Consultation Draft
Hinterland Biodiversity Action Plan (BAP)
2013-2018

Contents

Summary
The plan evaluates the biodiversity value of Hinterland and recommends a change in management emphasis over the next five years, with dune heath restoration featuring highly in terms of action on the ground. A list of priority projects is suggested.

1. Aim

1.1 This Biodiversity Plan (BAP) sets out a rationale for evaluation and management of biodiversity on Hinterland and suggests priorities for action over the next 5 years.

2. Rationale

2.1 The Findhorn Hinterland is an important component of a coastline which is recognised to be of international importance for wildlife. Though not legally protected itself, the Hinterland adjoins the Findhorn Bay – which is recognised to be of national and international importance for birds. The Bay is designated as a Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) and RAMSAR site (1).

2.2 The Hinterland comprises a mix of habitats, each with a specialised community of wild creatures and plants – its biodiversity. Each wildlife species has specific habitat needs. Some are very sensitive and vulnerable to inadvertent damage or destruction. Others are quite rare, or have suffered huge declines nationally, but may respond very positively to simple habitat management measures.

2.3 We have limited knowledge of the needs of all this biodiversity, but we do know enough to be able to make well-informed decisions, which will limit negative human impacts and provide some real benefits. Much of the available information is contained in national (UK and Scottish) and regional (North East Scotland and Highland) Biodiversity Action Plans – which are based on years of survey and research throughout the UK and the Europe (2-5).

2.4 This Plan is based on the habitats and species which are listed in these BAPs, together with a scattering of species which are felt to be particularly valuable to the Hinterland, but are not listed in these plans. These habitats and species and their corresponding management actions are set-out in Tables 1-3.

Dune Heath

3. Habitats (Appendix Map 1. Tables 1& 2)

3.1 Four priority habitats are identified – dune heath, dune scrub, species-rich grassland and planted coniferous woodland.

3.2 Map 1 (to be done) shows the distribution of habitats across the Hinterland.

3.3 Map 2 and Table 2 show a suggested division of Hinterland into a number of management zones, based on dominant habitat types and set-out in priority order for action.

3.4 Dune heath

3.4.1 Dune heath is a rare habitat nationally and internationally and the Moray Coast is recognised to hold some of the best examples in Britain.

3.4.2 From a biodiversity perspective this is the highest priority habitat on Hinterland. The vegetation is characterised by heather and a variety of flowers and coarse grasses.

3.4.3 Perhaps most significantly, Hinterland's dune heath contains some excellent lichen beds, containing a number of nationally threatened species – consequently, although not legally designated as such, Hinterlands dune heath is considered to be of national importance for lichens (6).

3.4.4 Management of dunes heath recommended as being focussed on protecting the best lichen beds by preventing encroachment of gorse and trees and minimising destruction of the fragile biological crust through the trampling of human visitors (Tables 4&5).

3.5 Dune Scrub

3.5.1 Dune scrub is the next stage of ecological 'succession' towards what would, if unmanaged, slowly develop into woodland. It is a valuable habitat in its own right, providing shelter for mammals, bird nesting opportunities and creating important micro-habitats for butterflies and reptiles.

3.5.2 Dune scrub is also, however, invading and destroying the much more valuable dune heath habitat.

3.5.3 Management of dune scrub is recommended as removal from the best areas of dune heath and creating and maintaining sunny, flower-rich glades and wide firebreaks.

3.6 Species-rich grassland

3.6.1 Species-rich grassland is found mainly around the wind turbines and on the Green Burial field.

3.6.2 This habitat is arguably the UK's most threatened, with a 97% loss between 1930 and 1980 and obvious consequences for the specialised wildlife which depends on it, including bees and butterflies.

3.6.3 Recommended management here focusses on careful planning of grazing to maximise the availability of flowers through the summer – maintaining an intimate mosaic of open grasslands and gorse thickets with sheltered glades.

Dark green fritillary

3.6.4 This area is also most likely to be the best for reptiles, which need requiring patches of un-grazed, or infrequently grazed, grassland - which also provides nesting and hibernation sites for insects.

3.6.5 It is known that roe deer have had their young in this area. It is also the most likely place to come across a brown hare. It is suggested that this area becomes a quiet 'Wildlife Sanctuary' with a 'Dogs on Leads' policy.

