



EASTER-ROSS TARGET NOTES 1996 to 2000



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NH40 >

**NH45NE
NH45SE
NH46SE**

NH45NE (Produced 1997)

NH450568 Map sheet: NH45NE

Area of wet alder (*Alnus glutinosa*) woodland with ash (*Fraxinus excelsior*), birch (*Betula* sp.) and cherry (*Prunus* sp.) in drier parts. Open areas are dominated by bracken (*Pteridium aquilinum*) and scrub - mainly broom (*Sarothamnus* [*Cytisus*] *scoparius*) but some common gorse (*Ulex europaeus*). Fairly species rich in places. NB; Woodland to the south-west is mature oak (*Quercus* sp.), but part (over 1/3 hectare) has been destroyed at NH449568 by construction of a new house. Other houses - one south of Achilty Hotel, south of the road and one on the west side of Contin bridge, north of the road and south of the river have also destroyed semi-natural habitat but scrub, grassland and scattered trees rather than mature woodland.

NH451552 Map sheet: NH45NE

Steep hillside with clumped and scattered birch (*Betula* sp.). Juniper (*Juniperus communis*) is also scattered in places. The ground flora consists of bracken (*Pteridium aquilinum*) on the lower slopes, with dry heath above, the southern part having been heavily burned, destroying much of the ground flora and scrub. However, patches of heather (*Calluna vulgaris*), bracken and small grassy areas remain and recovery of some form is likely.

NH455557 Map sheet: NH45NE

Riverbanks dominated by alder (*Alnus glutinosa*) but with some ash (*Fraxinus excelsior*) and other tree species in places. Most is quite heavily grazed by rabbits and in some parts by livestock. However, small, slightly richer areas remain in places.

On the island to the east there appears to be a little loss of woodland and scrub through agricultural "improvement". However, as "improvement" is fairly patchy, there still remains areas of some interest particularly around the margins. New fencing parallel to the river should reduce grazing by livestock, but large numbers of rabbits remain.

NH456566 Map sheet: NH45NE

Near housing development in semi-natural habitat. Some of the area was formerly an oak (*Quercus* sp.) and birch (*Betula* sp.) woodland while the remainder was a combination of scrub, bracken (*Pteridium aquilinum*) and possibly a little neutral grassland. The precise proportion of these are now difficult to ascertain. However, a conservative (on ground rather than map) estimate puts woodland loss alone at 2-3 hectares. Earlier development to the south is even larger and will have removed even more woodland.

NH456578 Map sheet: NH45NE

Area of wet heath, grading to small area of bottle sedge (*Carex rostrata*), fringed by wet modified bog. In an advanced stage of succession, possibly once a lochan. Area of swamp and bog almost certainly far more extensive at one time. Now turned to a wet heath (drying possibly aided by a fall in the water table as adjacent conifers mature). Bog myrtle (*Myrica gale*) abundant with purple moor grass (*Molinia caerulea*) in places around the margins. A scattering of Scots pine (*Pinus sylvestris*) and a little birch (*Betula* sp.), appear to be thriving as conditions are not very wet.

NH458561 Map sheet: NH45NE

New housing development, a number of large properties already built. Land to the north-east appears to be in the early stages of further development - rank grassland, bare earth and a new road. Between 1-3 hectares of mature woodland has been destroyed along the south-east boundary of this development.

NH461580 Map sheet: NH45NE

Deep drainage channels here, and up slopes to north and east, have lowered the water table dramatically in this area. Clearly once a former bog, this area is now little more than very wet heath with abundant purple moor grass (*Molinia caerulea*) and a scattering of bog myrtle (*Myrica gale*).

NH462565 Map sheet: NH45NE

Fairly new planted broadleaved trees, almost entirely oak (*Quercus* sp.) but with a few other species including beech (*Fagus sylvatica*) in small patches. Many trees show browsing damage but a number are becoming tall enough to avoid damage to the tops. Ground flora remains rank neutral grassland - the dominant feature from a distance.

NH463568 Map sheet: NH45NE

Swamp dominated by bottle sedge (*Carex rostrata*) with several large patches of what appears to be reedmace (*Typha* sp.). Marshy grassland, particularly to the north, is species rich with abundant meadowsweet (*Filipendula ulmaria*), creeping thistle (*Cirsium arvense*) and a range of common herbs. Dominant grass varies from tufted hair-grass (*Deschampsia cespitosa*) to purple moor-grass (*Molinia caerulea*). Sedges (*Carex* spp.) are scattered in places and soft rush (*Juncus effusus*) is only sparse. Surveyed late October therefore full botanical interest may not have been evident. Phase 2 survey is required here. Trees include alder (*Alnus glutinosa*) and willows (*Salix* sp.) with birch (*Betula* sp.) in drier parts.

NH464582 Map sheet: NH45NE

The general area is a complex mosaic of birch (*Betula* sp.) woodland, heath, and bog with a scattering of Scots pine (*Pinus sylvestris*) and clumps of gorse (*Ulex europaeus*) throughout. Habitat boundaries mapped only approximately due to complexity. An interesting, diverse set of habitats which have survived the large scale conifer planting of adjacent areas. However new tracks have been bulldozed, drainage channels dug and deer fencing erected. The purpose

of this remains unclear, but suggests efforts to develop the one place which has survived the devastation of conifer planting over a very large area. As the area is close to Strathpeffer and adjacent to a public footpath to Garve, if this is developed not only will an interesting area of wildlife habitats be lost (the only such habitat in the Strathpeffer area), but landscape and amenity value will be seriously reduced. If further conifer planting is intended, this is unsustainable and threatens local biodiversity.

NH467560 Map sheet: NH45NE

A new strip of broadleaved plantation comprising beech (*Fagus sylvatica*), oak (*Quercus* sp.) and rowan (*Sorbus aucuparia*).

NH467568 Map sheet: NH45NE

Very small swamp with bottle sedge (*Carex rostrata*) and common reedmace (*Typha latifolia*) and surrounded by alder (*Alnus glutinosa*) and soft rush (*Juncus effusus*). Poached by cattle.

NH468574 Map sheet: NH45NE

Swamp grading into marshy grassland, dominated by soft rush (*Juncus effusus*), to west, and fringed by reedmace (*Typha* sp.) at loch margin. Swamp dominated by bottle sedge (*Carex rostrata*) but with moderately species rich patches around margins with marsh cinquefoil (*Potentilla palustris*), water forget-me-not (*Myosotis scorpioides*), sharp flowered rush (*Juncus acutiflorus*) and other rushes (*Juncus* sp.).

NH468577 Map sheet: NH45NE

Area of acid grassland (slightly more neutral to west), with patches of bracken (*Pteridium aquilinum*) and gorse (*Ulex europaeus*). Dominated by bent grass (*Agrostis* sp.) over large areas, but also supports clumps of other species such as wavy hair grass (*Deschampsia flexuosa*). Appears to be the result of disturbance, possibly large scale removal of gorse, as the species is re-emerging over large areas. Parts of hillside adjacent to conifer plantations in north-east are dominated by gorse with bracken (*Pteridium aquilinum*) occupying gaps. This area may have been similar to the more grassy areas at one time.

NH470585 Map sheet: NH45NE

Large area dominated by gorse (*Ulex europaeus*) with bracken (*Pteridium aquilinum*) in clearings. Clumps of planted conifers remain, surrounded by large numbers of dead conifers. Suggests that much of the area was once plantation, with failure of a large number of trees.

NH473563 Map sheet: NH45NE

Recently planted oak (*Quercus* sp.) and willow (*Salix* sp.). Nearly all trees damaged, probably by cattle. To the south-west is an avenue lined on both sides with tall beech (*Fagus sylvatica*).

NH476557 Map sheet: NH45NE

Allt Tigha Choanaich was dry at time of survey (September) and some parts were vegetated. Water was still flowing from the north in the Allt Drioghinn, but only a little. Monkey flower

(*Mimulus guttatus*), water forget-me-not (*Myosotis scorpioides*) and a range of other common herbs and grasses noted immediately north of this target symbol.

NH478572 Map sheet: NH45NE

Pond covered with bottle sedge (*Carex rostrata*). Occasional water horsetail (*Equisetum fluviatile*). To west and south grades into wet modified bog. Continuous sphagnum (*Sphagnum* spp.) with hare's tail cotton-sedge (*Eriophorum vaginatum*) and patches of cross-leaved heath (*Erica tetralix*). Also stunted willow (*Salix* sp.), birch (*Betula* sp.) and Scots pine (*Pinus sylvestris*). The moss *Polytrichum commune* occurs on mounds. Hare's tail cotton-sedge grazed by rabbits. Grades towards a W18 *Pinus sylvestris*-*Hylocomium splendens* woodland (NVC classification) to the south, with birch. Sphagnum still dominates ground flora.

NH479582 Map sheet: NH45NE

Spruce (*Picea* sp.) plantation - very dense with poor ground flora. In more open areas wood-sorrel (*Oxalis acetosella*), foxglove (*Digitalis purpurea*), and violet (*Viola* sp.) were present.

NH482596 Map sheet: NH45NE

Mature conifer plantation. Mainly spruce (*Picea* sp.) to south and east, with Scot's pine (*Pinus sylvestris*) and lodgepole pine (*Pinus contorta*) to north and west. Large mature oaks (*Quercus* sp.) and other broadleaved trees are scattered throughout, suggesting that prior to planting with conifers the area supported large patches of broadleaved woodland. The broadleaved woodland to the north occupies a narrow gorge below the railway line. It is dominated by alder (*Alnus glutinosa*), and is quite wet in flatter areas. This appears to have been much more extensive prior to conifer planting.

NH484580 Map sheet: NH45NE

This site had a number of redwood (*Sequoiadendron giganteum*) trees, well over a hundred years old. There was also a mixture of mature coniferous and deciduous trees present.

NH485594 Map sheet: NH45NE

Mature mixed woodlands surrounding Castle Leod. A range of mature broadleaved trees and exotic conifers, with a scattering of scrub including rhododendron (*Rhododendron ponticum*). Ground flora quite varied but poor in places. Some areas of bracken (*Pteridium aquilinum*). Although area has a somewhat ornamental character, it is well established and not heavily managed, providing a reasonable range of wildlife habitats.

NH486571 Map sheet: NH45NE

Black Muir Wood - A dense conifer plantation, mainly Sitka spruce (*Picea sitchensis*). Abundant scattering of broadleaved trees over much of area suggests that the area may have been an interesting broadleaved woodland prior to planting. All maps support this to some extent, but quality of ground flora in past remains uncertain.

NH489570 Map sheet: NH45NE

Cnoc Mor-northern part of summit supports remnant of Scot's pine (*Pinus sylvestris*) woodland grading into dry heath to west with heather (*Calluna vulgaris*), blaeberry (*Vaccinium myrtillus*), and bell heather (*Erica cinerea*). Southern part is dry heath with a scattering of gorse (*Ulex europaeus*) and a few Scots pine and birch (*Betula* sp.). Some parts appear to have been burned in the past and numerous tree stumps are evident. However, it is not clear whether fire killed the trees or whether the stumps themselves were burned in the fire. As no larger trunks remain, the later seems more likely. The adjacent felled area appears to have been mostly lodgepole pine (*Pinus contorta*) and this is regenerating abundantly on lower slopes of the heath.

NH492557 Map sheet: NH45NE

Extensive area of bottle sedge (*Carex rostrata*). Swamp/bog (M4, *Carex rostrata*-*Sphagnum recurvum* mire (NVC)) rich in *Sphagnum* spp. Several large bog pools and small areas of open water with bogbean (*Menyanthes trifoliata*) are all that remains of what was probably once a lochan. A scattering of stunted Scot's pine (*Pinus sylvestris*) and some birch (*Betula* sp.) throughout. *Sphagnum recurvum* is particularly abundant. A scattering of heather (*Calluna vulgaris*), cross-leaved heather (*Erica tetralix*), hare's-tail cotton-sedge (*Eriophorum vaginatum*), and some common cotton-sedge (*Eriophorum angustifolium*) also noted. Bog asphodel (*Narthecium ossifragum*) abundant adjacent to bog pools. South and east bordered mainly by Scot's pine. The remainder is Sitka spruce (*Picea sitchensis*).

NH492598 Map sheet: NH45NE

Remnant of a native woodland of, old birch (*Betula* sp.) and coppiced hazel (*Corylus avellana*), but grazed by sheep so ground flora is grassy. Blackthorn (*Prunus spinosa*) is also present. Towards the east oak (*Quercus* sp.) has been planted in tree guards on the steeper slopes (approx. 3 years old).

NH493578 Map sheet: NH45NE

Species rich marshy grassland with relatively low abundance of soft rush (*Juncus effusus*) and tufted hair-grass (*Deschampsia cespitosa*), although they are scattered throughout. Slightly acidic, the area supports patches of cross-leaved heath (*Erica tetralix*) in places. The remainder is a dense springy mat of grasses and small sedges with marsh thistle (*Cirsium palustre*). Also supports horsetail (*Equisetum* sp.), marsh pennywort (*Hydrocotyle vulgaris*), ragged robin (*Lychnis flos-cuculi*), Devil's-bit scabious (*Succisa pratensis*) and a wide range of other species from both neutral and acid grassland. A full species list would have been too time consuming. Phase two survey required.

NH497579 Map sheet: NH45NE

Narrow, steep sided ridge. The top supports a strip of short grazed acid grassland, mossy in places, with abundant heath rush (*Juncus squarrosus*). North-west slope supports heath, mainly dry with heather (*Calluna vulgaris*) and blaeberry (*Vaccinium myrtillus*), (H12 *Calluna vulgaris*-*Vaccinium myrtillus* heath (NVC)) due to steepness of slope. Damper areas are tending towards M16d *Erica tetralix*-*Sphagnum compactum* wet heath, *Juncus*

squarrosus-Dicranum scoparium sub-community (NVC). Tree stumps are scattered throughout, and spacing suggests semi-natural rather than plantation origin, implying removal of large numbers of native trees in the past.

NH498569 Map sheet: NH45NE

Relatively species rich, moderately acid, marshy grassland. Abundant tufted hair-grass (*Deschampsia cespitosa*), only a little soft rush (*Juncus effusus*) and a range of common herbs, common grasses and a few sedges. NB. Birch (*Betula* sp.) woodland to the east is being managed by "Highland Birchwoods" as experimental (density) plots.

NH45SE (Produced 1997)

NH451548 Map sheet: NH45SE

Quite heavily grazed, poor semi-improved grassland. However, supports a generous scattering of herbs in places. These include tormentil (*Potentilla erecta*), speedwell (*Veronica* sp.), violet (*Viola* sp.), wood anemone (*Anemone nemorosa*), wood sorrel (*Oxalis acetosella*) and others. Reduced grazing might encourage such species, but the presence of bracken (*Pteridium aquilinum*) means that further spread of the latter might occur instead.

The steep hillside to the west appears to have been dominated by broom (*Sarothamnus* [*Cytisus*] *scoparius*) until recently. Now most of it appears to be dead (probably natural causes - dry summer), leaving only a scattering. Clumps of birch (*Betula* sp.) occur throughout, with large areas of bracken on lower slopes. The clumps of woodland to the east are mainly mature birch, overgrazed and dying back. Large, mature juniper (*Juniperus communis*) occurs throughout.

The general area to the west is heavily grazed (cattle and sheep), improved grassland. However, patches of marshy grassland occur. Most is apparently species poor, but with the possibility of small, species rich patches in places. These were not surveyed in detail.

NH455546 Map sheet: NH45SE

Dry modified bog. Heavily poached and grazed by cattle. Also burnt, but still supports a range of bog and wet heath species including *Sphagnum*, common lousewort (*Pedicularis sylvatica*), orchid (*Dactylorhiza* sp.) spikes and a few other herbs, sedges and rushes. Bulbous rush (*Juncus bulbosus*) is abundant in a few places.

NH457504 Map sheet: NH45SE

This general upland area is a complex, large scale mosaic of species poor dry and wet heath, and poor semi-improved grassland with abundant bracken (*Pteridium aquilinum*). Most of the grassland now appears to be of limited value due to the bracken invasion. The result of burning and grazing both by livestock and large numbers of red deer. The area was not surveyed in detail.

NB. Access to Fairburn Estate for survey purposes was denied. Information was gathered from secondary sources including remote sensing.

NH460510 Map sheet: NH45SE

A remnant of Scots pine (*Pinus sylvestris*) woodland, dying back due to heavy grazing by red deer. The area is sheltered and favoured by the deer, leading to short cropped heath/grassland mosaic. Dead wood is abundant as many trees have died. Adjacent heath is burned and heavily grazed, mainly species poor H10 *Calluna vulgaris* heath (NVC), with areas of wet heath and sometimes dry modified bog. However, a range of interesting species are scattered over the area and heath and bog recovery along with woodland regeneration could occur with a change in management. Area not mapped in detail.

NB. Access to Fairburn Estate for survey purposes was denied. Information for this area has therefore been gathered from secondary sources including remote sensing and may be of a general nature.

NH469516 Map sheet: NH45SE

Strip of broadleaved woodland either side of track on north bank of River Orrin in this area supports a scattering of mature, exotic conifers with a dense understorey of rhododendron (*Rhododendron ponticum*). The latter is seriously interfering with woodland development, and ground flora is absent in most places.

The falls of Orrin follow a narrow channel through a shelf of conglomerate rock in a series of steps. A small hydro electric plant has been built on the south bank and water is channelled into it from above the falls by means of a weir/dam. The whole structure appears quite old, but the hydro plant appears to be operating.

NB. Access to Fairburn Estate for survey purposes was denied. Therefore areas beyond this point have not been surveyed in detail. Information for map and target notes has been gathered from secondary sources including remote sensing.

NH473500 Map sheet: NH45SE

Wet heath, burned and grazed but still relatively species rich in places. Wettest parts support some wet modified bog and flushes with abundant heath spotted orchid (*Dactylorhiza maculata*) and a scattering of fragrant orchid (*Gymnadenia conopsea*) plus a range of common herbs. Small patches of dry blaeberry heath (H12 *Calluna vulgaris-Vaccinium myrtillus* heath (NVC)) are scattered throughout.

NH473509 Map sheet: NH45SE

Old croft land now reverted to birch (*Betula* sp.) woodland, dense bracken (*Pteridium aquilinum*), and broad areas of fairly species rich marshy grassland. Some of the latter is tending towards bog with *Sphagnum*, orchids and a range of common herbs and sedges. A complex mosaic, not mapped in detail.

NB. Access to Fairburn Estate for survey purposes was denied. Information has therefore been gathered from secondary sources including remote sensing.

To the south-west, the wet heath/grassland mosaic is dominated by bog myrtle (*Myrica gale*) over large areas. The habitat becomes grassier, with abundant bracken, further up slope.

NH473547 Map sheet: NH45SE

Complex area of old, cut off meanders (oxbow lakes), with a few small areas of open water remaining. Wetter parts are now swamp, dominated by bottle sedge (*Carex rostrata*), but relatively species rich in places. Trees are mainly alder (*Alnus glutinosa*), with a little willow (*Salix* sp.) in places. Scrub is mainly gorse (*Ulex europaeus*) and broom (*Sarothamnus* [*Cytisus*] *scoparius*), with the occasional juniper (*Juniperus communis*). Most of the scrub has been burned, and probably only a little will survive in the short term. Much of the adjacent area is very heavily grazed by both cattle and sheep. Only the wettest parts have been spared. Some eutrophication of water is evident. Also clear evidence of natural succession, probably aided by artificial drainage in places, leading to a general drying out. Some swamp is clearly well advanced towards marshy grassland. Rabbits are also extremely abundant, with some roe deer. Tree regeneration is confined to wetter parts. Without better management the area will deteriorate further. Currently much good habitat remains and there is considerable scope for improvement. However, this will diminish over time.

NH480533 Map sheet: NH45SE

New housing estate.

NH481535 Map sheet: NH45SE

New housing estate.

NH482501 Map sheet: NH45SE

Small areas of flush and wet heath with abundant heath spotted orchid (*Dactylorhiza maculata*) and frequent fragrant orchid (*Gymnadenia conopsea*) plus a range of other common herbs including lousewort (*Pedicularis sylvatica*) and butterwort (*Pinguicula vulgaris*). Areas adjacent to communications mast and track are quite heavily grazed.

