes of A' Chreag and up the march burn, NM 835602], but has otherwise largely been planted. Overall some 42% of the area has been put to native broadleaves and 27% planted with Scots Pine, with 31% open ground. The area was securely fenced on the south, east and west sides; the northern side of this woodland block remained unfenced, but was largely protected from incursion by deer from the north by refurbishment of fences on the north side of the A861. However these fences are becoming increasingly porous, although some will be renewed shortly when a number of commercial woodland blocks to the north of the road are felled and restocked.

B10.5 A fire set within Glen Tarbert in April 2014 damaged some 127 acres [c50 ha] of this establishing woodland before it was controlled. An area between Eastings NM880 and 890 was largely lost and has not recovered, but the area further to the east (towards the cattle grid and the Carnoch march) has shown reasonable recovery. Fire has also affected native woodland coupes to the north of the road

B10.6 This woodland scheme was actually initiated by Caledonian Forestry who retained the ground on a leaseback arrangements when they subsequently sold on the Estate. When Carnoch was purchased by its current owner, agreement was reached to continue the lease to Caledonian Forestry, with the land, and the trees reverting to the Estate at the completion of the Grant period in 2006/07. After this period however, the Estate continued to maintain the fences as far as possible, to consolidate woodland growth achieved for as long as is practicable. Deer have therefore been shot in this area largely in the interests of woodland protection and cull numbers have been largely dictated by that requirement.

B10.7 In addition, the Estate retains the hill stalking on the open ground above the WGS fence - extending to some 700 ha. Approximately 30 ha of improved ground around Carnoch House and steadings is ring-fenced and let under agricultural tenancy to John Ferguson.

B10.8 A section of the WGS scheme area has recently been designated an SSSI for its geological rather than any biological significance (B10.13).

B10.9 A major run-of-the-river Hydro scheme has recently been put in on the Allt Duibhleac Riabhach and with intake also from Allt an Faing and further, independent, micro-hydro schemes have approval for the Allt a'Choire Duibh and the Allt Coire nam Frithallt.

Vegetation:

B10.10 As noted above, the woodland scheme area embraces a significant remnant of native broadleaved woodland (the Black Wood) at NM860600: birch, with some sparse inclusion of oak, ash and willow; and some smaller areas around the lower slopes of A' Chreag and up the march with Laudale. Otherwise, among the planting, the basic vegetation is a classic mosaic of wet heath and bogs (*Scirpus*/*Molinia*/*Calluna*/ *Eriophorum* mire, with dominance depending on slope and drainage) and with stronger heather cover apparent on better drained emergent knolls.

B10.11 The hill behind continues a similar gradation of communities, of *Scirpus/Molinia*-dominated wet heath grading to blanket bog on flatter ground or areas of deeper peat, or to *Agrostis-Festuca* grasslands on steeper slopes or more exposed bluffs and outcrops. Even in this last case however, even these *Agrostis-Festuca* grasslands contain a significant cover of *Scirpus* and hard sedge and are not true "high altitude grasslands" within its literal definition. The best greens are towards the western march on the edge of Glas Bheinn.

B10.12 Ground further to the east becomes somewhat drier and the percentage cover of heather increases. It is notable that *Calluna* more generally is quite abundant in the overall mix at lower altitudes but becomes less and less apparent with increasing altitude until it is eventually lost altogether and the vegetation grades into a wet *Scirpus/Nardus* mire, or (on steeper slopes and exposures) a grassy moss-heath. Summit vegetation is largely Scirpus/Nardus heath of this nature with increasing inclusion of mosses. There is some Lycopodium present but it is sparse: these are wet summits, not gravelly plateaux.

Designations:
B10.13 A section of the WGS area (paragraph B10.4) has been designated an SSSI for its geological rather than any biological significance. Designation (in 2001) is in relation to the exposure of a clear section through the Strontian Complex: an igneous intrusion of granites injected into the earth's crust at a time when North West Scotland was part of an ancient continent into which another continent was colliding. The forces associated with this collision forced deep magmas to the surface through the Great Glen Fault, to form the Strontian Complex.

Deer Populations:
B10.14 The two parts of Carnoch Estate to the north and south of the A861 [respectively Druim Liath and Carnoch] have been, in the past, largely independent of each other because of a continuous fenceline along the north side of the Glen. While the back fence of the commercial woodland block to the north of the road was porous and allowed deer into this block for shelter, the roadside fences, while old, have been reinstated and were relatively secure. This is no longer the case and the roadside fence of the woodland block belonging to the Boyds is now beyond repair. It is noted that this has resulted over recent years in a number of deer-vehicle collisions.

B10.15 However, the Druim Liath block is scheduled for felling and restocking within the next year and it is believed that the Boyd's block is also due for felling and restocking. With new fencing erected to protect the restock, remaining lengths of fence along the roadside can more easily be secured, resulting once again in some separation of deer populations to the North and South of the A861. As before therefore, we may consider these populations as separate (if linked) population units.

B10.16 To the south of the A861 (that area within the Morvern DMG) Carnoch was historically considered largely stag ground. With the lower part of the ground enclosed within the extensive woodland scheme, what animals were present were restricted to the hill ground above the woodland fence, with the result that what hinds were present were hefted close to (or astride) the march and were thus not fully resident, but part of a single shared population moving freely between the greens at the west end of the summit ridge, across into Laudale (to the northwestern faces of Glas Bheinn and across the flats behind Achleek Plantation) or down into the upper corries of Ghardail and Glen Galmadale on Kingairloch (Coire Odhar Glas-bheinne; Coire Chuil Mhaim).

B10.17 Stags are present all year over the bulk of the hill ground. In poor weather in winter they draw to lower ground. Formerly prevented by the WGS fence from drawing down into Glen Tarbert within Carnoch itself, they tended to drift east onto Inversanda, below Meall a'Bhraghaid. While some may settle here, others cross the road on the east side of the cattle grid and then move back across the lower slopes of Meall a Chuilinn (behind the WGS area north of the road), and into the back of the established plantation of sitka spruce and larch beyond. This area thus provides useful winter cover not only for animals from the north part of the Estate, but also for a proportion of animals drawn from the hill ground to the south.

B10.18 This woodland block reverted to the Estate in 2007 and while fences were maintained for a period in order to consolidate growth of established trees, the fences are now reaching the end of their effective life. The recent hill fire (April 2014) at the eastern end of the ground (against Inversanda) has damaged a section of fence here, while a further section has been flattened by a recent boulder fall. All former gates are now in disrepair and a section of fence in the centre (over the rocky ground on the face of Meall a' Bhainaiche) has also been lost. Deer now have effective access to the entire block and it is considered not worthwhile attempting to secure the fences. A small group of hinds is already resident in the area above the house at Torr nan Ceann.

B10.19 Formal counts of red deer from 1999 were summarised in the previous Morvern DMG Plan (2007); figures from 2005 are presented here. Figures should be interpreted with some caution, in view of the extensive march with Laudale and Kingairloch and the fact that hind populations in this area are clearly shared between all three Estates and may be counted on one or another on different occasions, depending on conditions at the time of the count. With those reservations:

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Stags	8	No	22	No	No	6	36	24	No	0
Hinds	uncl.	records	46	count	count	56	52	23	count	47
Calves	22	?	18			24	19	9		23
Total	30	?	86			86	107	58		70

B10.20 We may note that while stag numbers are highly variable, hind numbers are relatively stable at around 50. Relatively few of these are well hefted however; this is well exemplified by the count of 7th February 2014 where 47 hinds and 23 calves were counted on the hill ground at 11.30. By 12.00 midday 38 hinds and 18 calves had subsequently moved over the march into Glen Galmadale and Coire Ghardail on Kingairloch. Numbers of resident animals are increasing however and this is likely to continue as animals begin to access the lower ground within the former woodland enclosure and shift the centre of gravity further from the march.

B10.21 Both within this woodland area and on the open hill, the Estate is also recording increasing numbers of roe deer.

Objectives and recent past Management:

B10.22 Until recently management of deer on Carnoch was a composite of traditional hill stalking on the open ground coupled with control culls within the fenced WGS area towards protection of establishing trees (particularly because until 2007, that area was leased to a third party). It is only in recent months that the decision has been taken not to maintain/restore fences, so that future management can be directed more towards integration of the established woodland area into the wider sporting management of the property as a whole. Past culls have therefore, to an extent, been largely determined by the imperative of woodland protection and a need to cull any stags or hinds found within the woodland fence.

B10.23 Cull figures from 1994/5 are presented in the 2007 Morvern Plan. These are updated below Throughout figures for stags are presented as "Open Hill + WGS" because the origin of stags shot in the WGS are necessarily unknown and may well have come from outwith the Morvern DMG area. It is assumed that hinds and calves shot within the WGS are likely to have come originally from the Morvern Open Hill.

	2005/6	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14
Stags	7+5	9+6	15+1	10+3	11+1	10+4	8+0	11+3	8+5
Hinds	9	22	12+2	15	11	7	4	5	9
Calves	0	9	10	8	8	4	2	4	6
Total			40						
Roebuck	1			1		3	1	1	1
Roe does			1			2	1	1	

B10.24 An average of 6 or 7 stags per year were taken on the open hill ground from 1999, with perhaps an equal number culled within the WGS. The sporting 'take' has clearly increased further in more recent years. It is hard to determine an 'appropriate' hind cull given the nature of the shared population, and culls have clearly been highly variable over the years but with an average of around 7 hinds culled per year since 2009/10.

B10.25 Salt licks are provided, for stags in particular, along the hill track above the hill fence. These are presented on rings cut from tree trunks. From 2014 Steve Fox has initiated a regime of habitat condition monitoring with 10 open hill plots established in 2014 towards the western side of the property and 10 sample plots established within the woodland area. These will be re-surveyed during 2015 and additional plots (both woodland and open hill) will be established more towards the eastern side of the ground.

Assessments and Issues to be addressed in Future Management:

B10.26 That area of Carnoch within the MDMG was surveyed by R.J.Putman at the end of December 2005. It was noted that - as might be hoped! - grazing pressures within the WGS were light or non-existent. Behind the woodland fence out onto the open hill, grazing pressure showed a clear 'zonation' : remaining light immediately behind the exclosure fence (where heather growth and growth form was not dissimilar from that within the exclosure itself), but gradually increasing with altitude. It was clear that animals were concentrating on the higher ground (and on the high altitude grasslands such as they are) and that grazing pressures thus increased towards the tops, and against the marches with Kingairloch and Laudale.

B10.27 At that time, as noted, management was somewhat divided in objective, with traditional sporting carried out on the hill ground but with a policy of shooting any animals observed within the woodland enclosure in the interests of woodland protection. Fences are however no longer secure (paragraph B10.18) . While some trees at higher altitude (which have not progressed so well) and any very recent regeneration may remain vulnerable to browsing, it is assessed that the majority of trees, especially on the lower slopes are now well-established and no longer vulnerable to deer browsing. Especially given the high critical mass now established, it is considered that any losses will be relatively small and the decision has thus been made to leave the area open to deer and manage the entire property once more as a single sporting resource.

B10.28 While formerly excluded from deer range, inclusion of this extensive area will markedly change the whole character of the Estate and its deer stalking, not only increasing the effective area *per se*, but increasing shelter and availability of high quality forage in areas 'rested' for such a period. It is anticipated that with access to low ground now available on Carnoch itself, increasing numbers of animals seeking low ground in winter will come down into Glen Tarbert, reducing the number moving across the marches to access lower ground on Laudale or Kingairloch. Increasing establishment of groups of hinds actually resident on the lower slopes -resident within the current WGS area and with access to the alluvial grazing of the Carnoch River flats- will also contribute to greater residency of deer within Carnoch and hopefully reduce the overall mobility of populations and population number.

B10.29 Given its 'coarse' structure and the development of heather under protection of the fences, the area is also likely to be extremely attractive to stags. Summer stags are already present on the hill ground, but other are likely to colonise the WGS area; in addition, while stags from the open hill have not until recently been able to draw directly to low ground in poor weather, within the Estate on this side of the road, they will once more be able to draw directly down onto the low ground and the River flats over the winter. Some thought may need to be given to a potential for an increase in risk of deer vehicle collisions in this area.

B10.30 Access to this lower part of Glen Tarbert is currently through a number of breaches in the fences and where existing gates have fallen into disrepair. Inevitably this has resulted in access being restricted to a series of "pinch points", with some obvious tracking developing and localised poaching of ground around these access points. Given that the decision has been made to allow continued access to the lower ground it would seem appropriate that fences be removed for some distance on either side of gateways or other holes in the fence.

B10.31 Given that same decision to continue to allow access by deer to the former woodland enclosure, there no longer remains a need to cull animals within this area for a primary objective of woodland protection. This need for protection culls has in the past increased overall cull levels and for the future it is considered that culls should be limited to what is sustainable in the longer term as a primarily sporting cull.

B10.32 By the same token, it is suggested that hind culls revert to around the level established from 2010 and do not (for now) revert to former higher levels required by tree-protection culls. Not only is there is no need to shoot so many from the point of view of crop protection; in fact, by converse, it is the Estate's wish to see hind numbers within this area increase over the years, to move core usage patterns and establish resident populations more towards the core of the Estate. Such a move would help offset the current issues associated with the extreme high mobility of animals only at present hefted near the march (paragraph B10.16) - building towards a greater sustainability and greater predictability of future sporting interests.

B11. Killundine Estate

B11.1 Killundine Estate (8000 acres: c3240 ha) lies to the west of the management area on the Drimnin peninsula. It is largely isolated from the main management block, lying to the west and south of the two main FCS blocks of Barr and Fiunary [Map 1]; it marches to the west with Drimnin Estate, and Mungasdail and the smaller forestry property of Carnacailliche.

B11.2 The long boundary with the Forestry Commission ground runs south east along the plantation edge from Coire Buidhe, running effectively parallel to Loch Teacuis and Loch Doire nam Mart, to the trig point at the tip of the ridge of Aoineadh Mor (NM 647510) before turning again south west against the separate forest block of Fiunary down towards the headwaters of the Salachan River, back west along the Glenn nam Iomairean and down towards the hamlet of Fiunary itself.

B11.3 To the west, the boundary with Carnacailliche and the main forest block of Mungasdail, follows the Killundine River north east to the corner of the Mungasdail block and then strikes back northwest along the other side of that same forest block; the short northern boundary with the hill ground of Drimnin runs from the south of the Lochan Chrois Bheinnacross the open hill to a point approximately at grid reference NM600556. This is technically marked by a stock fence, but a deer fence is erected on the Drimnin side of the march separating the hill ground of the two properties.

B11.4 Fences along the march with the FCS ground of Barr and Fiunary have recently been replaced along their whole length and a porous fence against the Mungasdail block has now been reinstated; fences against the privately owned forestry block of Carnacailliche may however be somewhat porous. However, a new hill fence has also recently been finished within Killundine itself running across the open hill ground from the bottom corner of the plantation block at Cnoc nam Faobh to link with the western fence of the plantation block in the east [approximately NM619497].

This new fence effectively separates the low ground of Killundine from the open hill and likewise means that that hill ground (of approximately 1750 ha) is completely isolated and completely enclosed by fences.

B11.5 Deer are not however restricted to this upper sector and the new hill fence divides the deer population, with a smaller but still significant population of deer based within the lower ground within the plantation at Druim Vaine; these can move across the farm land to Carnacailliche or through the coastal woodlands down towards the shore, although measures are in place to try to draw the bulk of these animals back onto the upper hill ground (paragraph 2.3, 4.1).

B11.6 Killundine is a mixed Estate, with Scottish blackface sheep and a small fold of Highland cattle [20 cows plus followers] managed under contract, and with forestry interests and holiday cottages as well as deer stalking. While sheep are maintained in parks on the lower ground over winter, a proportion are turned to the hill after lambing and through the summer.

Vegetation
B11.7 Much of the lowest ground, below the farm itself, is devoted to improved pasture, although there is a significant belt of native woodland along the coastal strip: forming part of the Drimnin-Killundine Woods SSSI.

B11.8 As noted there are three plantations of conifers established at Druim Vaine, Cnoc nam Faobh and to the south of the Coire Bhorradail (continuous with the FCS plantations of Fiunary). All these blocks are mature woodland and have suffered significantly from windblow; all are open to deer. More recently three new woodland scheme have been established below the new hill fence: one to the west in Coire Buidhe and one to the east around the Bealach a Glinne. These are separated by open ground which is maintained as a hill park for sheep. The 3rd plantation is to the south east of the farm stretching over to the FC plantation towards Fiunary.

B11.9 For the rest the hill ground largely presents a mosaic of dry heath, wet heath and bog with areas of tussock grassland in a predictable pattern with good heather established on the more freely-draining slopes of Beinn Buidhe or Sithan na Raplaich, but with replaced by wetter heath or coarse tussock grassland, as slopes diminish. On the more gentle slopes this wet heath vegetation is dominated by deer-grass (*Scirpus caespitosum*) with some straggly clumps of heather interspersed. On areas of deeper peat, as for example on the more extensive flats to the west of Sithean na Raplaich, purple moor-grass (*Molinia caerulea*) often becomes co-dominant with the *Scirpus*, or even dominant; inclusion of heather remains sparse and there are some extensive patches of true blanket bog.

Designated sites
B11.10 As already noted, the oak-hazel woodlands of the coastal strip are designated as part of the Drimnin-Killundine Woods SSSI forming a part of the Morvern Woods SAC .

Deer Populations:
B11.11 The main hill ground above the new deer fence supports two distinct subpopulations of deer, respectively hefted around Beinn Buidhe and Sithean na Raplaich; this latter group moves freely between Sithean and the open forestry block to the south. In the past each group had associated withi ti perhaps 60 stags and an equivalent number of hinds, but before fences were replaced against the FCS ground of Fiunary and reinstated against the Mungadail block to the west a number of deer got into these forest blocks to shelter overwinter and were lost to FC culls, notably in 2010. As a result, most of the stag from the Beinn Buidhe heft have been lost and numbers on Sithean also reduced.

B11.12 As noted, stags and hinds from Sithean move regularly to and from the forest block to the south for shelter. Stags from Beinn Buidhe also move into the open forest blocks over winter, but the Beinn Buidhe hinds seems to be hefted there year-round, and do not move to lower ground over the winter making use instead of topographical shelter in gullies etc when required (as for example within the Big Burn: Allt na Lice Biethe). Neither stags nor hinds move off the property on a seasonal basis or during the rut, since as noted, the ground is entirely enclosed within fences.

B11.13 There is a separate group of perhaps 40-50 animals (stags and hinds) associated with the plantation block of Druim Vaine and using this lower ground below the new hill fence. Although there are deer-leaps incorporated in the fence, these now do not have full potential to exploit the wider hill ground although they have access to the farmland and the ground east of Tom Mor, as well as the coastal strip. There may also be some exchange here with animals with Carnacailliche.