3.7 Planted coniferous woodland

3.7.1 Planted coniferous woodland is abundant in Scotland. While not threatened as a habitat, it is none-the-less an important one at Hinterland, supporting a number of priority species - notably a small population of red squirrels, which have become endangered in England and southern Scotland. The squirrel population on Hinterland has declined from six to two or three individuals since 2008.

3.7.2 Management here focusses on low intensity tinning, to improve the forest structure and increase seed production, while minimising the impact of forest operations on the small squirrel population, giving it a chance to recover.

3.7.3 The continued development of a variety of woodland types, including thicket, un-thinned areas and especially standing and fallen dead wood and old 'veteran' trees is recommended.

4. Species (Appendix Tables 3 and 4)

4.1 It is important that FHG has a shared understanding of species priorities. Without this there is a danger that that valuable effort is ineffective, or even damaging, and that opportunities to make a real difference are missed.

4.2 A suggested priority is given to each species (high, medium and low) in Table 3 depending on its national and regional conservation status and the value and potential of Hinterland's habitats.

4.3 This is not a list of all the species found on Hinterland (for example, red fox is not included, even though it occurs here) – it is a list of those species which are known to be of conservation importance due their inclusion in the national BAPs (UK and Scottish) or regional BAPs (Highland and North East Scotland).

Red squirrel on feeder

4.4 In addition, a few species are included (such as smooth newt and long-eared owl) which, though not included in any national or regional BAP, are non-the-less felt to be significant or of particular interest at Hinterland. Table 3 sets-out management actions for each priority species.

4.5 It should be noted that the listing of a species within a national or regional BAP does not immediately qualify it as being a high priority for action on the Hinterland. For example, some species may be listed in national BAPs because of dramatic declines in the UK as a whole (e.g. house sparrow or starling), but may still be abundant in our region. Also, a nationally listed species may occur on Hinterland, but only marginally – much better habitats occurring close-by or elsewhere (e.g. house sparrow or starling again).

5. Top Priority Projects 2013-2018 – Table 5.

5.1 Top priority projects identified include:

- Scrub control and tree on the dune heath and grassland.
- Widening and maintenance of fire breaks
- Installing some visitor interpretation, especially to reduce trampling of lichen.
- Refining the grazing plan.
- Red squirrel monitoring and limited supplementary feeding.
- Identification of veteran trees and maintenance of quiet zones in the woodland.

5.2 Wildlife protection and enhancement will be much improved through the development of a series of habitat and species maps, which identify important areas for action of the ground. These maps will be in electronic format, so that they can be shared easily within the Group via email.

Slow worm

Appendix

Table 1. Hinterland Priority Habitats

Habitat	Associated Key Species	Management policy/Actions
Dune Heath	Lichens Common tern Arctic tern	⅄ Removal of encroaching gorse and tree seedlings from prime lichen beds (map). ⅄ Install interpretative signage to discourage trampling of lichens. ⅄ Protection of any nesting terns.
Dune Scrub	Linnet Yellowhammer Cuckoo Long-eared owl Common toad Common lizard Slow worm Adder? Roe deer	⅄ Cutting fire breaks and glades. ⅄ Maintaining some large gorse thickets and developing woodland on areas not important for lichens. ⅄ Creation of glades within gorse thickets.
Species rich grassland (mainly around the turbines)	Linnet Yellowhammer Cuckoo Long-eared owl Kestrel Common toad Common lizard Slow worm Adder? Hedgehog Brown Hare Pipistrelle bat species Brown long-eared bat Roe deer Northern Brown Argus Small heath Common blue Dark green fritillary Common hawker Southern hawker Bees	⅄ Grazing management to allow summer flowering (end April to mid-September) on the most valuable areas of open grassland and gorse glades (map). ⅄ Gorse management to extend sheltered flower-rich glade areas for butterflies and reptiles (map). ⅄ Leaving some tussocky grassland and gorse glades un-grazed/grazed very infrequently (map). ⅄ Creation of reptile hibernacula/refuges – log piles. ⅄ Temporary signs April-August: “Baby deer – please keep dogs on leads in this area”. ⅄ Liaison with neighbour to maintain the pond.