NH484531 Map sheet: NH45SE

Dense, often impenetrable broadleaved woodland with scattered clumps of Scots pine (*Pinus sylvestris*). Birch (*Betula* sp.) dominates, but beech (*Fagus sylvatica*), sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), rowan (*Sorbus aucuparia*) and others are scattered in places. Apparently once a Scots pine plantation, felled and allowed to regenerate naturally. Many trees fairly mature. Understorey of broom (*Sarothamnus* [*Cytisus*] *scoparius*) and tall bracken (*Pteridium aquilinum*) in places. Ground flora varied, with a range of common herbs, grasses and mosses, but sparse under stands of beech.

NH484535 Map sheet: NH45SE

Small, new housing development. Two houses built so far. Apparently some other structures stood here which have now gone. The strip of woodland to the south has disappeared due to agricultural 'improvement'.

NH484545 Map sheet: NH45SE

Area of species rich neutral grassland with abundant bluebells (*Hyacinthoides non-scriptus*), meadowsweet (*Filipendula ulmaria*) and a wide range of common herbs. Scrub to the north of the embankment is a dense, impenetrable mixture of blackthorn (*Prunus spinosa*) and willow (*Salix* sp.). On embankment is broom (*Sarothamnus* [*Cytisus*] *scoparius*). South of embankment is gorse (*Ulex europaeus*). Some small areas of marshy grassland.

Small area of woodland to south no longer supports conifers, being mainly a mixture of broadleaved trees, but with recently planted broadleaves within.

NH487521 Map sheet: NH45SE

Pond (with emergent vegetation or swamp) now gone without trace. Filled in and turned to improved pasture.

NH488535 Map sheet: NH45SE

Road verges moderately species rich in some places along this stretch. Fields to north are improved but now overrun with creeping thistle (*Cirsium arvense*), stinging nettle (*Urtica dioica*) and dock (*Rumex* sp.) over large areas.

NH490528 Map sheet: NH45SE

Fields marked as poor-semi improved in this area appear to have been once improved. Reduced grazing has allowed grasses and a few herbs to flourish. Potential for increased species richness, but at an early stage, therefore outcome remains uncertain. Some road and track verges in the area show moderate species richness in places.

NH493539 Map sheet: NH45SE

Mature woodland following an old cut-off meander (oxbow). Margins and other dryer areas support a range of broadleaved trees including sycamore (*Acer pseudoplatanus*) and horse chestnut (*Aesculus hippocastanum*), originally planted but all now mature and appearing semi-natural. Interior remains very wet in places, with impenetrable willow (*Salix* sp.) and alder (*Alnus glutinosa*). Not explored due to inaccessibility, but appears to support the range of small pools and swamp vegetation typical of such woodlands in the area.

NH495512 Map sheet: NH45SE

Area felled, but not recently. Mapped as acid grassland with some heath and scattered birch (*Betula* sp.) with a little alder (*Alnus glutinosa*) and Scots pine (*Pinus sylvestris*). Not strictly accurate as more neutral grassland areas are abundant. However, too complex to map in more detail.

NH495544 Map sheet: NH45SE

Area of wetland - swamp with willow (*Salix* sp.) carr and alder (*Alnus glutinosa*) around margins. Yellow iris (*Iris pseudacorus*) abundant in places. Also reed canary grass (*Phalaris arundinacea*) and bottle sedge (*Carex rostrata*) plus small areas of open water. Appears to be

a very interesting wildlife habitat, but adjacent land is poor semi-improved grassland, grazed by cattle, which could be leading to some eutrophication.

NH496500 Map sheet: NH45SE

Area around Culach mapped only from a distance. There appears to be abundant birch (*Betula* sp.) woodland, but some of this may be heavily grazed. The woodland marked here extends to the south and connects with a much larger system.

NH496518 Map sheet: NH45SE

Complex area of broadleaved woodland, ranging from mature to dense, regenerating thicket. River margins are dominated by alder (*Alnus glutinosa*) with a scattering of birch (*Betula* sp.), willow (*Salix* sp.) and Scots pine (*Pinus sylvestris*). Ground flora ranges from very wet and grassy, through dryer grass with abundant wood rush (*Luzula sylvatica*), to bracken (*Pteridium aquilinum*) in dryer, more open parts. Away from river, birch dominates, with bracken dominating most open areas except for a few wet hollows which are tending towards swamp (with bottle sedge (*Carex rostrata*)), or bog. Ground flora becomes heath-like towards north-west corner. Scrub is almost entirely broom (*Sarothamnus* [*Cytisus*] *scoparius*). Despite large areas of bracken, the area is relatively rich in flora and fauna due to the wide range of habitats.

NH498515 Map sheet: NH45SE

Area is a species rich mosaic of semi-natural habitats comprising damp alder (*Alnus glutinosa*) woodland with swamp/marshy grassland developing in some parts, plus neutral grassland (herb rich in places, but with abundant birch (*Betula* sp.) seedlings and saplings regenerating in the southern part). Yorkshire fog (*Holcus lanatus*) and bent grasses (*Agrostis* spp.) are abundant. Also some broom (*Sarothamnus* [*Cytisus*] *scoparius*) and occasionally juniper (*Juniperus communis*) and gorse (*Ulex europaeus*). Blackthorn (*Prunus spinosa*) abundant adjacent to conifer plantation to west.

NB. Over-land pipeline runs east to west across the northern part of the site from river to buildings. Probably water extraction rather than drainage.

NH46SE (Produced 1997)

NH485600 Map sheet: NH46SE

Regeneration of birch (*Betula* sp.) and Scots pine (*Pinus sylvestris*) with ground layer of long grass which is a good habitat for voles, etc.

NH485603 Map sheet: NH46SE

Birch (*Betula* sp.) and scrub layer before the start of plantation. The front of the plantation consists of larch (*Larix* sp.).

NH498607 Map sheet: NH46SE

Area of dry heath on hillside. Top of hill same species as dry heath but also birch (*Betula* sp.) and Scots pine (*Pinus sylvestris*) regeneration, probably within the last five years. No deer grazing damage. Scattered juniper (*Juniperus communis*) bushes on dry heath near to farmland. Other plant species include; heather (*Calluna vulgaris*), bell heather (*Erica cinerea*), cross-leaved heath (*Erica tetralix*), tormentil (*Potentilla erecta*), common dog violet (*Viola riviniana*) and heath bedstraw (*Galium saxatile*). Also present is deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]) and various moss species.

Animals at the site include buzzards. Near to area of regeneration were two magpies. Note: these magpies are furthest north seen by surveyors to date (1997).

NH50 >

NH54NW
NH54NE
NH55NW
NH55NE
NH55SW
NH55SE

NH56NE
NH56SW
NH56SE
NH57NE
NH57SE

NH54NW (Produced 1997)
(Includes some areas within Inverness District)

NH500483 Map sheet: NH54NW

North-east part of this area has Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) scattered over heath, now under-planted with spruce (*Picea* sp.). Planting extends to north and west but to west ends in an irregular margin. What remains to west and in the south-west part of mapped area is heath (wet and dry) with scattered Scots pine, birch and willow (*Salix* sp.) with some gorse (*Ulex europaeus*) and occasional juniper (*Juniperus communis*).

NH502495 Map sheet: NH54NW

Former farm/crofting land now recently planted with exotic conifers. Beneath and between these grassland remains. Cock's foot (*Dactylis glomerata*) is abundant, but the area is tending towards acid grassland and was mapped as such as conditions are likely to become more rather than less acidic as the conifers mature. Stands of broom (*Sarothamnus* [*Cytisus*] *scoparius*) and bracken (*Pteridium aquilinum*) are scattered throughout. Woodland to the west is dominated by mature beech (*Fagus sylvatica*) with continuous bracken understorey. To the north is birch (*Betula* sp.) with grassy ground flora.

NH503483 Map sheet: NH54NW

Area mapped from edge of plantation to south during 1994-95 survey of Inverness District. Closer inspection in 97 showed recent re-planting in north-east part and patches elsewhere which may have been re-planted or could represent natural regeneration as appears uneven. Remainder of site has turned to (mainly wet) heath/grassland mosaic with scattering of birch (*Betula* sp.) and gorse (*Ulex europaeus*). Planted conifers = Scots pine (*Pinus sylvestris*), spruce (*Picea* sp.) and larch (*Larix* sp.) in large single species stands.

NH503497 Map sheet: NH54NW

Small area of wet modified bog, fringed with marshy grassland and wet heath. Heather (*Calluna vulgaris*) quite rank, therefore areas of interesting flora likely to be quite discreet. However, surveyed early April. The magenta 'flushed' area supports abundant bog myrtle (*Myrica gale*).

NH506464 Map sheet: NH54NW

Steep sided wooded den. Cliffs in places. Possibly old quarry. Bottom wet with willow (*Salix* sp.). Diverse and relatively species rich. Disturbance from new house adjacent to south-west due to dumping and tree felling.

NH507485 Map sheet: NH54NW

General area note - Whole area = Complex mosaic of patches of woodland, scrub and other habitats, with grassland ranging from good semi-natural to improved. Small scale mosaics abound making mapping difficult at this scale. Dominant species codes too often encounter difficulties as changes occur over short distances. In general, woodlands are of Scots pine (*Pinus sylvestris*) with birch (*Betula* sp.) and others. Most are grazed to some extent (though birch is regenerating in places but rarely Scots pine) Some drainage of wetter parts. However, habitats remain relatively intact, often with well developed ground flora. Scrub is mainly gorse (*Ulex europaeus*) but, within woodland, juniper (*Juniperus communis*) occurs in places. Grassland (fields) are mainly improved but often grade into poor semi-improved. Most have a slightly upland character although actual species composition is difficult to determine.

New housing is scattered throughout, often adjacent to or within woodland. This remains the greatest single threat to habitats in the short term and could significantly fragment these if not properly controlled.

NH510472 Map sheet: NH54NW

New housing.

NH512489 Map sheet: NH54NW

Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) woodland with clumps of gorse (*Ulex europaeus*) and juniper (*Juniperus communis*). Stock grazed but less intensively than woodlands to south. Wet heath/grassland is short grazed but moderately species rich. Nutrient enrichment not too severe. Small pools support palmate newts.

NH512496 Map sheet: NH54NW

Planted Scots pine (*Pinus sylvestris*) with wide scattering of birch (*Betula* sp.). Also some mature beech (*Fagus sylvatica*), and clumps of rhododendron (*Rhododendron ponticum*), suggesting different land use in past. Ground is grassy with mosses in places. Moderately species rich but with potential for improvement as trees mature and thin. N.B. Heard a woodpecker and a saw brown hare in field to north.

NH513476 Map sheet: NH54NW

New housing.

NH513498 Map sheet: NH54NW

Potentially interesting habitat of birch (*Betula* sp.) and marshy grassland with alder (*Alnus glutinosa*). However, ground heavily poached by cattle suppressing species richness and preventing tree regeneration.

NH515486 Map sheet: NH54NW

Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) woodland with some gorse (*Ulex europaeus*). Heavily stock grazed by cattle, and poached ground in places. Nutrient enriched. However, ground flora shows moderate 'richness' in places. Area below pylons is very short grazed heath/grassland mosaic. Neutral in places, and nutrient enrichment has caused eutrophication of small pools. However, area retains moderate species richness and could recover if grazing reduced. N.B. Woodland 200m. to north is very similar but grazing impact is less.

NH519495 Map sheet: NH54NW

The Ardngask area, in general, contains a number of rounded ridges which appear to be fluvioglacial (origin associated with water in close proximity to glacier). Hollows between these in this plantation supports small pools and broadleaved trees. The pool towards the north end of this wood appears richer than the rest, with *Sphagnum* and other mosses and grasses. Surveyed in early April, but appears to have potential for both flora and fauna.

NH521461 Map sheet: NH54NW

Abandoned tree nursery. Tall herbs and rank grass plus some surviving saplings including hawthorn (*Crataegus monogyna*), willow (*Salix* sp.), rowan (*Sorbus aucuparia*) and beech (*Fagus sylvatica*).

NH522462 Map sheet: NH54NW

New housing.

NH524466 Map sheet: NH54NW

New housing.

NH525470 Map sheet: NH54NW

Line of mature hawthorn (*Crataegus monogyna*). Unclear whether a defunct hedge or planted as a windbreak rather than a barrier. The same applies to a number of other locations in the area including some by the A862.

NH527484 Map sheet: NH54NW

Species-rich marshy grassland and alder (*Alnus glutinosa*) carr dominated by soft rush (*Juncus effusus*) in most places, but with some bottle sedge (*Carex rostrata*) towards the northern end where conditions are very wet; approaching swamp. Some areas rich in *Sphagnum*, and sedges (*Carex* spp.) abundant in places. Area to the south and west, beyond burn, is particularly

Sphagnum rich, and also supports a range of wet heath species. This part was almost certainly a bog, but has been modified due to a deep drain that runs through. Parts would have been mapped as modified bog, were it not for the abundance of marshy grassland species throughout. Meadowsweet (*Filipendula ulmaria*) also abundant, suggesting slightly calcareous conditions in places. Supports a wide range of common herbs, and appears to be an important area for wildlife. This is probably the richest part of this narrow corridor that connects the upland habitats of the north-west, with those adjacent to the firth to the north-east.

NH529481 Map sheet: NH54NW

Relatively species-rich marshy grassland with a narrow strip of wet alder (*Alnus glutinosa*) woodland adjacent to burn. Species include:- Soft rush (*Juncus effusus*), marsh marigold (*Caltha palustris*), marsh thistle (*Cirsium palustre*), violet (*viola* sp.), lesser celandine (*Ranunculus ficaria*), opposite leaved golden saxifrage (*Chrysosplenium oppositifolium*), creeping buttercup (*Ranunculus repens*), and many others.

NH531464 Map sheet: NH54NW

Willow (*Salix* sp.) carr. Mature willow scrub, some reaching the size of small trees. Ground flora of inundation vegetation, mainly reed canary grass (*Phalaris arundinacea*) with some common reed (*Phragmites australis*). Tending towards salt-marsh to east (seawards) end.

NH531465 Map sheet: NH54NW

Area of embankment and earth dike between drainage channel and river. Dominated by reed canary grass (*Phalaris arundinacea*) and tall herbs including rosebay willow-herb (*Chamaenerion angustifolium*) and Japanese knotweed (*Polygonum [Reynoutria] japonica*). Also some small patches of common reed (*Phragmites australis*).

NH534496 Map sheet: NH54NW

Loch partly filled and turned to amenity grassland. Some aquatic plants evident, including water lilies, but surveyed in March 1997 therefore full picture not gained. Adjacent grassland has abundant rabbits and is rich in the moss *Rhytidiadelphus squarrosus*.

NH540466 Map sheet: NH54NW

Marginal vegetation with an area tending towards saltmarsh, especially on lower margins. Area supports a range of species including common reed (*Phragmites australis*) and reed canary grass (*Phalaris arundinacea*).

NH542499 Map sheet: NH54NW

Broadleaved woodland dominated by mature oak (*Quercus* sp.) in the north. Some birch (*Betula* sp.) and willows (*Salix* sp.) in wetter hollows. To the south, birch dominates, and grass comes to dominate ground flora. Canopy more open. Some wet hollows with willow. Broom (*Sarothamnus [Cytisus] scoparius*) both dense and scattered in places. Also some juniper (*Juniperus communis*). Ground flora (early March) is bryophyte dominated, particularly the moss *Rhytidiadelphus triquetrus*, with a scattering of grasses throughout.

Some areas dominated by bracken (*Pteridium aquilinum*). Also open patches of wet heath/grassland, and seepage/streams with soft rush (*Juncus effusus*). Abundant rabbits and probably stock grazed from time to time. No tree regeneration. NB. Parts to the east, adjacent to conifer plantation are short grazed wet heath/grassland mosaic. The area coloured purple is *Sphagnum*-rich bog/bog pool. However, soft rush is abundant and some nutrient enrichment due to grazing is probable; but still an interesting habitat, under represented in this area.

NH545493 Map sheet: NH54NW

Linear strip of oak (*Quercus* sp.) woodland with marshy grassland by stream. Trees all mature, with no regeneration and some lying and standing dead wood. Marshy grassland is fairly species rich; has meadowsweet (*Filipendula ulmaria*), soft rush (*Juncus effusus*) and a range of common herbs, also a little yellow iris (*Iris pseudacorus*). This, and adjacent neutral grassland, is not obviously stock grazed (quite rank), but no tree regeneration due to rabbits. This is a small corridor linking habitats north and south through agricultural land.

NH546471 Map sheet: NH54NW

Swamp and marginal vegetation, some possibly experiencing seasonal inundation. Transition to a narrow strip of marshy grassland (latter moderately species rich). A strip of salt-marsh borders in places.

NH547477 Map sheet: NH54NW

Very wet area of reed beds and rank marshy grassland. Potentially very interesting but inaccessible and surveyed in March.

NH549457 Map sheet: NH54NW

Small new housing development adjacent to old church and graveyard. Although down slope from the church, and thus not disturbing the view directly, the development is highly intrusive in an otherwise picturesque setting. Although the site is of limited wildlife value it never the less seems inappropriate that such a development could be allowed to take place. Although not actually encroaching on consecrated ground the very close proximity of the development appears very insensitive.

NH54NE (Produced 1995 and 1997)
(Includes some areas within Inverness District)

NH550497 Map sheet: NH54NE

Standing stones on top of rise. Associated with Douglas fir (*Pseudotsuga menziesii*) and birch (*Betula* sp.). Mosses and lichens growing on stones. Also good ground flora, and tree regeneration.

NH554495 Map sheet: NH54NE

Complex configuration of swamp and marshy grassland fed by spring and drained by several small streams running to the south and east. The wet areas are surrounded by stands of mature alder (*Alnus glutinosa*) with healthy regeneration throughout site. This grades into birch (*Betula* sp.) woodland in drier and higher areas. Other trees present along wall near road include sycamore (*Acer pseudoplatanus*), oak (*Quercus* sp.), beech (*Fagus sylvatica*), and Douglas fir (*Pseudotsuga menziesii*). Plant species in wetter areas included:- Dominant reedmace (*Typha* sp.), abundant marsh marigold (*Caltha palustris*), yellow iris (*Iris pseudacorus*), brooklime (*Veronica beccabunga*), locally abundant buttercup (*Ranunculus* sp.), tormentil (*Potentilla erecta*), field wood-rush (*Luzula campestris*), various mosses (including *Polytrichum* sp.), horsetails (*Equisetum* sp.). Plant species in drier areas included common dog violet (*Viola riviniana*), common sorrel (*Rumex acetosella*), stinging nettle (*Urtica dioica*), greater stitchwort (*Stellaria holostea*), gorse (*Ulex europaea*) within stands of birch, crane's-bill (*Geranium* sp.), bluebells (*Hyacinthoides non-scripta*) on raised areas, ferns (*Dryopteris* spp.) near roadside wall. Damselfly and roe deer noted.

NH558488 Map sheet: NH54NE

This area is behind an embankment, protected from sea water on the shore side. However the banks of the drainage ditch running down to the shore have broken and therefore the area is now subject to salt water inundation. Has been left uncultivated and colonised by various herbs including rosebay willowherb (dominant) (*Chamaenerion angustifolium*), broad-leaved willowherb (Dominant) (*Epilobium montanum*), changing forget-me-not (abundant) (*Myosotis discolor*), meadow buttercup (abundant) (*Ranunculus acris*), dandelion (occasional) (*Taraxacum officinale*), daisy (occasional) (*Bellis perennis*), thistle (occasional) (*Cirsium* sp.), white clover (abundant) (*Trifolium repens*), cleavers (occasional) (*Galium aparine*), and frequent grasses. Marshy area adjacent to breached ditch was dominated by dead soft rush (*Juncus effusus*). Corn spurrey (*Spergula arvensis*) had colonised two patches.

NH561496 Map sheet: NH54NE

A mature oak (*Quercus* sp.) woodland with occasional rowan (*Sorbus aucuparia*) and elm (*Ulmus* sp.). North third of the wood has a dense understorey of nettles (*Urtica dioica*) and grass species including frequent cock's foot (*Dactylis glomerata*) and occasional bluebell (*Hyacinthoides non-scripta*) and broom (*Sarothamnus* [*Cytisus*] *scoparius*). Moderate amount of dead wood, but no regeneration. However extensive replanting of oak and occasional birch (*Betula* sp.). Section to the south (all the way to the road) is mostly clear, with more broom and some gorse (*Ulex europaeus*). Planted trees are different from the northern area; hazel (*Corylus avellana*), rowan, Norway spruce (*Picea abies*), wild cherry (*Prunus avium*), Scots pine (*Pinus sylvestris*), sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), all about 2-5 years old. This area is surrounded by mature beech (*Fagus sylvatica*), oak and birch. Middle of site is dominated by bracken (*Pteridium aquilinum*).