B11.14 Ground counts undertaken at the end of winter whenever possible, and more recently, these have been undertaken annually. Figures are reported in the table below. It is noted however that at this time many animals are still hidden within the forest blocks and thus counts offer minimum estimates of actual numbers present and it is common to see as many as 80 stags on the hill during the rut. Since the ground is effectively fenced, and there is no obvious incursion at the time of the rut, it is clear that these animals must thus have been present all along and spring counts thus present a clear underestimate.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Stags			104		93			59	32	63
Hinds			120		138			148	140	156
Calves			57		59			53	64	69
Total			281		290			260	236	288

Roe deer are also present on the Estate although these are not counted; most of the roe population is associated with the broadleaved woodlands of the coastal strip.

Objectives and Recent Past Management:

B11.15 While the Estate also has interests in livestock and in commercial forestry, the main focus of the management of the deer themselves is as a sporting resource and in terms of maintaining animal condition and welfare. Management is leased to John Macdonald of West Highland Venison.

Cull figures across the whole estate are summarised below:

	2007/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Stags	19	20	20	15	16	14	11	12
Hinds	19	15	18	16	16	22	28	22
Calves	5	2	7	3	5	5	10	10
Total	43	37	45	34	37	41	49	44

Note that after the loss of stags and hinds reported above in 2010, harvests of stags have been substantially reduced to allow recovery of stocks. Culls of hinds were also reduced below maintenance with the aim of restoring resident populations to around 150. This has now been achieved and thus culls will return to maintenance levels.

B11.16 The ultimate aim is to restore populations to around 150 stags and 150 hinds (plus calves) to sustain an annual harvest of 20-25 stags. While it is acknowledged that an offtake of 25 stags is somewhat high for a resident population of 150, culls are in fact taken all through the ages, and

unknown (additional) numbers of animals within the forest blocks above and below the hill fence but not registered in end of winter counts of the open hill offer some insurance.

B11.17 Roe deer are not currently actively managed and there is no management of vegetation (through topping or muirburn). No winter feeding is provided, although animals on the ground below the hill fence will have access to any feed provided for livestock.

Issues to be addressed in Future Management:

B11.18 From the Estate's own deer management objectives in support of an annual harvest of 20-25 stags, there is a need to rebuild population numbers on hill ground to offset losses of stags into neighbouring forestry ground in 2010. Numbers of hinds have reached target levels of 150 but stag numbers are still well below target. In addition there is some concern that once continuous populations of the hill ground and lower ground are now split by the new hill fence, although there are deer leaps incorporated into the fence to encourage animals back out to the hill and the relevant gates are left open during the rut to encourage stags onto the hill ground, such that in time it is hoped that the bulk of the population will be returned to the hill proper.

B11.19 The Estate is aware that heavy impacts were noted in the coastal woodlands during the recent Native Woodlands of Scotland Survey, and that more recently direct Site Condition Monitoring of all woodlands within the Morvern SAC also register these as in unfavourable condition due to herbivore impacts. However, it is to be anticipated that impacts reported within the coastal woodlands in those surveys will be much reduced, following the recent erection of the new hill fence and the fact that the bulk of the Killundine red deer population is now enclosed on the upper hill ground and prevented from coming down to the coastal area, and that numbers resident below the hill fence are also much reduced.

B11.20 It is accepted however that there is a need to keep on top of this and intensify monitoring of impacts within the SSSI woodlands. To the extent that roe deer may also be contributing to these impacts, the Estate acknowledges that there will be a need to initiate more active management of roe.

B12. Forestry Commission Scotland

Description:

B12.1 Forestry Commission Scotland owns 5717 ha of ground within the Morvern Deer Management Group Area extending in a broad swathe from Salachan in the west, along (and again largely above) the Drimnin road to Lochaline, and occupying all the ground to the west of Loch Aline, the A884 , Loch Arienas and Loch Teacuis. It is divided into a number of sub-areas as: Fiunary itself, Savary, Lochaline South, Aoineadh Mor (Lochaline North) and Barr. The former separate forest block at Mungasdail has been sold to Drimnin Estate.

B12.2 From Savary east, the land below the forest boundary forms part of Ardtornish Estate land, but consists for the most part of low ground parks and has no direct continuity with their own hill. In a similar way, land to the south east between the forest fence and Loch Aline, is used primarily by Ardtornish for agricultural land. The northwestern boundary is the (unclassified) road from Claggan to Kinlochteacuis, and is bounded for the most part by the waters of Loch Arienas, Loch Doire nam Mart and Loch Teacuis itself.

B12.3 The long, western boundary runs for the first part (in the north) south west against the Druimbuidhe section of Drimnin Estate. It then strikes south east, from Coire Buidhe, running effectively parallel to Loch Teacuis and Loch Doire nam Mart to the trig point at the tip of the ridge of Aoineadh Mor (NM 647510) before turning again south west down towards the headwaters of the Salachan River, back west along the Glenn nam Iomairean and down towards Fiunary. All the ground to the west in this section belongs to Killundine Estate. [Map 1]

B12.4 The bulk of the area is planted with a commercial tree crop. The main crop species is Sitka spruce *Picea sitchensis* with a range of other conifers also present. There are some areas of broadleaved woodland present and there is a policy of increasing the proportion of broadleaf trees in current and future restocking programmes. The majority of the land was afforested in the 1940's. Re-structuring of the forest has been on-going since the late 1980's.

B12.5 Not all the ground has been planted. There are significant areas of open ground within the FC Estate - particularly on the higher ground above Aoineadh Mor and Aoineadh Beag, and above Gleann Sleibhte coire.

B12.6 FCS policy is to secure perimeter fencing [with internal (enclosure) fencing employed only around restock areas considered likely to be especially vulnerable or where ongoing monitoring suggests that browsing impacts are above a tolerable threshold and culling pressures cannot be increased]. The Forest block is thus largely isolated from the surrounding Open Hill ground of the MDMG area. The fenceline from Coire Buidhe along the top of Aoineadh Mor and Aoineadh Beag has recently been renewed, stopping movement in this part of the ground.

Fences against Drimnin's WGS scheme at Druimbuidhe have partially been replaced/superceded by new fencing in association with that enclosure, but part retains the original fencing. Although this is old, there appear to be relatively few holes, and there is little sign of extensive movement to and fro in this area.

B12.7 Fences along the eastern 'face' (along Loch Teacuis-side), are also in reasonable repair. To the north, there is considered to be relatively little movement in and out, because the ground lies against Rahoy and Kinlochteacuis Estates, both of which are effectively fenced.
From Loch Doire nam Mart and Loch Arienas, south to the main road the fences are in reasonable repair, but there has been in the past a significant problem with gates being left open, and unquestionably some movement of deer in and out.

B12.8 Fences above the A884 have been renewed as far as the new cattle grid, where the fence continues on the east side of the road down to Loch Aline. Fences above the B849 have also been replaced, although not all sections are necessarily deer-fenced.

Deer Populations and Current Management

B12.9 There are resident populations of red deer (and some roe as well as sika) resident within the Fiunary Forest block and as already noted, there may be some exchange of animals with neighbouring ground where fences are more porous; fences however have largely been replaced within the last few years.

B12.10 It is clearly extremely difficult to undertake accurate visual census of deer within closed forestry areas and for the most part culling effort is informed by recorded impacts and need for protection of crops in vulnerable areas. Estimates of numbers (or more accurately, **usage**) of the Fiunary/Lochaline blocks have however been undertaken through analysis of dung counts by Strath

Caulaidh Ltd. Perth, on behalf of FCS. An initial survey undertaken in 2005 was repeated in 2010 to assess trend in populations.

B12.11 The monitoring results suggest that a reduction in the level of red deer utilisation has occurred over the period but that roe/sika deer utilisation (which was already very low), has changed little. Overall, the average level of utilisation (all species) declined by approximately 35% over the period. Pellet group counts suggested deer densities within the forest as of the order 6.3 red deer per 100 ha and 0.3 roe/sika per 100 ha in March 2010. Assuming that no deer movement occurs across the boundaries of the survey area, Strath Caulaidh projected an estimated summer density (following recruitment) of 8 deer per 100 ha [with confidence intervals suggesting a possible minimum of c. 4 per 100 ha and likely maximum of c. 13 per 100ha]

B12.12 Forestry Commission policy for the area is to integrate commercial timber production with wider recreational and conservation objectives. Timber crops are protected where possible by culling and fencing. As noted, the policy is to secure perimeter fences and then manage deer populations within the enclosed area by culling; additional internal (enclosure) fencing is employed only around restock areas considered likely to be especially vulnerable (because of crop type and location) or where ongoing monitoring suggests that browsing impacts are above a tolerable threshold and culling pressures cannot be increased.

B12.13 Browsing impacts are assessed across restock sites one year after planting, with a threshold set that fewer than 10% of leader shoots should show signs of browsing across 75% of the site. There is often wide variation in deer impacts from year to year (and within years across all of the sites) in impact levels and thus impact levels are assessed as a rolling 3 year average to 'smooth' out that variation. Based on these rolling averages restock impact data from 2009 to the present day have been summarised by Colin Lavin as:
3 years to 2011 - 22.1% of leading shoots browsed.
3 years to 2012 - 14.5% of leading shoots browsed
3 years to 2013 - 14.2% of leading shoots browsed
3 years to 2014 - 10.1% of leading shoots browsed.

B12.14 It is clear that browsing impacts on restocks have been above the tolerable threshold until comparatively recently, which has prompted a pattern of gradually increasing culls since 2005. Strath Caulaidh's suggestion of decreasing densities of red deer from 2005 to 2010 (paragraph B12.11) are broadly in line with this pattern of increasing cull pressure.

B12.15 As noted, cull figures have risen since 2005 but with a larger increase in 2009-10 following repairs to damaged fencing in 2009. Given the breach in fencing, it is almost inevitable that some proportion of this heavy cull will have fallen on immigrants from the adjacent open hill populations. Actual cull figures are tabulated below:

	2005/6	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14
Stags		59	84	61	221	94	62	57	86
Hinds		55	70	56	82	56	45	47	48
Calves		24	31	25	41	18	10	13	19
Total									
Roebuck		15	7	5	20	15	9	6	13
Roe does		7	15	16	19	8	17	8	20
Kids		5	8	12	13	2	4	0	4

Assessments and Issues for consideration in Future Management:
B12.16 Current restocking of largely sitka and larch is relatively successful, since a) the site is productive and trees grow comparatively quickly; b) these species are in any case not particularly palatable to deer. However, a changing emphasis in restocking towards restocking with broadleaved species, imposes on FCS a requirement for a lower density deer population and thus an increased culling effort.

B12.17 Increased cull levels within the Fiunary block since 2005 have clearly been effective in reducing population densities and impact levels within restocks. Such increased culling should have few implications for neighbouring open hill populations as long as perimeter fences are secure and the populations within Fiunary is effectively closed and subject to no immigration or emigration. The greatly increased cull levels of 2009/10– especially of stags- following a breach in the fence in 2009 emphasises however the potential vulnerability. While most of the perimeter fence has been secured, there are sections along the B849 Drimnin road) which are of stock-fencing not deer fencing. It is also noted that gates are often not secured along the unclassified road to Kinlochteacuis.

B13 Other affiliated areas

Drimnin Estate [including the former Forestry Commission forest of Mungasdail]
B13.1 As noted in Introduction (paragraph A4.2) Drimnin Estate (2855 ha) owned and managed by Mr and Mrs Derek Lewis is also affiliated to the Morvern Deer Management Group. Representatives of the estate attend MDMG meetings and exchange information with other members on counts and culls.This property however lies to the west of the Morvern Group area; although it marches to the east with the Forestry Commission holding at Fiunary and with Killundine Estate, it is otherwise geographically separated from the other estates of the MDMG. It is in addition securely fenced along its landward side.

B13.2 Deer populations here are thus a discrete unit and management within the property does not affect other interests within the Group, nor does management elsewhere within the MDMG Management Area impinge upon deer populations or their management on Drimnin.
Drimnin Estate's independent Deer Management Plan has been discussed with members of the main MDMG and is appended to this document for information.

Carna
B13.3 The Isle of Carna is a privately owned 600 acre island [240 ha] which lies across the mouth of Loch Teacuis, between Drimnin to the west and Kinlochteacuis to the east. While not a full member of the MDMG, Carna is also represented at MDMG meetings.

B13.4 The island offers a mix of habitats including heathland, rough hill grazing, pasture land, and areas of native woodland, notably Birch and Atlantic Oakwoods. The island falls within the Sunart Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC) and is surrounded by the coastal waters and shoreline of Loch Sunart Marine Protected Area (MPA).

B13.5 There are both red deer and roe deer on the island although the extent to which these are fully resident is uncertain. While it is thought that a small core population of hinds may be fully resident, the proximity of Carna to the mainland is such that animals may readily swim onto and off the island, exchanging with Drimnin or with the Forestry Commission holding of Barr to the west or southwest, and with Kinlochteacuis to the east. Stags may even cross to the island during the rut from Ardnamurchan to the north.

B13.6 No counts have been undertaken to date and there has to date been no formal management undertaken, with only occasional animals culled over the years.

B13.7 The Carna Conservation Initiative [CIC] was formed in 2013 with local partners to restore and manage the habitats on the island as well as creating some new habitats such as wildlife ponds. Particular attention is being paid to woodland restoration and management of both woodlands and grasslands to support and enhance butterfly populations. A holding centre has been established for Scottish Wildcats as part of collaboration with RZSS within Morvern and Ardnamurchan. Alongside more practical conservation projects, CIC gives a high priority to research and environmental education.

C FUTURE MANAGEMENT PROPOSALS OF INDIVIDUAL LAND-HOLDINGS: 2016-2020

It is a fundamental tenet of this Plan that all management shall be flexible and adaptive with prescriptions adjusted in the light of ongoing monitoring of both deer populations and impacts. In that context therefore all management proposals will be supported a detailed programme of monitoring of deer numbers, distribution and impacts [described in Section D1., below]. Thus, all proposals offered below should be seen as indicative only and subject to revision on the light of results of that ongoing monitoring.

C1 Ardtornish

C1.1 To some extent, the timetable agreed for production of this new deer plan is unfortunate, since the Estate has not yet finally resolved decisions about the future sheep stocking, or the extent or location of future woodland creation initiatives. In addition, it is not at this stage clear what action may need to be taken to safeguard favourable condition of features such as the Morvern Woods SAC. Plans here are therefore presented for future management in the short term – in maintenance of the current balance of land-use activities; it is anticipated that future management in the medium- or long-term may require some changes to this as decisions are resolved about some of the other contributing or conflicting land-use requirements.

C1.2 For the immediate future therefore management will seek to maintain current sporting levels and sustain an annual harvest of around 50 mature stags; an additional (small) number may be taken where they may get into protected woodland areas of for other necessary management purposes. While number of stags reported in recent counts appear a little low to support such offtake, the Estate has managed to sustain this level of cull in past years from similar populations.

C1.3 Hind numbers reported in 2014 are significantly higher than required to provide the necessary recruitment of stag calves to grow on to maturity in support of such harvest: an annual harvest of 50 stags requires only the annual recruitment of 60-65 stag calves (thus 130 calves in total). Accepting always that Ardtornish is a net exporter of stags in the rut (which may thus be shot on other properties) we might inflate this to 75 stag calves thus 150 calves overall. But even this only requires a resident hind population of the order of 450.

C1.4 It is noted however that average numbers of hinds counted between 2007 and 2012 are closer to this figure of 450 and no change in policy is proposed on the basis of this single high count of 2014, unless these higher numbers are confirmed by subsequent counts. In the meantime the Estate has increased the hind cull target back to maintenance levels.

C1.5 It is noted that in the longer term it would also be of advantage to effect some change in distribution of hinds (with more of the population hefted towards the middle of the Estate and away from the periphery); any build up of numbers in the heart of the Estate in the short-term is a step towards achieving this redistribution and any excessive build up can in due course be offset by targeted reductions in hind numbers towards the margins of the Estate.

C1.6 In the same context it is noted that from a sporting point of view, it would be desirable if stag populations on the Estate were somewhat more widely distributed, rather than, as at present, concentrated in one main area (paragraph B1.38).

Stags prefer longer vegetation of coarser structure and to some extent this redistribution might be facilitated by a reduction in overall grazing pressure (of hinds and sheep) such that removal of sheep from significant parts of the ground might open these for future colonisation by stags. In particular, establishment of stag around Clounlaid or within the Black Glen should be encouraged; in this context also, the establishment and build up of a separate group of stags at Uillean should be encouraged, with stalking in this area restricted as far as is possible.

C1.7 In the longer term, if sheep are removed from significant parts of the ground and woodland creation initiatives do not fully "take up the slack", some increase in numbers of both hinds and stags might be accommodated with a resultant increase in sporting income - unless by converse some further reduction in numbers is indicated in protection of designated woodland sites.
Thus, as noted: the Estate proposes at present to maintain the current balance of livestock production, woodland creation and deer stalking, aiming to maintain the current annual stag quota of 50 stags per annum. However it shall be expected that plans may need to be adjusted and modified over the period of this Plan as other issues become more clear; the Estate will discuss such changes as may appear to be required, as they occur, with other members of the MDMG and will modify targets in the accompanying audit table as appropriate in the light of those future decisions.

C1.8 The Estate is aware that a number of woodland sites have been reported in unfavourable condition during recent Habitat Condition Monitoring within the Morvern Woods SAC. The Estate will take such action as is required to restore these features towards favourable condition. It is noted that the Estate's policy in relation to woodland protection remains primarily a policy of protecting areas by fencing and will discuss with SNH and FCS options for replacing some existing schemes with a series of smaller enclosures which will be more manageable and easier to keep deer-free.

C2 Kingairloch

C2.1 In support of a long term quota of 35 mature stags, it is felt that current stag populations of around 190 [if 2014 figures are truly representative of what is typically on the ground] are too low, and it is appropriate that the decision has been made to reduce quotas to 30 per year in the short- to medium- term to allow stocks to recover. This harvest level of 30 mature stags will be maintained for the next three years.

C2.2 In the Estate's own Deer Management Plan, a helicopter count is scheduled for year 3 (whether or not this is undertaken elsewhere within the Group Area). Harvest might cautiously be increased towards 35 if results suggest that there has been a recovery of stag numbers back towards a steady population of some 240 stags more or less permanently resident on the property.

C2.3 It is noted that hind populations are considerably higher than required (paragraph B2.39) - and this within the context of an assessment of vegetational impacts as indicating populations are already at the upper limit of what is sustainable in the longer term. It is further noted that hinds in particular tend to be concentrated towards the matches of the Estate (paragraph B2.40).

C2.4 Because this high density of hinds may also to an extent be contributing to out-competition of stags from favoured feeding areas, and reduction in hind number might facilitate an increase in residency of stags on the Estate, it is thus proposed that overall numbers of hinds are reduced towards a population at steady state of the order of 350.
Reduction of hind populations towards 350, with efforts to support an increase in stag numbers towards perhaps 240-250 and calves at c 115-120 will result in an effective density at 12.8 deer per 100 ha.