Planted coniferous woodland	Redpoll Crossbill Spotted flycatcher Song thrush Bullfinch Long eared owl Common toad Red squirrel Hedgehog Pine marten Brown long-eared bat Pipistrelle bat Roe deer Speckled wood Creeping ladies tresses Lichens Fungi	⅄ Rotational tree thinning in small blocks. ⅄ Enrichment planting (mainly done). ⅄ Identification and protection of veteran trees. ⅄ Annual provision of new deadwood - standing and fallen. ⅄ Mapping and protection of squirrel nesting dreys. ⅄ 'No felling' policy Jan – July. ⅄ Targeting thinning so as to keep some quiet 'chainsaw- free' blocks of woodland through the year. ⅄ Maintaining corridors of high canopy connectivity for squirrel travel. ⅄ Maintaining a scattering of non-native conifers, especially spruce. ⅄ Maintaining some areas of birch thicket. ⅄ Maintaining some un-thinned areas of dense forest. ⅄ Woodland pond creation. ⅄ Provision of brash piles.

Table 2. Management Zones 2013-2018. Zones 1-7 are in priority order for action.

Zone Number	Dominant Habitat Type	Issue	Action
1	Dune heath	Nationally important lichens threatened by dune scrub encroachment and trees establishment	Dune heath restoration. Establish a programme of gorse control and tree removal. Allow natural regeneration of trees in well- established gorse areas
2	Species-rich grassland	Scrub encroachment	Continue grazing to encourage wild flowers. Scrub control and glade creation.
3	Dune scrub	Scrub encroachment	Dune heath restoration, targeting best lichen areas. Establishment of tree corridor. Install interpretative panel.
4	Woodland	Habitat diversity	Continue low-intensity thinning. Identify and protect veteran trees. Increase standing deadwood.
5	Dune heath	Scrub encroachment	As for 1, but lower priority
6	Gorse	Fire risk	Maintain as impenetrable gorse. Encourage natural tree regeneration. Widen and maintain firebreaks annually.
7	Dune heath	Human trampling	Install heavy duty interpretative panel.

Table 3. List of Priority Species occurring on Hinterland

Species	Priority for Action (H,M,L)	Biodiversity Action Plan (BAP) listed? UK, Scotland (S), North-east Scotland (NES), Highland (Hi), Hinterland (Hint)	Habitat: Dune Heath (DH), Dune Scrub (DS), Woodland (W) grassland (G)
Birds			
Skylark	M	UK, S	G
Redpoll	M	UK, S, Hi	W
Linnet	H	UK, S, Hi	DS, G
Cuckoo	M	UK, S, Hi	DS, G, W
Yellowhammer	H	UK, S, Hi	DS, G
Crossbill	M	UK, S, Hi	W
Spotted flycatcher	H	UK, S, Hi	W
House sparrow	L	UK, S, Hi	G
Dunnock	L	UK, S, Hi	W
Starling	L	UK, S, Hi	G
Song thrush	M	UK, S, Hi	W
Bullfinch	M	UK, S, Hi	W
Long-eared owl	M	Hint	W, DS
Kestrel	M	Hint	DH, G
Common Tern	H	Hint	DH
Arctic Tern	H	S	DH
Crested tit	L	Hint	W
Herpatiles			
Common lizard	H	UK, Hi	DS, G
Common toad	M	UK, S, Hi	DS, G, W
Slow worm	H	UK, Hi	DS, G
Adder(? tbc)	H	UK, Hi	DS, G
Smooth newt	M	Hint	G
Mammals			
Hedgehog	M	UK	G, W

Brown hare	H	UK, S, Hi	G
Pine marten	M	UK, S	W
Brown long-eared bat (? tbc)	M	UK, S, Hi	W, G
Pipistrelle bat species	M	UK, S	W, G
Red squirrel	H	UK, S, NES, Hi	W
Roe deer	M	Hint	W, He, G
Invertebrates			
Northern brown argus	H	UK	G
Small heath	H	UK	G
Common blue	M	Hint	G, DS
Dark green fritillary	H	Hint	G
Speckled wood	M	Hint	W
Great yellow bumble bee? (Unlikely)	H	UK, S, Hi	G
Moss carder bee ?	H	UK, Hi	G
Red-banded sand wasp ?	H	S	DH
Cinnabar moth	M	UK, S	G
Other moths..	?	?	W G DS
Flowering Plants			
Creeping ladies tresses	M	Hint	W
Non-flowering Plants			
Lichens			
Peltigera malacea	H	UK, S	DH
Alectoria sarmentosa subsp. *vexillifera*	M	Hint	
Buellia jugorum	M	Hint	
Caloplaca	M	Hint	