NH570455 Map sheet: NH54NE

Small but relatively species rich woodland with aspen (*Populus tremula*), lime (*Tilia* sp.), oak (*Quercus* sp.), beech (*Fagus sylvatica*), alder (*Alnus glutinosa*), sycamore (*Acer pseudoplatanus*), birch (*Betula* sp.) and willow (*Salix* sp.). Also a small pond.

NH572459 Map sheet: NH54NE

Area of saltmarsh with mud-flats beyond. Likely to be important for wading birds. Also several herons noted in the area.

NH573492 Map sheet: NH54NE

Area of marshy grassland grading to salt marsh. Plants include northern marsh orchid (*Dactylorhiza purpurella*), stinging nettle (*Urtica dioica*), dog rose (*Rosa canina*), hawthorn (*Crataegus monogyna*), ash (*Fraxinus excelsior*), Burnet rose (*Rosa pimpinellifolia*), germander speedwell (*Veronica chamaedrys*), lesser stitchwort (*Stellaria graminea*), creeping buttercup (*Ranunculus repens*), skullcap (*Scutellaria galericulata*), marsh thistle (*Cirsium palustre*), wood sage (*Teucrium scorodonia*), marsh marigold (*Caltha palustris*), yellow iris (*Iris pseudacorus*), willows (*Salix* sp.), hemlock water-dropwort (*Oenanthe crocata*), wood avens (*Geum urbanum*), one gooseberry bush (*Ribes uva-crispa*), wood forget-me-not (*Myosotis sylvatica*), water cress (*Rorippa nasturtium-aquaticum*), monkey flower (*Mimulus guttatus*), opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*), cleavers (*Geum aparine*), meadowsweet (*Filipendula ulmaria*), white clover (*Trifolium repens*), gorse (*Ulex europaeus*), cuckoo flower (*Cardamine pratensis*), bindweed (*Convolvulus* sp.), sea plantain (*Plantago maritima*), water horsetail (*Equisetum fluviatile*), scurvy grass (*Cochlearia officinalis*), Yorkshire fog (*Holcus lanatus*), soft rush (*Juncus effusus*), cock's foot (*Dactylis glomerata*), sea club-rush (*Scirpus maritima*), common reedmace (*Typha latifolia*). Fauna included reed buntings and elephant hawk moth. Strip of marshy grassland adjacent to fields at back of site has been recently cut. A local resident thinks this is because of the presence of the hemlock (*Conium maculatum*).

NH578455 Map sheet: NH54NE

Relatively species rich area with species including orchids (*Dactylorhiza* sp.), horsetails (*Equisetum* sp.) and lady's smock (*Cardamine pratensis*).

NH580494 Map sheet: NH54NE

Small semi-improved field grazed by horses, with a small area of marshy grassland (20x2m). Plants included: Docks and sorrel (*Rumex* spp.), buttercups (*Ranunculus* spp.), between 100-200 northern marsh orchid (*Dactylorhiza purpurella*). Borders onto an area of saltmarsh, with common reedmace (*Typha latifolia*), water horsetails (*Equisetum fluviatile*), common horsetails (*Equisetum arvense*), yellow iris (*Iris pseudacorus*), common scurvy grass (*Cochlearia officinalis*), sea plantain (*Plantago maritima*), sea club-rush (*Scirpus maritimus*), stinging nettle (*Urtica dioica*). Fauna included:- Small copper butterfly (*Lycaena phlaeas*), a pair of reed buntings (*Emberiza cirrus*) that were definitely feeding regularly, carrying insects to a rose bush by salt marsh - nest? 3 pairs of shelduck (*Tadorna tadorna*) with a group of 15-20 young. One osprey (*Pandion haliaetus*) fishing unsuccessfully.

NH584497 Map sheet: NH54NE

Along the roadside verge, dogs mercury (*Mercurialis perennis*) spreading from the wood within the wall where it was dominant.

NH585453 Map sheet: NH54NE

Old orchard.

NH586452 Map sheet: NH54NE

Relatively species rich woodland (in places) with rowan (*Sorbus aucuparia*), birch (*Betula* sp.) and beech (*Fagus sylvatica*).

NH592498 Map sheet: NH54NE

Area of planted oak (*Quercus* sp.) (90%) with some ash (*Fraxinus excelsior*) (10%). Most trees between 15-20 years old; nearly all healthy. A few self-seeded birch (*Betula* sp.) and willow (*Salix* sp.) were present. Ground flora not species rich; dominated by grasses. Other species present included:- Soft rush (*Juncus effusus*), common sorrel (*Rumex acetosa*), thistles (*Cirsium* sp.), vetches (*Vicia* sp.). A colony of Scotch argus butterflies (*Erebia aethiops*) were present.

NH593492 Map sheet: NH54NE

Swamp similar to that at NH598487, but smaller, with a little great reedmace (*Typha latifolia*).

NH593498 Map sheet: NH54NE

Birch (*Betula* sp.) woodland with several mature oaks (*Quercus* sp.) and beech (*Fagus sylvatica*). Ground flora included:- Chickweed wintergreen (*Trientalis europaea*), common dog violet (*Viola riviniana*), wood sorrel (*Oxalis acetosella*), self-heal (*Prunella vulgaris*), tormentil (*Potentilla erecta*) and heath bedstraw (*Galium saxatile*). Very little tree regeneration save for some birch.

NH594488 Map sheet: NH54NE

Felled area with some regeneration, mostly sycamore (*Acer pseudoplatanus*) and birch (*Betula* sp.). A few mature horse chestnut (*Aesculus hippocastanum*), oak (*Quercus* sp.) and Scots pine (*Pinus sylvestris*) were also present. Other species included brambles (*Rubus fruticosus*), herb Robert (*Geranium robertianum*), ragwort (*Senecio jacobaea*), forget-me-not (*Myosotis* sp.), speedwells (*Veronica* sp.), gorse (*Ulex europaeus*), rhododendron (*Rhododendron ponticum*), ferns, dog rose (*Rosa canina*), bugle (*Ajuga reptans*), wood-sorrel (*Oxalis acetosella*), cleavers (*Galium aparine*). Red campion (*Silene dioica*), thistles (*Cirsium* sp.), stitchwort (*Stellaria* sp.), common daisy (*Bellis perennis*), bird's-foot trefoil (*Lotus corniculatus*) and lady's bedstraw (*Galium verum*). However, the grass was often too lush to allow the herbs full growth.

NH594494 Map sheet: NH54NE

Pheasant pen. Nearby area of birch (*Betula* sp.) woodland contained many pheasants. Ground flora dominated by blaeberry (*Vaccinium myrtillus*).

NH595453 Map sheet: NH54NE

Birch (*Betula* sp.) woodland with an interesting range of species and habitats.

NH597497 Map sheet: NH54NE

Large area of birch (*Betula* sp.) woodland, very dense in places. The age range of the birch was very wide, but very little regeneration was occurring. Some mature Scots pine (*Pinus sylvestris*). Canopy cover 50% to 90%. The more open areas were dominated by heather (*Calluna vulgaris*) and the moss *Hylocomium splendens*. The lower area to the west has larger trees, with fewer gaps in the canopy. These were sometimes dominated by bracken (*Pteridium aquilinum*). Chickweed wintergreen (*Trientalis europaea*) was widespread and common in the lower area, also wood sorrel (*Oxalis acetosella*), dog violet (*Viola riviniana*), hard fern (*Blechnum spicant*) were locally abundant. One patch of common wintergreen (*Pyrola minor*) found. *Cladonia* lichen became more frequent on higher, more open areas with patchy blaeberry (*Vaccinium myrtillus*). Occasional Scots pine regeneration. One small area of juniper (*Juniperus communis*) was present at NH594498.

NH598487 Map sheet: NH54NE

Swamp in the middle of a hay field. Dominated by bottle sedge (*Carex rostrata*); also present were:- bogbean (*Menyanthes trifoliata*), *Sphagnum* spp. and also occasional cotton sedge (*Eriophorum* sp.). Before reaching the hay field, the swamp graded through marshy grassland three metres wide, dominated by soft rush (*Juncus effusus*), with occasional tormentil (*Potentilla erecta*) and heath bedstraw (*Galium saxatile*).

NH55NW (Produced 1997)

NH500568 Map sheet: NH55NW

Birch (*Betula* sp.) woodland marked off as experimental (density) plots. Managed by Highland Birchwoods and Forest Enterprise.

NH505563 Map sheet: NH55NW

Very varied area of cattle grazed grassland. Mainly poor semi-improved, being invaded by creeping thistle (*Cirsium arvense*) and ragwort (*Senecio jacobaea*) over large areas. Wetter hollows support marshy grassland, mainly species poor and dominated by soft rush (*Juncus effusus*), but occasionally more interesting. Some areas of grassland appear moderately species rich, but are not always well defined.

NB. According to a local resident, wet areas along the western edge of this site support great crested newts (*Triturus helveticus*).

NH505593 Map sheet: NH55NW

Mature beech (*Fagus sylvatica*), elm (*Ulmus* sp.) and sycamore (*Acer pseudoplatanus*). Also a few young elder (*Sambucus nigra*) and sycamore. Very little tree regeneration. Ground flora is dominated by nettles (*Urtica dioica*). Also blackberry (*Rubus fruticosus*), raspberry (*Rubus*

idaeus) and hogweed (*Heracleum sphondylium*). Grass mostly Yorkshire fog (*Holcus lanatus*) and tufted hair grass (*Deschampsia cespitosa*).

NH506552 Map sheet: NH55NW

Disused quarry now used to dump agricultural and domestic wastes, including potatoes covered with black polythene, and tyres, presumably to prevent growth.

NH507575 Map sheet: NH55NW

Birch (*Betula* sp.) regeneration amongst alders (*Alnus glutinosa*), but some grazing has occurred. Gorse (*Ulex europaeus*) also present, and white dead nettle (*Lamium album*). Orange fungi on cow pats.

NH508593 Map sheet: NH55NW

Oak (*Quercus* sp.), birch (*Betula* sp.), ash (*Fraxinus excelsior*) and beech (*Fagus sylvatica*) planted and guarded. Sycamore (*Acer pseudoplatanus*) and alder (*Alnus glutinosa*) self-seeded.

NH509571 Map sheet: NH55NW

Loch Ussie - Marginal vegetation of bottle sedge (*Carex rostrata*).

NH509575 Map sheet: NH55NW

Marginal vegetation of bottle sedge (*Carex rostrata*).

NH509580 Map sheet: NH55NW

A small pond under a canopy of alder (*Alnus glutinosa*).

NH511561 Map sheet: NH55NW

Wood with birch (*Betula* sp.), Scot's pine (*Pinus sylvestris*), rowan (*Sorbus aucuparia*) and oak (*Quercus* sp.). Other species include bluebell (*Hyacinthoides non-scripta*) and the mosses *Rhytidiadelphus triquetrus* and *Hylocomium splendens*. Gorse (*Ulex europaeus*) is invading open areas, and there is some grazing damage by sheep and/or deer. Otherwise there is some regeneration of birch and Scot's pine.

NH512564 Map sheet: NH55NW

Mature Sitka spruce (*Picea sitchensis*) plantation with no ground flora due to dense canopy.

NH515562 Map sheet: NH55NW

A small pond surrounded by alder (*Alnus glutinosa*), birch (*Betula* sp.), willow (*Salix* sp.), soft rush (*Juncus effusus*), bottle sedge (*Carex rostrata*) and some gorse (*Ulex europaeus*).

NH517560 Map sheet: NH55NW

A very complex pond area, where the pond is drying up. Gorse (*Ulex europaeus*) is around the edges, birch (*Betula* sp.), willow (*Salix* sp.) and some juniper (*Juniperus communis*) also present. Some Sitka spruce (*Picea sitchensis*) is invading from the nearby plantation. Plant species include marsh pennywort (*Hydrocotyle vulgaris*), sneezewort (*Achillea millefolium*), tormentil (*Potentilla erecta*), heath bedstraw (*Galium saxatile*), cross-leaved heath (*Erica tetralix*), tufted hair grass (*Deschampsia cespitosa*), bottle sedge (*Carex rostrata*), common sedge (*Carex nigra*), soft rush (*Juncus effusus*), floating sweet grass (*Glyceria fluitans*) and the mosses *Polytrichum commune* and *Pseudoscleropodium purum*.

NH517571 Map sheet: NH55NW

An area of marshy grassland in a field corner. A large juniper (*Juniperus communis*) bush was growing in the area, along with small willows (*Salix* sp.), devil's-bit scabious (*Succisa pratensis*), water horsetail (*Equisetum fluviatile*), ragged robin (*Lychnis flos-cuculi*), yellow rattle (*Rhinanthus minor*), water mint (*Mentha aquatica*), soft rush (*Juncus effusus*), angelica (*Angelica sylvestris*), marsh cinquefoil (*Potentilla palustris*), selfheal (*Prunella vulgaris*) and marsh violet (*Viola palustris*). Flocks of long-tailed tits (*Aegitholas caudatus*) were also present.

NH517594 Map sheet: NH55NW

Small area of open woodland. Trees mostly birch (*Betula* sp.) and sycamore (*Acer pseudoplatanus*). Also lime (*Tilia* sp.) and elm (*Ulmus* sp.). Ground flora includes wood sorrel (*Oxalis acetosella*), heath bedstraw (*Galium saxatile*), common dog violet (*Viola riviniana*), germander speedwell (*Veronica chamaedrys*), wavy hair-grass (*Deschampsia flexuosa*) and fescue (*Festuca* sp.). Signs of fox, badger and otter. Also seen heron, dipper and tree creeper.

NH518554 Map sheet: NH55NW

Disused area with stone and concrete buildings and other habitation remains. Scattered tutsan (*Hypericum androsaemum*) present. Plantation to the south-east comprises Norway spruce (*Picea abies*) and western hemlock (*Tsuga heterophylla*). Eight old, healthy beech (*Fagus sylvatica*) and a few old oak (*Quercus* sp.) within, also some planted oaks in plastic tree guards. Deciduous woodland to the east contains many mature beech and planted oaks of less than five years. A dense understorey of nettles (*Urtica dioica*).

NH518557 Map sheet: NH55NW

Area of fairly open plantation of Scot's pine (*Pinus sylvestris*), larch (*Larix* sp.) and western hemlock (*Tsuga heterophylla*) grading to dry heath. Species include blaeberry (*Vaccinium myrtillus*), bell heather (*Erica cinerea*), heather (*Calluna vulgaris*) and the moss *Hylocomium splendens*.

NH520576 Map sheet: NH55NW

Area of wind blown trees due to the cutting of a track for electric pylons. Replanted by Grove Forestry of Elgin, with species including oak (*Quercus* sp.), beech (*Fagus sylvatica*), spruce (*Picea* sp.) and rhododendron (*Rhododendron ponticum*).

NH537550 Map sheet: NH55NW

A mixed deciduous wood of willow (*Salix* sp.), ash (*Fraxinus excelsior*), alder (*Alnus glutinosa*) and sycamore (*Acer pseudoplatanus*). Other plants included herb Robert (*Geranium robertianum*), Indian balsam (*Impatiens glandulifera*), bramble (*Rubus fruticosus*), creeping buttercup (*Ranunculus repens*), greater wood-rush (*Luzula sylvatica*), hedge woundwort (*Stachys sylvatica*), common nettle (*Urtica dioica*), water forget-me-not (*Myosotis scorpioides*), and reed canary-grass (*Phalaris arundinacea*).

NH537562 Map sheet: NH55NW

New housing estate.

NH544561 Map sheet: NH55NW

Mixed deciduous woodland of ash (*Fraxinus excelsior*), alder (*Alnus glutinosa*), sycamore (*Acer pseudoplatanus*), rowan (*Sorbus aucuparia*), elm (*Ulmus* sp.) and beech (*Fagus sylvatica*). Other plants included greater wood-rush (*Luzula sylvatica*), wood avens (*Geranium sylvaticum*), blaeberry (*Vaccinium myrtillus*), herb Robert (*Geranium robertianum*), red campion (*Silene dioica*), bracken (*Pteridium aquilinum*), Indian balsam (*Impatiens glandulifera*), bluebell (*Hyacinthoides non-scripta*), bugle (*Ajuga reptans*), rosebay willowherb (*Chamaenerion angustifolium*), hedge woundwort (*Stachys sylvatica*), meadowsweet (*Filipendula ulmaria*), water forget-me-not (*Myosotis scorpioides*), black knapweed (*Centaurea nigra*), Saint John's wort (*Hypericum* sp.) and tufted hair grass (*Deschampsia cespitosa*).

NH544599 Map sheet: NH55NW

Mixed broadleaved woodland with good ground flora, including greater wood-rush (*Luzula sylvatica*), hedge woundwort (*Stachys sylvatica*) and wood avens (*Geum urbanum*).

NH548565 Map sheet: NH55NW

Complex, species rich area of broadleaved woodland, scrub, herbs and grasses, dominated by alder (*Alnus glutinosa*) but with a range of others including ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*), sycamore (*Acer pseudoplatanus*), and willow (*Salix* sp.) in wetter parts. Scrub is mainly gorse (*Ulex europaeus*) and broom (*Sarothamnus* [*Cytisus*] *scoparius*), with dog rose (*Rosa canina*) scattered throughout drier parts. Ground flora is tall, dense herbs over much of area with species such as rosebay willowherb (*Chamaenerion angustifolium*) and creeping thistle (*Cirsium arvense*) often dominating. However area remains relatively species rich with abundant meadowsweet (*Filipendula ulmaria*) and a wide range of other common species too numerous to list fully. These include Devil's bit scabious (*Succisa pratensis*), selfheal (*Prunella vulgaris*), valerian (*Valeriana* sp.), herb Robert (*Geranium robertianum*), mint (*Mentha* sp.) and Forget-me-not (*Myosotis* sp.). Grasses are

scattered widely, with species ranging from tufted hair grass (*Deschampsia cespitosa*), cock's foot (*Dactylis glomerata*), and other common neutral grasses, to reed canary grass (*Phalaris arundinacea*) from adjacent coastal areas. Bramble (*Rubus fruticosus*) is scattered widely, making access difficult in places. Indian balsam (*Impatiens glandulifera*) is scattered in places, becoming particularly abundant along the riverbank along with a number of other tall herbs (apparently garden escapes). Due to complexity, mapping is only general. Area would benefit from Phase 2 survey. (This may have been undertaken already by SNH as part of Conon Islands SSSI survey, but not known.) Area to west is fairly inaccessible swamp/herb rich marshy grassland. Reed canary grass is abundant but tufted hair grass and soft rush (*Juncus effusus*) are only occasional. Large areas dominated by herbs including water forget-me-not (*Myosotis scorpioides*), monkey flower (*Mimulus guttatus*), water mint (*Mentha aquatica*) and meadowsweet (*Filipendula ulmaria*). Bindweed (*Convolvulus* sp.) has spread in places over dryer parts.

NH55NE (Produced 1997)

NH550568 Map sheet: NH55NE

Complex area which experiences tidal inundation from time to time. Difficult to map as boundaries are not always clear. A mixture of neutral grassland, marshy in places, grading into stands of reed canary-grass (*Phalaris arundinacea*) in places. The saltmarsh appears to be an upper saltmarsh community, rank, un-grazed and grading into grassland and reed canary-grass. Willow (*Salix* sp.) is scattered in places, becoming more abundant to the south-west. Access is difficult and potentially dangerous due to tidal channels. (Survey had to be cut short as tide advanced.)

NH551572 Map sheet: NH55NE

Neutral grassland, marshy in places, with tufted hair-grass (*Deschampsia cespitosa*) and a little soft rush (*Juncus effusus*). Moderately species rich, but becoming rank in places.

NH551583 Map sheet: NH55NE

Steep, densely wooded embankment supporting a range of mature, native broadleaved trees including ash (*Fraxinus excelsior*), beech (*Fagus sylvatica*), birch (*Betula* sp.) and others. Broom (*Sarothamnus* [*Cytisus*] *scoparius*) occurs in places around margins, and there are several open patches dominated by tall herbs including rosebay willowherb (*Chamaenerion angustifolium*) and brambles (*Rubus fruticosus*). Relatively inaccessible due to steepness of slope and presence of buildings at base of slope.