C2.5 In order to effect a reduction of hind numbers from a current presumed level of 520 to 350 over the five-year period of this Plan, annual hind culls will be set at a level of between 90-100 per year (not including calves). Whatever the results of ground counts in the intervening period, culls will remain kept at this level for the next three years. As already noted, a helicopter count is scheduled for year 3 of this Plan period (paragraph C2.2). Results of this count will be used to increase or reduce culls appropriately towards delivery of a target population of 350 resident hinds.

C2.6 After numbers of hinds have been reduced to stable levels of around 350, the 'reduction element' of the cull will be removed and culls will revert to maintenance levels thereafter.

C2.7 In the interests of building up populations of hinds and stags within the heart of the Estate and reducing the extent of short-term movements to neighbouring ground, cull efforts will be concentrated, where practicable, towards the marches in order to try to effect a disproportionate reduction in numbers in these more marginal areas. This will be supported by ensuring adequate access to all areas of the Estate for proper management and the Estate will give attention to the establishment of an adequate network of approved Argo tracks allowing access to more remote areas.

C2.8 It is recognised however that attempts at redistribution of animals are not easily accomplished simply by culling more heavily in areas where lower densities are sought, and relaxing levels of cull in areas where it is proposed to allow populations to build. The Estate will also give active consideration to direct vegetation 'manipulations' designed to increase the attractiveness and quality of grazing in targeted areas - through carefully-planned muirburn, bracken spraying, cattle grazing and (subject to the restrictions of the EIA Regulations (formerly the Uncultivated Land and Semi-Natural Areas (Scotland) Regulations 2002) applications of slow release lime (granulime, or calcified seaweed) to areas under historic and continuing agricultural management.

C2.9 Recent muirburning activities have already been targeted in an attempt to improve habitat quality and build up deer numbers in the main glen of the Coinnich (as formerly), below Sgurr Shalachain and Ceann na Coille (allowing subsequent, compensatory reduction of numbers at the head of (for example) Coire Ghardail and Glen Galmadale); such improvements within the Coinnich Glen in particular might also help offset some of the loss of grazing opportunities which will result from felling and fencing of the Ghardail forestry blocks. An active and rolling programme of muirburn will also be undertaken on the faces above the lochside between Camus Airigh Shamhraidh and Ceanna Mor and the Estate will develop an indicative muirburn plan to be agreed with SNH showing future areas to be targeted and approximate phasing. Burning will only be undertaken between 1st October and 15th April and will be carried out in accordance with the Muirburn Code.

C2.10 A series of candidate areas have been agreed for a targeted programme of bracken control over the next three to five years. In the interests of increasing hind numbers on the lower part of Glen Galmadale, relatively little shooting of hinds should be undertaken in this area for the next few years.

C3 Glensanda

C3.1 Proposals here aim to integrate proposals for management of deer populations on the Estate within wider initiatives aimed at enhancing overall biodiversity.

C3.2 Glensanda is seen primarily as hind ground and it is proposed that stag quotas should remain much as at present, at between 10-15 stags per year. In support of this it is anticipated that Glensanda should seek to ensure a (wintering) stag population of the order of 60-70 (upwards of) and a hind population (recruiting calves as replacements for those harvested at maturity) at a minimum of perhaps 120-140.

C3.3 Establishment of hind populations towards 140, with maintenance of stag numbers at perhaps 60-70 and calves at 40-45 will result in an effective density at some 9.4 deer per 100 ha. Given uncertainty in recent counts it is difficult at this stage to suggest what might be necessary in terms of future culling policy to deliver/maintain such populations. Accurate counts will be essential in informing future policy; changes in population number will be carefully monitored in annual counts, and where necessary cull levels may be varied from this initial figure to ensure the target population of 120-140 hinds is reached by 2016.

C3.4 After numbers have been established at stable levels of around 120-140 culls will revert to maintenance levels of about 20 hinds per year.

C3.5 In an effort to consolidate populations more towards the heart of the Estate, culling of hinds will preferentially target the area around the quarry itself and the marches with Ardtornish in an attempt to reduce numbers in these particular areas. As above however, such redistribution may best be achieved by a combination of targeted culling in areas where population reductions are desired coupled with management measures designed to 'entice' animals into the areas where some build up of populations is to be encouraged. Such measures towards habitat improvement in these areas should also be seen as part of wider initiatives to improve habitats and enhance biodiversity in the Estate as a whole.

C3.6 Given the potential benefits, Aggregate Industries should consider the desirability of investing in a programme of targeted improvements to both grazing and cover resources. Under the provisions of the Uncultivated Land and Semi-Natural Areas (Scotland) Regulations 2002, targeted improvement of open hill grazings may require the Estate to obtain permission from SGRIPID. However, assuming this were granted managers would propose to commence upon a programme of improvements of that area around the old settlement at Camas Chronaig, with elimination of bracken on the old improved grasslands of the valley flats and on the lower slopes of the hills behind (Cnoc nan Caorach and Meall nam Fiadh) accompanied perhaps by some limited liming of the former improved areas (with slow release formulations such as granulime or calcified seaweed).

C3.7 There are potential problems associated with developing one large site. Improvement of relatively large areas at any one time tends to contribute to a pattern of aggregation of animals in large herds on restricted areas (which itself tends to lead to localised environmental damage due to tracking). To offset risks of excessive concentration of animals on the flats at Camas Chronaig, therefore, it is suggested that at the same time, other small areas of open hill ground area selected for treatment at the same time, to try and encourage dispersion of animals more widely over the available area.

C3.8 It is to be hoped that as well as acting to draw animals away from the marches and into the core of the estate, such habitat improvements may also help in the longer term to increase resident populations of summer stags. By attracting grazing into areas currently underutilised, this redistribution of impacts will also address problems of areas of coarse vegetation dominated by lank grasses, promoting a higher diversity of sward structure and thus promoting wider biodiversity. Another obvious area for treatment, in this case by bracken spraying, would be the lower reaches of Glen Sanda itself, but it may be that this location is too close to the quarry workings and might draw animals towards, rather than away from the site.

C3.9 It is recognised that woodland resources are also favoured by deer for shelter and foraging, and when present in good heart are also an effective 'draw'. At the same time it is recognised that the unfenced woodland fragments remaining within the Estate, especially along the coastal strip are currently suffering heavy impacts from browsing. AI has already established two new native

woodland schemes within the lower part of Glen Sanda and is actively considering other restoration schemes within the Glen, whether through planting or natural regeneration. Restoration of the coastal woodland areas is also part of the Estate's wider Biodiversity Action Plan.

C4 Laudale

C4.1 The Estate proposes to continue to take a harvest of up to 35 stags a year. Given that the policy will continue of shooting through the ages, it is considered that it would be appropriate in support of this to maintain deer populations equivalent to those currently counted on the ground at up to 200 stags and approximately 300 hinds. While culling of hinds will continue to be targeted in the first instance within the SSSI woodlands, some culling will be spread throughout the rest of the estate to guard against any excessive build-up of numbers in other areas and in defence of welfare (to ensure removal of animals in poor condition throughout the property).

C4.2 The Estate is committed to an agreed Long Term Forest Plan. This does not provide for any overall increase in woodland cover within the property , but Laudale already supports 490 ha of commercial plantation and 555 hectares of native woodlands and thus a significant woodland cover. Where existing commercial blocks are to be felled, all are scheduled for restocking so that overall, the Estate will maintain its current commercial and native woodland acreage.

C4.3 Forestry operations within the five year period of the current plan continue with felling in the Devil's Acre and felling proposed for Loch-head. New access will be developed through the Midland Bank plantation to allow access to Achleek plantation where further felling and restocking is scheduled. Marginal areas of cover will be left for longer term retention (new fences will be set back within the existing woodland fringe) thus allowing hill deer populations access to some fringe of woodland cover.

C4.4 In the longer term, the LTFP provides for a rolling programme of fence removal in phase with new enclosures, such that at any particular point in time, wherever areas of cover are to be felled and/or areas are to be fenced out of deer range, equivalent areas of woodland in the same local area will have reached maturity and are scheduled for fence removal; planning is thus well-directed to ensure that no particular 'subpopulation' of deer is ever left without adequate cover in the immediate area. This will minimise negative impacts on welfare, as well as offsetting any risk of disturbance to traditional movement patterns (or the associated risk that displaced animals will concentrate in sensitive areas increasing environmental damage)

C4.5 As part of the refencing required for restocking at Devil's Acre fencelines will be extended to the west to enclose a significant area of the native woodland within the lochside SSSI. Subject to agreement with SNH and funding availability under SRDP, the Estate also proposes up to three further enclosure within the SSSI over the period of this plan, for protection of advance regeneration currently suppressed by browsing, and to allow additional regeneration to occur to address the current unfavourable condition of this feature.

C4.6 As above (paragraph C4.1) culling of hinds, in particular, will be targeted primarily in this area to ensure that impacts do not increase unacceptably in areas remaining unfenced, although in the longer term, it is intended that these areas will themselves be fenced in due rotation.
[Once the woodland protected within the fences of initial enclosures is well-established and no longer vulnerable to damage, fences would be removed and transferred to those areas which to that point had remained unfenced].

If necessary an increased (compensatory) cull will be taken in the first two years after the establishment of any enclosures in order to remove any hind groups actually hefted within and resident in the woodland area. It is believed that this strategy of rolling enclosure and targeted culling will over the long term ensure full restoration of the woodlands to Favourable condition.

C4.7 As already noted, the Estate has decided to disperse the current small fold of Highland cattle (due to problems with overwintering). However, consideration will be given to possible issue of seasonal grazing licences to third parties for summer grazing of cattle in targeted areas of hill ground where it is felt that lank and overmature grassland could benefit from such grazing. If this is not viable, affected areas will be included within the Estate's existing programme of muirburn, or, where accessible by tractor, may be mechanically swiped.

C5 Glencripesdale Estate

C5.1 As at paragraph B5.17 the main objective of management for Glencripesdale is re-wooding of the Glen itself, with ongoing management of the deer to be in sympathy with that primary aim. In general trees will be protected from browsing by fencing within enclosures (and further protected in the early stages by 600mm tubes).

Deer management will thus be focused on :
i) ensuring that numbers are in balance with the available grazing area (which will of course decrease through time with further enclosure in the main Glen, until plantations are established and movement can resume) - thus keeping a close eye on numbers and available area to ensure health of the deer population overall
ii) further securing health of the deer populations and ensuring welfare by selectively culling older or poorer animals
iii) delivering acceptable levels of regeneration within the coastal SSSI and designated Ancient Woodland areas within the property
iv) ensuring that management is, as far as possible, in sympathy with the objectives of neighbouring properties.

C5.2 The recently-erected deer fence dividing the property [the "Whittle fence" paragraph B5.6] effectively separates the middle Glen and the coastal areas from continuity with the open hill and the more mature commercial conifer areas to the eastern and northeastern ends of the upper Glen. The two recent enclosure to the south of the Burn (paragraph B5.7) further contribute to that by delivering two additional deer-free areas within the middle Glen and the proposed enclosure and planting in due course of Compartments 16, 17, 18 and 23 will similarly deliver a further deer-free-zone in the north.

C5.3 This gives control over a separate subpopulation within the lower Glen and coastal strip; targeted culling here can ensure that impacts on regeneration within the SSSI can be kept to acceptable levels. The middle part of the Glen will otherwise become effectively deer-free.

C5.4 Beyond the Whittle fence, this then leaves (a) areas of mature conifer to the east and north east which, due to dilapidation of fences are now effectively continuous with the open hill ground towards SNH-Glencripesdale and Laudale, Laudale, Ardtornish and the Rahoy Hills Reserve; and (b) the later plantations established by Nils Tandrup which are open along their southwestern borders to Kinlochteacuis and Rahoy Hills Reserve again because of dilapidation of old fencing (paragraph B5.22). The Estate intends to repair or replace all existing fencing over the next few years, thus reducing movement from these forestry blocks onto the open hill.

C5.5 Culling within these woodland blocks, once secured, will be undertaken in response to numbers reported and in accordance with policies of paragraph C5.1. Cull levels will respond to information accumulating from ongoing monitoring on deer numbers and impacts.

C5.6 Glencripesdale also encompasses an area of open hill ground north of the northern extent of the woodlands in the glen itself and stretching across to the SNH-Glencripesdale top fence. [The eastern extent of that is marked by the deer fence stretching over to the Laudale march with the SNH ground] as well as areas of open hill ground extending east to the boundaries with Laudale and south to the boundary with Ardtornish and SWT Rahoy Hills Reserve (for both see paragraphs B5.2, B5.4).

C5.7 With reinstatement by SNH of the top fence of the Glencripesdale Reserve (B6.2), there is no potential issue with any incursion into that Reserve area and the Reserve is effectively isolated from adjacent open-hill ground. It is proposed to leave open the gateway on the hill fence separating this area from that ground formerly leased to Laudale so that populations are for the present effectively continuous.

C5.8 Culling in this area also will be responsive to numbers seen in ongoing monitoring and , if appropriate, to contribute to any reduction which may be required of grazing impacts on the immediately adjacent Beinn Iadain if re-survey by SNH confirms possible problems highlighted with excessive herbivore impacts on this SAC area, but it is anticipated that any movements of deer between grazing areas on Rahoy Hills and harbourage within the forestry blocks on Glencripesdale will in any case be significantly curtailed once perimeter fences are restored..

C5.9 Especially given problems of lack of any recent information on deer numbers within different parts of the Estate and remaining uncertainties over actual populations resident on, or largely dependent on, Glencripesdale, proposals presented here should be seen as indicative only in terms of detail and management must be responsive to results of ongoing monitoring of both deer populations and impacts and adjusted along the way as results that monitoring advise whether or not some such adjustment is needed to meet targets set.

C5.10 In that context therefore it is accepted that all management proposals must be accompanied by a detailed programme of monitoring of deer numbers, distribution and impacts - within Glencripesdale itself and across the wider Management Area. The Estate is committed to undertaking fully-classified ground counts each year at the end of winter. Such information is crucial to understand changing patterns of numbers and distribution of animals across the wider area. Ideally counts will be co-ordinated with counts on adjacent ground, to synchronise census and allow for movement between count areas.

C6 Glencripesdale Nature Reserve

C6.1 Inevitably within a complex site with many designated features, there is some possible tension between delivery of favourable condition of the various different habitats within the Reserve area - all of which require rather different grazing pressure. At present deer populations - and impacts- appear to be at a level where delivery of most of the objectives seems acceptable across most of the site. Site condition monitoring and the subsequent Habitat Impact Assessment suggest that the browsing damage was most apparent at the east of the reserve and light to moderate across the rest of the site.

C6.2 While colonisation and establishment of native broadleaved woodland in the former areas of commercial conifer plantation has been slow, this has been supplemented by direct planting within a 9.7 ha enclosure. Replacement of the fencing of the outer perimeter in the near future is expected to

reduce incursions of deer from neighbouring properties and will hopefully help to protect further natural regeneration which will occur.

C6.3 Deer populations within the site as a whole will be kept at low levels, although it is accepted that appropriate cull levels may need to be reassessed following formal counts of the number of deer remain within the reserve following closure of the new fence. Stalking in the future will probably alter to target impacts at the eastern side of the reserve and encourage animals to stay high up within the ground to focus the bulk of grazing on the more open habitats.

C6.4 Whatever decisions are made however, because the area is securely fenced, management actions have no direct impact on neighbouring populations of the Morvern open hill.

C7 Rahoy Estate

C7.1 The Estate seeks to deliver a modest sporting quota of some 8-10 stags a year. In support of this, it is proposed to maintain an open hill population of red deer of around 60 stags, 70 hinds and their 20-25 calves. While this equates to an overall density of some 13.2 deer per 100 ha, and is substantially higher than that originally proposed in the regeneration phase for the coastal woodlands, it is felt that in the bulk of the woodlands, regeneration is now well-established and the Estate can thus permit some increase in deer population. It is further noted that the population proposed [60 stags, 70 hinds and 20-25 calves] represents a net reduction from that suggested by recent counts (2013, 2014) - and that the bulk of the woodland area was assessed as in favourable condition even at these higher population levels.

C7.2 Concerns remain about the disappointing rates of woodland re-establishment between Allt Ard Charna and Camas Glas; it is however believed that this area supports a distinct heft of deer - both stags and hinds- and can thus be specifically targeted, without need for reductions of numbers elsewhere within the Estate. For this reason the bulk of culling will be concentrated in this area with the specific objective of reducing the number of resident stags and reversing a significant increase in hind numbers noted in the area over recent years. It is anticipated that increased cull effort in this area will be effective in reducing numbers and impacts both through direct reduction in population size and through disturbance.

C7.3 Regular monitoring of woodland regeneration will continue using both formal Best Practice Guidance as well as methodologies developed by the Deer Initiative. It is fully-accepted that if such monitoring reveals increasing levels of damage in SSSI woodland areas, population targets may have to be re-considered. Regular assessments will also continue of general levels of grazing/browsing and trampling on the Estate [Habitat Impact Assessments] to record general pressures sustained and any developing hotspots. Information on general impact levels and trends, together with knowledge of animal numbers and distribution will thus be fed back into ongoing adjustments of management.

C8 Kinlochteacuis

C8.1 It is noted that the Estate is comparatively small to be managed in isolation - but that in effect Kinlochteacuis is not isolated (due to porosity of fences against Ardtornish, Rahoy Hills Reserve and Glencripesdale, the Estate is not as ‘enclosed’ as MDMG ‘count’ practice might assume); that lack of isolation while it offers potential advantages, also brings with it increased vulnerability to any changes in management on neighbouring ground. The Estate thus proposes a number of positive management initiatives aimed at improving the holding capacity of Kinlochteacuis for resident deer populations by improving availability of cover, and enhancing grazing opportunities.

C8.2 Subject to funding, the Estate is considering enclosure of an area for woodland creation/ regeneration at the north-eastern edge of the existing Carnliath woodland block across the tributary of the Allt an Inbhre. This is intended in order to increase the area of native woodland on the Estate, and new fencing in this area would also serve to secure the area within the existing Carnliath block which has been suppressed through browsing damage (paragraph B8.25).

C8.3 Subject to availability of appropriate funding, consideration will also be given to removal of redundant fencing around the remainder of the Carnliath block and that block south of the Kinloch River, to open more ground to deer increasing availability of feed and shelter. These areas are already effectively open of access but only though through restricted breakages in existing fences, resulting in pinch points on access which in turn inevitably leads to localised tracking around these limited access points. Removal of fences would open the woodland more fully and also allow access over a broader front thus avoiding this localised environmental damage.

C8.4 The Estate is also considering provision of KNZ blocks on posts positioned around the perimeter of the Kinloch woodland block as a mineral supplement for stags. [Blocks and posts will be positioned on hard ground to avoid, again, localised poaching of the ground around such posts and licks will be moved to new positions if signs of erosion do appear.]

