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Glenlivet Estate - Natural History and Sites of Special Wildlife Interest

The location of the estate at the edge of the north eastern Cairngorms and the combination of managed and open countryside creates a varied, diverse landscape, which exhibits a wide range of upland habitats. This diversity combined with the variation from low lying woodlands and rivers through to hill top vegetation, means that the estate supports a wide variety of wildlife and has several sites which are important for their natural interest.

The principal habitats which are of interest include:

- semi-natural birch and alder woodlands.
- scrub (especially sub-montane Juniper scrub)
- extensive heather moorlands
- raised peatland and bog
- montane heath
- unimproved lowland meadows
- rough grassland
- largely unmodified rivers and river banks
- farmland and conifer plantations

Birds and Animals

The combination of rivers, woodland and open ground, creates conditions suitable for many typical upland species of birds and animals, some of which (particularly birds of prey) are relatively rare. Around 60 species of birds breed or are resident in the area, and a further 40 or so species of winter/summer visitors and migrants, can be seen at different times of the year.

The range of wild mammals found on the estate is also highly diverse, and includes species such as the wildcat and pine marten. While no areas of ancient pinewood survive in the area, the moorlands, conifer plantations and broadleaved woodlands provide habitat for many typical upland species including roe and red deer, badger, fox, bats and red squirrel - all of which are relatively common.

Statutory Designations

Lying at the edge of the Cairngorm massif, the majority of the Estate lies within the Cairngorms National Park. It is also designated as being of Great Landscape Value and is part of the Cairngorms Straths Environmentally Sensitive Area. In conservation terms, the main statutory provisions on the estate, concern areas which have been designated as Sites of Special Scientific Interest (SSSI) because of their wildlife value.

Sites of Special Scientific Interest (SSSI's)

There are five SSSI's within the estate and these include one area of moorland, three semi-natural woodland sites and one unimproved wetland meadow site. The sites are representative of the wider natural heritage interest found in the area. One of these sites (Creag nan Gamhainn) has been included on the list of Special Areas of Conservation sites (SAC's) under the European Habitat's Directive, and another (the Ladder Hills) is a proposed Special Protection Area (SPA) for its Hen Harrier population.

1. Ladder Hills - GR NJ 280 190

Peatland and upland heather moor

The Ladder Hills SSSI comprises a ridge of rolling uplands with broad summits. Some of these exceed 760m in height and the hills are the most north-easterly of their altitude in the British Isles.

The site is a good example of montane and submontane vegetational types and there is an outstanding altitudinal succession of plant communities from the lower heather (**Calluna**) moorland, managed for grouse, to the tops - the limit of **Calluna** dominated heaths and bogs. An important feature of the topographic variation within the site is the series of steep sided stram gullies and the steep central valley which bisects the Ladder Hills within the SSSI. This provides a range of differing aspects and shading to vegetation on the slopes.

The underlying rocks are metamorphic rocks of the Dalradian series, so the site contrasts with other areas in Grampian, which are mostly

Mammals, Reptiles and Amphibians found on Glenlivet Estate	
MAMMALS	
Western Hedgehog	<i>Erinaceus europaeus</i>
Northern Mole	<i>Talpa europaea</i>
Common Shrew	<i>Sorex araneus</i>
Pygmy Shrew*	<i>Sorex minutus</i>
Water Shrew*	<i>Noemys fodiens</i>
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>
Common Long Eared Bat	<i>Plecotus auritus</i>
Rabbit	<i>Oryctolagus cuniculus</i>
Brown Hare	<i>Lepus capensis</i>
Mountain (White) Hare	<i>Lepus timidus</i>
Red Squirrel	<i>Sciurus vulgaris</i>
Bank Vole	<i>Clethrionomys glareolus</i>
Field Vole	<i>Microtus agrestis</i>
Northern Water Vole*	<i>Arvicola terrestris</i>
Brown Rat	<i>Rattus norvegicus</i>
Wood Mouse	<i>Apodemus sylvaticus</i>
House Mouse	<i>Mus musculus</i>
Red Fox	<i>Vulpes vulpes</i>
Stoat	<i>Mustela erminea</i>
Weasel	<i>Mustela nivalis</i>
American Mink	<i>Mustela vison</i>
Pine Marten	<i>Martes martes</i>
Otter	<i>Lutra lutra</i>
Badger	<i>Meles meles</i>
Wild Cat	<i>Felis sylvestris</i>
Red Deer	<i>Cervus elaphus</i>
Roe Deer	<i>Capreolus capreolus</i>
REPTILES AND AMPHIBIANS	
Common (Viviparous) Lizard	<i>Lacerta vivipara</i>
Slow Worm*	<i>Anguis fragilis</i>
Adder	<i>Vipera berus</i>
Common Frog	<i>Rana temporaria</i>
Common Toad	<i>Bufo bufo</i>
Palmate Newt	<i>Triturus helveticus</i>
* - Exact status unknown	

on igneous rocks. Most of the soils are both acid and peaty, becoming thinner on the high ground.