NH553567 Map sheet: NH55NE

Complex island of swamp and fairly species rich marshy grassland with some broadleaved woodland and scrub. Access is difficult and area is isolated by tidal channels for most of the time. The island is criss-crossed by small, vegetation choked channels and hollows, some of which presumably fill at high tide. The area appears to be relatively stable in terms of succession, essentially a wet prairie maintained by periodic tidal inundation. Although succession to woodland and scrub will probably continue slowly, there appear to be large areas which will remain too wet and/or saline for this to occur for some considerable time.

The woodland is mainly alder (*Alnus glutinosa*) with willow (*Salix* sp.) in wetter parts, but also supports other species including ash (*Fraxinus excelsior*) and hawthorn (*Crataegus monogyna*). Beneath the trees, a dense scrub layer of dog rose (*Rosa canina*) (sometimes to the height of large bushes/small trees, and bramble (*Rubus fruticosus*) is frequent and often hampers movement. Ground flora is predominantly marshy grassland with tufted hair-grass (*Deschampsia cespitosa*) and a wide variety of other grasses and herbs, but only a scattering of soft rush (*Juncus effusus*). Meadowsweet (*Filipendula ulmaria*) is abundant. Dense stands of reed canary-grass (*Phalaris arundinacea*) are scattered throughout, but sometimes merge with other vegetation, making mapping difficult. The northern end of the island was not visited due to lack of time, but appears generally similar except for the probability of patches of saltmarsh in places.

This appears to be a fairly unique habitat for this general area. May be part of Conan Islands SSSI, and may have already been surveyed, but not certain. If area has not already been surveyed, Phase 2 survey is strongly recommended.

NH554598 Map sheet: NH55NE

New roads laid out for new housing development. No building so far. Area currently supports tall herbs including rosebay willowherb (*Chamaenerion angustifolium*), creeping thistle (*Cirsium arvense*) and neutral grassland.

NH555575 Map sheet: NH55NE

Area of saltmarsh. Accuracy of mapping limited by incoming tide and inaccessibility. Some parts appear to support patches of marshy, coastal grassland, particularly along western margins. Large areas of mud-flat in this area appear to be vegetated to some extent, but remain submerged at high tide. Mapped from north bank of river, therefore no further details available.

NH555592 Map sheet: NH55NE

Area of un-grazed, intact saltmarsh without signs of serious erosion and possibly some suggestion of accretion. Relatively species rich. Swamp vegetation in the area is mainly sea club-rush (*Scirpus maritimus*), but with two dense stands of common reed (*Phragmites australis*) as indicated. Upper saltmarsh/coastal grassland is dominated by sea couch (*Elymus pycnanthus*) over large areas.

NH572563 Map sheet: NH55NE

Swamp dominated by bottle sedge (*Carex rostrata*) and horsetail (*Equisetum* sp.), with marsh cinquefoil (*Potentilla palustris*) surrounded by a fringe of soft Rush (*Juncus effusus*) then a ring of Birch (*Betula* sp.). Surrounding the swamp on higher ground is heather (*Calluna vulgaris*), blaeberry (*Vaccinium myrtillus*), tormentil (*Potentilla erecta*) and mosses including *Hylocomium splendens* and *Pseudoscleropodium purum*. Where stream run into centre of wood, species include tutsan (*Hypericum androsaemum*), opposite leaved golden leaved saxifrage (*Chrysosplenium oppositifolium*), enchanters nightshade (*Circaea lutetiana*), dogs Mercury (*Mercurialis perennis*), forget-me-not (*Myosotis* sp.), all by stream side. Soil is soft red sand and stream often overflows forcing new channels through the wood. Abundant new

channels and evidence of cattle grazing. Abundant open grassy areas and small rush dominated areas. Area around the stream is dominated by birch of uneven aged stands. Stream by the roadside has marshy area with abundant yellow iris (*Iris pseudacorus*), marsh woundwort (*Stachys palustris*), meadowsweet (*Filipendula ulmaria*) and soft rush (*Juncus effusus*).

NH581573 Map sheet: NH55NE

Drumondreach Oakwood - Scottish Wildlife Trust reserve oak (*Quercus* sp.) woodland similar in composition to that at NH584579, and was likely to have been linked to that wood in the past. Other trees present include birch (*Betula* sp.), rowan (*Sorbus aucuparia*) and hazel (*Corylus avellana*), with honeysuckle (*Lonicera periclymenum*) growing on all tree species. Herb species include enchanters nightshade (*Circaea lutetiana*), tormentil (*Potentilla erecta*), wood avens (*Geum urbanum*), herb Robert (*Geranium robertianum*), wood sorrel (*Oxalis acetosella*), bluebell (*Hyacinthoides non-scripta*). (Should also be moschatel (*Adoxa moschatellina*) present, but none seen) Relatively diverse ground flora, but does not seem to reflect ancient woodland status. Nest boxes present. NB. Until recently, part of woodland to east was grazed by sheep. This has now stopped and, with the production of a management plan, the woodland is being managed more actively. (1999 update - Due to the presence of an archaeological site, some old oaks were felled to prevent damage from root growth.)

NH584579 Map sheet: NH55NE

Easter Oak Wood - Oak (*Quercus* sp.) woodland with birch (*Betula* sp.), rowan (*Sorbus aucuparia*) and hazel (*Corylus avellana*). Abundant honeysuckle (*Lonicera periclymenum*) on all tree species. Herb species include enchanters nightshade (*Circaea lutetiana*), wood sorrel (*Oxalis acetosella*), wood avens (*Geum urbanum*), herb Robert (*Geranium robertianum*) and tormentil (*Potentilla erecta*). Some nettle (*Urtica dioica*) and bracken (*Pteridium aquilinum*) encroachment. Relatively diverse ground flora is likely to have been linked to the oak wood at NH572563 in the past. Nest boxes are scattered throughout the wood at various heights, some near to ground level, possibly for wrens. Birds seen in wood include blue tits, long-tailed tits, and great tits.

NH589593 Map sheet: NH55NE

Balcladaich Wood - Birch (*Betula* sp.) and alder (*Alnus glutinosa*) woodland with a scattering of elder (*Sambucus nigra*). Herb species include bittersweet (*Solanum dulcamara*), enchanter's nightshade (*Circaea lutetiana*), nettles (*Urtica dioica*), bluebells (*Hyacinthoides non-scripta*) and brambles (*Rubus fruticosus*). Also raptor (bird of prey) nest in a birch, and a bird box present.

NH594598 Map sheet: NH55NE:

Several very large, mature oaks (*Quercus* sp.) among the birch (*Betula* sp.).

NH55SW (Produced 1997)

NH500508 Map sheet: NH55SW

Boggy channel with aquatic vegetation, with cuckoo flower (*Cardamine pratensis*) at margins.

NH501501 Map sheet: NH55SW

Birch (*Betula* sp.) woodland, with areas of gorse (*Ulex europaeus*), and bracken (*Pteridium aquilinum*). Also some rowan (*Sorbus aucuparia*), and occasional holly (*Ilex aquifolium*), beech (*Fagus sylvatica*), and Scots pine (*Pinus sylvestris*). Understorey is grassy with abundant wood sorrel (*Oxalis acetosella*). Woodland appears to be grazed (not so badly in south-east area), as regeneration is low.

NH501531 Map sheet: NH55SW

A diverse and complex area of wet woodland with some scrub and patches of grassland in places. Dominated by alder (*Alnus glutinosa*) and willow (*Salix* sp.) in most parts, but with a range of other native broadleaved trees. Scrub is mainly broom (*Sarothamnus* [*Cytisus*] *scoparius*), but a little juniper (*Juniperus communis*) occurs in places. Some areas are grazed and range from fairly species rich to species poor semi improved grassland. Over all, appears to be an important habitat, part of a larger system around the rivers Orrin and Conon. Too complex to map accurately at this scale.

NH501540 Map sheet: NH55SW

Very wet, impenetrable alder (*Alnus glutinosa*) woodland with abundant willow (*Salix* sp.). Reed canary grass (*Phalaris arundinacea*) abundant in places, with some small pools of open water. Drier in places, particularly to the south, dominated by birch (*Betula* sp.) and sycamore (*Acer pseudoplatanus*). Ground flora fairly rich in places, and bird life prolific. Appears to be an important wildlife habitat.

NH502530 Map sheet: NH55SW

Heavy machinery in use to rearrange river bed and shingle banks. This is presumably connected with the bridge construction further down stream. The operation is interfering with a complex hydrology and may have unpredictable results. Some of the high, steep banked islands which have been created have raised the water level on one side considerably above that on the other. They appear to be very unstable, with the potential for catastrophic failure (just upstream from the new road bridge construction). However, these are probably only a temporary measure, diverting water while construction is under way.

The established shingle banks in the area represent an interesting wildlife habitat which is quite scarce in this general area. Large areas of scrub exist, almost entirely broom (*Sarothamnus* [*Cytisus*] *scoparius*), with a little gorse (*Ulex europaeus*), with a scattering of birch (*Betula* sp.), alder (*Alnus glutinosa*), and others. Beneath this, and in open areas, the shingle is dominated by mosses, lichens and a range of short herbs. The area is rich in bird life, invertebrates and other wildlife.

NH503500 Map sheet: NH55SW

Small section of birch (*Betula* sp.), and rowan (*Sorbus aucuparia*) within field. Trees browsed, no regeneration, and all rowan has been stripped of bark (ring barked) up to 1.5m high, presumably by deer.

NH503505 Map sheet: NH55SW

Bore holes dug in ground, possibly as part of planning application for new houses. Neighbour also confirmed that landowner was hoping to apply for planning permission.

NH503530 Map sheet: NH55SW

Area considerably disturbed for a variety of reasons. Northern part is a construction site associated with the new bridge. The southern end is bare ground (like a small quarry), cleared and levelled for unknown reasons. The middle section is a small commercial trout hatchery with artificial pools and holding tanks. The area is strewn with derelict vehicles and other debris. As a whole, including the new houses adjacent, this represents destruction of approximately 6 hectares of riverside habitat. The bridge site across the river adds another hectare to this, with yet more associated with substantial disturbance to the river channel itself.

NH504505 Map sheet: NH55SW

Alder (*Alnus glutinosa*) carr in wet flush, within birch (*Betula* sp.) woodland. Diverse ground flora including chickweed wintergreen (*Trientalis europaea*), marsh marigold (*Caltha palustris*), opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*), field wood-rush (*Luzula campestris*), and possibly an orchid. Buzzards seen.

NH504506 Map sheet: NH55SW

Small area of swamp dominated by horsetails (*Equisetum* sp.), with some soft-rush (*Juncus effusus*). Stones, and farm/household rubbish have been dumped around edges.

NH504512 Map sheet: NH55SW

Scots Pine (*Pinus sylvestris*) (possibly an area of semi-natural pinewood). Birch (*Betula* sp.) and rowan (*Sorbus aucuparia*) are common and regeneration is good. Ground flora is typically diverse with blaeberry (*Vaccinium myrtillus*), the moss *Rhytidiadelphus triquetrus*, wavy hair-grass (*Deschampsia flexuosa*), chickweed wintergreen (*Trientalis europaea*), and patchy heather (*Calluna vulgaris*). Some exotic conifers present - larch (*Larix* sp.) and spruce (*Picea* sp.). Buzzards and red kites seen.

NH504532 Map sheet: NH55SW

New bridge under construction. Considerable habitat destruction including woodland, riverbank and scrub. New housing adjacent is also within semi-natural habitat.

NH504541 Map sheet: NH55SW

Good riverbank habitat. Part of a more extensive, important river corridor system linking habitats around the River Conon between Strathconon and the Cromarty Firth. Riverbanks dominated by alder (*Alnus glutinosa*), with some willow (*Salix* sp.) and marginal vegetation dominated by reed canary grass (*Phalaris arundinacea*) wherever the current is reduced by bank irregularities. Ground flora grassy, but relatively herb rich in places. Area appears to be

good for birds, with suitable conditions for otters. Considerable fishing interest from the Brahan site causing some disturbance at access points.

NH504548 Map sheet: NH55SW

Although much of the grass verges are not particularly species rich, the area as a whole, particularly away from the road, supports an interesting range of common herbs.

NH505516 Map sheet: NH55SW

Area of Birch (*Betula* sp.) with very good understorey and good regeneration of Scots Pine (*Pinus sylvestris*) and birch, especially in the heathy clearing which supported heather (*Calluna vulgaris*), blaeberry (*Vaccinium myrtillus*) and mosses including *Hylocomium splendens*.

NH507523 Map sheet: NH55SW

Remains of a once good birch (*Betula* sp.) woodland which still shows good regeneration. Species include wavy Hair Grass (*Deschampsia flexuosa*), wood sorrel (*Oxalis acetosella*), Ferns and mosses including *Hylocomium splendens*. Housing has now taken over half of it and there is evidence of dumping in this area. Disturbed area has been colonised by rosebay willowherb (*Chamaenerion angustifolium*), foxglove (*Digitalis purpurea*), thistle (*Cirsium* sp.) and stinging nettle (*Urtica dioica*)

NH509535 Map sheet: NH55SW

Old sand and gravel pit. Some bare areas remain, but mostly vegetated. Range of broadleaved trees with a few small scattered Scots pine (*Pinus sylvestris*). Large areas of broom (*Sarothamnus* [*Cytisus*] *scoparius*), patches of neutral grassland and two small ponds. Area as a whole fairly diverse and herb rich. Ponds somewhat eutrophic with alga, but support clumps of pondweed (*Potamogeton* sp.) and small areas of fringing bottle sedge (*Carex rostrata*). An interesting habitat which adds significantly to the complex of habitats surrounding the River Conon. Heron sighted.

NB. Marginal vegetation in river to north = abundant bottle sedge (*Carex rostrata*) but also large areas of reed canary grass (*Phalaris arundinacea*) and possibly some common reed (*Phragmites australis*).

NH511514 Map sheet: NH55SW

Area within Scots pine (*Pinus sylvestris*) plantation adjacent to marshy grassland, with good Scots Pine and birch (*Betula* sp.) regeneration.

NH511519 Map sheet: NH55SW

Birch (*Betula* sp.) woodland with some regeneration of rowan (*Sorbus aucuparia*) and birch. Dead wood mostly being cleared out but brashings left. Evidence of grazing. Species included blaeberry (*Vaccinium myrtillus*), chickweed wintergreen (*Trientalis europaea*), wood sorrel (*Oxalis acetosella*), heath bedstraw (*Gallium saxatile*), heath dog violet (*Viola canina*) and heather (*Calluna vulgaris*). Mosses included *Polytrichum* sp., *Rhytidiadelphus triquetrus* and

Rhytidadelphus squarrosus. Also male fern (*Dryopteris filix-mas*) and broad buckler fern (*Dryopteris dilatata*.)

NH511546 Map sheet: NH55SW

Brahan estate - Access for survey denied. Therefore not surveyed in detail. Information gathered from adjacent vantage points and secondary sources including remote sensing. Appear to be some interesting habitats in the area, and wildlife survey will be essential prior to any development.

NH512517 Map sheet: NH55SW

Birch (*Betula* sp.) woodland with dense heather (*Calluna Vulgaris*) dominant. Blaeberry (*Vaccinium myrtillus*) and the moss *Hylocomium splendens* also present. Some young rowan (*Sorbus aucuparia*) and birch. Fence has not been maintained.

NH513545 Map sheet: NH55SW

Mature ornamental planting of conifers with some broadleaved trees and abundant rhododendrons (*Rhododendron ponticum*). A new, fairly large pond has been created a few hundred metres to the South. The surrounding grassland has been left to become semi-natural, and a few broadleaved trees have been planted.

NH514503 Map sheet: NH55SW

Marshy area drying out due to drainage channels. Dominated by soft-rush (*Juncus effusus*), with cuckoo flower (*Cardamine pratensis*) also present. Lapwings seen in adjacent marshy area.

NH514518 Map sheet: NH55SW

Pile of stones and other farm rubbish.

NH516503 Map sheet: NH55SW

Semi-improved field with molehills

NH516520 Map sheet: NH55SW

Piles of stones and other farm rubbish. Trees species include birch (*Betula* sp.), elder (*Sambucus nigra*), rowan (*Sorbus aucuparia*), Douglas fir (*Pseudotsuga menziesii*), beech (*Fagus sylvatica*) and box (*Buxus sempervirens*).

NH516528 Map sheet: NH55SW

Disused sand and gravel quarry. Dominated by dense birch (*Betula* sp.) and broom (*Sarothamnus* [*Cytisus*] *scoparius*), with willow (*Salix* sp.) in wetter places. Some neutral grassland patches. Some marshy grassland with small pools, some with tadpoles. Difficult to map accurately at this scale. Interesting, fairly species rich habitat. Sand martins nesting in sandy banks. Roe deer sighted.

NH517500 Map sheet: NH55SW

Pond undergoing succession to wet meadow/marshy grassland. On margins species include marsh marigold (*Caltha palustris*), meadowsweet (*Filipendula ulmaria*), soft-rush (*Juncus effusus*). Tree species surrounding pond include beech (*Fagus sylvatica*), birch (*Betula* sp.), and sycamore (*Acer pseudoplatanus*).

NH521546 Map sheet: NH55SW

Broad Wood - Brahan estate - Large area felled and not re-planted supports a scattering of birch (*Betula* sp.) and broom (*Sarothamnus* [*Cytisus*] *scoparius*) which could potentially develop into semi-natural broadleaved woodland if left. Adjacent is a large area of woodland which appears to be a mixture of mature broadleaved trees and planted conifers. Access for survey denied therefore surveyed only from a distance. However, appears to be potentially interesting.

NH522502 Map sheet: NH55SW

Area of very wet marshy grassland (recent pond which is in process of succession). Diverse, with abundant soft rush (*Juncus effusus*), duckweed (*Lemna* sp.), algae, and floating sweet-grass (*Glyceria fluitans*). Wetter area extends (to a lesser extent) to marshy area at opposite side of the road.

NH522506 Map sheet: NH55SW

Area of Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) woodland. Pine felled and replanted in some areas., otherwise it is a mix of Scots Pine, birch and rowan (*Sorbus aucuparia*). Ground flora is still intact (mosses, heather (*Calluna vulgaris*), and blaeberry (*Vaccinium myrtillus*) in some areas -especially towards west where there is less rabbit grazing, and along adjacent road verge. Regeneration is generally poor (better towards west). There are some spruce (*Picea* sp.) and encroachment of rhododendron (*Rhododendron ponticum*) in central area near path. Ash (*Fraxinus excelsior*), and some sycamore (*Acer pseudoplatanus*) have been planted along eastern edge.

NH522533 Map sheet: NH55SW

Moderately acid, species rich grassland. Formerly dominated by broom (*Sarothamnus* [*Cytisus*] *scoparius*), now mostly dead. Species include lousewort (*Pedicularis sylvatica*), tormentil (*Potentilla erecta*), heath rush (*Juncus squarrosus*), black sedge (*Carex nigra*), heath wood rush (*Luzula multiflora*), needle whin (*Genista anglica*) and others. Adjacent birch (*Betula* sp.) woodland once extended into this area but appears to have been cut back some time ago, evidently to increase area for grazing. The area is linked to the birch woodland to the west by an area of clumps of juniper (*Juniperus communis*). This represents a fairly striking but rather over grazed area of habitats. Fauna sighted = brown hare, roe deer, pheasant.

NH523508 Map sheet: NH55SW

Area appears to be in the process of being completely developed for housing. Seems to have originally been a gravel pit and part rough ground. The loch on the map has entirely

disappeared, boundaries not entirely clear! How far will the housing encroach into the surrounding woodland areas?

NH523518 Map sheet: NH55SW

Marked field advertised and sign posted for Residential Development. Boundaries of area are not clear.

NH524501 Map sheet: NH55SW

Wooded walk dominated by rowan (*Sorbus aucuparia*), with sycamore (*Acer pseudoplatanus*), beech (*Fagus sylvatica*), and occasional oak (*Quercus* sp.), and whitebeam (*Sorbus aria*) which seem to have been coppiced at some stage. There is a small marshy area towards northern end with rushes (*Juncus* sp.), and willow (*Salix* sp.). Diverse ground flora includes wood anemone (*Anemone nemorosa*). Some rubbish has been dumped throughout. At north end, an area has been levelled and sown with grass, and planted with spruce (*Picea* sp.) seedlings.