C8.5 The Estate proposes to try and enhance grazing opportunities within the main glen by clearing bracken encroachment and by improving the artificial greens established during the period of the deer farm on either side of the main hill track. These areas have the advantage that they are well within the core ground of the estate, are already semi-improved - and crucially, present a series of small patches scattered quite widely over the ground, presenting an ideal ‘pattern’ of grazing improvement. Once again such improvements will be undertaken when funding permits.

C8.6 Within such a wider context, the Estate will continue to try to take from 10-12 stags a year, and, recognising a probable increase in hind numbers within the wider area will increase the annual cull of hinds to between 15 and 20. Active consideration will also be given to establishment of high seats within the Carnliath and Kinloch River woodland blocks to offer some diversification of stalking experience and to facilitate an increase in culls of both stags and hinds above current levels.

C8.7 Recognising the mobility of deer across the various Estates of Kinlochteacuis, Ardtornish, Laudale, Glencripesdale and the Rahoy Hills Reserve, Kinlochteacuis is committed to close cooperation with its neighbours in collaborative management of the shared deer herds in this wider catchment and every effort will be made to ensure integration of effort between Kinlochteacuis and its neighbours; proposed culls will be discussed with neighbours at annual Group meetings to ensure that combined management and combined offtakes are sustainable.

C9 Rahoy Hills Reserve

C9.1 Clearly ongoing management within the Reserve is directed primarily towards conservation and protection of the quality of designated features of the site. Emphasis has largely been on protection of and enhancement of the features of the various SSSIs within the Reserve. Past [1992] and more recent enclosures within the Arienas woodlands have secured and should secure satisfactory restoration of these upland oak woodlands [paragraph B9.38]. In response to the recent identification of features within Beinn Iadain considered to be potentially in unfavourable status, management in the immediate future will be focused on restoring these to favourable condition.

C9.2 As at February 2015, SNH plan to review and carry out further research and monitoring of these issues. SWT are committed to reacting to any valid results and recommendations in terms of controlling grazing pressure in the future. Insofar as any ‘failures’ of designated features are

confirmed and may be attributed to grazing, impacts have previously been recorded from both sheep and deer. As a first measure therefore the management team will seek to persuade Ardtornish Estate to remove sheep from this part of the Reserve; by alternative, Haycock and Jay Associates Ltd, in their report, suggest removal of the sheep fencing altogether from Beinn Iadain (in combination with some reduction of stocking levels overall) which would allow the creation of more balanced levels of grazing across the whole of the hill and would hopefully have a positive effect on vegetation species diversity.

C9.3 To date no deer management has been carried out on the site and a build up of hinds in the north part of the Reserve may well have contributed to increased impacts on Beinn Iadain. It is noted that there is relatively free movement of animals in this part of the Reserve with Kinlochteacuis (depending on wind and weather conditions) and that in addition there has been some build up of animals in the upper parts of Glencripesdale Estate, where, over recent years no culls have been carried out. Animals here, hefted close to the march, move freely across the march and onto the Reserve such that much of the increase in pressure on Beinn Iadain may be due to usage of the ground by animals drawing in from upper Glenscripesdale (and perhaps to an extent from the upper part of Laudale Estate), even if they are using the Reserve area merely as transients.

C9.4 In addition to reductions in numbers of sheep grazing on the Reserve (or their removal from sensitive parts of the Reserve), SWT's managers would thus look also to reduce impacts from deer. SWT's policy is that deer management should be carried out when necessary to protect key habitats. Any deer control which is deemed necessary will be carried out in agreement with MDMG and the neighbours, as required in a progressively intensive way involving.

C9.5 In the first instance neighbours (Kinlochteacuis and Ardtornish) asked to cull more heavily on their own ground close to their marches with the Reserve; the Trust would hope that some increased levels of hind culling might also be undertaken in the upper parts of Glencripesdale. As part of this the Trust may permit neighbours to walk over SWT land for access but not shoot. If such initiatives fail adequately to address impacts noted, the Trust may authorise neighbours to shoot on SWT land but not use ATVs for extraction. As a last 'escalation' SWT may permit neighbours can shoot and use ATVs for extraction from SWT-owned land, or employ alternative contractors for culling.

C9.6 The Trust considers that in any event, and at a minimum, culling should be permitted on the Reserve area where this is required on welfare grounds or in response to colonisation by sika.

C9.7 Control of roe deer numbers in enclosures, will, as above, be informed by monitoring of impacts, with action taken not when estimated populations reach some given threshold, but when recorded impacts on the vegetation itself are deemed excessive.

C9.8 Future management thus embraces an essential element of flexibility and will be modified as appropriate in response to results of ongoing monitoring of both deer numbers and distributions and habitat impacts. In the past no routine Habitat Impact Assessments have been carried out within the Reserve, with the Trust relying for the most part on regular Site Condition Monitoring of features within the SAC. It is agreed however that more formal HIA should be undertaken as routine by the Trust's own staff and that such monitoring should undertaken across the whole Reserve and not simply restricted to designated areas.

C10 Carnoch

C10.1 The fences of the woodland restoration area in Glen Tarbert are now open and it is accepted that deer should now be allowed access to the former woodland enclosure. Significant numbers of trees at the higher exposed areas are dying/have died from a combination of exposure and poor ground and while some additional individual trees may be lost on the lower ground, losses are considered likely to be relatively small. At present access to this lower part of Glen Tarbert is currently through a number of breaches in the fence and where existing gates have fallen into disrepair (paragraph B10.19) . Inevitably this has resulted in access being restricted to a series of "pinch points", with some obvious tracking developing and localised poaching of ground around these access points. Given that the decision has been made to allow continued access to the lower ground it would seem appropriate that fences be removed for some distance on either side of gateways or other holes in the fence.

C10.2 With the opening of this former woodland enclosure to deer, there no longer remains a need to cull animals within this area for a primary objective of woodland protection. This need for protection culls has in the past increased overall cull levels and for the future it is considered that culls should be limited in the future to what is sustainable in the longer term as a primarily sporting cull. The Estate proposes to limit culls from the MDMG part of the property to a level of up to and no more than 10 stags per annum.

C10.3 Hind culls will also be maintained at around current levels, with the explicit intention of restricting culls within the core of the Estate to those required on welfare grounds (poor, or older animals unlikely to survive the winter) in order to protect and encourage developing hefts forming on the lower ground and increase core usage more towards the core of the Estate.

C10.4 Recognising the current high mobility of deer across the various Estates of Carnoch Kingairloch and Laudale east, Carnoch is committed to close cooperation with its neighbours in collaborative management of the shared deer herds in this wider catchment and every effort will be made to ensure integration of effort with the neighbours; proposed culls will be discussed with neighbours at annual Group meetings to ensure that combined management and combined offtakes are sustainable.

C11 Killundine

C11.1 Killundine's aim is to secure a target population of 150 stags, 150 hinds plus calves, as above, to sustain sporting offtake of 20-25 stags.

C11.2 Management continues to shoot through ages and it is considered that such a population should suffice to sustain the harvests sought. However, as in the past, management will continue to be adaptive and respond to results of ongoing monitoring of deer population numbers and impacts. Thus if offtake levels prove a little high, harvests can subsequently be reduced accordingly.
In any event, the Killundine hill ground is completely enclosed by fences, so that cull patterns within the hill ground will not have any negative impact on neighbours.

C11.3 Hind culls will be kept at levels appropriate to maintain populations around 150. It is noted that average recruitment rates are comparatively high and such population should provide adequate recruitment of stag calves within the enclosed population.

C11.4 As above (paragraph B11.19) the Estate is aware of concerns about negative impacts on the condition of woodlands within the Drimnin-Killundine SSSI. As noted, impacts may already have been reduced to some extent after completion of the new hill fence in that the bulk of the Killundine red deer population *is* now enclosed on the upper ground and prevented from coming down to the

coastal area, with numbers below the hill fence also much reduced. However, it is accepted that there is a need to keep on top of this and intensify monitoring of impacts within the SSSI woodlands. To the extent that roe deer may also be contributing to these impacts, the Estate acknowledges that there will be a need to initiate more active management of roe.

C11.5 Management in all cases remains adaptive and will respond to the results of ongoing monitoring. The Estate proposes regular twice-yearly counts with more formal counts undertaken at the end of winter/spring to assess hind population numbers and recruitment rates, and with additional counts (however informal) undertaken in late summer or during the rut as a more accurate assessment of stag numbers to inform stalking potential. The Estate proposes in addition to initiate habitat condition monitoring/impact assessment in coastal woodlands and on open hill habitats from 2016, although interpretation is confounded by the fact that the hill ground is also accessed by livestock from the farm.

Forestry Commission Scotland

C12.1 FCS have already agreed proposals for felling and restructuring within the Fiunary Forest over the next 5 years. Current stocking by tree species within the DMU is:

Current Stocking	Area Ha.	%	Stocking at End of LMP period (2024)	Area Ha	%
LP	328.32	6%	LP	0.00	0%
Mixed B/L	184.62	3%	Mixed B/L	812.96	14%
Mixed Conifer	297.5	5%	Mxed Conifer	948.27	16%
Sitka Spruce	2996.56	51%	Sitka Spruce	2325.61	39%
Open Ground	2088.87	35%	Open Ground	1809.03	31%

During the next phase of felling (2014-2018) 457 ha will be felled
The establishment of native woodland on the PAWS will enhance biodiversity. ASNW areas will be linked by riparian zones and wider landscape scale broadleaved expansion in Barr.

C12.2 In terms of deer management, FCS propose to continue a policy of culls aimed at maintaining impacts at tolerable levels throughout the Lochaline DMU Block., and especially keeping impacts with any areas of restock, to a minimum. With a fairly major change in the tree species to be used it is likely that culls will be increased to protect the more vulnerable trees being planted. Areas to be restocked with broadleaves may be protected by deer fences around the individual coupes, where this is considered necessary for their protection. It should be noted that where possible protection by reducing population density by culling will take preference over fencing. 5(6) and 18(2) authorisations will be sought from SNH as necessary.

D. General, Group-wide, Considerations:

General stocking rates and ongoing monitoring:

D1.1 The Morvern Deer Management Group has coordinated regular ground counts of open hill red deer across most properties within the Management Area for a number of years; where practicable coordinated counts have been undertaken on an annual basis.
Although there is some significant variation from year to year in the actual distribution of deer between Estates on the day of the count (as animals near Estate boundaries move to and fro across marches depending on wind and weather conditions on the day) actual numbers of animals counted within the Management Group Area over recent years have shown reasonable stability, with numbers recorded on

the main open hill area (excluding FCS and Estates to the west: thus Drimnin, Killundine) summarised below. Figures also exclude Glencripesdale and Glencripesdale Reserve which have not previously been included in any regular counts.

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014
Stags		830	865		778	802	866		880
Hinds	No	1467	1391	No	1558	1368	1646		2025
Calves	Count	506	484	Count	619	539	583		813
Total		2803	2740		2955	2709	3095		3718

D1.2 Given a total area of open hill ground (again excluding FCS Fiunary, Drimnin, Glencripesdale and Glencripesdale Reserve) estimated at 24500 ha, 2014 figures translate to an overall density of 15.1 deer per 100 ha (15.1 deer per km^2), although it is to be noted that local densities may be higher or lower than this within and between estates.

Monitoring of deer populations; population modelling

D1.3 As noted, the Morvern Deer Management Group has coordinated regular ground counts of open hill red deer across most properties within the Management Area for a number of years; where practicable coordinated counts have been undertaken on an annual basis. Counts will continue to be undertaken on foot, but the Group will consider undertaking a helicopter count of the main management area at least once in every 3 to 5 years as funding permits.

D1.4 While some properties (e.g. Glencripesdale Estate, SNH Glencripesdale) have not always been included in such counts every effort will be made to ensure that future counts will cover all Estates within the MDMG. In addition, analysis of deer numbers on the Rahoy Hills Reserve as a whole is not feasible with current count strategies (where animals within the John Raven Extension are simply included with counts for the west part of Ardtornish). Yet management decisions for the Reserve are made for the entire Reserve Area as a whole (SWT-owned ground plus the John Raven Extension) not for the two parts separately. It is agreed therefore that in future, counts should be returned as "xx stags, yy hinds and zz calves recorded in the Rahoy Hills Reserve as a whole, of which kk stags, jj hinds and ff calves were counted on SWT-owned ground and bb stags, cc hinds and dd calves were recorded in the John Raven Extension". Animals counted in the John Raven Extension will thus in future be identified separately (and will equally be separately identified within counts for Ardtornish West).

D1.5 As noted in Introduction, within the overall area covered by the Morvern Deer Management Group we may identify a number of clear subpopulations of open hill red deer. Populations of Drimnin and Mungasdail are effectively isolated from the remaining DMG area by fences, as, for the largest part is the separate Forestry Commission holding of Fiunary Forest. In other areas, hinds within the core of given properties are comparatively well-hefted although stags may be more mobile and hinds whose home-ranges are close to the marches between neighbouring estates, or may even straddle such marches, may move between adjacent properties on a more regular basis.

D1.6 As at paragraphs A4.4- A4.7, we may broadly define subclusters of Estates sharing the same biological population of animals, or at least for whom there is more regular exchange of both stags and hinds on a daily or seasonal basis. Thus deer populations of Ardtornish East (east of the A884) show may considerable exchange in the north and east with South Kingairloch and Glensanda and to some degree with Laudale; animals in that part of Kingairloch north of the B8043 [thus here: Kingairloch North] themselves may show localised exchange with both Carnoch and Laudale East.
To the west of the A884, we may identify a separate subpopulation of animals moving between the west part of Ardtornish [West Ardtornish] , Kinlochteacuis and the SWT Rahoy Hills Reserve. Rahoy Estate is relatively well-secured by fencing as is the SNH property of the Glencripesdale Reserve, but

there is clear exchange in this northern part of the catchment between Kinlochteacuis, the Rahoy Hills reserve, Glencripesale Estate, Laudale West and Ardtornish.

D1.7 Recorded counts and culls will be used to model likely future population trend and advise within each subarea where there may be need for alterations to ongoing management/ future cull levels to achieve targets sought. The Morvern Group as a whole will consider whether or not occasional meetings of these different "subGroups" in the future may be helpful in delivering collaborative management.

D1.8 It would be helpful to the group to be able to compare proposed target populations within these sub-population areas against proposed annual culls to be taken from the population to support sporting quotas (where appropriate) and maintain hind numbers. Unfortunately, many of the subpopulations identified in paragraph D1.5 above occupy part-only of given Estates, while different parts of those estates may 'host' part of a distinct and separate subpopulation of deer shared with other neighbours. Even if this is recognised by some Estates when presenting count data (e.g. Ardtornish West and East, Kingairloch, South and North) proposed population levels and cull targets are generally presented for the Estate as a whole and not always so clearly subdivided between different areas within the property. At present therefore it is not possible to conduct this exercise at the subpopulation level although this is something which the Group may consider in future modelling and certainly will ensure that in future all counts and culls are recorded in recognition of the distinct areas noted in D1.5.

D1.9 At present however, we may explore the relationship between proposed populations and proposed offtake only at Estate level and the level of the Group as a whole – [and we must note that there are some uncertainties also at the present time as to what population levels may be desirable on (e.g.) Glencripesdale or the Rahoy Hills Reserve]. Consideration is also restricted below to the main estates of the core of the MDMG and excludes, for now, Drimnin, Killundine and other smaller properties. It is hoped however that this provides a baseline and that future data collection will permit resolution of this analysis in future to allow closer monitoring by the Group analysis of actual sustainability of populations and harvest rates in different parts of the Management Area.

Estate	Proposed Numbers				Proposed Harvest		
	Stags	Hinds	Calves		Stags	Hinds	Calves[2]
Ardtornish	c.300	450	150		50	70-80	
Kingairloch	240	350	120		35	60[3]	
Glensanda	65-70	140	40-45		10-15	20	
Carnoch	20-25	50	15-20		<10	10-12	
Laudale	200	300	100-120		35	40-50	
Glencripesdale	?	?	?		25-30	20-25[4]	
Rahoy Estate	60	70	20-25		8-10	8-10	
Kinlochteacuis	40-50	100	35		10-12	15-20	
Rahoy Hills *included with Kinlochteacuis*							
Approximate Totals	940 +	1460	500	0	190	260	

Note1: as well as those properties excluded in paragraph D1.9, Glencripesdale Nature Reserve is also excluded since future management is independent of the wider open-hill population once fences have been re-secured.

Note 2: No formal calf quota is set and calves will be harvested opportunistically, with numbers taken largely in proportion to number of milk hinds shot.

Note 3: Hind culls at Kingairloch are currently actively targeted at reducing current populations and will be reduced to maintenance when target population are achieved.

Note 4: Glencripesdale is under new ownership and polices are not yet confirmed. Cull levels entered at present are historical averages under previous ownership

D1.10 Such analysis is inevitably incomplete and indicative only. It is noted that combined stag harvests are somewhat high for the stag population projected at steady state while hind culls proposed are significantly higher than maintenance (which may be appropriate in that some properties seek deliberately to engineer some reduction in numbers). However, it is an essential tenet of this entire plan that management shall be adaptive and responsive to the results of monitoring and individual estates and groups of estates within sub-areas will adjust and revise cull targets in the light of the results of ongoing monitoring of deer numbers, distributions and impacts to ensure longer term sustainability of deer populations and harvests.

D1.11 Successful management of a deer stock depends not only on monitoring population trend, and ensuring that numbers and population structure (ratio of stags: hinds: calves) remains as desired; management also requires careful assessment of cull levels to be taken to sustain a population at steady state, or engineer a desired reduction (particularly in terms of hind numbers) where appropriate. Towards this, a close eye should be kept on recruitment rates and rates of natural mortality. These measures in addition offer indicators of the general condition and welfare status of the population within each area

D1.12 Calving rates - or at least recruitment of surviving calves, may be assessed from calf:hind ratios in spring counts, as long as these are reasonably accurate and there is no gross misclassification of for example well-grown stag calves as young hinds.
It is thus understood that every effort should be made in annual census to assess separately numbers of hinds and calves where possible (or at least assess calf: hind ratios for those groups where discrimination is straightforward)

D1.13 All animals found dead should be recorded, and where possible aged as accurately as possible from tooth wear. Estimates of mortality rates of yearling stags and hinds, and more mature animals may be used to refine projected rates of population increase based on calf recruitment.

D1.14 Much information may also be obtained from the cull itself. Trends in weights of yearling males and adult females are the most sensitive indicators of changing condition within a deer herd (Putman and Langbein, 1992). Some stochastic variation in recorded weights may be expected between years, and analyses should not be based simply on comparisons across two consecutive years; however four or five year trends in weight offer a good index of population performance which once again offers important feedback to managers on how their population may be performing – as well as providing an 'early warning' of any problems which may be developing.

D1.15 Pregnancy rates should also be recorded - and separately noted for any yearling females culled, 2 year olds, and animals 3 years or older. Obvious changes in pregnancy rate over time may be used to double-check changes in recruitment apparent from simple calf/hind ratios; pregnancy rates again offer a simple indicator of condition, with regular pregnancies among younger animals (2 year old, or younger) indicating a population well in balance with available food resources.