asserigena			
Catillaria atomarioides	M	Hint	
Cladonia macrophylla	M	Hint	
Cladonia mitis	M	Hint	
Cladonia uncialis subsp. *uncialis*	M	Hint	
Cladonia zopfii	M	Hint	
Lecanora farinaria	M	Hint	
Lecidea auriculata	M	Hint	
Lecidea brachyspora	M	Hint	
Lecidea diducens	M	Hint	
Lecidea plana	M	Hint	
Lepraria elobata	M	Hint	
Leptogium palmatum	M	Hint	
Ochrolechia frigida f. *Lapuensis*	M	Hint	
Protothelenella Corrosa	M	Hint	
Psoroma hypnorum	M	Hint	
Rhizocarpon cinereovirens	M	Hint	
Stereocaulon condensatum	M	Hint	
Stereocaulon leucophaeopsis	M	Hint	
Epilichen scabrosus (on *Baeomyces rufus*)	M	Hint	
Mosses	To be added in due course		
Fungi			
Slime moulds			

Table 4 – Species Management Actions

Species	Management Actions
Birds	
Skylark	⅄ Mainly on Bichan's Field. ⅄ Prevention of gorse encroachment on open grassland (map).
Redpoll	⅄ Maintenance of areas of 'pioneer' birch/shrub woodland (map).
Linnet	⅄ Maintenance of a mosaic of gorse thickets (nesting) adjoining grassland (feeding – insects & seeds). ⅄ Grazing to allow flowering and setting of seeds (map).
Cuckoo	⅄ Maintenance of small areas of birch/scrub thicket to encourage host species e.g. dunnock.
Yellowhammer	⅄ Maintenance of gorse thicket (nesting) adjoining grassland (food - insects, seeds). ⅄ Grazing to allow flowering and setting of seeds (map).
Crossbill	⅄ Continue woodland thinning. ⅄ Identification and protection of veteran trees to maximise pine seed.
Spotted flycatcher	⅄ Maintenance of open rides/glades in woodland. ⅄ Woodland pond creation.
House sparrow	⅄ Mainly in Park. ⅄ Will benefit from grazing to allow flowering and setting of seeds.
Dunnock	⅄ Maintenance of small areas of scrub woodland thicket/dense woodland shrub layer. ⅄ Provision of brash piles for nesting. ⅄ Maintenance of gorse thickets adjoining grassland.
Starling	⅄ Mainly in Park. ⅄ Will benefit from short-grazed areas.
Song thrush	⅄ Maintenance of small areas of scrub woodland/dense woodland shrub layer. ⅄ Maintenance of gorse thickets adjoining grassland.
Bullfinch	⅄ Maintenance of birch dominated areas.
Long-eared owl	⅄ Maintenance of some un-thinned denser woodland areas. ⅄ Provision of nesting baskets. ⅄ Provision of woodland brash piles to encourage prey species (voles, mice). ⅄ Leaving some open grassland areas un-grazed/grazed very infrequently to encourage prey species (voles, mice).
Kestrel	⅄ Prevention of gorse encroachment on grassland. ⅄ Leaving some open grassland areas un-grazed encourage prey species (voles, mice).
Common Tern	⅄ Confirmation of breeding locations.