NH524505 Map sheet: NH55SW

Apparently (according to neighbour) ephemeral loch. Many swampy areas in margins, dominated by reed canary-grass (*Phalaris arundinacea*), and reedmace (*Typha latifolia*) in south end. Meadowsweet (*Filipendula ulmaria*) is dominant in some parts of margins. Also some dense areas of hawthorn (*Crataegus monogyna*), and dog rose (*Rosa canina*). Marsh marigold (*Caltha palustris*) occurs frequently, and there is some water crowfoot (*Ranunculus* sp.) and yellow irises (*Iris pseudacorus*) present in south-east swamp corner (adjacent to church). There are some mature willows (*Salix* sp.), but more willows and some alder (*Alnus glutinosa*) were planted several years ago.

To the south-west of the main pond is a small remnant of birch (*Betula* sp.) and oak (*Quercus* sp.) woodland. Birch dominates and there are frequent rowan seedlings (*Sorbus aucuparia*), and occasional mature oak remaining. Ground flora also supports heather (*Calluna vulgaris*), and the moss *Rhytidiadelphus triquetrus*. (Heather and blaeberry (*Vaccinium myrtillus*) are present in many of the surrounding gardens.) There has been tipping in the south-east corner (adjacent to church). Coots, mallard and tufted ducks nest on the loch, and herons visit.

NH525507 Map sheet: NH55SW

Wooded area behind new houses which is being systematically destroyed by housing developers. A new road has been built and areas of wood sectioned off with barrier tape. Wood is dominated by birch (*Betula* sp.) with rowan (*Sorbus aucuparia*), and gorse (*Ulex europaeus*) common. Some ground flora is similar to that of a pinewood, with blaeberry (*Vaccinium myrtillus*), the moss *Rhytidiadelphus triquetrus*, and heather (*Calluna vulgaris*). Large pond with swampy margins dominated by sedge (*Carex* sp.), and other emergent vegetation. Meadowsweet (*Filipendula ulmaria*) dominant in adjacent margin.

NH525526 Map sheet: NH55SW

Area of Scots pine (*Pinus sylvestris*). Understorey dominated by elder (*Sambucus nigra*). Ground flora comprised stinging nettle (*Urtica dioica*), and cleavers (*Galium aparine*). Other

tree species present included oak (*Quercus* sp.), beech (*Fagus sylvatica*) and larch (*Larix* sp.). Rookery on Scots pine and some dead wood.

NH526506 Map sheet: NH55SW

Small pond dominated by sedge (*Carex* sp.) and willow (*Salix* sp.) around margins. Surrounded by woodland which is dominated by birch (*Betula* sp.). Ground flora includes meadowsweet (*Filipendula ulmaria*), blaeberry (*Vaccinium myrtillus*), wood anemone (*Anemone nemorosa*), the moss *Rhytidiadelphus triquetrus*, and common dog-violet (*Viola riviniana*). Rubbish has been tipped.

NH527534 Map sheet: NH55SW

Deep drains in this area are dominated by water horsetail (*Equisetum fluviatile*) with meadowsweet (*Filipendula ulmaria*), marsh marigold (*Caltha palustris*) and other herbs. Relatively species rich.

NH528509 Map sheet: NH55SW

Honey bee hive in ash (*Fraxinus excelsior*).

NH528510 Map sheet: NH55SW

Birch (*Betula* sp.) woodland with small areas of marshy grassland, dominated by soft rush (*Juncus effusus*). Also 5-10 juniper (*Juniperus communis*) scattered in wetter area.

NH528512 Map sheet: NH55SW

Deciduous woodland. Many alder (*Alnus glutinosa*), planted where pond used to be, as well as some planted beech (*Fagus sylvatica*), oak (*Quercus* sp.) and sycamore (*Acer pseudoplatanus*). Small areas of broom (*Sarothamnus* [*Cytisus*] *scoparius*). North-east stone wall lined with rowan (*Sorbus aucuparia*); also old cars and scrap metal by wall. Non-planted birch (*Betula* sp.) and willow (*Salix* sp.) throughout. Also two large Scots pine (*Pinus sylvestris*) and planted spruce (*Picea* sp.). Trees heavily affected by high rabbit population. Ground flora poor, consisting of occasional common dog violet (*Viola riviniana*). Horsetails (*Equisetum* sp.) common in drainage ditch. Area as a whole seems to be drying out. Abundant soft rush (*Juncus effusus*) and cuckoo flower (*Cardamine pratensis*) around pond margins. Reedmace (*Typha latifolia*) present throughout pond.

NH530500 Map sheet: NH55SW

Rookery within Scots pine (*Pinus sylvestris*) plantation.

NH530534 Map sheet: NH55SW

Greater tussock sedge (*Carex paniculata*) strikingly abundant in wetter parts of this broadleaved woodland. Large tussocks very prominent. Ground below wet with some small pools.

NH531502 Map sheet: NH55SW

Complex area, difficult to map. Many habitat type transitions present. Habitats include marsh, open water, swamp, woodland (coniferous and deciduous) and heath. Tree species include oak (*Quercus* sp.), birch (*Betula* sp.), rowan (*Sorbus aucuparia*), alder (*Alnus glutinosa*), hawthorn (*Crataegus monogyna*), willow (*Salix* sp.), bird cherry (*Prunus padus*), beech (*Fagus sylvatica*), hazel (*Corylus avellana*), holly (*Ilex aquifolium*), juniper (*Juniperus communis*), Scots pine (*Pinus sylvestris*), and a little sycamore (*Acer pseudoplatanus*) and ash (*Fraxinus excelsior*). Ground flora poor. Species include wood sorrel (*Oxalis acetosella*), common dog violet (*Viola pratensis*), field wood-rush (*Luzula campestris*). Alder tends to be distributed around wet margins. Centre of the site has an area of wet heath/acid grassland mosaic grading into wet heath. Species present include cross-leaved heath (*Erica tetralix*), heather (*Calluna vulgaris*), purple moor grass (*Molinia caerulea*), mat grass (*Nardus stricta*), bog asphodel (*Narthecium ossifragum*) and *Sphagnum* spp. Wet area appears to be in the process of drying out and is being invaded by Scots pine, birch, rowan and alder that are regenerating freely. There are no true areas of open water as there is a gradual encroachment of vegetation occurring, primarily of soft rush (*Juncus effusus*) and sedges (*Carex* spp.). Abundant dead wood still remains (both standing and fallen). Some trees are girdled by rabbits. Good area for birds including chaffinches, robins, warblers, tits, tree creepers, green finches, wrens, mallard, buzzard, song thrush, spotted flycatcher, sand martin, house martin, swallow, blackbirds, common sandpiper. Tree creeper nest with approximately six eggs in old birch stump. Potentially a good site for dragonflies, amphibians and invertebrates. Site as a whole appeared to be undergoing succession from a wet to a drier habitat, due to encroachment of vegetation into wetter parts, including the listed tree species which are spreading through the site. Over all a good site, which has scope to be an LNR.

NH532511 Map sheet: NH55SW

Pond with abundant horsetail (*Equisetum* sp.). Poor quality water with lots of leaf litter. Situated in area of birch (*Betula* sp.) woodland with poor ground flora and no regeneration due to grazing. Buzzard nest in birch tree next to pond.

NH532541 Map sheet: NH55SW

Species-rich broadleaved woodland dominated by alder (*Alnus glutinosa*) and sycamore (*Acer pseudoplatanus*), but with a range of other species scattered throughout, including birch (*Betula* sp.), cherry (*Prunus avium*), ash (*Fraxinus excelsior*) and willows (*Salix* sp.).

NH534527 Map sheet: NH55SW

Balvaird Wood - The woodland is mainly of mature Douglas fir (*Pseudotsuga menziesii*), with spruce (*Picea* sp.) growing on the perimeters, and a more semi-natural birch (*Betula* sp.) area towards the centre of the wood.

NH535538 Map sheet: NH55SW

Walled garden, dominated by nettles (*Urtica dioica*) and rosebay willowherb (*Chamaenerion angustifolium*). Also soft rush (*Juncus effusus*), horsetails (*Equisetum* sp.), dock (*Rumex* sp.), Jacob's ladder (*Polemonium caeruleum*), thistle (*Cirsium* sp.), bugle (*Ajuga reptans*), forget-

me-not (*Myosotis* sp.), buttercup (*Ranunculus* sp.), willow (*Salix* sp.), rose (*Rosa* sp.), birch (*Betula* sp.) and box (*Buxus sempervirens*). Neglected.

NH535540 Map sheet: NH55SW

Graveyard within Conan Estate. Grassland not intensively managed and therefore relatively species-rich. Only closely mown to maintain footpath access. Species present included; wood-sorrel (*Oxalis acetosella*), common sorrel (*Rumex acetosa*), lesser celandine (*Ranunculus ficaria*), bluebell (*Hyacinthoides non-scripta*), primrose (*Prunella vulgaris*), speedwell (*Veronica* sp.), violet (*Viola* sp.), cuckoo flower (*Cardamine pratensis*), forget-me-not (*Myosotis* sp.), buttercup (*Ranunculus* sp.), bugle (*Ajuga reptans*) and male fern (*Dryopteris filix-mas*). Tree species present; yew (*Taxus baccata*) and sycamore (*Acer pseudoplatanus*). Abundant moss and lichen species on gravestones. Some rhododendron (*Rhododendron ponticum*), tulips and non-native bluebell also within the site. Phase II required.

NH536540 Map sheet: NH55SW

Woodland area of beech (*Fagus sylvatica*) and elm (*Ulmus* sp.), with sycamore (*Acer pseudoplatanus*) invading site. Mature woodland with well-developed canopy and limited regeneration. Diverse ground flora included great wood-rush (*Luzula sylvatica*), bluebells (*Hyacinthoides non-scripta*), wood anemone (*Anemone nemorosa*), buttercup (*Ranunculus* sp.), bugle (*Ajuga reptans*), wood-sorrel (*Oxalis acetosella*), lesser celandine (*Ranunculus ficaria*), ground elder (*Aegopodium podagraria*), and ramsons (*Allium ursinum*). Abundant fallen and standing dead wood.

NH537540 Map sheet: NH55SW

Pond undergoing colonisation by vegetation. Very marshy near the centre and very wet underfoot. Dead wood present around pond edges. Rhododendron (*Rhododendron ponticum*) invading the whole site. Species present included yellow iris (*Iris pseudacorus*), marsh marigold (*Caltha palustris*), opposite leaved golden saxifrage (*Chrysosplenium oppositifolium*), horsetail (*Equisetum* sp.), reedmace (*Typha latifolia*), willow (*Salix* sp.), beech (*Fagus sylvatica*), and alder (*Alnus glutinosa*). Various mosses and ferns also present.

NH537547 Map sheet: NH55SW

Semi-improved neutral grassland. Central area is becoming rank with abundant cock's foot (*Dactylis glomerata*), and is only moderately species rich, some areas being quite poor. Margins are richer, with abundant meadowsweet (*Filipendula ulmaria*), bluebell (*Hyacinthoides non-scriptus*), wild pansy (*Viola tricolor*), and a wide range of other common herbs. Bramble (*Rubus fruticosus*) is scattered throughout the margins as long, trailing stems. Stinging nettle (*Urtica dioica*) is also common in places. NB: North of Murdo's Pool (to North - left bank) shingle has been heaped up to block the channel between the bank and the islands.

NH538503 Map sheet: NH55SW

Pond undergoing colonisation by vegetation and succeeding to bog and marsh, with scrub encroaching. Species include young birch (*Betula* sp.) and willow (*Salix* sp.). Ground flora includes common cotton sedge (*Eriophorum vaginatum*), hares-tail cotton sedge (*Eriophorum angustifolium*), great wood-rush (*Luzula sylvatica*), field wood-rush (*Luzula campestris*),

Sphagnum sp., *Cladonia* sp., purple moor-grass (*Molinia caerulea*), heather (*Calluna vulgaris*), bogbean (*Menyanthes trifoliata*), soft rush (*Juncus effusus*), heath rush (*Juncus squarrosus*), common sedge (*Carex nigra*), cinquefoil (*Potentilla* sp.), marsh violet (*Viola palustris*), tufted hair-grass (*Deschampsia cespitosa*), round-leaved sundew (*Drosera rotundifolia*), lousewort (*Pedicularis sylvatica*), evenly distributed throughout site.

NH539532 Map sheet: NH55SW

David's Fort - 12th century fort area on top of mound, surrounded by a moat. Fort area has been recently cleared, with some mature Scot's pine (*Pinus sylvestris*) and rowan (*Sorbus aucuparia*) left in place. Many young frogs (*Rana temporaria*) later found (during August) in the cleared area, and in woods surrounding the mound.

NH541531 Map sheet: NH55SW

Fairly small strip of mixed Scots pine (*Pinus sylvestris*), birch (*Betula* sp.) and rowan (*Sorbus aucuparia*) woodland. The Scots pine are mostly mature to old trees, with no regeneration. However, birch regeneration is occurring. A single elder (*Sambucus nigra*) present. The understorey is dominated by bracken (*Pteridium aquilinum*) and localised clumps of nettles (*Urtica dioica*), but generally the ground flora is poor. Other species include tormentil (*Potentilla erecta*), wood-sorrel (*Oxalis acetosella*) and common dog violet (*Viola riviniana*). Also present in the wetter area bordering Balavil wood is a cluster of 10 early purple orchids (*Orchis mascula*). Of faunal interest is a great spotted woodpecker (*Dendrocopos major*) nest in a hole of a dead birch tree near the patch of orchids. The nest was occupied by a single (probably) chick, and the male parent made regular trips to feed the young, most often in the woodland where the nest is situated, but also in Balavil wood. At the north-west end of the site is a large amount of dumped old hay.

NH543501 Map sheet: NH55SW

Grazed area of heath with wet, acid grassland/flushes. Species include field wood-rush (*Luzula campestris*), great wood-rush (*Luzula sylvatica*), round-leaved sundew (*Drosera rotundifolia*), heath spotted orchid (*Dactylorhiza maculata*), needle whin (*Genista anglica*), heather (*Calluna vulgaris*), cross-leaved heath (*Erica tetralix*), common sedge (*Carex nigra*), heath rush (*Juncus squarrosus*), *Sphagnum* sp., mat grass (*Nardus stricta*), purple moor grass (*Molinia caerulea*), lousewort (*Pedicularis sylvatica*). Birch (*Betula* sp.) and rowan (*Sorbus aucuparia*) regeneration evident. Fauna: Common lizard (*Lacerta vivipara*). Common frog (*Rana temporaria*)

NH545501 Map sheet: NH55SW

Scots pine (*Pinus sylvestris*) plantation with natural regeneration of beech (*Fagus sylvatica*) and rowan (*Sorbus aucuparia*). Ground flora poor, consisting of crowberry (*Empetrum nigrum*) and blaeberry (*Vaccinium myrtillus*). Fauna: Speckled wood butterflies (*Pararge aegeria*) in sunny glades. Roe deer (*Capreolus capreolus*) calling (barking)

NH547522 Map sheet: NH55SW

Mixed woodland with dominated by birch (*Betula* sp.), with occasional rowan (*Sorbus aucuparia*), a single elder tree (*Sambucus nigra*) with many regenerating elder stumps, 2 oak

(*Quercus* sp.). Old (>100 years) Scot pine (*Pinus sylvestris*) also distributed throughout site, but no regeneration. Single old juniper (*Juniperus communis*). No dead wood on site. Regeneration of deciduous trees is good, but mostly around site perimeter and limited to rowan seedlings due to cattle grazing. Also due to grazing the ground flora is poor. Species include common dog violet (*Viola riviniana*), blaeberry (*Vaccinium myrtillus*) and wood-rush (*Luzula* sp.). The moss *Hylocomium splendens* formed a carpet on the stones of an old wall within the wood; also a limited amount of *Polytrichum* sp. Buzzard nest in a Scots pine. Old, unused farming implements scattered in site. Could be a good small woodland with removal of grazing.

NH549545 Map sheet: NH55SW

An old pond that is very neglected but could be restored. One side has an old stone wall, but the pond is being used as a dump for boulders from fields. Emergent vegetation of grasses and cress, possibly large bitter cress (*Cardamine amara*) is now filling the pond.

NH55SE (Produced 1997)

NH564538 Map sheet: NH55SE

A small gully, re-routed to close off the old road from the new A835. Trees along the disused old road include rowan (*Sorbus aucuparia*), wild cherry (*Prunus avium*) and elder (*Sambucus nigra*). Herb species include common figwort (*Scrophularia nodosa*), white dead nettle (*Lamium album*), marsh marigold (*Caltha palustris*), common nettle (*Urtica dioica*), foxgloves (*Digitalis purpurea*), bladder campion (*Silene vulgaris*), red campion (*Silene dioica*), yellow rattle (*Rhinanthus minor*) and lady's bedstraw (*Galium verum*).

NH565530 Map sheet: NH55SE

Area of Scots pine (*Pinus sylvestris*) woodland with occasional rowan (*Sorbus aucuparia*) and birch (*Betula* sp.) seedlings scattered in the drier areas. Plant species include field wood-rush (*Luzula campestris*), heather (*Calluna vulgaris*), occasional cross-leaved heath (*Erica tetralix*), heath bedstraw (*Galium saxatile*), a few juniper (*Juniperus communis*), tormentil (*Potentilla erecta*), occasional orchids with seed heads forming [probably heath spotted (*Dactylorhiza maculata*)] and hard fern (*Blechnum spicant*). A thin strip of marshy grassland ran through the centre of the woodland, running roughly north-south. Plant species included bogbean (*Menyanthes trifoliata*), water avens (*Geum rivale*), water forget-me-not (*Myosotis scorpioides*), jointed rush (*Juncus articulatus*), common sedge (*Carex nigra*), buttercups (*Ranunculus* sp.), water horsetail (*Equisetum fluviatile*), marsh lousewort (*Pedicularis palustris*), devil's-bit scabious (*Succisa pratensis*), soft rush (*Juncus effusus*). *Sphagnum capillifolium* was present where the marshy grassland graded into higher, Scots pine woodland, and other *Sphagnum* species were present in the wetter areas. Ospreys, red kites and buzzards were seen flying over the area, and dragonflies and damselflies were found in and around the marshy strip. To the north-east of the wood was an area of marsh surrounded by marshy grassland. The drier areas of this supported abundant cross-leaved heath (*Erica tetralix*), and some heather (*Calluna vulgaris*). Also present were marsh violets (*Viola palustris*) and round-leaved sundew (*Drosera rotundifolia*).

NH567526 Map sheet: NH55SE

Marshy area with surrounding birch (*Betula* sp.), rowan (*Sorbus aucuparia*), willow (*Salix* sp.) and Scots pine (*Pinus sylvestris*) with some gorse (*Ulex europaeus*) scrub. Ground flora included marsh cinquefoil (*Potentilla palustris*), soft rush (*Juncus effusus*), water forget-me-not (*Myosotis scorpioides*), silverweed (*Potentilla anserina*), tormentil (*Potentilla erecta*) and cuckoo flower (*Cardamine flexuosa*). Frogs were present in marshy areas.

NH569545 Map sheet: NH55SE

Birch (*Betula* sp.) woodland with ground flora of heather (*Calluna vulgaris*), blaeberry (*Vaccinium myrtillus*), heath bedstraw (*Galium saxatile*) and crowberry (*Empetrum nigrum*).

NH573522 Map sheet: NH55SE

Area cleared for development.

NH573542 Map sheet: NH55SE

Monadh Mor SSSI - Complex mosaic of pinewood (*Pinus sylvestris*), wet heath and bog. Not mapped in detail. Drier parts support abundant blaeberry (*Vaccinium myrtillus*) in places (W18b *Pinus sylvestris*-*Hylocomium splendens* woodland, *Vaccinium myrtillus*-*Vaccinium vitis-idaea* sub-community (NVC)). Other parts have developed dense thicket. Few trees are over 8 metres tall, suggesting that the area formerly had only a sparse tree cover which then regenerated from the few remaining "granny" pines, to cover the whole area. Ground flora in general appears to be grazed, with signs of both cattle and sheep. Bogs appear to be modified, particularly by fields to east where some parts are beginning to resemble marshy grassland. (This ranges from M18 *Erica tetralix*-*Sphagnum papillosum* mire and M4 *Carex rostrata*-*Sphagnum recurvum* mire, to M19 *Calluna vulgaris*-*Eriophorum vaginatum* mire (NVC)). Most intact areas of bog are centred on bog pools which remain very wet. To the south, habitats become less modified, with trees established for longer.