D1.16 In relation to this member Estates are encouraged to keep careful records for each animal culled of location shot, approximate age (from the stage of tooth eruption in the lower jaw), whole carcase weight (entire eviscerated carcase) as well as dressed carcase weight (head off, feet off).
In the interests of monitoring population condition, a record should also be kept of any evidence of disease, external or internal parasites (fluke, or lymphatic cysts) as well as the state of pregnancy (pregnant/not pregnant, and for roe deer, the number of embryos present) of all females culled at least after January 1st when foetuses should be readily visible.
MDMG will work together to produce a standard form for larder and other data, which will be used in a consistent way by all member estates.

D1.17 Individual estates and groups of Estates within the sub-population clusters identified above will attempt to use available data to develop rolling population models that aim to show how proposed management measures are expected to influence the population over time (see for example models presented on the SNH website at http://www.snh.gov.uk/land-and-sea/managing-wildlife/managing-deer/ understanding/deer-population-management/).
It is felt that with limited count data available at present it is not practical to develop such models at the current time; however the group will consideration development of such population models when more consistent count data become available. It is accepted that this makes the deer population management much more visible to the DMG (and others).

Monitoring of habitat condition:
D1.18 Where a major objective of management is to engineer some improvement in vegetation quality, or where some change in animal density is proposed, it is appropriate also to undertake some simple monitoring of the vegetation itself, to ensure that adjustments of animal density are, in the one case, sufficient to deliver the vegetational recovery required, or on the other hand are not imposing excessive increase in impact. Such measures are actually of general value for all Estates, outwith areas designated for primarily conservation objectives, since simple measures such as these offer some information the relative balance of animal numbers with the capacity of their vegetational environment to support them – and continue to support them in a sustainable way.

D1.19 Monitoring of habitat condition and herbivore impacts is currently undertaken on a number of individual Estates; other propose to initiate or extend such routine monitoring of habitat impacts (as listed in Section C). The Morvern Group as a whole proposes to set up a stratified assessment of habitat condition more widely across the DMG area. It is proposed to establish 30 plots across the group area for blanket bog, and a similar number within wet heath and dry heathland habitats, with plots for each habitat surveyed across the Management Area once in 3 years, on a three-yearly cycle. Woodland areas will be separately surveyed within individual estates and clearly habitats which are designated features of SSSIs or SACs will be subject to routine Habitat Condition Monitoring by SNH.

D1.20 Levels of impact sought will depend in large measure on the balance of interest of individual properties with different thresholds in terms of whether these are primarily managed for conservation, for livestock agriculture, or sport or as mixed use properties. However in general managers will anticipate that in general, recorded impacts from deer should not exceed light-moderate or moderate levels but that inevitably there may be localised areas where higher impacts may be recorded. Where there are clear hotspots of heavier grazing, particularly where these may occur within important habitats or within designated sites, these will be carefully monitored to ensure that impacts should not reach levels at which some decline in habitat condition is recorded through time.

Other issues:

Roe Deer:
D2.1 A number of Estates have significant populations of roe deer and numbers are likely to increase with significant increase in the number of initiatives being undertaken for creation or restoration of native woodland. While occasional roe deer are shot on some properties [and numbers reported to the Deer Group], there is no communal policy.

The Group does urge members to be aware of increasing roe numbers and expansion into areas which were recently devoid of roe, such that any fencing to be undertaken for new woodland initiatives should not simply seek protection from red deer, but should consider adopting the higher specifications (and smaller mesh sizes) required for current or possible future need also to exclude roe.
However, while, if they reach sufficient density, roe are capable of causing very significant damage both in commercial and amenity woodland areas; at low densities (since their browsing tends to be rather 'localised' with certain areas within their range clearly preferred and browsed more heavily than other, adjacent areas), their impact can actually be of advantage in breaking up the even-aged nature of unbrowsed regeneration and producing a degree of spatial heterogeneity/diversity.

D2.2 Because of this, the Group does not wish to establish any fixed policy for management of roe but advocates that management should be adaptive and respond to close monitoring of impacts, with action to be taken not when estimated populations reach some given threshold, but when recorded impacts are deemed excessive.

Non-Native species:
D2.3 Sika are occasionally observed in the area and shot on some of the Estates. Sika may cause very significant damage to unfenced -or fenced - woodlands, if they break into restoration enclosures. Further, hybridisation between sika and red deer and the potential threat posed to the integrity of native red deer populations, is now a matter of widespread concern. While it is probably not practical to eliminate sika from parts of Scotland where they have become well-established, in areas such as Morvern, where the species is encountered infrequently, it may be possible to maintain control and protect the genetic integrity of local red deer populations. The Management Group will continue to pursue a policy of shooting sika when encountered to try and slow the rate of colonisation.

D2.4 Muntjac are not currently present in the Management Area. Any evidence of colonisation or possible establishment of muntjac will be immediately reported to SNH.

D2.5 Feral goats do occur in parts of Morvern. In general the goat population not managed since it is static and shows no signs of expansion. Its status will be kept under review.

Best Practice:
D3.1 The Group as a whole endorses the Government's Code of Practice on Deer Management and the ADMG's Principles of Collaboration in relation to Deer Management. In day to day management, managers will follow the individual prescriptions of individual Best Practice Guidance notes or other relevant Guidance (e.g the Muirburn Code).
All Estates are fully committed to membership of the Morvern Deer Management Group and will ensure a representative attends all Group meetings where practicable. Estates will continue to exchange information on counts and culls and other ongoing management practice with other members of this Management Group.

Training:
D3.2 The Group is committed to increasing standards of competence and to offer and deliver any necessary training to staff in relation to management practices. The majority of retained stalkers or managers on individual estates within the Morvern DMG Area hold DMQLevel 1 and a significant number also hold DMQ2 as well as other qualifications such as the Lantra Certificate in Wild Game Meat Hygiene; ATV use/maintenance; use of herbicides etc.

Name of Estate	DMQ1/DSC1	DMQ2/DSC2	Others [e.g]
Ardtornish	2	1	Lantra Certificate in Wild Game Meat Hygiene; GWCT Scotland Fox & Rabbit Control by Snaring Certificate
[Carna]			
Carnoch	2	In progress	'Trained Hunter' Qualification for Large and Small Game Meat Hygiene
Drimnin	??	??	??
Glencripesdale Estate	??	??	
Glencripesdale Reserve	Contractor 1	1	Preparation and Inspection of Deer Carcases; Wildlife Management; Trained Hunter Status;Woodland Deer Management; Moorland Management; SNH Fit and Competent register
Glensanda			
Kingairloch	Contractor 1	1	SNH Fit and Competent register
Killundine		1	SNH Fit and Competent register; Lantra Advanced Deer Management; SVQ Diploma in Meat processing etc.
Kinlochteacuis	1; 1p/t		
Laudale	1	1	Preparation and Inspection of Deer Carcases; Wildlife Management; Trained Hunter Status; Woodland deer Management; Moorland Management; SNH Fit and Competent register
Rahoy Estate	1	1	
Rahoy Hills [SWT]			
TOTAL			

Many also have : Sit-in ATV Skid Steer All Terrain; Sit-astride ATV;

The Morvern Group keeps and updates a register of skills of practitioners and is committed to increasing this skills base. Training courses will be held over the coming years in Habitat Impact Assessments and all stalkers will be encouraged to achieve DMQ2 in the course of the current 5 year Plan period.

Welfare:

D3.3 Data on annual recruitment rates (from end of winter counts) as well as data on winter mortality are gathered by most Estates; MDMG and individual Estates also consider carefully the implications on access to cover/shelter when reviewing proposals for new fencing or in the context of phasing of felling or enclosure-for-restocking within individual Estates' proposed Forest Plans.

To assist towards this the Group will work with SNH to develop an updated map of all deer fencing within the Management Area noting where this is complete and impermeable and where such fences are currently porous. MDMG will collate the data towards production of such a map over the next 18 months and will thereafter aim to maintain in in relation to new fencing or fence removal reported at annual meetings.

D3.4 On other welfare issues (e.g. during culling operations) the Group is committed to guidance offered by BPG to minimise risk of injury or orphaning of dependent juveniles (thus for example, whenever practicable, culling the calf first when culling mother-calf pairs).

Deer-Vehicle Collisions:

D 3.5 There are relatively few traffic accidents involving deer within the area although occasional incidents are reported on the A884 through the White Glen and along the A861 in Glen Tarbert. Incidents reported in the last 5 years are shown on Map 8.

D3.6 MDMG will continue to monitor such incidents and if DVCs are perceived as an issue in the future, will act as a forum to identify and assist in the delivery of appropriate actions/solutions. SNH/ Transport Scotland/ Local Authority will be involved as required. will continue to monitor such incidents and will collate statistics on DVCs noted or attended (together with records of culls and winter mortality) at its regular meetings. These statistics will be submitted by the Group annually to contribute to the national DVC database at www.deercollisions.co.uk. If DVCs are perceived as an issue in the future, MDMG will liaise with neighbouring Deer Management groups to act as a forum to identify and assist in the delivery of appropriate actions/solutions; SNH/Transport Scotland/Local Authority will be involved as required.

Economic Costs and benefits

D3.7 The Group will also seek to compile an assessment, at Group level, of the economic costs and benefits associated with Deer Management in Morvern, although data for individual properties will be kept confidential and only summary figures released. Such costs and benefits include: how many full-time and how many part-time staff are employed within the Group Area in relation to deer and their management; salaries/wages paid to staff, additional costs [accommodation of staff]; capital costs for purchase and maintenance of fences, vehicles; fuel costs etc… and in terms of **benefits:** income from sporting lets; income from accommodation rental associated with sporting lets, venison income, investment in conservation initiatives etc.

D3.8 Members of the Morvern Group currently employ 4 FT Staff and 7 PT. Morvern as a whole has a population of around 300 – with perhaps 150 of working age. 7 FTE thus represents around 5% of the population of working age.

Woodland Creation:

D3.9 Significant works are proposed on a number of Estates to restore native woodlands reported under recent SCM (or within the NWSoS) to be in unfavourable condition as the result of herbivore impacts with proposals for significant restrictring at Kingairloch and Laudale, with significant ongoing works on Glencripesdale Estate and Carnoch and proposals for further woooldand creation at Ardtornish, Glencripesdale, Glensanda, Kingairloch and Kinlochteacuis. Further woodland creation may well be undertaken by member Estates over the course of the Plan and indeed proposals are included in the Long-Term Forest Plans developed by some members. Such initiatives however are for the most part dependent on availability of funding through SRDP or other mechanisms. However, MDMG will regularly review possibilities at annual meetings and support individual estates where woodland creation is an option.

Communication:

D3.10 The MDMG holds regular meetings which are in general well-attended by members. These meetings offer a forum for regular exchange of information on counts and culls and other routine monitoring information. Members are fully committed to attendance at such meetings or where unable to attend, to send representatives.

D3.11 The DMG also agrees that it shall send a representative to all public meetings held to discuss Long Term Forest Plans (or other plans open to public consultation) where these concern an Estate within the Group. The Chairman shall also attend Community Council meetings within Morvern to represent the Group and answer any questions arising about deer management within the area.

D3.12 The Group will undertake regular updates of the MDMG section of 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.

Education and wider Engagement:

D3.13 The Group already acts as a wider forum for discussion of matters relating to wider land management within the area and is for example currently considering involvement in a scheme being proposed by the Woodland Trust to establish a continuous corridor of broadleaved woodland around the Morvern coast.
Independently it is keeping under consideration proposals by some members for engagement in a Living Landscapes initiative and offering support to the Wildcat Haven project currently focused within Morvern and Ardnamurchan. The Carna Conservation Initiative [CIC] is particularly committed to this latter initiative.

D3.14 Many individual properties have a commitment to wider communication and education within the community, with guided walks on Ardtornish Estate or within the SWT Rahoy Hills Reserve and occasional talks given to pupils within the local Primary School.
Research and education also form a major part of the objectives of the Carna Conservation Initiative based within the area on the offshore island of Carna in Loch Sunart (paragraph B13.7).

Public Access; Public Safety

D3.15 Many of the properties of Morvern have significant public access; as noted there are a number of areas designated as of especially conservation interest. Access is encouraged and there is signage at the head of the peninsula (Carnoch) advising of deer management activities within the area. Members of the Group will be encouraged to contribute to the SG initiative "Heading for the Scottish Hills" and to complete the associated questionnaires.

D3.16 The Group aims to increase awareness of Lyme disease and other tick-borne diseases amongst stalking staff and guests/visitors. In general however, it is felt that action lies with individual landholdings. The HPS Lyme awareness leaflet could be included as part of estate visitor information.

D3.17 In production of venison for human consumption, the Group is committed to promoting Trained hunter status and encouraging those handling carcases to obtain e.g. Lantra Certificate in Wild Game Meat Hygiene. Estates are to be encouraged to register as approved outlets under the Scottish Quality Assurance Scheme for Venison Production [SQWV]. Uptake of this, and of the number of employed staff trained to DMQ1 and DMQ2 to be reviewed on periodic basis [see D3.2].

Summary of Public Interest Benefits and Action Points:

	Requirement	Action	Action Points
1	Develop effective mechanisms to manage deer	The Group has revised its former Deer Management Plan and offers here a Plan for the period 2015-2020. As a whole the Group employs 4 full-time staff and 7 part-time staff. Between owners and employees 10 hold DMQ1 and 6 DMQ2. The Group as a whole is fully committed to ensuring continuing training and development.	Progress under the Plan to be reviewed at annual meetings and full Plan to 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 [Annual]
2	Contribute to the delivery of designated features into Favourable Condition	The condition of all sites is reviewed in this Plan with reference to the latest Site Condition Monitoring or Herbivore Impact assessments reported by SNH. Actions are included in future management proposals for individual Estates (or groups of Estates where a designated site may encompass more than one landholding) to address reported impacts.	Group /individual estates to initiate programmes of routine Habitat Impact Assessment. 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
3	Manage deer to retain existing native woodland cover and improve woodland condition in the medium to long term	The Morvern Management Area includes a total area of 5283.5 hectares of native woodland and 3090.8 hectares of commercial or mixed woodland. Much of this area is fenced, but there is active monitoring throughout to assess browsing impacts and plans for individual Estates contain provision for other measures to address developing impacts in commercial and native woodland sites, especially within designated areas.	Impacts in woodland areas to be assessed as part of ongoing Habitat Impact Assessments (above) and reported to the Group where collaborative action my be required in future management [Annual meetings]
4	Contribute to the Scottish Government woodland expansion target of 25% woodland cover.	The MDMG area currently supports 5283.5 ha of native woodland and 3090.8 hectares of commercial forestry. Proposals tabled to date provide for a further increase in area of 60.9 hectares native woodland and 91 hectares of commercial forestry although considerable additional planting is anticipated in some areas (e.g. Glencripesdale)	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
5	Monitor and manage deer impacts in the wider countryside (not improved agricultural land)	Regular Herbivore Impact Assessments are already being undertaken on a number of estates [e.g. Rahoy Hills, Rahoy Estate, SNH Glencripesdale, Carnoch etc] and other will initiate such monitoring during the course of this Plan period. The Group as a whole proposes to establish a minimum of 30 plots across the wider area in each of 3 key habitats (blanket bog, wet heath, dry heath) to be monitored on a 3-yearly cycle. Training will be provided to those estate staff keen to undertake these assessments	Member estates to be encouraged to initiate regular programme of monitoring of 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 [Annual]

6	Maintain Scotland's Carbon storage capability and contribute to securing future carbon storage potential	The extent of existing woodland cover is detailed at (4) above) and there are current proposals to increase this by 151.9 hectares overall. Peatlands and areas of open heathland [assessedassessed by Land Cover Scotland at 22633 ha] also contribute significantly to carbon storage/sequestration and the Group is committed to maintaining such areas in good condition with ongoing deer management to ensure that impacts do not exceed moderate levels	In addition to woodland creation already proposed within this plan a number of estates are actively considering further woodland creation. It is noted that that there may be opportunities for reprofiling and revegetating areas of hagged peat on some of the higher ground to retore this to better condition.The Group will consider such opportunities further to enhance peatland erosion areas and will explore suitable funding sources opportunities.
7	Reduce or mitigate the risk of establishment of invasive non-native species	The Group has a policy for culling of sika when encountered within the area; muntjac are not currently recorded but any sightings in the future will be reported to SNH. The current goat population is localised and shows no evidence of expansion but will be kept under review	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. [Annual]
8	Protect landscapes and historic features from deer and deer management activity.	The Group will consult a local archaeologist to identify sites and prepare a register of known sites; this will be circulated to all members. At a wider landscape level, any fencing proposals will be risk-assessed against potential impacts (as in the Joint Agency Agreement on Fencing) with appropriate mitigation put in place where potential impacts are identified	To be actioned. All fencing proposals will be brought to the Group for discussion of potential impacts on deer distribution and movement patterns and any necessary compensatory action discussed. Group will also work with SNH to prepare a map of current fencing within the Management Area
9	Contribute to delivering higher standards of competence in deer management	MDMG maintains a register of current skills and qualification of full-time and part-time staff employed in deer management. The Group as a whole has a commitment to ensure that all full-time staff shall in due course be qualified to DSC2. The Group is committed to offering ongoing training in other areas (e.g. in habitat impact assessment)	As above, 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
10	Identify and promote opportunities contributing to public health and well-being benefits	Deer-vehicle collisions are few and very localised; in such areas roadside fencing will be reviewed/replaced. If DVCs are perceived as an issue in the future DMG will act as a forum to identify and assist in the delivery of appropriate actions and SNH/Transport Scotland/Local Authority will be involved as required. The Group aims to increase awareness of Lyme disease and other tick-borne diseases amongst stalking staff and guests/visitors	The Group will collate data on DVCs 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 Group to encourage members to include the HPS Lyme awareness leaflet as part of estate visitor information.