An important feature of the site is found on the plateau where the blanket bog is rich in grey lichens of the reindeer moss **Cladonia** group for which the site is one of the most important in Britain.

Plant Communities

The range of upland vegetation types that represent the main biological interest of the site include in particular the extensive tracts of sub-montane and montane dwarf shrub heaths and blanket bogs. On the lower slopes dry heather (**Calluna vulgaris**) heath. This is a nationally threatened semi-natural vegetation type, of which this site is a particularly fine example as a result of traditional moorland management and muirburn. The steep slopes also demonstrate the transition of plant communities with aspect from dry heather moor to

damp heather heath and finally to a range of communities associated with late snowbeds. The site is particularly important for the number and extent of snowbed communities dominated by blaeberry (*Vaccinium myrtillus*). There is also a range of acid loving and ground water fed mire and grassland communities associated with the supply of snowmelt water from these snowbeds.

The lichen rich vegetation of the highest part of the SSSI is very rare in Britain and this site has the greatest extent of protected lichen rich heather (*Calluna*) - cotton sedge (*Eriophorum*) blanket bog in Britain. Most of it is in a remarkably undisturbed condition. This habitat is associated with the 'continental' type climate of Grampian.

Plant Species

The important blaeberry (*Vaccinium*) snowbed communities contain certain restricted mountain plants chickweed wintergreen (*Trientalis europea*), dwarf cornel (*Cornus suecica*), bog blaeberry (*Vaccinium uliginosum*) and an abundance of cloudberry (*Rubus chaemaemorus*). A number of sphagnum moss species are found within the Sphagnum rich areas including abundant *S. Rubellum*, *S. papillosum*, *S. magellanicum*, and *S. fuscum* - which indicates the 'continental' nature of the vegetation.

Of the lichen species present the reindeer mosses (*Cladonia*) are widespread in both blanket bog and summit communities. *C. rangiferina* is noteworthy as it is a species largely restricted to the north-west of Britain and the Ladder Hills represent the eastern limit of its distribution. Among the most abundant of the other *Cladonia* species present are *C. impexa*, *C. arbuscular* and *C. uncialis*. Another lichen of interest is the rare *Alectoria sarmentosa*.

Birds and other Vertebrates

The site holds a typical upland and moorland breeding bird community including species such as golden plover and dunlin together with rarer breeding species such as dotterel. Raptors such as peregrine, merlins and hen harriers use the hills as important feeding areas. Generally large populations of both grouse and mountain hare are supported by the site which also supports typical Scottish upland mammals including red deer and roe deer.

2. Lower Strathavon Woodlands - GR NJ 188 318 Semi-natural broadleaved woodlands

The lower Strathavon woodlands represent the most complete example of the range of semi-natural woodlands which occur in Strathavon, Glenlivet and the nearby sections of Strathspey. Much of the former native woodland cover of these areas has been lost or become impoverished, but this Lower Strathavon retains its largely wooded character and the relationship between the various woodland types and different site conditions can be clearly seen. Many parts of the site have supported native woodland since at least the 18th Century and are probably remnants of the primaevael forest cover of the area.

The site contains a wide variety of woodland types and communities all with reasonably natural structure and composition. The freely draining soils of Criag an Donich support the uppermost stand of oak woodland in the district, consisting largely of pendunculate oak, birch hazel with aspen and sloe (blackthorn). Fragments of more mixed woodland including wych elm, ash and gean occur on pockets of more fertile soil such as at Craig Aldich. Alderwoods are well represented on the damper soils of the valley floor, springlines and lower slopes, particularly adjacent to the River Avon and its tributaries. Bird cherry is notably abundant in these woods. The most extensive type is birch woodland which cloaks the upper slopes in which juniper is particularly abundant. In several areas birch is extending onto adjacent heathland (together with some Scots pine from nearby plantations) and a site at Craggan is the subject of long term research into the relationship between the spread of birch and soil conditions.