NH576510 Map sheet: NH55SE

Park land with non-native tree species.

NH578509 Map sheet: NH55SE

Builders waste has been dumped at this location.

NH578544 Map sheet: NH55SE

Adjacent to Monadh Mor - Area of very short grazed wet heath with some patches of acid grassland and the occasional wet hollow with sedges and a few herbs. Scots pine (*Pinus sylvestris*) is scattered in places, but no regeneration due to heavy grazing. Area would probably recover quite well with a considerable reduction in grazing.

NH579543 Map sheet: NH55SE

Monadh Mor SSSI - Complex mosaic of wet heath, wet modified bog and unmodified bog with Scots pine (*Pinus sylvestris*) scattered throughout. Bog less modified to south - M18 *Erica tetralix-Sphagnum papillosum* mire (NVC), otherwise tending towards M19 *Calluna vulgaris-Eriophorum vaginatum* mire and M15 *Scirpus cespitosus-Erica tetralix* wet heath, with occasional patches of M16 *Erica tetralix-Sphagnum compactum* wet heath. Modification to north is probably due to drainage of adjacent fields (deep ditches noted in places).

NH581514 Map sheet: NH55SE

Area has been felled, with some regeneration of rowan (*Sorbus aucuparia*), beech (*Fagus sylvatica*) and sycamore (*Acer pseudoplatanus*).

NH583542 Map sheet: NH55SE

Monadh Mor SSSI - Wet birch (*Betula* sp.) woodland. Although most patches of broadleaved trees on Monadh Mor are small and usually dominated by willow (*Salix* sp.), with only a little e birch, this dense thicket of fairly tall birch with some willow, with a bog/swamp ground flora, appears to meet the criteria for W4 *Betula pubescens-Molinia caerulea* woodland. This woodland is more commonly found in the west.

NH583543 Map sheet: NH55SE

Creeping lady's tresses (*Goodyera repens*) noted in this area, indicating W18a *Pinus sylvestris-Hylocomium splendens* woodland, *Erica cinerea-Goodyera repens* sub-community. Other parts with similar ground flora and tree density in the Monadh Mor area are also likely to be W18a.

NH584526 Map sheet: NH55SE

Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) woodland. No regeneration poor ground flora, cattle bedding in area.

NH584530 Map sheet: NH55SE

Monadh Mor - area colonised by wavy hair-grass (*Deschampsia flexuosa*), some gorse (*Ulex europaeus*) and birch (*Betula* sp.). Similar to area at NH587529, this had an area of dry heath on west side and was surrounded by Scots pine (*Pinus sylvestris*) plantation.

NH585525 Map sheet: NH55SE

Scots pine (*Pinus sylvestris*) plantation with rowan (*Sorbus aucuparia*) and birch (*Betula* sp.) seedlings. Ground flora included heather (*Calluna vulgaris*), blaeberry (*Vaccinium myrtillus*) and chickweed wintergreen (*Trientalis europaea*). Baby roe deer seen in woods.

NH586545 Map sheet: NH55SE

Scots pine (*Pinus sylvestris*) woodland. Ground flora with mosses and heather (*Calluna vulgaris*). Fairly poor due to shade and some grazing by rabbits. However, some creeping lady's tresses (*Goodyera repens*) was found.

NH586547 Map sheet: NH55SE

Area of scattered Scot's pine (*Pinus sylvestris*) more than 80 years old. This area has not been grazed, which differs from other grasslands in the area. Regeneration is evident, especially birch (*Betula* sp.). The marshy areas grade into wet heath as an understorey. The sides of the entrance road to Somerset House has been recently planted with some Scots pine, but also with a larger number of planted rhododendron (*Rhododendron ponticum*) protected by tree guards, that have the potential to become a serious invasive species.

NH587518 Map sheet: NH55SE

Area of marshy grassland with wet ditch with marsh marigold (*Caltha palustris*), cuckoo flower (*Cardamine pratensis*), northern marsh orchid (*Dactylorhiza purpurella*), butterwort (*Pinguicula vulgaris*), star sedge (*Carex echinata*), lousewort (*Pedicularis palustris*), changing forget-me-not (*Myosotis discolor*), marsh thistle (*Cirsium palustris*), heath spotted orchid (*Dactylorhiza maculata*), bugle (*Ajuga reptans*), cross leaved heath (*Erica tetralix*) and meadow vetchling (*Lathyrus pratensis*).

NH587531 Map sheet: NH55SE

Monadh Mor - Area of dry heath with much tufted hair grass (*Deschampsia flexuosa*) and gorse (*Ulex europaeus*) invading. Towards area of bog is an area that has been felled of lodgepole pine (*Pinus contorta*) 10 years ago. Drainage channels from past forestry are now choked with moss (*Polytrichum* sp.) and tend towards marshy grassland. There is also a mosaic of wet/dry heath where tufted hair grass is very noticeable. This area grades into blanket bog going from areas dominated by common cotton sedge (*Eriophorum angustifolium*), heather (*Calluna vulgaris*) and cross leaved heath (*Erica tetralix*), to areas dominated by Scots pine (*Pinus sylvestris*). Throughout are swampy areas with bottle sedge (*Carex rostrata*), bog asphodel (*Narthecium ossifragum*) and bog pools with bog bean (*Menyanthes trifoliata*) and marsh cinquefoil (*Potentilla palustris*)

NH587537 Map sheet: NH55SE

Monadh Mor - Creeping lady's tresses (*Goodyera repens*) found in this area of Scots pine (*Pinus sylvestris*) woodland.

NH587544 Map sheet: NH55SE

Scots pine (*Pinus sylvestris*) woodland with heavily grazed, species poor ground flora.

NH588534 Map sheet: NH55SE

Monadh Mor - general area notes. Most of the area is dominated by intact bog (Mainly M18 *Erica tetralix*-*Sphagnum papillosum* mire (NVC)) and swamp (mainly M4 *Carex rostrata*-

Sphagnum recurvum mire (NVC)), supporting an abundant scattering of Scots pine (*Pinus sylvestris*) over large areas. Most of the area is an SSSI. The target symbol is situated on the northern end of a strip of wet heath with Scots pine and scrub. The area is flanked by the most intact area of bog on the site. This is *Sphagnum* rich (over ten species noted), with abundant tufts of hare's tail cotton sedge (*Eriophorum vaginatum*), numerous bog pools, some with small areas of open water with bogbean (*Menyanthes trifoliata*). This grades into bottle sedge (*Carex rostrata*) swamp to the north and west, with some areas of very wet, "quaking" bog in the transition zones. Scots pine is scattered widely, showing "bog pine" characteristics over large areas.

Much of the area is fairly inaccessible and unlikely to be disturbed. However, succession from swamp through bog to wet woodland appears to be taking place. Deep drains in fields to the north appear to be affecting bogs in that area.

Surrounding areas support large areas of Scots pine woodland (W18 *Pinus sylvestris*-*Hylocomium splendens* woodland (NVC)). Adjacent conifer plantations are also dominated by Scots pine over large areas.

Scattered swamp and bog in conifer plantations to the east suggests that these habitats were more widespread prior to conifer planting.

At the point of this target note there is evidence of past peat cutting. Some bare peat occurs. In the immediate area to the south-east, lodgepole pine (*Pinus contorta*) has been felled but is showing abundant regeneration (ca. 0.5 to 2 metres high) which requires active management if this is not to spread.

NH589517 Map sheet: NH55SE

Marshy hollow in birch (*Betula* sp.) wood with willow (*Salix* sp.), marsh thistle (*Cirsium palustre*), butterwort (*Pinguicula vulgaris*), star sedge (*Carex echinata*), lousewort (*Pedicularis palustris*), crested dogs tail (*Cynosurus cristatus*), northern marsh orchid (*Dactylorhiza purpurella*), heath spotted orchid (*Dactylorhiza maculata*), sundew (*Drosera rotundifolia*), birds foot trefoil (*Lotus corniculatus*) and speedwell (*Veronica* sp.). Towards the bottom of the hollow it becomes very wet. *Sphagnum* moss, soft rush (*Juncus effusus*), common cotton sedge (*Eriophorum angustifolium*), wavy bitter-cress (*Cardamine flexuosa*) and also bogbean (*Menyanthes trifoliata*) were all found in this area.

NH590534 Map sheet: NH55SE

Monadh Mor - general area notes. Most of the area is dominated by intact bog (Mainly M18 *Erica tetralix*-*Sphagnum papillosum* mire (NVC)) and swamp (mainly M4 *Carex rostrata*-*Sphagnum recurvum* mire (NVC)) supporting an abundant scattering of Scots pine (*Pinus sylvestris*) over large areas. Most of the area is an SSSI. The target symbol is situated on the northern end of a strip of wet heath with Scots pine and scrub, The area is flanked by the most intact area of bog on the site. This is *Sphagnum* rich (over ten species noted), with abundant tufts of hare's tail cotton sedge (*Eriophorum vaginatum*), numerous bog pools, some with small areas of open water with bogbean (*Menyanthes trifoliata*). This grades into bottle sedge (*Carex rostrata*) swamp to the north and west, with some areas of very wet, "quaking" bog in the transition zones. Scots pine is scattered widely, showing "bog pine" characteristics over large areas.

Much of the area is fairly inaccessible and unlikely to be disturbed. However, succession from swamp through bog to wet woodland appears to be taking place. Deep drains in fields to the north appear to be affecting bogs in that area. Surrounding areas support large areas of Scots pine woodland (W18 *Pinus sylvestris*-*Hylocomium splendens* woodland (NVC)). Adjacent conifer plantations are also dominated by Scots pine over large areas.

Scattered swamp and bog in conifer plantations to the east suggests that these habitats were more widespread prior to conifer planting.

At the point of this target note there is evidence of past peat cutting. Some bare peat occurs. In the immediate area to the south-east, lodgepole pine (*Pinus contorta*) has been felled but is showing abundant regeneration (ca. 0.5 to 2 metres high) which requires active management if this is not to spread.

NH590536 Map sheet: NH55SE

Monadh Mor - Slightly acid, species rich marshy grassland, grading into bottle sedge (*Carex rostrata*) swamp and bog to south and west, with a broad transition zone. Grassland to east is more or less neutral and only moderately species rich. Apparently abandoned grazing land. Abundant Scotch argus butterfly within 200 metres of here.

NH590544 Map sheet: NH55SE

Very wet marshy grassland grading into bottle sedge (*Carex rostrata*) swamp to the north. Dominated by tufted hair grass (*Deschampsia cespitosa*) plus frequent water horsetails (*Equisetum fluviatile*). Some soft rush (*Juncus effusus*) is also present.

NH590549 Map sheet: NH55SE

Grazed Scots pine (*Pinus sylvestris*) woodland with poor ground flora including brambles (*Rubus fruticosus*), nettle (*Urtica dioica*), rosebay willowherb (*Chamaenerion angustifolium*) and dock (*Rumex* sp.).

NH591538 Map sheet: NH55SE

Monadh Mor - Herb rich, mildly acid grassland with abundant sweet vernal grass (*Anthoxanthum odoratum*), bent grass (*Agrostis* sp.) and devil's bit scabious (*Succisa pratensis*). Tufted hair grass (*Deschampsia cespitosa*) in wetter hollows in centre. Red admiral butterflies very abundant here (on devil's bit scabious) and in surrounding area.

Because of local topography, vegetation is very varied. Blanket bog areas, sparsely wooded with Scots pine (*Pinus sylvestris*) grade into swampy areas with bottle sedge (*Carex rostrata*), too narrow to map. Raised areas support Scots pine, moss (*Hylocomium splendens*), heather (*Calluna vulgaris*) and blaeberry (*Vaccinium myrtillus*), but lower areas retain a high density of Scots pine but with *Sphagnum* spp. and hair's tail cotton sedge (*Eriophorum vaginatum*).

NH592503 Map sheet: NH55SE

Area has been felled and shows some natural regeneration of birch (*Betula* sp.) and sycamore (*Acer pseudoplatanus*).

NH592531 Map sheet: NH55SE

Monadh Mor - Felled area now developed into heath (wet and dry) with acid grassland, scattered gorse (*Ulex europaeus*), broom (*Sarothamnus* [*Cytisus*] *scoparius*), birch (*Betula* sp.) and rowan (*Sorbus aucuparia*). Some birch regeneration. Some small areas of marshy grassland in channels, but too small to map. Too complex to map in detail.

NH592546 Map sheet: NH55SE

Complex area of Scots pine (*Pinus sylvestris*) woodland of uneven age, and wet heath with patches of swamp/bog and marshy grassland by drainage ditch. Occasional juniper (*Juniperus communis*), birch (*Betula* sp.) and willow (*Salix* sp.).

NH594537 Map sheet: NH55SE

Monadh Mor - Felled area now developed into heath (wet and dry) with some acid grassland. Scattered gorse (*Ulex europaeus*), broom (*Sarothamnus* [*Cytisus*] *scoparius*), birch (*Betula* sp.) (sometimes clumped) and rowan (*Sorbus aucuparia*). Some birch regeneration. Some re-planting of conifers (Scots pine (*Pinus sylvestris*) and spruce (*Picea* sp.)) has occurred in places. However, this seems to have been abandoned for the time being as numerous bags full of dead seedlings were found. Small areas of marshy grassland in channels. Too complex to map in detail.

NH595543 Map sheet: NH55SE

Complex area of conifer plantation with isolated areas of swamp and bog. Most trees are Scots pine (*Pinus sylvestris*), but there are also large areas of lodgepole pine (*Pinus contorta*) and spruce (*Picea* sp.), particularly to the east. Although quite dense, ground flora is well developed in places. Creeping lady's tresses (*Goodyera repens*) was found, indicating W18a *Pinus sylvestris*-*Hylocomium splendens* woodland, *Erica cinerea*-*Goodyera repens* sub-community (NVC). Small patches of swamp, and soft rush (*Juncus effusus*) (in drains) scattered throughout but too small to map. The swamp is mainly dominated by bottle sedge (*Carex rostrata*), but dense patches of other species including water horsetail (*Equisetum fluviatile*) were occasionally found and mapped as part of the swamp. Bog was less abundant, often confined to a narrow margin between swamp and drier ground. However, as the swamp supports abundant *Sphagnum* mosses (being mainly M4 *Carex rostrata*-*Sphagnum recurvum* mire (NVC)), the distinction was not always clear. Although these habitats are quite scattered, they appear to represent important remnants from a time prior to conifer planting. Their close proximity to Monadh Mor suggests some former link with the latter. As such they represent small but important outliers of the SSSI habitats which cannot be protected under current legislation.

NB. Access to many of the swamp areas has been improved by felling of trees. The purpose of this is unknown.

NH597503 Map sheet: NH55SE

Broadleaved woodland dominated by birch (*Betula* sp.) with very occasionally old Scots pine (*Pinus sylvestris*). Ground dominated by moss, mainly *Hylocomium splendens*. Abundant heather (*Calluna vulgaris*), bracken (*Pteridium aquilinum*) and blaeberry (*Vaccinium myrtillus*), as well as some wavy hair-grass (*Deschampsia flexuosa*), rowan (*Sorbus aucuparia*) seedlings, and hairy wood-rush (*Luzula pilosa*). Trees support abundant lichen.

NH597524 Map sheet: NH55SE

Several northern marsh orchid (*Dactylorhiza purpurella*) were found growing on this site.

NH56NE (Produced 1998)

NH551671 Map sheet: NH56NE

Area of bog, considerably modified in places with bare peat and signs of erosion. (Possibly former peat extraction, but the ground is irregular and no patterns obvious.) Conifer growth and associated drainage will also have contributed to modification. However, some parts, particularly in the south, remain fairly intact with bog pools dominated by *Sphagnum cuspidatum*. Dryer hummocks have turned to wet heath (too small to map).

NH552654 Map sheet: NH56NE

Species rich area by river covered with dead wood due to past felling of conifers. Supports patches of marshy grassland. Bracken and ferns grow by the water. Plant species include bugle (*Ajuga reptans*), greater stitchwort (*Stellaria holostea*), primrose (*Primula vulgaris*), cuckoo flower (*Cardamine pratensis*), buttercup (*Ranunculus* sp.), meadowsweet (*Filipendula ulmaria*), horsetails (*Equisetum* sp.). To the east of the site (the track on the map) the area is a mixture of unimproved grassland and patches of heather (*Calluna vulgaris*), as well as mosses including *Hylocomium splendens*, and bedstraw (*Galium* sp.), with patches of marshy grassland.

NH553659 Map sheet: NH56NE

A small area of marshy grassland with patches of heather (*Calluna vulgaris*) dominated heath. Very young regenerating birch (*Betula* sp.) and rowan (*Sorbus aucuparia*) were scattered throughout. The broadleaf and mixed plantation south of the track to the east includes alder (*Alnus glutinosa*), ash (*Fraxinus excelsior*), hazel (*Corylus avellana*), and birch (*Betula* sp.). The ground flora was dominated by soft rush (*Juncus effusus*), and also included some broom (*Sarothamnus [Cytisus] scoparius*), raspberry (*Rubus idaeus*), and horsetail (*Equisetum* sp.).

NH555684 Map sheet: NH56NE

Fairly new, small scale hydro-electric development. From a new bridge and catchment in the south and west, a buried pipe cuts the bend in the river to a small generating station to the north (via a steep drop). Tracks have been improved and extended to both points for access, separated by the steep gradient. Some habitat disturbance, but this has been kept to a minimum. The bend in the river remains intact - a steep narrow gorge with interesting

waterfalls in a series of large natural steps. Although trees are mostly of plantation origin, much of the area around and to the south of the gorge is semi-natural with abundant Scots pine (*Pinus sylvestris*) with a well developed ground flora.

NH558657 Map sheet: NH56NE

Species rich marshy grassland to the east and along the field boundary to the north. This area is tending towards a flush. A Phase II survey is required. Soft rush (*Juncus effusus*) is abundant, also occasional compact rush (*Juncus conglomeratus*) and sharp-flowered rush (*Juncus acutiflorus*) were present. Other species included abundant horsetail (*Equisetum* sp.), common sedge (*Carex nigra*), common cotton sedge (*Eriophorum angustifolium*), other sedges (*Carex* spp.), abundant mosses (including *Pseudoscleropodium purum*), sweet vernal grass (*Anthoxanthum odoratum*), cross-leaved heath (*Erica tetralix*), butterwort (*Pinguicula vulgaris*), vetch (*Vicia* sp.), devils-bit scabious (*Succisa pratensis*), water avens (*Geum rivale*), marsh thistle (*Cirsium palustre*), lousewort (*Pedicularis* sp.), milkwort (*Polygala* sp.), and orchid species. A bottle sedge (*Carex rostrata*) flush was present to the north east. Species poor marshy grassland to the west.

NH558685 Map sheet: NH56NE

Very complex area of exotic conifer plantation with scattered areas of Scots pine (*Pinus sylvestris*) with broadleaved trees (mainly birch (*Betula* sp.)) by the river. Probably once an area of extensive semi-natural habitats within which exotic conifers were then planted. Much good habitat still remains and the area is quite diverse. Pine marten sightings were noted in places. Some areas by the road have been felled but recently re-planted. Although indistinguishable on the habitat map, they currently support some areas of wet heath.

NH559655 Map sheet: NH56NE

A small stream has fairly recently been formed, running from a drainage pipe from the field across the road to the north. It has eroded a channel which is over 1 metre deep in places. Among the species present in the channel were cuckoo flower (*Cardamine pratensis*), hairy bitter-cress (*Cardamine hirsuta*), thyme-leaved speedwell (*Veronica serpyllifolia*), and lady's mantle (*Alchemilla vulgaris*).

NH561689 Map sheet: NH56NE

Small area of fairly species rich, mildly acidic, marshy grassland/flush with abundant bog myrtle (*Myrica gale*), common butterwort (*Pinguicula vulgaris*), soft rush (*Juncus effusus*), marsh thistle (*Cirsium palustre*), horsetail (*Equisetum* sp.) and a range of other species. Adjacent areas support mature Scots pine (*Pinus sylvestris*) with some juniper (*Juniperus communis*) - grazed and grassy but moderately species rich with blaeberry (*Vaccinium myrtillus*) in places. No tree regeneration and abundant lying dead wood.