		In production of venison for human consumption, the Group is committed to promoting Trained hunter status and encouraging those handling carcases to obtain e.g. Lantra Certificate in Wild Game Meat Hygiene. Estates are to be encouraged to register as approved outlets under the Scottish Quality Assurance Scheme for Venison Production	Group to encourage all those handling venison for consumption to secure Trained Hunter status and to review this as part of the regular annuual assessment of training and qualifications (above: 1, 9)
11	Optimise economic benefits of Deer Management in Scotland	The DMG has established an initiative to collect and collate information from individual estates on economic costs and benefits of deer and deer management (see paragraph D3.4) although summary statistics only will be released more publicly. The Group will hope to utilise a new spreadsheet which it is believed has recently been commissioned by SNH, to record and collate such information when this package becomes more generally available. The Group also seeks to minimise ***ecologica***l costs of deer impacts on habitats and wider biodiversity – and the associated economic costs of necessary mitigation	Group to establish a mechanism for collating and interpreting data available on economic costs and benefits of deer and their management
12	Minimise the economic cost of deer		
13	Ensure effective communication on deer management issues	The MDMG holds regular meetings which are in general well-attended by members. These meetings offer a forum for regular exchange of information on counts and culls and other routine monitoring information. Members are fully committed to attendance at such meetings or where unable to attend, to send representatives. The DMG also agrees that it shall send a representative to all public meetings held to discuss Long Term Forest Plans (or other plans open to public consultation) where these concern an Estate within the Group. The Chairman shall also attend Community Council meetings within Morvern to represent the Group and answer any questions arising about deer management within the area. 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.	The MDMG holds regular meetings which are in general well-attended by members. Members are fully committed to attendance at such meetings or where unable to attend, to send representatives. Representatives are also invited from and other local individuals or community Groups where appropriate. 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.
14	Ensure deer welfare is taken fully into account at individual animal and population level	Data on annual recruitment rates (from end of winter counts) as well as data on winter mortality are gathered by most Estates; MDMG and individual Estates also consider carefully the implications on access to cover/shelter when reviewing proposals for new fencing or in the context of phasing of felling or enclosure for restocking within individual Estates' LTFP. On other welfare issues (e.g. during culling operations) MDMG is committed to guidance offered by BPG	Member Estates to 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

AUDIT:

To assist in assessment of the success and delivery of this Plan, individual members shall be asked to complete an annual audit of actions undertaken on individual properties againsts targets set in section C of this Plan. A proforma template is provided in Appendix Three. Example sheets should be tailored to each individual property in relation to actions to which they have committed in Section C (cull targets, population targets, other management measures committed) and actions undertaken entered each year by comparison to targets set. Completed forms should be submitted to the Group Secretary before each annual meeting. The Group will also undertake to update the database of skills and assess future training requirements of all involved in deer management at annual meetings.

In relation to Group commitments made in section D, it is suggested that a regular part of the Agenda of each AGM should be to go through each of the Action Points listed in the table on pages 98-100 [final column] in relation to each of the 14 defined Public Benefits sought, and actions taken against each of those 14 named points should be individually and formally minuted. It is accepted that this summary of Public Benefits to be sought is provisional and the group will also undertake to develop and revise it as time goes on, to further refine the yearly action plan.

Appendix One

MORVERN DEER MANAGEMENT GROUP

CONSTITUTION

1. Name and Area of Operation

The group shall be known as the Morvern Deer Management Group (MDMG) and shall cover the whole area of the Morvern peninsular bounded by the A861 public road between Carnoch and Inversanda to the north and the sea on all other sides.

2. Functions and Objectives

The main objectives of the Group shall be ensuring the well-being of the deer population of Morvern, protecting the environment and biodiversity, and helping to achieve a sustainable and economically viable peninsula, while taking account of the public interest and those of other stakeholders. With this in mind the functions of the Group shall be to work together to:

a. Work collaboratively to develop, operate and periodically review deer management plans for individual land holdings and a co-ordinated plan for the whole peninsula area under its control, focusing in particular on deer welfare, sustainable land use and bio diversity.

b. Assist in resolving any differences in deer management objectives within the group area and collaborate with a view to agreeing land holding and overall cull levels annually.

c. Carry out census work including, where possible, an annual deer count of the group area, leading to appropriate group and estate level culling policies.

d. Encourage estate owners and members to keep such detailed records and carry out such practices as are required by statute and as are recommended from time to time by SNH Wildlife Operations and/or ADMG.

e. Act as a forum for discussion on deer management subjects and generally as a discussion group for neighbours within the peninsula, where issues can be raised and matters of dispute resolved.

f. Promote the activities of the MDMG, the ADMG and the principle of voluntary self regulation of deer management activities, contributing to the legitimate public interest in deer and communication of deer management plans to the local community.

3. Composition of the Group

The group will consist of one nominated representative from each significant land holding with deer in the area, who will be a voting member of the group provided that the subscription for that landholding has been paid. Landholdings which have not paid subscriptions will be permitted to send a representative to meetings but will not be permitted to vote.

The voting members will have a right to co-opt other people to be non-voting members of the group. This could include managers, stalkers and other individuals or representatives of groups with interests in deer management and other types of land use.

The group also have the power to invite other individuals to specific meetings where they feel this to be appropriate. In addition representatives of SNH Wildlife Operations and the ADMG will be asked to attend in an advisory capacity.

MORVERN DEER MANAGEMENT GROUP

CONSTITUTION

4. Officers

The officers shall be the Chairman, Vice-Chairman, Secretary /Treasurer, all of whom shall be elected at the AGM or at an EGM in the event of a retirement between AGMs. Nominations for these appointments shall be proposed and seconded and, in the case of the Chairman and Vice-Chairman, nominations shall be from among the voting members.

The term of office for each position will be three years and office holders shall serve no more than two three year terms in any one office. All officers shall be unremunerated except for the reimbursement of reasonable expenses on MDVG business against submission of receipts.

The responsibilities of the officers shall be:

- Chairman – to conduct meetings to ensure that issues are fully discussed and decisions documented; to ensure that members receive necessary information, lead communications with the local community and political representatives, represent MDMG with the ADMG and contribute to policy development, facilitate resolution of disagreements between members.
- Vice-Chairman – support the Chairman and deputise where necessary, assume some of the duties of the Chairman as required.

Secretary/treasurer: schedule meetings, issue meeting notices, agendas and papers; keep minutes; keep members informed of ADMG and other developments; co-ordinate the updating of deer management plans; obtain, consolidate and disseminate cull statistics; arrange an annual deer count; control expenditure and subscriptions to ensure the MDMG rains solvent; arrange the preparation of annual accounts; and recommend the annual funding and subscription level and arrange collection of subscriptions.

5. Annual General Meeting

The Annual General Meeting (AGM) of the group should be held once a year as soon after the stag stalking season as possible and shall be attended only by voting members or their proxies. It will be followed on the same day by the autumn ordinary meeting.

Written notice of the time, date and place of the AGM should be sent by post or email with suitable notice and in any case not less than one month before the meeting. This notice should also detail the items to be included on the agenda, together with a list of the current voting members and their proxies and non voting members. Business not on the agenda can be taken at the discretion of the chairman.

Co-options shall be subject to re-election at the AGM.

The Secretary/Treasurer shall present the accounts for the preceding year, propose the level of funding and subscriptions for the coming year, and dates for ordinary meetings in the next year and for the next AGM for approval at the AGM (see para 11 below).

MORVERN DEER MANAGEMENT GROUP

CONSTITUTION

6. **Extraordinary General Meeting**

Extraordinary General Meetings (EGM) shall be held upon the chairman's decision or upon requisition in writing to the chairman or secretary signed by at least one quarter of the voting members. Notice of EGMs shall be as for AGMs. Attendance shall be restricted to voting members or their proxies.

7. **Ordinary Meetings**

There shall be at least two ordinary business meetings a year, one of which will normally take place at the same time as the AGM and the other in the spring. The agenda for the meeting and any relevant papers, including a brief written report on the activities of the officers, will be issued by post or email at least two weeks in advance.

8. **Voting**

The voting members of the group shall have one vote each. In the case of an even vote the proposal or motion shall not be approved.

Voting members who cannot be present at a meeting may nominate a proxy in writing or by e-mail to the Chairman or secretary. The proxy will have the power to vote and act on their behalf in all matters.

9. **Quorum**

A quorum at a meeting shall consist of not less than fifty percent of the voting members or their nominated proxies (see para 8 above).

10. **Circulation**

As well as the notices of all meetings, the current membership role, agenda and minutes of all meetings will be circulated to all members as well as SNH Wildlife Operations and the ADMG. The secretary shall also circulate such other papers as are agreed by the group from time to time. Approved minutes of our meetings will be sent to the Morvern Community Council.

11. **Funding**

The group will have the power to operate a bank account for the purpose of administering its own affairs. Signatories to the account may be any of the officers.

The total funding shall be paid for by subscriptions in proportion to the individual members' annual deer cull for the past year. The group will also have the power to raise subscriptions from non-culling members to cover the cost of administering their membership.

12. **Review of Constitution**

The constitution shall be reviewed at least every three years and re-approved at the AGM.

Approved by the MDMG at its meeting on 29th October 2014.

Signed: Chairman

Date 29th October 2014

Appendix Two: Summary statistics of woodland resources in the MDMG Area

Name of Estate	**Total Area of Native Woodland on property (ha)**	**Total Area of Native woodland (ha) established by 2008**	**Total Area of Native woodland (ha) established by 2014**	**Total Area of new Native woodland (ha) proposed 2015-2020**
Ardtornish	2000	1905	2000	21
[Carna]				
Carnoch	907	907	907	
Drimnin	300	260	300	
Glencripesdale Estate	155	155	203	Ongoing
Glencripesdale Reserve	388	315	388	
Glensanda	No information provided	No information provided	Added 15 ha	No information provided
Killundine	135	148	135	
Kingairloch	119	44.5	119	39.9
Kinlochteacuis	120	120	120	
Laudale	555	555	555	
Rahoy Estate	556.5	556.5	556.5	
Rahoy Hills [SWT]				
TOTAL	5235.5	4966	5283.5	60.9

Further woodland creation may well be undertaken by member Estates over the course of the Plan and indeed proposals are included in the Long-Term Forest Plans developed by some members. Such initiatives however are for the most part dependent on availability of funding through SRDP or other mechanisms. However, MDMG will regularly review possibilities at annual meetings and support individual estates where woodland creation is an option.

Name of Estate	**Total Area of Commercial Forestry on property (ha)**	**Total Area of Commercial Forestry (ha) by 2008**	**Total Area of Commercial Forestry (ha) by 2014**	**Total Area of new Forestry (ha) proposed 2015-2020**
Ardtornish	446	446	446	80
[Carna]				
Carnoch	0	0	0	0
Drimnin [including Mungasdail]	1050 [incl. approx 638 ha. Mungasdail]	1050	1050	
Glencripesdale Estate	625	unknown[9]	625	0
Glencripesdale Reserve	0	0	0	0
Glensanda	0	0	0	0
Killundine	350.8	270	350.8	
Kingairloch	124	124	124	0
Kinlochteacuis	5	5	5	
Laudale	490	490	490	11
Rahoy Estate	0	0	0	0
Rahoy Hills [SWT]				
TOTAL	3090.8	3385	3090.8	91

[9] Forestry Commission Scotland advise approx 1000 ha

Appendix Three: Example of annual audit sheet for completion by individual Estates and return to the MDMG. Sheets should be tailored to each individual property in relation to actions committed (cull targets, population targets, other management measures committed) and actions undertaken entered each year by comparison to targets set.

Sample Audit sheet for Commitments Summarised in Section C of this Plan

		2014/15		**2015/16**		**2016/17**		**2017/18**		**2018/19**	
CULL		target	actual	target	actual	target	actual	target	Actual	target	actual
	Stags	10-12		10-12		10-12		?		?	
	Hinds	15-20		?		?		?		?	
	Calves										
COUNT	Ground Count	**yes**		**yes**		**yes**		**Yes**		**yes**	
	Numbers S: H: C	S: H: C:		S: H: C:		S: H: C:		S: H: C:		S: H: C:	
	Heli-Copter										
	Numbers S: H: C										
Target Population	Stags	**up to 70**		**up to 70**		**up to 70**		**up to 70**		**up to 70**	
	Hinds	[e.g.] **140-150**		**140-150**		**140-150**		**140-150**		**140-150**	
OPEN HILL VEGETATION MANAGEMENT											
	Areas Burnt										
	Bracken sprayed										
	Conservation Measures										

WOODLAND MANAGEMENT	Commercial Forestry Activity					
	Native Woodland Creation/Restoration					
HABITAT IMPACT ASSESSMENTS						
INFRASTRUCTURE	[e.g. Argo tracks and maintenance] list actions					
TRAINING						

Other Notes:

Appendix Four:

Drimnin Estate
Deer Management Plan

1. **The Plan**
   - 1.1. This deer management plan for Drimnin Estate replaces the previous plan produced in 2008
   - 1.2. The general policy in relation to deer management is to:
     - 1.2.1. Maintain a population on the open hill of around 200 hinds and stags, which experience has shown is sustainable in the context of grazing of some 250 hill ewes and around 50 predominantly Luing cows on the same ground but move to a roughly equal mix of hinds and stags
     - 1.2.2. Keep the deer population within the Drumbuidhe regeneration area, the in-bye land and the commercial and broadleaf plantations to the minimum levels
     - 1.2.3. Maintain existing deer fences including the integrity of the boundary fence with Killundine Estate and FCS Barr
     - 1.2.4. Monitor the impact on habitat and adjust deer population levels accordingly and consider an increase in the population on the open hill if habitat development indicates this is sustainable
   - 1.3. The plan considers the current size and health of the deer population and concludes that the existing culling policy remains sound. It also reports on the implementation of the recommendations in the 2008 Plan, which is largely complete, and reviews the potential impact of future forest/woodland plans.
   - 1.4. The plan will deliver the Scottish government's broader objectives.
2. **Progress since last report**
   - 2.1. Since the preparation of the main deer management plan in 2008 all of the actions then recommended have been implemented with exception of the opening up of part of the Auliston plantation to deer, which is not now planned until harvesting of Auliston commences in 2025 or later.
   - 2.2. Details are set out in Attachment 1.
3. **The Estate**
   - 3.1. The Estate consist of 2,840 ha which breaks down into the following categories:
     - 3.1.1. Native woodland 240
     - 3.1.2. Commercial forest 705
     - 3.1.3. In bye land 605
     - 3.1.4. Open hill 1,290
   - 3.2. The Estate is a mixed economy including livestock farming, meat (including venison) sales, holiday let cottages, fishing and some stalking, forestry, and property rental.
   - 3.3. It is the intention to continue to diversify and grow the Estate's income with a view to financial self-sufficiency. Within this the income from stalking and venison sales will continue to play a small but valuable part.
4. **Changes to the Estate**
   - 4.1. Aside from the actions resulting from the DMP, the only major change on the Estate has been the acquisition of the 700 ha Mungosdail Forest which lies on the southern boundary of the original Estate. The enlarged Estate remains segregated from neighbouring properties by perimeter deer fence; although often suggested,

there is little evidence of immigration by land or sea from neighbouring properties to the north and east. The external and internal fences of Mungosdail have been repaired, including where they had been cut on the boundary with Carnacailliche, and deer jumps installed to encourage deer out onto the open hill. Deer numbers are now thought to be low within the Forest.

4.2. Livestock management has been modified to reduce the number of followers over-wintered and to graze cattle as well as sheep over open the hill. These actions have not adversely affected the deer population but are showing signs of improving grazing for both deer and livestock, particularly in those areas most grazed by cattle nearer to the in-bye fence lines and tracks.

4.3. A forest plan has been prepared and approved which sets out harvesting plans for Mungosdail (which do not affect the deer population) potential protection of the eastern section of the Drumbuidhe SSSI, planation of around 50 ha of open hill immediately to the north of the Mungosdail Forest with native broadleaf trees, and opening up part of the existing Drumbuidhe regeneration area to livestock and/or deer.

5. Audit

5.1. Habitat

5.1.1. The open hill vegetation divides in the main into two ‘zones’. To west of the hill track leading from the house towards Drumbuidhe, the slopes to the shore are largely grassy with varying degrees of encroachment by bracken. These grasslands are dominated by brown bent, with either sheep’s fescue or sweet vernal grass. They contain patches of ling heather, but because of grazing pressure from deer and livestock over the years this has become restricted to small patches. These grasslands are often herb-rich and where protected from grazing support an abundance of flowering species.

5.1.2. The proportion of heather increases on the more acid soils above the hill track, where the steeper slopes support an excellent heather cover with smaller patches of grassland interspersed between the patches of heather. Only in the bottoms of north-south gullies between Drimnin’s many ridges, do the grasses come to dominate. Throughout the Estate, the north-facing and west-facing slopes (from approximate grid reference NM558568 – NM563553) are strongly dominated by heather, which is in excellent condition. There is also strong growth of heather on the west-facing slopes between the Mungosdail fence and Achleanan (around grid reference NM573544).

5.1.3. As slopes diminish towards the tops of ridges in the west, or on the more extensive flats away towards the eastern march beyond Crois Bheinn, the ground becomes significantly wetter. The ridges themselves remain fairly heathery, but the heather declines in vigour. There are still some ‘good’ patches on steeper slopes or on rocky hummocks emerging from the surrounding flatter terrain, but otherwise, the gentler slopes and flats support a more general wet-heath vegetation or grades towards blanket bog mire. On the more gentle slopes this wet heath vegetation is dominated by deer-grass with some straggly clumps of heather interspersed. On areas of deeper peat between the ridges, purple moor-grass often becomes increasingly present, while heather remains sparse and there are some extensive patches of true blanket bog.

5.1.4. Over the last five years the quality of grazing has improved, particularly in those areas most used by cattle with more vigorous growth and recovery in the heather. There continues to be significant grazing pressure in the western (open) end of the Drumbuidhe SSSI, which is a key shelter area for deer, and to a lesser extent in the more open lower grazing either side of the Auliston Forest.

5.1.5. Plans are in place to undertake regular habitat monitoring as part of this plan.

5.2. Deer information

5.2.1. The number of red deer on the open hill have been relatively stable at between 100 and 125 hinds and around 75 stags, with some decline in the number of hinds about three years' ago, potentially because of weaknesses in the fence with Mungosdail Forest, which have now been remedied. Cull numbers are shown in Attachment 2.

5.2.2. No significant variations have been seen in hind weights from year to year, nor has there been any abnormal mortality.

5.2.3. Red deer numbers in the Drumbuidhe regeneration area increased in the 2005-2010 period but have subsequently been reduced to a very small number by more aggressive culling. Numbers within the Auliston and Mungosdail Forests are low, again controlled by aggressive culling.

5.2.4. Red deer numbers are monitored regularly by observation and an annual count by the stalker, which is possible because of the easy access to the land.

5.2.5. There are fluctuating numbers of roe deer in the policy woodlands around Drimnin House. Occasional culling is undertaken if the numbers appear to be increasing to the point that threatens natural regeneration or excessive mortality.

5.3. Other herbivores

5.3.1. Some 175 Blackface ewes are grazed on the open hill

5.3.2. The majority of the 50, largely Luing, cows are out wintered on the open hill. They are fed rolls but not silage or hay while on the hill.

5.4. Biodiversity priorities

5.4.1. It is important that the combined numbers of cattle, sheep and deer on the open hill are such not as to cause degradation. This will be kept under review through regular habitat monitoring.

5.4.2. Other mammals present on the Estate include otter, fox, pine marten, mink and wildcat. None of these is in significant competition with deer or livestock.

5.4.3. There has been significant planting of native broadleaf trees in recent areas including 38 ha within the open hill. A further 40-50 ha of such broadleaf planting is planned. Further opportunities for planting are constrained by the fact that 36% of the Estate is already accounted for by forest/woodland.