	⅄ Prevent disturbance.
Arctic Tern	⅄ Confirmation of breeding locations. ⅄ Prevent disturbance.
Crested tit	⅄ Provision of nest boxes. ⅄ Preservation of veteran trees. ⅄ Preservation of large standing dead trees.
Herpatiles	
Common lizard, Slow worm	⅄ Maintaining large patches of tussocky open grassland with scattered scrub – un-grazed/very infrequently grazed. ⅄ Maintenance and provision of log/rubble piles for refuges and hibernacula. ⅄ Clearance of gorse to create new sheltered glades, un-grazed from end of April to mid-September (map). ⅄ Cutting gorse fire-breaks to (creating basking areas).
Common toad	⅄ Woodland pond creation. ⅄ Provision of woodland brash piles. ⅄ Maintaining large patches of tussocky open grassland with scattered scrub – un-grazed/very infrequently grazed. ⅄ Provision of log/rubble piles for refuges and hibernacula.
Adder (?)	⅄ Confirm status through survey and encouraging sharing of casual records. ⅄ Management as for Common lizard and Slow worm, above, along with provision of woodland brash piles.
Smooth newt	⅄ Pond creation/restoration. ⅄ Leaving patches of tussocky open grassland with scattered scrub un-grazed/very infrequently grazed. ⅄ Provision of log/rubble piles for refuges and hibernacula.
Mammals	
Hedgehog	⅄ Provision of large woodland brash piles for hibernation. ⅄ Maintenance of areas of woodland with a dense shrub layer. ⅄ Grassland management to maintain a mosaic of grazed and un-grazed areas, with scattered scrub.
Brown hare	⅄ Maintenance of a mosaic of grazed and un-grazed grass with scattered scrub around the turbines. ⅄ Designation of the turbines area as a dog-free 'Wildlife Sanctuary'.
Pine marten	⅄ Present, but not clear if temporary visitor due to atypical habitat. ⅄ Will benefit from brash piles and tussock grass to encourage vole populations.
Brown long-eared bat	⅄ Maintenance of varied woodland edges and large patches of scrub on adjoining grassland. ⅄ Survey of old bomb shelters for roosting sites.

	⅄ Provision of bat boxes. ⅄ Woodland pond creation.
Pipistrelle bat species	⅄ Maintenance of varied woodland edges and large patches of scrub on adjoining grassland. ⅄ Survey of old bomb shelters for roosting sites. ⅄ Provision of bat boxes. ⅄ Woodland pond creation.
Red squirrel	⅄ Target of 5 breeding females by 2017. ⅄ Maintenance of a predominantly Scots Pine woodland. ⅄ A scattering of other conifer species to be maintained as alternative cones sources. ⅄ No felling policy January to July. ⅄ Designation of 'chainsaw-free' woodland blocks each year. ⅄ Mapping of active dreys each late winter/early. ⅄ Continue thinning to encourage large tree crowns, while maintaining corridors of high of tree canopy connectivity to allow squirrels to travel easily. ⅄ Tree thinning to be restricted to designated blocks each year. ⅄ Identification and preservation of veteran trees (high seed production). ⅄ Maintenance of a scattering of non-native conifer species, especially spruce. ⅄ Maintenance of a small proportion of other food bearing trees including hazel, rowan, hawthorn and birch. ⅄ Supplementary food to be provided regularly, but not continuously, from July to end of March.
Roe deer	⅄ Target of maintaining a deer population of around 5 adults. ⅄ Install temporary signs April-August “Baby deer – please keep dogs on leads in this area”". ⅄ Maintenance of tall, thick gorse thickets in turbines area and on the western edge of the dune heathland (map). ⅄ Managing the flow of visitors by maintaining recognised pathways through gorse areas, but not opening-up new routes in sensitive areas (map). ⅄ Leaving scattered patches of un-grazed grass in the turbines area (map).
Invertebrates Northern brown argus ?	⅄ Confirm status. ⅄ Identify patches of food plant – Common Rock-rose, thyme (map). ⅄ Allowing some large areas of species-rich grassland and small glades within the gorse to flower from the end of April to late September (map). ⅄ Clearing small patches of gorse to open-up new glades in the turbines area (map). ⅄ Light autumn/winter grazing of some gorse glades each year (map).