NH562652 Map sheet: NH56NE

This area contains species rich marshy grassland, patches of gorse (*Ulex europaeus*), and broadleaved woodland. The grassland area contains an abundance of meadowsweet (*Filipendula ulmaria*), avens (*Geum* sp.), stitchwort (*Stellaria* sp.), bugle (*Ajuga reptans*), violets (*Viola* sp.), primrose (*Primula vulgaris*), and buttercup (*Ranunculus* sp.).

NH570688 Map sheet: NH56NE

Very complex mosaic of wet heath and acid grassland with marshy grassland in wetter parts. The result of drainage, grazing and, in some places burning.

NH573697 Map sheet: NH56NE

Dry modified bog. Evidence of past peat cutting, more recently drained and burned to produce a very species poor habitat with patches of bare peat. (M20 *Eriophorum vaginatum* blanket mire - NVC.) Small remnants of bog pools and wetter patches suggest that the bog was formerly much richer.

NH576665 Map sheet: NH56NE

Bog Tuath - Species rich marshy grassland. Species include: common sedge (*Carex nigra*); tormentil (*Potentilla erecta*); water avens (*Geum rivale*); orchids (*Dactylorhiza* sp.) including heath spotted orchid (*Dactylorhiza maculata*); meadowsweet (*Filipendula ulmaria*), cuckoo flower (*Cardamine pratensis*), plantain species (*Plantago* spp.), soft rush (*Juncus effusus*), tufted hair grass (*Deschampsia cespitosa*), horsetail (*Equisetum* sp.), stitchwort (*Stellaria* sp.), cotton sedge (*Eriophorum* sp.); lady's mantle (*Alchemilla vulgaris*), and common butterwort (*Pinguicula vulgaris*). To the east of this area of marshy grassland two ponds have been created. Approximately half of the ponds areas have been colonised by reed canary grass (*Phalaris arundinacea*).

NH582664 Map sheet: NH56NE

Nearly semi-natural Scot's pine (*Pinus sylvestris*) plantation with some recent regeneration and occasional more mature trees. Species include juniper (*Juniperus communis*), heather (*Calluna vulgaris*), blaeberry (*Vaccinium myrtillus*), moss (*Hylocomium splendens*), and greater wood-rush (*Luzula sylvatica*). Birch (*Betula* sp.) was scattered throughout this area. Some spruce (*Picea* sp.) regeneration is encroaching in a small area immediately to the north of the target note. Areas to the west and east are as yet unaffected.

NH585696 Map sheet: NH56NE

Part of a more extensive upland area where habitat development has been heavily influenced by a long history of burning and other management. As a result, habitats are often dryer than would otherwise be expected. The driest parts are H12 *Calluna vulgaris-Vaccinium myrtillus* heath (NVC). Small patches of wet modified bog occur in places - M19 *Calluna vulgaris-Eriophorum vaginatum* blanket mire (NVC), but other wet areas are M15 *Scirpus cespitosus-Erica tetralix* wet heath (NVC). M16d *Erica tetralix-Sphagnum compactum* wet heath, *Juncus squarrosus-Dicranum scoparium* sub-community (NVC) occurs in places, associated with transition to H12. Greater clubmoss (*Huperzia selago*) was found in places. Cloudberry (*Rubus chamaemorus*) is scattered throughout this upland area, particularly in dryer parts. Areas of the summit to the north support scattered vegetation and very thin, fragile soil with exposed stony ground. Burning has taken place in these areas, some apparently quite recently, threatening to disturb further areas of soil and vegetation. As adjacent slopes are very steep, this could initiate serious erosion.

NH587656 Map sheet: NH56NE

Complex, diverse, wildlife corridor supporting a wide range of habitats and species. Riverbanks support broadleaved woodland with a range of native species including alder (*Alnus glutinosa*), wild cherry (*Prunus avium*), ash (*Fraxinus excelsior*), elm (*Ulmus* sp.), beech (*Fagus sylvatica*), birch (*Betula* sp.) rowan (*Sorbus aucuparia*) and others. Ground flora is herb rich in places, particularly in wetter parts. Small patches of neutral and marshy grassland are scattered widely. While no single point may appear very rich, the area as a whole supports a very large number of common plant species, too numerous to list. (For example, bugle (*Ajuga reptans*), herb Robert (*Geranium robertianum*), marsh marigold (*Caltha palustris*), violets (*Viola* spp.) speedwells (*Veronica* spp.), meadowsweet (*Filipendula ulmaria*), bluebells (*Endymion non-scriptus*), bottle sedge (*Carex rostrata*), plus a wide range of other herbs, grasses, sedges, rushes, ferns and mosses.) Part of a more extensive habitat corridor of the River Sgitheach.

The escarpment to the north is dominated by gorse (*Ulex europaeus*) and bracken (*Pteridium aquilinum*) over large areas. However, areas of broadleaved trees also occur, and some parts are moderately species rich, particularly at the base .

NH589652 Map sheet: NH56NE

Some sections of road verge in this general area are fairly species rich, supporting a range of common species including bedstraw (*Galium* sp.), bush vetch (*Vicia sepium*), greater stitchwort (*Stellaria holostea*), meadowsweet (*Filipendula ulmaria*), hogweed (*Heracleum sphondylium*), germander speedwell (*Veronica chamaedrys*), bluebell (*Endymion non-scriptus*), field forget-me-not (*Myosotis arvensis*), pink purslane (*Montia sibirica*), foxglove (*Digitalis purpurea*), spear thistle (*Cirsium vulgare*), raspberry (*Rubus idaeus*), lady's mantle (*Alchemilla vulgaris*), horsetail (*Equisetum* sp.), male fern (*Dryopteris filix-mas*) and others, as well as denser areas of more dominant species such as cow parsley (*Anthriscus sylvestris*) and stinging nettle (*Urtica dioica*), and a range of common grasses such as meadow foxtail (*Alopecurus pratensis*) and cock's foot (*Dactylis glomerata*).

NH589654 Map sheet: NH56NE

Relatively species rich neutral grassland supporting a range of common herbs. Sloping ground at west end is marshy with abundant water avens (*Geum rivale*), meadowsweet (*Filipendula ulmaria*) and many other common species.

NH590678 Map sheet: NH56NE

Recently felled conifers with abundant gorse (*Ulex europaeus*) in places. Abundant conifer regeneration in parts, but no sign of re-planting except in the western corner. Bare patches are scattered extensively in parts. Currently some parts, particularly up slope, support lush heather (*Calluna vulgaris*) and blaeberry (*Vaccinium myrtillus*). Large areas on lower slopes support great wood rush (*Luzula sylvatica*). Patches of acid grassland are scattered in places. None of the above is mapped in detail due to complexity and the likelihood of further succession. Only denser patches of gorse, and some bracken (*Pteridium aquilinum*) around the margins have been mapped as these are likely to persist.

NH590690 Map sheet: NH56NE

Undulating plateau of bog, wet heath and some dry heath. Large areas appear quite dry. However, these are species poor, with abundant small patches of bare ground and very short vegetation - probably wet heath subjected to excessive burning in the past. Otherwise these areas would probably have been M16d *Erica tetralix-Sphagnum compactum* wet heath, *Juncus squarrosus-Dicranum scoparium* sub-community (NVC). Scots pine (*Pinus sylvestris*) is scattered widely in dryer parts. Cloudberry (*Rubus chamaemorus*) is scattered, particularly in dryer parts, throughout this upland area.

NH595670 Map sheet: NH56NE

Lords-and-ladies (*Arum maculatum*) is present in great abundance throughout most of this area of sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), and birch (*Betula* sp.) woodland. Other ground flora includes grass species, comfrey (*Symphytum officinale*), bugle (*Ajuga reptans*), wood avens (*Geum urbanum*), ground ivy (*Glechoma hederacea*), and meadowsweet (*Filipendula ulmaria*).

NH596665 Map sheet: NH56NE

Evanton Wood - Mature conifer plantation, thinned in places, with an abundance of broadleaved trees, particularly around margins. Stands of mature beech (*Fagus sylvatica*) occur in places - originally planted but now well established. Birch (*Betula* sp.) dominates in places and a range of other species such as rowan (*Sorbus aucuparia*) occur in such areas. Ground flora is sparse under denser conifers and Beech (*Fagus sylvatica*). In Birch dominated areas, ground flora becomes moderately rich with a range of common species of herbs, grasses, ferns etc. Dense patches of great wood-rush (*Luzula sylvatica*) and bracken (*Pteridium aquilinum*) occur in places. Overall impression is of areas of interesting semi-natural habitat within conifer plantation with considerable scope for improvement as wildlife habitat. Footpaths and tracks occur throughout and the wood is of considerable amenity value.

NH596668 Map sheet: NH56NE

Small stand of Welsh poppy (*Meconopsis cambrica*). Surrounding mixed woodland contains sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), birch (*Betula* sp.), beech (*Fagus sylvatica*), elm (*Ulmus* sp.), rowan (*Sorbus aucuparia*), and occasional hazel (*Corylus avellana*) among other deciduous trees. Scattered conifers include western hemlock (*Tsuga heterophylla*), spruce (*Picea* spp.), and Douglas fir (*Pseudotsuga menziesii*). Ground flora includes abundant great wood-rush (*Luzula sylvatica*), bugle (*Ajuga reptans*), comfrey (*Symphytum officinale*), foxglove (*Digitalis purpurea*), common dog violet (*Viola riviniana*), ground ivy (*Glechoma hederacea*), wood sorrel (*Oxalis acetosella*), germander speedwell (*Veronica chamaedrys*), and occasional lords-and-ladies (*Arum maculatum*) to the north west. The plantation to the east is mainly western hemlock, with some scattered Scot's pine (*Pinus sylvestris*) to the north, and some Douglas fir to the south. Beyond this plantation at NH596667 is a dense patch of lords-and-ladies about 1 x 1.5 metres in extent.

NH597695 Map sheet: NH56NE

Deep, steep sided wooded gorge, probably quite species rich, but inaccessible from this point. Great wood-rush (*Luzula sylvatica*) is abundant in places.

Adjacent pinewoods appear to be semi-natural in origin. Ground flora is well developed. Dominated by heather (*Calluna vulgaris*) and blaeberry (*Vaccinium myrtillus*) with a scattering of other species. Probably relatively species rich and worthy of a more detailed survey. (Discussion with Novar Estate forester indicated some wider interest in this area by SNH and it is likely that a more detailed survey will be carried out in the near future.)

NH56SW (Produced 1997)

NH502611 Map sheet: NH56SW

Old Scot's pine (*Pinus sylvestris*) woodland. Abundant mature trees, with an age gap between these and numerous trees of less than ten years old. Abundant regeneration of pine everywhere, and less regeneration of birch (*Betula* sp.), rowan (*Sorbus aucuparia*) and juniper (*Juniperus communis*). Ground flora included tormentil (*Potentilla erecta*), heath bedstraw (*Galium saxatile*), cross-leaved heath (*Erica tetralix*), wavy hair grass (*Deschampsia flexuosa*), purple moor grass (*Molinia caerulea*), common cotton sedge (*Eriophorum angustifolium*), bent grass (*Agrostis* sp.), meadow grass (*Poa* sp.), mosses including *Pseudoscleropodium purum* and *Rhytidiadelphus triquetrus*, *Sphagnum* spp., and many fungus species. Evidence of low level browsing by deer and rabbits. Flock of crossbills noted.

NH503619 Map sheet: NH56SW

A strip of land, width varying from 50-100m, either side of the river that had not been planted with conifers. Abundant small willows (*Salix* sp.) with some birch (*Betula* sp.). Juniper (*Juniperus communis*) appears to be spreading rapidly. Soft rush (*Juncus effusus*) and tufted hair grass (*Deschampsia cespitosa*) in wetter areas, with crowberry (*Empetrum nigrum*), bell heather (*Erica cinerea*), bear berry (*Arctostaphylos uva-ursi*), and mosses including *Hylocomium splendens*. Other plants include tormentil (*Potentilla erecta*), heath bedstraw (*Galium saxatile*), hard fern (*Blechnum spicant*), dog rose (*Rosa canina*), devil's bit scabious (*Succisa pratensis*), common dog violet (*Viola riviniana*), common sorrel (*Rumex acetosa*), wood sorrel (*Oxalis acetosella*), marsh thistle (*Cirsium palustre*), vetch (*Vicia* sp.), wavy hair grass (*Deschampsia flexuosa*) and Yorkshire fog (*Holcus lanatus*).

NH506611 Map sheet: NH56SW

Small area of flush grading into marshy grassland lower down. Plants present include some small willows (*Salix* sp.), bog myrtle (*Myrica gale*), lousewort (*Pedicularis sylvatica*), cross-leaved heath (*Erica tetralix*), soft rush (*Juncus effusus*), sweet vernal grass (*Anthoxanthum odoratum*), several sedges (*Carex* spp.) and the moss *Hylocomium splendens*. Frogs were seen in the marshy area.

NH509639 Map sheet: NH56SW

Extensive area of heath, predominantly wet, with small patches of bog (mainly dry modified, but occasionally wetter). Very small areas of dry heath are mainly confined to the steeper slopes of Cioch Mhor. These are H12 *Calluna vulgaris-Vaccinium myrtillus* heath (NVC). Crowberry (*Empetrum nigrum*) is abundant in places. Other areas that are apparently quite dry are in fact M16d *Erica tetralix-Sphagnum compactum* wet heath, *Juncus squarrosus-Dicranum scoparium* sub-community (NVC). Large areas are dominated by M15 *Scirpus cespitosus-Erica tetralix* wet heath (NVC). The whole area has clearly been modified by burning and grazing, with some drainage in places. Management becomes intensified down slope to the south and east. To the north a new fence separates the heath from extensive new conifer plantations which extend several kilometres in all directions. The conifer planting has been accompanied by ploughing, and this is set to destroy yet more upland habitat in an area which already suffers from extensive conifer planting. To the south, much of the area is wet with abundant seepage channels and clumps of willow (*Salix* sp.). This was a very complex area and was not surveyed in detail. Larger seepage and drainage zones were mapped as wet heath/acid grassland, but the grass is predominantly purple moor grass (*Molinia caerulea*), not mat-grass (*Nardus stricta*) and bent grass (*Agrostis* sp.) as in the lower areas to the south-east. Several stands of exotic conifers have been planted and fenced. However, except for ploughing, these seem to have been blended into the contours quite well, and are not particularly obtrusive.

NH513617 Map sheet: NH56SW

Area of wet heath with seepage channels on lower slopes. Lichens (*Cladonia* spp.) abundant in places. Scattered Scot's pine (*Pinus sylvestris*) and soft rush (*Juncus effusus*) in places with some willow (*Salix* sp.) in the wetter hollows. Gorse (*Ulex europaeus*) becomes more abundant to the south. A little regeneration of Scot's pine, but heavily browsed. Area grazed by cattle from time to time, but rabbits are probably the main problem. With reduced grazing the area has potential for recovery. Adjacent fields to the east were probably quite similar at one time prior to agricultural 'improvement'.

NH525612 Map sheet: NH56SW

Area has been planted with a mixture of native trees including Scots pine (*Pinus sylvestris*), wild cherry (*Prunus avium*) and rowan (*Sorbus aucuparia*). Four ponds were created on the site. Two were well established with good vegetation and two were newly created.

NH525637 Map sheet: NH56SW

The general area is a complex mosaic of poor, semi-improved acid grassland, wet heath/grassland mosaic and marshy grassland. The whole area has been modified by grazing, burning and/or draining. The initial impression is one of a heavily exploited, species-poor habitat. However, some moderately species-rich areas remain. Some of the wetter areas, for example, still retain seepage channels and areas dominated by sedges, mostly star sedge (*Carex echinata*), tending towards M6 *Carex echinata-Sphagnum recurvum/auriculatum* mire (NVC). A few stands of mature Scot's pine (*Pinus sylvestris*) remain in the southern part. However, these are beginning to die back, and very heavy grazing by sheep is preventing regeneration. Willows (*Salix* sp.) are scattered in the wetter parts, and stands of Sitka spruce (*Picea sitchensis*) have been planted in places. The whole area is too complex to map in

detail. Habitat boundaries have been plotted from the few useful vantage points available. Although the proportions are reasonably accurate, the precise location of individual stands is sometimes only approximate.

NH529607 Map sheet: NH56SW

Patch of flattened yellow iris (*Iris pseudacorus*) about ten metres by five metres, in a drainage ditch.

NH530612 Map sheet: NH56SW

Narrow strip of moderately species rich marshy grassland. Abundant meadowsweet (*Filipendula ulmaria*). Also soft rush (*Juncus effusus*) creeping thistle (*Cirsium arvense*) and a few other common herbs grasses and sedges.

NH533606 Map sheet: NH56SW

Area of recently planted spruce (*Picea* sp.), with Scot's pine (*Pinus sylvestris*), alder (*Alnus glutinosa*), rowan (*Sorbus aucuparia*), wild cherry (*Prunus avium*), wych elm (*Ulmus glabra*) and birch (*Betula* sp.), mixed with large patches of dense broom (*Sarothamnus* [*Cytisus*] *scoparius*) and gorse (*Ulex europaeus*). Recently dead weasel on ground immediately to the south.

NH533621 Map sheet: NH56SW

Moderately species-rich marshy grassland. Little soft rush (*Juncus effusus*), abundant tufted hair-grass (*Deschampsia cespitosa*), plus a range of common herbs, grasses and sedges. Due to being surveyed in November full interest may not have been apparent.

NH534638 Map sheet: NH56SW

A small area of flush, but mostly marshy grassland. A good place for ground nesting waders such as snipe and curlew

NH538609 Map sheet: NH56SW

Species rich flushes emanating from springs. Many species hard to identify at the time of year, including mosses, plantains and sedges (*Carex* spp.). Also present was Devils-bit scabious (*Succisa pratensis*). Nearby grassland has obviously been grazed and seeded, but is very mossy, with small rushes (*Juncus* sp.) present. The flushes run into rough grassland. A red kite was seen perched on a pylon. A red wing tag was seen attached.

NH539620 Map sheet: NH56SW

Extensive area of short, grazed (by sheep and cattle) wet heath/acid grassland - a complex mosaic not mapped in detail. Some areas are tending towards poor semi-improved grassland. Wetter parts appear to be richest in species, sometimes forming seepage zones and channels with abundant sedges. Small areas are tending towards modified bog, but no longer contain much *Sphagnum*. Only very small patches on top of hummocks are forming dry heath, tending towards H12 *Calluna vulgaris*-*Vaccinium myrtillus* heath (NVC), and these were mostly too

small to map. Although larger areas appear relatively dry, much is in fact M16d *Erica tetralix*-*Sphagnum compactum* wet heath, *Juncus squarrosus* sub-community (NVC). Animals included:- two brown hares and one kestrel noted by pinewood remnants east of Cnoc a Breacaich.

NH542643 Map sheet: NH56SW

A large area of plantation has been felled, and a small area of broadleaved trees planted in plastic tree guards. Scattered stands of birch (*Betula* sp.) remain.

NH543610 Map sheet: NH56SW

An area near a ford has been dug out and used as a dump for farm waste, mainly straw, vegetation and dead sheep. A sandy cliff formed from a dug out area has been used by rabbits and sand martins.

NH546608 Map sheet: NH56SW

An archaeological site: a domed, stone cover for a spring -possibly a deep well- but now covered over, with a shape similar to an ice house.

NH548601 Map sheet: NH56SW

Housing does not correspond to ordnance survey map.

NH548606 Map sheet: NH56SW

A large pit had been dug in a wood, and filled with dead sheep and a dead bird (Unidentifiable). Red kites seen in the area.

NH56SE (Produced 1998)

NH550608 Map sheet: NH56SE

Over-mature broadleaved woodland with conifers in places. Elm (*Ulmus* sp.) abundant, with several horse chestnuts (*Aesculus hippocastanum*) at the southern end. The ground flora is grassy and relatively species poor. The moss *Rhytidiadelphus squarrosus* is abundant in places. Marshy in parts. Lying dead wood is abundant as mature trees are dying. Due to an absence of regeneration, these are not currently being replaced. However, a new fence at the southern margin suggests that livestock may have recently been excluded.

NH551627 Map sheet: NH56SE

Marshy grassland, sedges (*Carex* spp.) abundant in places. Probably fairly species rich in parts, but surveyed in March 1998, therefore the full species potential was not apparent. The area has been disturbed by cattle, and is therefore unlikely to have reached it's full potential.