5.5. Designations

5.5.1. Much of the Drumbuidhe regeneration area, the coastal strip to the west of the latter area, and the woodlands around the lower sections of the Mungosdail River are all SSSI and fall within the wider Special Area of Conservation.

5.5.2. Action is planned to allow regeneration of the western section of the SSI as part of the Forest Plan.

5.6. **Access issues**

5.6.1. The main track form the public road through to Doirlinn in a sign-posted pubic non-vehicular right of way and a core path. There is a variety of other established footpaths on the Estate, many of which have been way marked.

5.6.2. Walkers and others are welcomed on the Estate although they are relatively few in number because of the remoteness of the estate. No conflicts have occurred between deer culling and access takers. Notices are posted on days when stalking is taking place.

5.7. Social and economic information

5.7.1. The size of the annual cull has led to the establishment of an arrangement with a non-employed stalker who manages the annual cull. Members of the Estate team provide support in checking fences etc.

5.7.2. The deer cull and related venison sales bring in a limited amount of income for the Estate (less than 10% of the total).

5.8. Community impact

5.8.1. The principal impact of this plan on the Drimnin community is the effect of red and row deer in and around the centre of the village and on the public roads.

5.8.2. At present there is little presence of red deer in the village or on the public road in the immediate vicinity of the Estate. Roe deer are present and do cause damage to gardens when the latter are not deer fenced.

5.9. Scottish Government priorities

5.9.1. **Ensure designated features are in a favourable condition** – the plan will result in the remaining unprotected SSSI achieving favourable condition.

5.9.2. **Retain woodland cover and improve condition** – the plan protects existing enclosed woodland and will improve the condition of the remaining unenclosed woodland.

5.9.3. **Contribute to the Government's 25% woodland cover target** – Drimnin already has 36% woodland cover which will be increased by the planned broadleaf planting.

5.9.4. **Manage deer impact in the wider countryside** – current policies already achieve this objective but will be reinforced by habitat monitoring and any resulting corrective action.

5.9.5. **Improve the ability to store carbon** – this will be achieved by habitat monitoring and planned restoration of peatlands as part of the Forest Plan.

5.9.6. **Reduce or mitigate the impact of non-native species** – policy of culling all non-native species will be maintained.

5.9.7. **Protect designated features** – designated features are not currently at risk from deer damage.

5.9.8. **Contribute to higher standards of competence in deer management** – staff already meet required standards.

5.9.9. **Contribute to public health** – Estate communications meet this requirement.

5.9.10. **Maximise economic benefits associated with deer** – the Estate's strategy is to achieve this objective within the context of maximising the economic contribution of a diversified business.

5.9.11. **Minimise the economic cost of deer** – no significant economic costs of deer within the local community have been identified.

5.9.12. **Ensure effective communication on deer management** – this will be achieved through communication within the local community and via the Morvern Deer Management Group.

5.9.13. **Consider deer welfare** – this objective is at the heart of the Estate's deer population management and culling policy.

5.9.14. Additional details are shown in Attachment 3.

6. Setting objectives

6.1. Analysis of audit

6.1.1. The audit has confirmed that current herd and cull numbers are in balance with the capacity of the habitat.

6.1.2. There will be a requirement to assess the impact of creating the planned new block of woodland from which deer are excluded.

6.2. Ideal objectives

6.2.1. The ideal objectives are to maintain both target herd and cull numbers while facilitating the recovery and regeneration of the western Drumbuidhe SSSI and providing replacement woodland shelter for deer over the winter.

6.3. Constraints and limiting factors

6.3.1. Subdividing the Drumbuidhe regeneration area to allow access for deer to certain parts while permitting continued regeneration in others will be expensive and not feasible without grant support. This will constrain the ability to facilitate regeneration in the western Drumbuidhe SSSI.

6.4. Desired and achievable objectives

6.4.1. The timing for the above actions will depend on the availability of grant funding.

7. Setting targets

7.1. Deer population

7.1.1. The deer population on the open hill will be managed to a long-term target of 100 hinds and 100 stags. This target will be kept under review in the light of habitat monitoring and deer health, body weights and mortality with a view to increasing the target if this proves sustainable. Numbers will be counted annually.

7.1.2. The boundary fences with Killundine Estate and FCS Barr will be maintained in deer-proof condition.

7.1.3. No specific population target is set for roe deer.

7.2. Deer culls

7.2.1. Culls will be determined by the level required to meet the target population and will be reviewed regularly.

7.2.2. Culls of around 15 stags and 15 hinds per year will be the target, plus culling of any excess deer in the forest/woodland enclosures.

7.3. Damage by deer

7.3.1. The target is minimal damage by deer to trees both within and without the enclosed forest/woodland

7.4. Habitat

7.4.1. The target is at least to maintain the current quality of habitat.

7.4.2. Habitats to be monitored regularly

7.5. Economics

7.5.1. Maintain current levels of income subject to the constraints outlined above

8. Actions

8.1. As part of the Forest Plan a detailed plan will be developed for the regeneration of the western section of the Drumbuidhe SSSI and for internal fencing of the existing Drumbuidhe regeneration area to provide replacement sheltered grazing for deer. Grant application to be made in 2016.

8.2. Annual ground counts will be conducted.

8.3. Regular habitat monitoring will be instituted in 2016.

8.4. Plans will be developed in due course to restructure the Auliston and Mungosdail forests, to coincide with first harvesting in each case.

December 2014

Implementation Status of Recommendations of Prior Report

11. Drimnin

C11.3 Cull pressure will also be increased within the Druimbuidhe enclosure with the aim of reducing deer numbers there to minimum presence. ***This is taking place as a matter of routine.*** While subdivision of this area, to allow continued regeneration in some parts with renewed access for deer to others would be desirable, no major decisions will be made about longer-term plans in this regard (B11.45) until more information is available about possible future grants which may help resolve what future management directions are likely to be feasible. ***The area has been subdivided with electric stock fence to allow the grazing of cattle in some areas that have not regenerated. Upgrading of this fence to deer standards to allow access for deer is not economically viable without grant support.***

C11.4 In order to try and maintain a wider (and more even) distribution of animals over the remaining ground, consideration will be given to measures designed increase availability of shelter and good quality grazing elsewhere within the wider Estate. ***Improvements have been made where possible.***

C11.5 The Estate thus proposes changes in management of livestock in terms of its use of the hill ground, proposing increased, targeted use of the hill for Highland cattle and Galloways.
Implemented
While this is seen in part as a way of increasing grazing available to the cattle themselves, it is also viewed as a way of actively improving the hill grazing - using the capacity of cattle to graze and successfully utilise coarser forage, the fertilising effect of the dung produced, and above all the effect of their heavier trampling impact in breaking up accumulated litter, to try and improve areas of poorer ground in areas currently underutilised by either sheep or deer.

C11.6 The Estate also proposes to open up parts of the Auliston Plantation to deer. The Estate already does use this plantation for cattle for part of the year, and has plans for restructuring the block in the medium- to longer-term (felling the conifers over a period of time and partial replanting with native broadleaves) when funding permits. Opening certain parts of it to deer as well will provide both additional shelter (in an area of ground where cover is limited) and low ground feeding, especially over winter. It might be of particular utility, given that this is adjacent to an area currently favoured by a significant proportion of Drimnin's stags. ***Will be implemented following approval of the forest plan and when Auliston becomes ready for harvesting, unless significant grant funding becomes available.***

Drimnin Estate

Deer Culls

	Red Deer				Roe
Year	**Stags**	**Hinds**	**Calves**	**Total**	**Deer**
2010-11	16	13	10	39	0
2011-12	21	10	9	40	1
2012-13	12	1	1	14	5
2013-14	15	0	0	15	0
2014-15	14	3	2	19	0

	Drimnin Deer Management Plan - Delivering Public Interest			
Actions		**In DMP (y/n)**	**What Is Drimnin Estate doing now? This is about current outputs (From date of audit)(Narrative)**	**What will Drimnin Estate do in the future? This is the detail: set targets where appropriate (Narrative)**
1. ACTIONS to develop mechanisms to manage deer				
	Carry out an assessment of effectiveness against the Benchmark	Y	Done	To be reviewed annually
	Develop a series of actions to be implemented and assign roles	Y	Done	
	Produce and publish a forward-looking, effective deer management plan which includes public interest elements relevant to local circumstances. Plan should include an	Y	Done	
	Summary : Agree a colour for current delivery of the Action (red, amber, green) and detail what is going to happen to deliver future actions		Effective deer management plans are in place and being adhered to.	
2. ACTIONS for the delivery of designated features into Favourable Condition.	Identify designated features, the reported condition and herbivore pressures affecting designated sites in the DMG area.	Y	The only designated site within the open hill to which deer have access is a small section of the Drumbuidhe SSSI. Deer are excluded from other designated sites, while livestock	Continue current policy and enclose the remaining section of the Drumbuie SSSI to exclude deer.
	Identify and agree actions to manage herbivore impacts affecting the favourable condition of designated features.	Y	See above	
	Monitor progress and review actions to manage herbivore impacts affecting favourable condition.	Y	Regularly monitored by SNH.	
	Summary : Agree a colour for current delivery of the Action (red, amber, green) and detail what is going to happen to deliver future actions		Enclosure of remainder of Drumbuidhe SSSI will complete the programme	See above
3. ACTIONS to manage deer to retain existing native woodland cover and improve woodland condition in the medium to long term.	Establish overall extent of woodland and determine what proportion is existing native woodland.	Y	Set out in old and new plans	
	Determine current condition of native woodland.	Y	Designated woodland condition known.	
	Identify actions to retain and improve native woodland condition and deliver DMG woodland management objectives.	Y	Principal action is enclosure of reminder of Drumbuie SSSI, together with maintenance of more recent plantings.	
	Monitor progress and review actions to manage herbivore impacts.	Y	No action currently required on herbivore impact.	There will be regular monitoring of herbivore impacts both on designated sites and the wider range. Habitat monitoring results will be used in an adaptive way to
	Summary : Agree a colour for current delivery of the Action (red, amber, green) and detail what is going to happen to deliver future actions		Meets objective	

Drimnin Deer Management Plan - Delivering Public Interest

Actions		In DMP (y/n)	What Is Drimnin Estate doing now? This is about current outputs (From date of audit)(Narrative)	What will Drimnin Estate do in the future? This is the detail: set targets where appropriate (Narrative)
4. ACTIONS to demonstrate DMG contribution to the Scottish Government woodland expansion target of 25% woodland cover.	Identify and quantify extent of recent woodland establishment (through SRDP (last 20 years) and through other schemes).	Y	Recent planting and regeneration action has extended to over 100 ha.	
	Identify and quantify opportunities and priorities for woodland expansion over the next 5-10 years.	Y	Current Forest Plan includes planting of circa 50 ha with native broadleaf and regeneration of 10-15 ha.	
	Consider at a population level the implication of increased woodland on deer densities and distribution across the DMG.	Y	Taken together the planned actions should allow current deer numbers to be maintained.	
	Implement actions to deliver the DMG woodland expansion proposals and review progress.	Y	Included in plan	Included in Deer Management and Forest Plans
	Summary : Agree a colour for current delivery of the Action (red, amber, green) and detail what is going to happen to deliver future actions		36% of Drimnin's land is already woodland, well in excess of the Government target. The planned action will increase this further.	
5. ACTIONS to monitor and manage deer impacts in the wider countryside.	Identify habitat resource by broad type.	Y	Included in DMP.	
	Identify required impact targets for habitat types.	N	Targets will be set when required; none needed now	
	identify a sustainable level of grazing and trampling for each of these habitat types.	Y	Current levels are sustainable but will be kept under review	
	Identify where different levels of grazing may be required and prioritise accordingly.	Y	No change currently required but will be kept under review	
	Conduct herbivore impact assessments , and assess these against acceptable impact ranges. Identify and implement actions to attain impacts within the range.	Y	Will be done regularly	
	Regularly review information to measure progress and adapt management when necessary.	Y	Will be done regularly	
	Summary : Agree a colour for current delivery of the Action (red, amber, green) and detail what is going to happen to deliver future actions		Plans meet requirement	
6. ACTIONS to improve Scotland's ability to store carbon by maintaining or improving ecosystem health.	Quantify the extent of the carbon-sensitive habitats within the DMG range.	N	Not done currently	
	Conduct herbivore impact assessments , and assess these against acceptable impact ranges for these sensitive habitats. Identify and implement actions to attain impacts	Y	Will be undertaken; Estate staff to be trained	
	Identify opportunities for the creation/restoration of peatlands	Y	Areas of peatland that have been planted will be harvested and left unplanted subject to approval of the Forest Plane	There are relatively few opportunities to create ne peatland.
	Contribute as appropriate to River Basin Management Planning	NA	Not applicable	
	Summary : Agree a colour for current delivery of the Action (red, amber, green) and detail what is going to happen to deliver future actions			

	Drimnin Deer Management Plan - Delivering Public Interest			
Actions		**In DMP (y/n)**	**What Is Drimnin Estate doing now? This is about current outputs (From date of audit)(Narrative)**	**What will Drimnin Estate do in the future? This is the detail: set targets where appropriate (Narrative)**
7. ACTIONS to reduce or mitigate the risk of establishment of invasive non-native species	Manage invasive non-native species (e.g. muntjac) to prevent their establishment and spread e.g. report sightings of muntjac to SNH	Y	Being undertaken.	Will continue -
	Agree on local management of other non-natives which may be utilised as a resource e.g. sika, fallow, goats, to reduce their spread and negative impacts.	Y	Sika/muntjac will be culled immediately if found.	
	Summary : Agree a colour for current delivery of the Action (red, amber, green) and detail what is going to happen to deliver future actions			
8. ACTIONS to protect designated historic and cultural features from being damaged by deer e.g. by trampling.	Identify any historic or cultural features that may be impacted by deer and undertake deer management to retain these features	Y	Done based on comprehensive archaeological survey; not currently considered to be a risk but will be monitored	
	Consider the implications of fencing on the landscape with due regard to the Joint Agency Guidance on Fencing.	Y	Already done; fencing delivered to fencing guidance under woodland schemes.	
	Summary : Agree a colour for current delivery of the Action (red, amber, green) and detail what is going to happen to deliver future actions			

9. ACTIONS to contribute to delivering higher standards of competence in deer management.	Undertake a skills and training assessment to establish current skill levels applicable to deer management within the DMG	Y	Done	
	Identify training and development needs / requirements of DMG members including opportunities for Continuous Professional Development (i.e. in relation to Best	Y	Assessment undertaken; none required	
	Ensure all those who actively manage deer are “competent” according to current standard	Y	Requirement satisfied	
	Promote and facilitate the uptake of formal and CPD training opportunities for those participating in deer management.	Y	Already utilised by stalker	
	Summary : Agree a colour for current delivery of the Action (red, amber, green) and detail what is going to happen to deliver future actions			

Drimnin Deer Management Plan - Delivering Public Interest

Actions		In DMP (y/n)	What Is Drimnin Estate doing now? This is about current outputs (From date of audit)(Narrative)	What will Drimnin Estate do in the future? This is the detail: set targets where appropriate (Narrative)
10. ACTIONS to Identify and promote opportunities contributing to public health and wellbeing.	Identify and quantify public safety issues associated with deer within the DMG area. e.g. DVCs, airports etc.	Y	Not considered to be a significant risk in an estate with few visitors and no public roads. Risk minimised by prominent notices when stalking taking place.	
	Identify actions with landowners, Local Authority, DMG to reduce or mitigate public safety risk and monitor effectiveness of actions.	Y	See above	
	Identify means of ensuring food safety is maintained in carcass handling and venison processing and compliance with BPG in relation to meat hygiene	Y	Guaranteed by stalker	
	Ensure deer managers are familiar with notifiable diseases, that a system for recording is in place and all deer managers are familiar with course of action to take.	Y	DMQ and trained hunter status means should be implicit for those who provide carcass to game dealer.	DMQ 1 main training means of indenting this. Uptake of DMQ to be monitored.
	Ensure that appropriate bio security measures are enacted when visitors from areas where CWD is present are involved with deer management activities	Y	Will be done	
	Identify opportunities to raise awareness of the risks associated with Lyme's Disease.	Y	Referenced in let cottages, in staff information and on website	
	Identify main access and recreational activity within the DMG area and assess how this fits with deer management activity.	Y	Done as set out in plan	
	Identify actions to mitigate any effects of public access and recreation activities during peak periods of deer culling e.g. use of Hill phones and web sites	Y	Done via prominent notices and on website	
	Facilitate public access and promote positive communication between visiting public and wildlife managers.	Y	Done by way marking/information on site and via website	
	Summary : Agree a colour for current delivery of the Action (red, amber, green) and detail what is going to happen to deliver future actions			
11. ACTIONS to maximise economic benefits associated with deer	Identify and quantify the main sources of revenue related to deer (sport, tourism etc.).	Y	Done	Information to be sought and presented. PACEC approach may be most appropriate format which is repeatable.
	Identify and quantify deer related employment. Identify opportunities to increase and improve prospects throughout the DMG;	Y	Done; limited prospects of increasing activity and employment	
	Identify opportunities to add value to products from deer management (SQWV, venison branding)	Y	Venison sold locally and, through an agent, more widely	
	Explore options for larder sharing, infrastructure improvement and carcass collection to ensure maximum benefit from venison production whilst reducing carbon	NA	Sharing precluded by remote location	
	Summary : Agree a colour for current delivery of the Action (red, amber, green) and detail what is going to happen to deliver future actions			