Small heath	⅄ Clearing small patches of gorse to open-up new glades in the turbines area (map). ⅄ Light autumn/winter grazing of some gorse glades each year (map). ⅄ Leaving scattered patches of un-grazed grass in the turbines area (map).
Common blue	⅄ Identify main colonies and food plant (birds foot trefoil, white clover) areas. ⅄ Clearing small patches of gorse to open-up new glades in the turbines area (map). ⅄ Leaving ragwort if more than 50m from a grazed area.
Dark green fritillary	⅄ Identify main food plant (violet) areas. ⅄ Clearing small patches of gorse to open-up new glades in the turbines area (map). ⅄ Allowing some large areas of species-rich grassland to flower from the end of April until mid-September (map). ⅄ Light autumn/winter grazing of some glades each year (map).
Speckled wood	⅄ Maintenance of open rides and glades in the woodland. ⅄ Maintenance of diverse woodland edges, with sheltered glades. ⅄ Leaving ragwort on the woodland edge if more than 50m from a grazed area.
Great yellow bumble bee? (Unlikely).	⅄ Confirm status (unlikely). ⅄ Identify food plant areas – birds foot trefoil, kidney vetch, red clover. ⅄ Allowing some large areas of species-rich grassland to flower from the end of April to late September (map).
Moss carder bee ?	⅄ Confirm status. ⅄ Identify food plant areas – birds foot trefoil, kidney vetch, rec clover. ⅄ Allowing some large areas of species-rich grassland to flower from the end of April to late September (map).
Red-banded sand wasp ?	⅄ Confirm status.
Moths	⅄ Confirm status – moth trapping.
Cinnabar Moth	⅄ Leave any ragwort more than 50m from a grazed area.
Common hawker dragonfly Southern Hawker dragonfly	⅄ Pond creation. ⅄ Allowing some large areas of species-rich grassland to flower from the end of April to late September (map). ⅄ Maintenance of open rides and glades in the woodland. ⅄ Maintenance of diverse woodland edges, with sheltered glades.
Flowering Plants	
Creeping ladies tresses	⅄ Identify main areas – survey.

Non-flowering Plants	
Lichens	⅄ Prevent scrub and tree encroachment on best lichen beds on the dunes. ⅄ Managing the flow of visitors by maintaining recognised pathways and using gorse thickets and signage to steer visitors away from sensitive areas. ⅄ Install interpretative panels on best lichen beds. ⅄ Provide a regular supply of deadwood – standing and fallen – each year within the woodland. ⅄ Identification and protection of veteran trees.
Mosses	⅄ Provide a regular supply of deadwood – standing and fallen – each year within the woodland. ⅄ Identification and protection of veteran trees.
Fungi	⅄ Provide a regular supply of deadwood – standing and fallen – each year within the woodland. ⅄ Identification and protection of veteran trees.
Slime moulds	⅄ Provide a regular supply of deadwood – standing and fallen – each year within the woodland. ⅄ Identification and protection of veteran trees.

Table 5. Work Projects 2013-2018

Project	Priority	Management Zone	Year	Habitat/Species Benefiting
Development of habitat and species mapping system	H	All	2013	All
Establish scrub control program I	H	1, 2, 3	2013-18	Dune heath, lichens, butterflies, reptiles
Establish scrub control program II	M	5	2015-18	Dune heath, lichens, butterflies, reptiles
Widen & maintain firebreaks	H	6, 3,1	2013-18	All
Identify and protect veteran trees	H	4	2013	Invertebrates, fungi, lichens, birds.
Install interpretation	H	3,7,2	2014	Dune heath lichens, brown hare, deer
Identify areas to encourage woodland development	M	1,3,6	2013	Red squirrel, birds, hedgehog
Install bird and bat boxes	M	4	2013	Birds bats
Survey – butterflies, reptiles, moths	L	All	2013-18	Butterflies, reptiles moths
Pond creation	M	4	2016	Red squirrel, birds, dragonflies, smooth newt, common toad, deer.

Table 6. Annual Tasks

Task	Month	Work party?	Contract help	Habitat/species benefitting
Scrub control	October - March	Y	Y	Dune heath, lichens, butterflies, reptiles
Maintain firebreaks	October - March		Y	All
Squirrel drey survey	Aug & March	Y		Red squirrel
Grazing review	February			Butterflies, birds, reptiles, flowers
Bird & bat box maintenance	October	Y		Birds, bats
Tree sapling maintenance	October-March	Y		Red squirrel
Tree thinning	September-January	Y		Red squirrel
Invasive species Monitoring	On-going			

Table 7. Resources required

- Brush cutter
- Design & production of interpretative panels.
- Water tank and power hose for fire emergency.
- Fire beaters
- Chipper?
- Contract support – management plan production, scrub control, firebreaks, pond creation.

Table 8. Funding

References:

1) http://www.snh.gov.uk/protecting-scotlands-nature/protected-areas/
2) http://jncc.defra.gov.uk/page-5155
3) http://www.scotland.gov.uk/Publications/2004/05/19366/37239
4) http://www.nesbiodiversity.org.uk/
5) http://www.highlandbiodiversity.com/highland-bap.asp
6) http://www.findhornhinterland.org/ecology/lichen-survey/

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