The variety of woodlands is also reflected in a particularly diverse ground vegetation. Dogs mercury (*Mercurialis perennis*), enchanters nightshade (*Circaea intermedia*), yellow pimpernel (*Lysimachia nemorum*), wood and pendulous sedge (*Carex sylvatica* and *C. pendula*) and a variety of ferns occur in richer areas. Elsewhere a range of grass, bracken and heath vegetation typical of north-east Scotland predominates. The diversity of woodland structure and vegetation is further increased by several open areas. Along the riverbank and in some glades, a herb rich grassland occurs including globe flower (*Trolleus europaea*),

melancholy thistle (*Cirsium heterophyllum*), quaking grass (*Briza media*) and several orchids. Elsewhere, particularly above the Haugh of Kilmaichlie, Craggan and Dalmenach, acid bogs and flushes maintain a rich open vegetation of scrub willow, bog asphodel (*Narthecium ossifragum*), Sphagnum moss, ragged robin (*Lychnis flos-cuculi*) and locally *Vaccinium microcarpum*

3. Bochel Wood - GR NJ 230 237

Birch and Juniper woodland/ heathland

This section of Glenlivet, its tributary the Crombie water and the intervening hills of The Bochel and Carn Tullich contains some important examples of the woodland and heathland habitats which were formerly typical of much of the surrounding area.

The woodlands are of particular interest consisting predominantly of birch with abundant juniper which in places forms a dense understorey. Aspen Rowan and self sown Scots pine are also present. The ground vegetation reflects the acid soil conditions and is dominated by heather, blaeberry and cowberry. Wood sorrel, chickweed wintergreen and oak fern are also abundant. Such birch-juniper woodland has a limited distribution in Britain but was formerly widespread in the Glenlivet area associated with the upper limits of native woodland cover (This site extends from 260-490m). On some lower slopes, better soil conditions are reflected by an increasing dominance of bracken and grasses and the abundance of species such as wood anemone, yellow pimpernel and hazel. Alder and willow are present along the poorer drained valley bottoms. Areas of both dry and wet heather heath occur. The former is locally species rich with abundant bearberry, bush vetch and petty whin. Wet and flushed heaths contain abundant sphagnum mosses, deer grass, purple moor grass and cross-leaved heath as well as bog asphodel and cloudberry.

This area is unusual in supporting relatively unmodified examples of these various habitats, it is particularly important in retaining a large area of regenerating birch-juniper woodland which is expanding onto adjacent hill ground. The site also supports a bird community associated with such habitats including black grouse, siskin, grey wagtail and ring ouzel.

4. Creag nan Gamhainn - GR NJ 151 197 Grassland and semi-natural woodland

This site is an area of calcareous woodland and grassland with limestone outcrops. It is an uncommon habitat type in north-east Scotland and supports an outstanding variety of local and some nationally rare plant species. It is situated on a SW facing slope between 275-325m in altitude adjacent to the River Avon. The calcareous influence is due to bands of limestone contained in the underlying Old Red Sandstone and Dalradian Schists.

The woodland is a good example of a mixed broadleaved wood with downy birch, silver birch, hazel, rowan, willows, bird cherry, aspen and wych elm, which support a characteristic community of woodland birds of the area including redstart, sparrow flycatcher and tree creeper.

One of the best examples of tall herb plant communities in north-east Scotland can be found here with over 141 vascular plants having been recorded. Several of these are either locally or nationally rare and include dark red helleborine, hoary whitlow grass and a bedstraw species. Many of these important herb communities occur along the road verges. The site also includes many insects associated with the calcicole plants and in particular the Northern Brown Argus and the Scotch Argus both of which are notable northern species.

5. Fodderletter - GR NJ 139 218 Wetland/mire and grassland

This site contains a variety of soligenous (ground water fed) mire and grassland communities which were formerly widespread in the straths and glens of upland Moray but which have largely been lost as a result of agricultural improvements. While generally small, mires like this are rich in a variety of different wetland plants and this site includes butterwort (*Pinguicula vulgaris*) jointed rush, dioecious sedge and bog myrtle. Globe flower, alpine bistort, quaking grass and fragrant orchid are also abundant. The site is also influenced by the presence of unimproved calcareous grassland which is scarce in Moray with species such as Lady's bedstraw and rockrose present.