Maps

1. Morvern Deer Management Area and Property boundaries

2. Overall Vegetation Cover of the Management Area as denoted by Land Cover Scotland

3. Reported Area of Woodland Cover (and potential woodland cover) mapped by the National Forest Inventory

4. Areas of Recent Woodland Creation

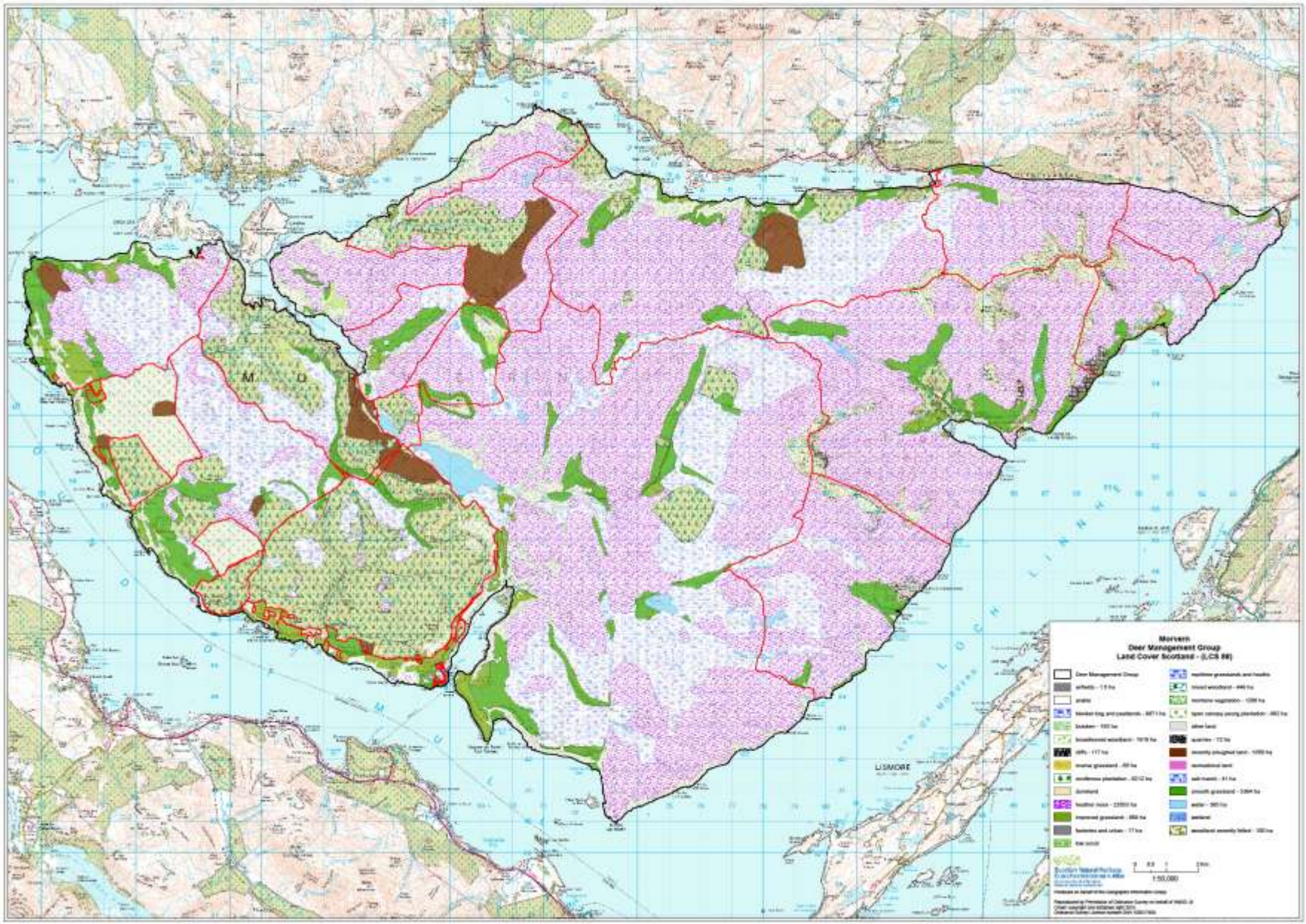
5. Designated sites within the MDMG Area

6. Reported Condition of Designated Sites

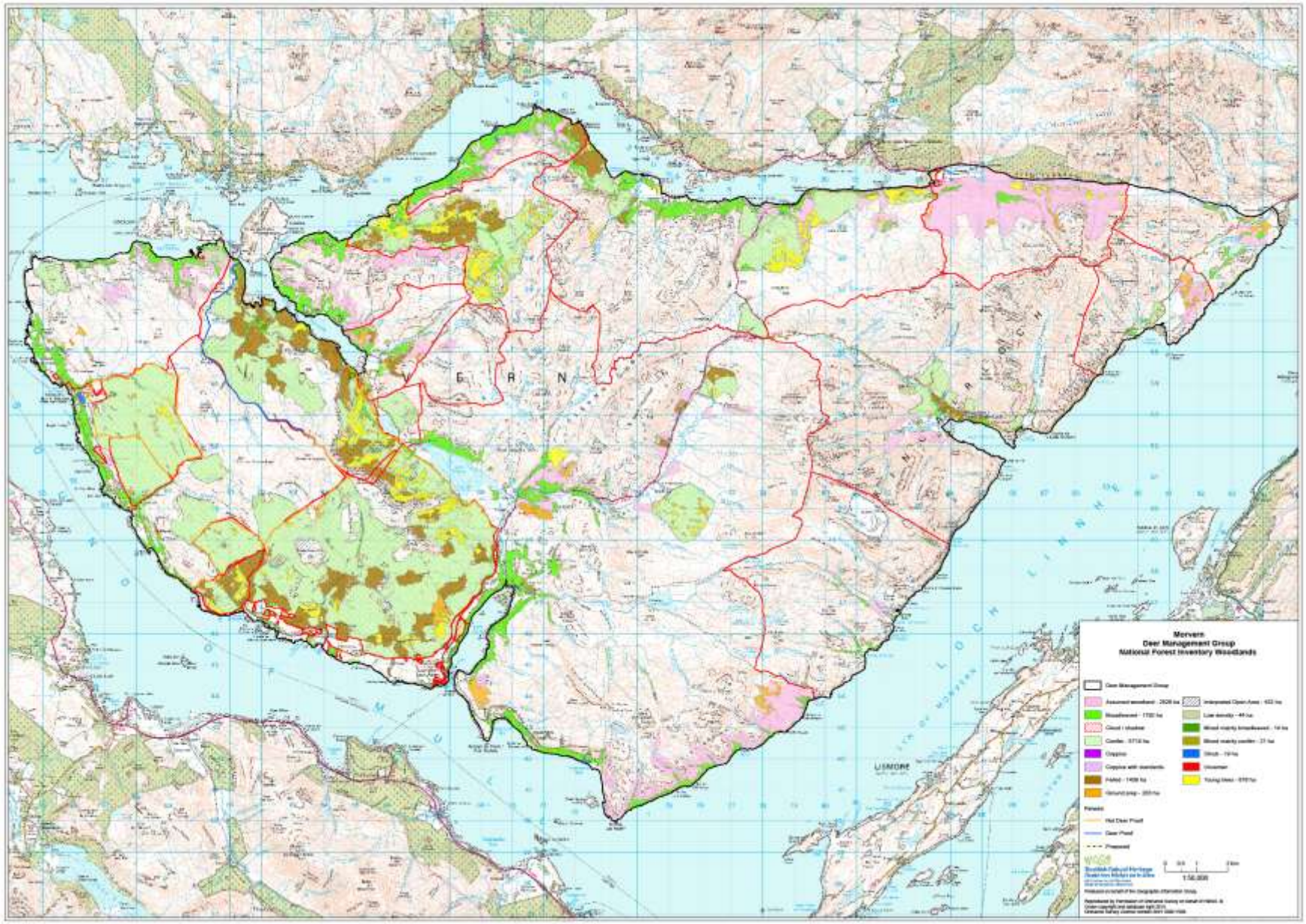
7. Condition of Native Woodlands reported by the Native Woodlands Survey of Scotland 2014

8. Deer-Vehicle Collisions reported in the Management Area between 2002 and 2013Appendices; References cited in the text:

Map 1 Morvern Deer Management Area and Property boundaries

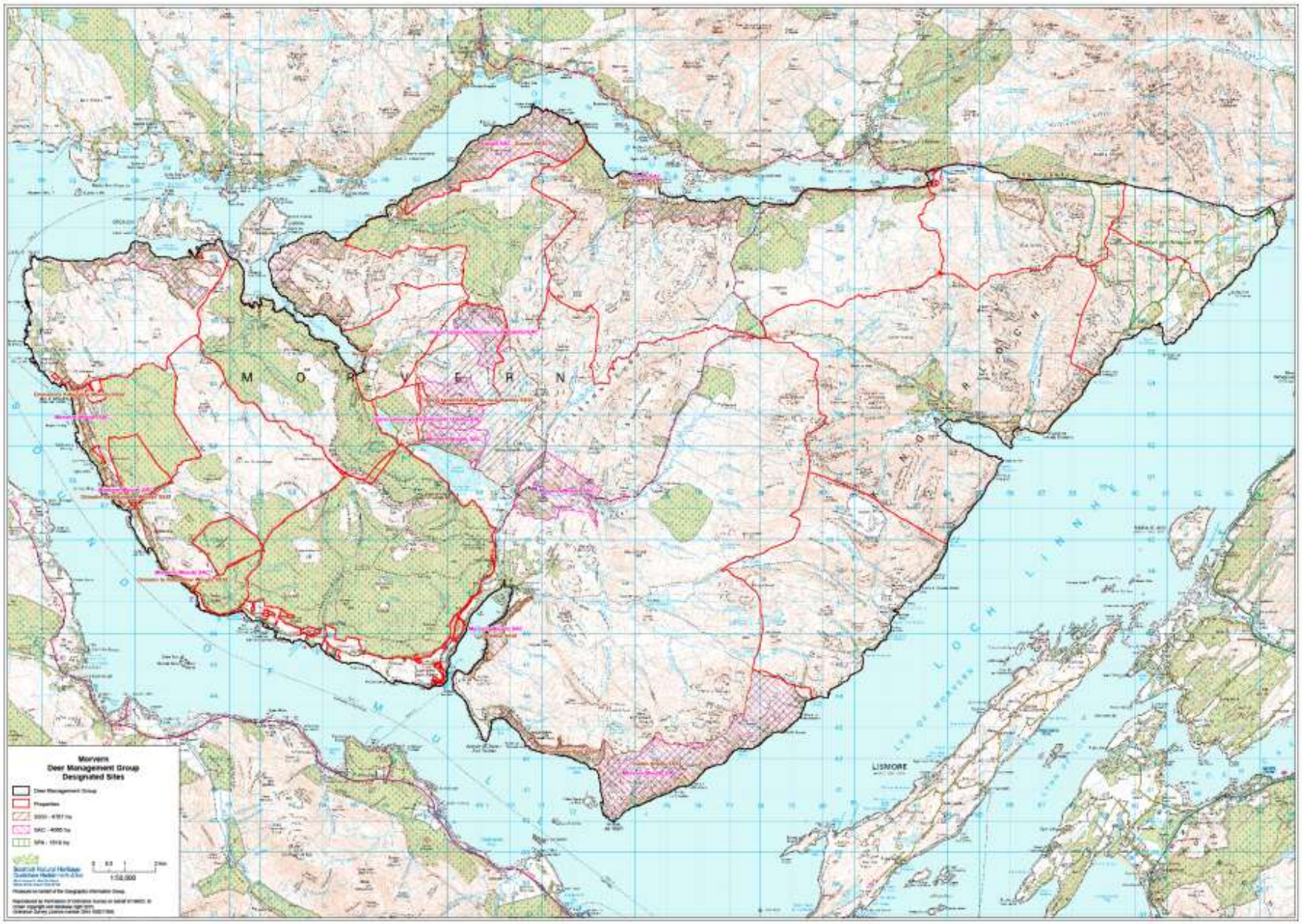


Map 2 Overall Vegetation Cover of the Management Area as denoted by Land Cover Scotland

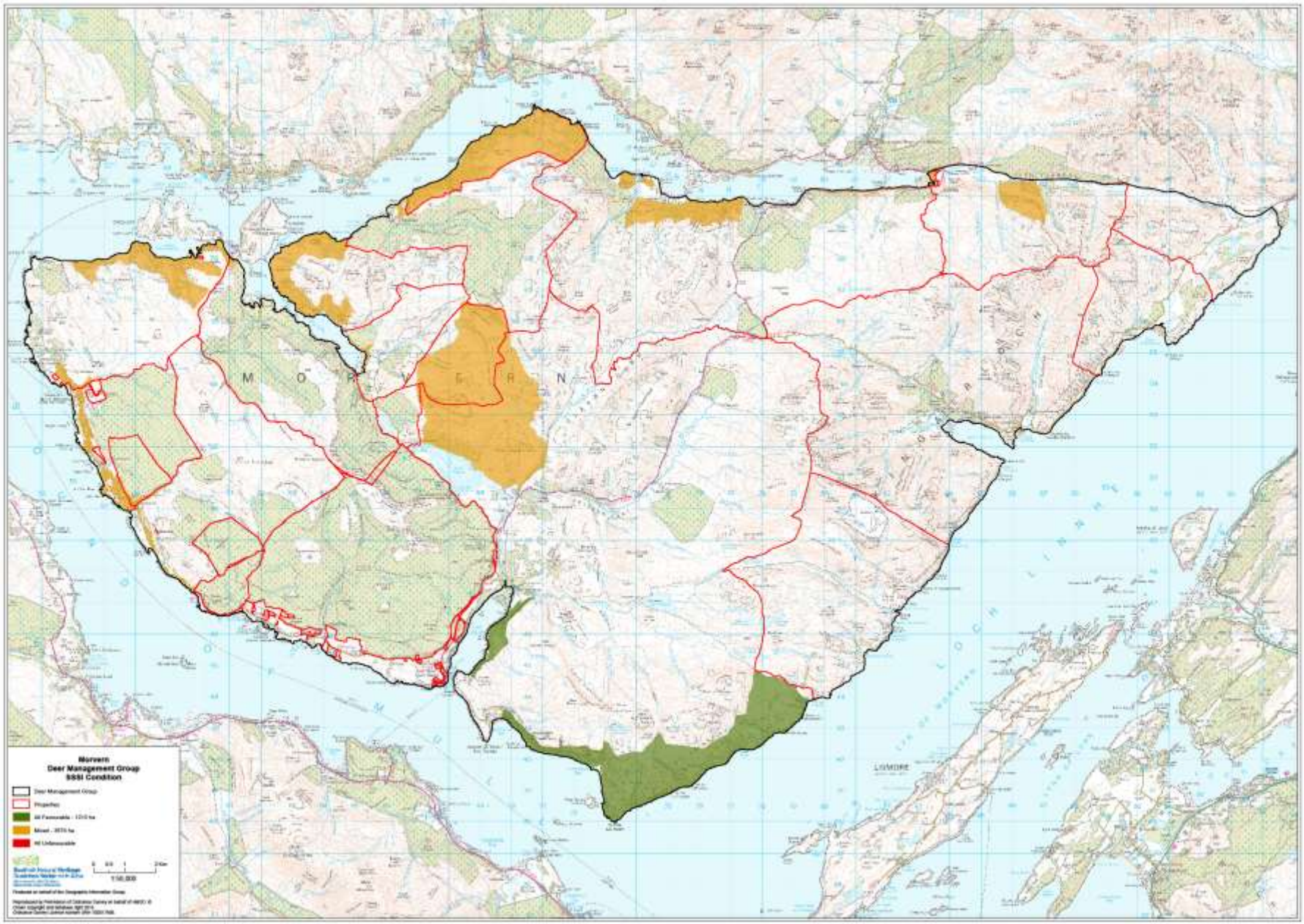


Map 3 Reported Area of Woodland Cover (and potential woodland cover) mapped by the National Forest Inventory

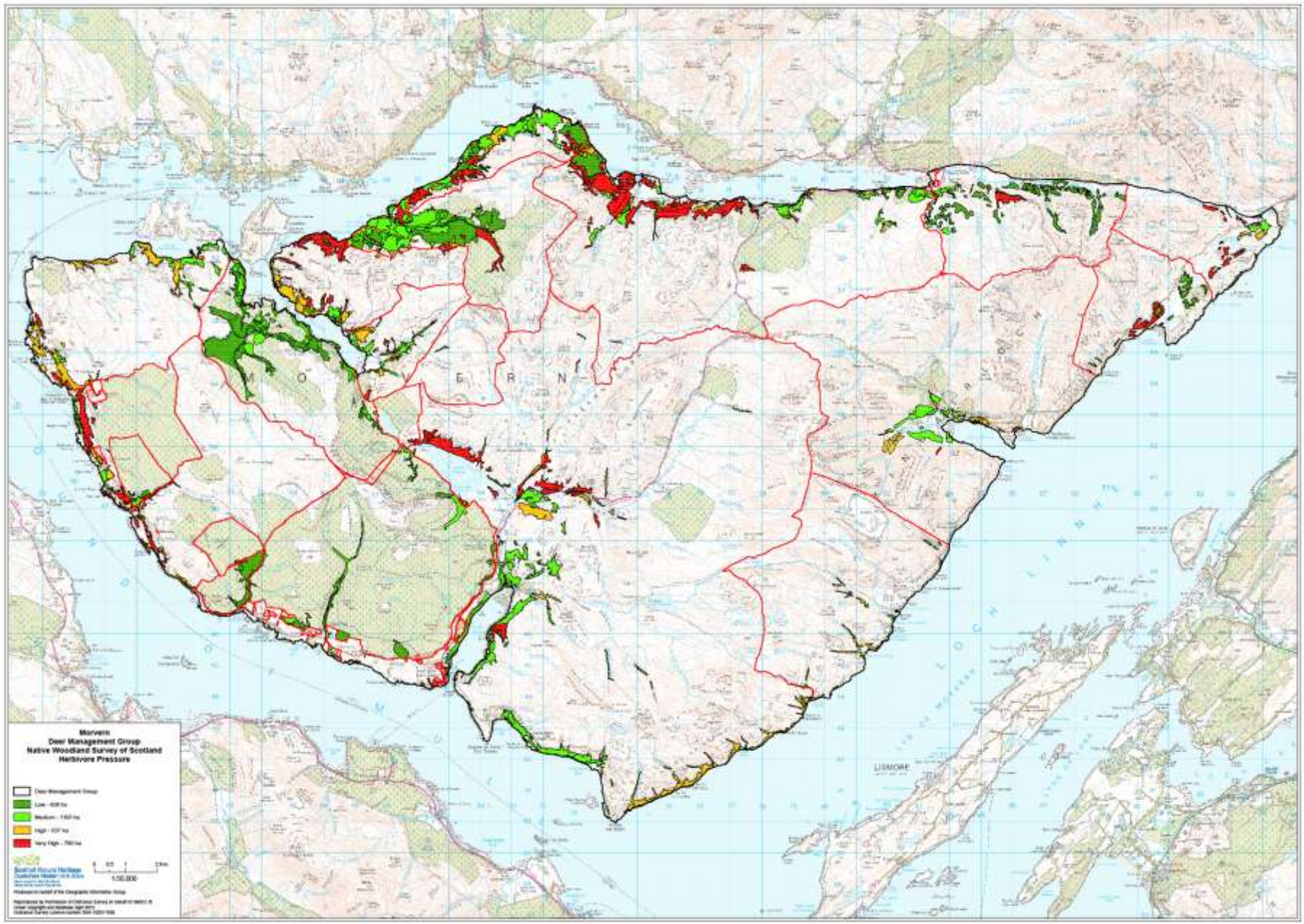
Map 4 Areas of Recent Woodland Creation



Map 5 Designated sites within the MDMG Area



Map 6 Reported Condition of Designated Sites



Map 7 Condition of Native Woodlands reported by the Native Woodlands Survey of Scotland 2014

Deer Management Group: **MN – Morvern** **Page 1**

Reported locations of deer road casualties or related traffic collisions (DVCs) logged in SNH DVC database from 2002-2013.
Incidents from 2002 to 2007 (yellow symbols) and overlaid by incidents from 2008 to 2013 (red symbols).

(for breakdown by year and roads with most reported incidents see overleaf)

Map 8 Deer-Vehicle Collisions reported in the Management