NH552601 Map sheet: NH56SE

Over two hectares of mature broadleaved woodland and scrub removed as sawmill area was extended. About half a hectare of this has been lost very recently leaving bare ground and large tree stumps, suggesting trees were well in excess of 100 years old.

NH553604 Map sheet: NH56SE

Mature woodland, mainly broadleaved, with abundant elm (*Ulmus* sp.). Rhododendron (*Rhododendron ponticum*) and laurel (*Prunus* sp.) is also abundant with a scattering of conifers - mainly cypress (*Cupressus* sp.). Some of the elm have been coppiced some time ago, but now have thick mature stems. The ground flora is sparse in places but with an abundance of common species, particularly lesser celandine (*Ranunculus ficaria*) in parts. The site is apparently of ornamental/policy woodland origin, which is now overgrown and "untidy" with lying deadwood abundant in places. The area to the south appears to have been a partly walled garden at one time but it now supports improved grassland with some trees and exotic shrubs.

NH553620 Map sheet: NH56SE

Wet heath/acid grassland mosaic, with patches of marshy grassland and flushes. Species include cross-leaved heath (*Erica tetralix*), sedges (*Carex* sp.), mosses (including *Hylocomium splendens*, *Rhytidiadelphus triquetrus*, *Sphagnum* sp.), horsetail (*Equisetum* sp.), tufted hair-grass (*Deschampsia cespitosa*), soft rush (*Juncus effusus*), common butterwort (*Pinguicula vulgaris*) and heath spotted orchid (*Dactylorhiza maculata*). Also wood anemone (*Anemone nemorosa*) and scattered gorse (*Ulex europaeus*) in drier parts, with bracken (*Pteridium aquilinum*) adjacent. Marsh marigold (*Caltha palustris*) and primrose (*Primula vulgaris*) occur in area of marshy grassland 100 metres to north-north-west. Full interest of area may not have been evident (surveyed April 1998). The area is also subject to sheep grazing (though this is concentrated on drier parts).

NH554603 Map sheet: NH56SE

Poor semi-improved grassland and disturbed ground. Scheduled for housing development with several new roads already in place.

NH557630 Map sheet: NH56SE

A very complex mosaic of heath, both wet and dry, with acid grassland (some tending towards poor semi-improved grassland) interspersed with small patches of marshy grassland and small flushes/seepage zones with sedges (*Carex* spp.). Scrub is scattered over a large areas - some juniper (*Juniperus communis*) and some gorse (*Ulex europaeus*). The area was difficult to map accurately and was surveyed in March 1998, therefore the full interest may not have been evident. However the whole area has been grazed very short and appears to have been grazed fairly intensively for some time.

NH558601 Map sheet: NH56SE

Broadleaved woodland on fairly steep embankment. Supports a range of tree species including beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*), elm (*Ulmus* sp.), hazel (*Corylus avellana*)

and others. Ground flora quite sparse, particularly beneath the beech. However, a range of herbs were beginning to emerge in places. Surveyed in March therefore full botanical interest probably not apparent. Lesser celandine (*Ranunculus ficaria*) abundant in places.

NH565643 Map sheet: NH56SE

Area of extensive conifer plantation of varied age. Area to north on more gentle sloping ground is all relatively young and still supports rank marshy grassland over large areas. Up slope to the south trees are a little older and ground flora where present is wet heath/acid grassland mosaic. Stands of mature Scots pine (*Pinus sylvestris*) remain in places and broadleaved trees mostly birch (*Betula* sp.) and whitebeam (*Sorbus aria*) are scattered in places as is scrub, mainly gorse (*Ulex europaeus*). Although any given area appears of only limited species richness, the area as a whole, due to its extent supports a fairly substantial amount of semi-natural habitats. This is particularly significant as it is surrounded by agricultural land. Due to complexity and extent, the area was not mapped in detail.

NH570635 Map sheet: NH56SE

Red kite with wing tag and also two buzzards in flight over Black Hill.

NH572612 Map sheet: NH56SE

General Target Note for coastal area - Mostly considerably modified by construction of the road, but very small patches of saltmarsh and grassland remain in places. A stand of common reed (*Phragmites australis*) occurs at the south-western end, with several smaller stands of sea scirpus (*Scirpus maritima*) in the same area.

NH574616 Map sheet: NH56SE

Broadleaved woodland in steep sided ravine. Abundant mosses and liverworts. Some ferns and a range of common herbs including wood anemone (*Anemone nemorosa*), lesser celandine (*Ranunculus ficaria*), opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*), herb Robert (*Geranium robertianum*), primrose (*Primula vulgaris*) and others. Surveyed early in April, so full interest is not apparent. However woodland seems to be species rich in places. Some areas are fairly inaccessible in parts.

NH576634 Map sheet: NH56SE

Burn of Foulis - A narrow, habitat corridor which has been considerably modified by agriculture, and more recently by conifer planting. However, recent broadleaved tree planting in a few places is a step towards habitat improvement. The area as a whole still supports an interesting range of plants. Yellow iris (*Iris pseudacorus*) is abundant in places and meadowsweet (*Filipendula ulmaria*) is frequent. With further improvement and removal of exotic conifers (particularly north east of Kildays Wood) this could become an interesting wildlife corridor, linking habitats north of Blackhill with those leading to the Cromarty Firth via Foulis Castle.

NH577642 Map sheet: NH56SE

Grassland with tufted hair-grass (*Deschampsia cespitosa*) and a small area of heath with heath rush (*Juncus squarrosus*), blaeberry (*Vaccinium myrtillus*), heath bedstraw (*Galium saxatile*) and mosses including *Hylocomium splendens* and *Rhytidiadelphus triquetrus*. Old conifer tree stumps with some brushwood remaining. Scattered scrub - gorse (*Ulex europaeus*).

NH580636 Map sheet: NH56SE

Marshy grassland around burn with dominant yellow flag iris (*Iris pseudacorus*) plus lesser celandine (*Ranunculus ficaria*), bordering new broadleaf plantation, with mature ash (*Fraxinus excelsior*) and alder (*Alnus glutinosa*) plus blackthorn (*Prunus spinosa*) scrub. Also Wood anemone (*Anemone nemorosa*) and primrose (*Primula vulgaris*).

NH588639 Map sheet: NH56SE

Broadleaved woodland - managed but reasonably species-rich in small areas. Supports Lords-and-Ladies (*Arum maculatum*) - probably planted along with the daffodils (*Narcissus* sp.) and snowdrops (*Galanthus nivalis*), but appears to be thriving - very scarce this far north (only other known site = Novar Estate near Black Rock Gorge).

NH591629 Map sheet: NH56SE

Saltmarsh vegetation on raised area around burn, with sea-blite (*Suaeda* sp.) and species of grass and moss. Common seal seen on rock just offshore.

NH594603 Map sheet: NH56SE

Species rich swamp/flush dominated by common spike-rush (*Eleocharis palustris*), common water plantain (*Alisma plantago-aquatica*) and branched bur-reed (*Sparganium erectum*), with abundant large bitter-cress (*Cardamine amara*), early purple orchid (*Orchis mascula*) and other species including brooklime (*Veronica beccabunga*) and horsetails (*Equisetum* sp.). Also some floating sweet grass (*Glyceria fluitans*). Area immediately adjacent supports a number of sedges, common yellow sedge (*Carex demissa*) being particularly abundant. Although quite small, the area is fairly unique for this part of the black Isle. Unfortunately, at the time of survey, the area to the south was being disturbed by laying of drainage pipes for Culbokie. It was not clear whether this will destroy this site, but the work is well advanced and apparently heading directly for it. An alternative route, to the east of the pond, through the disused quarry, would have avoided any disturbance to this site and adjacent woodlands, but has been ignored in favour of a slightly more direct route. (1998 update - A new sewage works has now been built and the habitat mentioned above has been destroyed.)

NH595601 Map sheet: NH56SE

Work site. laying of drainage pipes for Culbokie.

NH595644 Map sheet: NH56SE

Conifer plantation with a liberal scattering of broadleaved trees. Appears to have once been a broadleaved woodland with marshy areas and possibly a scattering of conifers. More recently trees were under-planted with spruce (*Picea* sp.) and some Douglas fir (*Pseudotsuga menziesii*). Now the area is partly managed for wildlife with some felling of conifers and

recent planting of broadleaved trees, including oak (*Quercus* sp.) and construction of two ponds. Latter are not yet well vegetated and banks are quite uniform. There were a few cowslips (*Primula veris*) beside large pond. Two small nursery enclosures nearby were planted with honeysuckle (*Lonicera periclymenum*) and Burnet rose (*Rosa pimpinellifolia*) respectively. A healthy population of orange tip butterflies (*Anthocharis cardamines*), with many of their larval food plants, ladies smock (*Cardamine pratensis*) was present. A few speckled wood butterflies (*Pararge aegeria*) were seen about the wood. Birch (*Betula* sp.) dominates dryer parts, with alder (*Alnus glutinosa*) and willow (*Salix* sp.) in wetter hollows. In areas beneath and adjacent to broadleaved trees, ground flora is fairly well developed. Due to a range of conditions of moisture and degree of shading, area is quite diverse. Surveyed early April, therefore full interest not evident. However, the wood is known to support bird's-nest orchid (*Neottia nidus-avis*) and other orchids as well as a range of more common herbs. Site was revisited in late May and common twayblade (*Listera ovata*) was present in some numbers in two separate locations. N.B. Small northern section is felled but very recently planted - appears as marshy grassland with gorse (*Ulex* sp.), a scattering of birch (*Betula* sp.), some willow (*Salix* spp.), and a few patches of tall ruderals.

NH596602 Map sheet: NH56SE

Findon Quarry (disused). Now filled with fresh water to form a pond. One corner supports emergent vegetation dominated by sedge (*Carex* sp.). The quarry is fringed with planted willow (*Salix* sp.), alder (*Alnus glutinosa*) and birch (*Betula* sp.) with small pockets of conifers - spruce (*Picea* sp.) larch (*Larix* sp.) and Scots pine (*Pinus sylvestris*). Also scrub of broom (*Sarothamnus*[*Cytisus*] *scoparius*) and gorse (*Ulex europaeus*). Ground varies from relatively bare to areas of common waste ground weeds with some areas of mosses. The quarry supports ducks and heron. Enclosed.

NH597606 Map sheet: NH56SE

Along this strip of coast some patches of grassland are distinctly coastal, with silverweed (*Potentilla anserina*) suggesting MG11 *Festuca rubra*-*Agrostis stolonifera*-*Potentilla anserina* grassland (NVC). The presence of orache (*Atriplex* sp.) in the area further suggests MG11b *Atriplex prostrata* sub-community. Other patches are tending towards saltmarsh, but only small areas. Also some patches of partially vegetated shingle with sea milkwort (*Glaux maritima*) and sea campion (*Silene maritima*). NB. Several areas of water seepage from adjacent agricultural land were noted, and at NH599608 a domestic drain outflow pipe (or septic tank overflow?) is discharging grey water onto the beach. Does the cumulative effect of such as these have an impact on the Cromarty Firth? NB. common seals are abundant in this area.

NH57NE (Produced 1998)

NH572771 Map sheet: NH57NE

Wet heath/grassland mosaic. Considerably modified through grazing and drainage. Still very wet in places, sometimes tending towards flush and dry modified bog. Bog myrtle (*Myrica gale*) is very abundant. Some areas tending towards marshy grassland with a few dryer patches tending towards poor semi-improved grassland. Most of the marshy grassland in adjacent areas is dominated by soft rush (*Juncus effusus*) and is fairly species poor, but some parts

adjacent to the wet heath are slightly richer. The wet heath to the south of the river is less heavily grazed except for areas around Ruievard.

NH574786 Map sheet: NH57NE

Area recently deer fenced and planted with broadleaved trees and conifers. At present the area remains wet heath and wet heath/grassland mosaic with patches of marshy grassland and small flushes in places. This will change as trees mature. However, not all of the area has been planted and some heath will remain. The fence line, particularly to the north, is only approximate due to scarcity of features and the north-east corner has been extrapolated from the general direction of the fence line. The area was not surveyed in detail.

NH576762 Map sheet: NH57NE

Wet heath/grassland mosaic around Ruievard is mostly quite heavily grazed and tending towards poor semi-improved grassland in places, particularly on lower slopes parallel to the river. However, some parts in the eastern corner appear much wetter and possibly richer in species. Most of the area was surveyed from a distance, therefore details of species are lacking.

NH583759 Map sheet: NH57NE

Despite some small areas of interest, and close proximity to a large upland area, the links within this river corridor system are mostly quite weak. The marshy grassland and heath on the south-west side are discontinuous and often impoverished. Only the northern stretch, above Strath Rusdale supports any reasonably intact habitat. The north-east side is improved for agriculture and heavily grazed. However, the correct "ingredients" for a healthier system are still present and, if managed properly, the area could improve significantly for wildlife.

NH57SE (Produced 1998)

NH565748 Map sheet: NH57SE

Very complex area of habitats including wet heath, marshy grassland and bracken (*Pteridium aquilinum*). Too complex to map in detail, but part of an important wildlife corridor.

NH590745 Map sheet: NH57SE

Area south of river supports a very complex mosaic of wet heath (often tending towards flush), grassland and clumps of birch (*Betula* sp.) and occasionally willow (*Salix* sp.). Marshy grassland also occurs within parts of the very wet heath. Although grazed in places, the area in general is relatively species rich with a range of common species such as bog myrtle (*Myrica gale*), bog asphodel (*Narthecium ossifragum*) and sedges (*Carex* spp.).

NH60 >	NH64NW	NH66NW	NH67SW
	NH64NE	NH66NE	NH67SE
	NH65NW	NH66SW	NH68NW
	NH65NE	NH66SE	NH68NE
	NH65SW	NH67NW	NH68SE
	NH65SE	NH67NE	

NH64NW (Produced 1995 and 1996)
(Includes some areas within Inverness District)

NH601486 Map sheet: NH64NW

Area of mature deciduous woodland with oak (*Quercus* sp.), beech (*Fagus sylvatica*) and some ash (*Fraxinus excelsior*). The area is grazed and therefore the ground flora is species-poor short sward with no regeneration.

NH602498 Map sheet: NH64NW

Clearing of approximately 50m by 100m. Very wet with rushes and mosses. Some young Scots pine (*Pinus sylvestris*) and a patch of young but established willow (*Salix* sp.).

Immediately to north is an area of bog, slightly drained northwards by old ditch. Ground dominated by *Sphagnum* mosses, with some *Polytrichum commune*, *Hylocomium splendens* and other mosses. Star sedge (*Carex echinata*) and bottle sedge (*Carex rostrata*) are abundant. Also other sedges (*Carex* spp.), cotton sedges (*Eriophorum* spp.), and soft rush (*Juncus effusus*). The area also supports a few small willow (*Salix* sp.), birch (*Betula* sp.), and Scots pine (*Pinus sylvestris*) which is growing only slowly.

NH603494 Map sheet: NH64NW

Stand of mature Scots pine (*Pinus sylvestris*) (quite natural in appearance and may not have been planted), mixed with birch (*Betula* sp.), oak (*Quercus* sp.), and beech (*Fagus sylvatica*). Understorey is composed mainly of mosses and bracken (*Pteridium aquilinum*).

NH603492 Map sheet: NH64NW

New forestry track 2-3m wide running through the plantation. Too complicated to map accurately.

NH606491 Map sheet: NH64NW

Fairly young Sitka spruce (*Picea sitchensis*) plantation, heavily brashed and much denser than the mature wood on the other side of the track (Grid Ref. NH607494). Some remnants of *Hylocomium splendens* (moss) carpet. There is no understorey to speak of.

NH607493 Map sheet: NH64NW

Stand of mature Scots pine (*Pinus sylvestris*) which does not look planted, mixed with birch (*Betula* sp.). Understorey of heather (*Calluna vulgaris*) and blaeberry (*Vaccinium myrtillus*).

NH607495 Map sheet: NH64NW

Well established Scots pine (*Pinus sylvestris*) woodland, with some very mature (approx. 1m diameter), apparently non-planted, trees. Also some young spruce (*Picea* sp.). Understorey of ferns, mosses and heather (*Calluna vulgaris*) with occasional patches of bracken (*Pteridium aquilinum*).

NH608498 Map sheet: NH64NW

Some Cypress (*Cupressus* sp.) trees along road amongst the Scots pine (*Pinus sylvestris*).

NH613491 Map sheet: NH64NW

Area of improved grassland, species-poor with stumps remaining from deciduous trees. Some mature oaks (*Quercus* sp.) still standing with scattered birch (*Betula* sp.). Probably grazed by cattle or horses as some of the land is slightly poached. Bordered to the east by beech (*Fagus sylvatica*) woodland with very little understorey.

NH614482 Map sheet: NH64NW

Area of unfenced oak (*Quercus* sp.), grazed therefore no regeneration. Most of the oaks have 3-6 trunks from their base, suggesting that they may have been coppiced at some time in the past.

NH614490 Map sheet: NH64NW

Pig pen surrounded by bare earth with scattered broadleaved trees. The ground is very poached here.

NH615490 Map sheet: NH64NW

Plantation of broadleaved trees (various species) amongst mature broadleaved trees. There is some spruce (*Picea* sp.) regeneration.

NH616489 Map sheet: NH64NW

Mixed broadleaved woodland, predominantly oak (*Quercus* sp.) with frequent birch (*Betula* sp.), sweet chestnut (*Castanea sativa*), elm (*Ulmus* sp.), beech (*Fagus sylvatica*), the occasional lime (*Tilia* sp.), and Sitka spruce (*Picea sitchensis*), with frequent stands of bracken (*Pteridium aquilinum*). Rich bryophyte ground flora (especially on stumps left from past felling). Rich selection of lichens throughout on tree bark. There is a small lochan surrounded by willow (*Salix* sp.), with a band of bottle sedge (*Carex rostrata*). There is evidence of rabbit grazing, so in some areas the understorey is quite poor. But in general, the understorey is fairly diverse, including species such as selfheal (*Prunella vulgaris*), creeping buttercup (*Ranunculus repens*), marsh willow herb (*Epilobium palustre*), common marsh

bedstraw (*Galium palustre*), lesser spearwort (*Ranunculus flammula*), bugle (*Ajuga reptans*), heath speedwell (*Veronica officinalis*), germander speedwell (*Veronica chamaedrys*), bramble (*Rubus fruticosus*), mouse-ear (*Cerastium* sp.), common dog-violet (*Viola riviniana*), common chickweed (*Stellaria media*), spear thistle (*Cirsium vulgare*), St John's wort (*Hypericum* sp.), and soft-rush (*Juncus effusus*). Grass species include Yorkshire fog (*Holcus lanatus*), creeping soft-grass (*Holcus mollis*), wavy hair-grass (*Deschampsia flexuosa*).

NH618495 Map sheet: NH64NW

Birch (*Betula* sp.) woodland surrounding swampy, partly artificial loch. Ground flora of bell heather (*Erica cinerea*), heather (*Calluna vulgaris*), and occasional *Sphagnum* species. close to waters edge. Reed mace (*Typha latifolia*) present within loch. Diverse area grazed/cropped by cattle/roe deer.

NH619494 Map sheet: NH64NW

Area of birch (*Betula* sp.), mixed with Scots pine (*Pinus sylvestris*), surrounding swampy, partly artificial loch. There are patches of wet heath in between larger stands of pine. Ground flora is very diverse. Wavy hair-grass (*Deschampsia flexuosa*) dominates in some parts, with bell heather (*Erica cinerea*), heather (*Calluna vulgaris*), and occasional *Sphagnum* spp. close to water edge. Whole area is grazed by cattle and roe deer.

NH619499 Map sheet: NH64NW

Remnants of a stand of very mature beech (*Fagus sylvatica*) surrounded by newer conifer plantation. Some clear felling around beech, possibly to encourage regeneration, particularly at NH618498.

NH620499 Map sheet: NH64NW

Single or connected stands of mature beech (*Fagus sylvatica*). Areas around the single trees or stands have been cleared/felled. Possibly to stimulate regeneration. Areas quite heavily browsed by deer (roe?) or sheep. Successful regeneration at NH618498.

NH621484 Map sheet: NH64NW

Narrow strip (approx. 10m wide) with bracken (*Pteridium aquilinum*) dominant, frequent elder (*Sambucus nigra*), and sycamore (*Acer pseudoplatanus*) regeneration. Also occasional tutsan (*Hypericum androsaemum*) (presumably escaped from adjacent house) and common figwort (*Scrophularia nodosa*).

NH625488 Map sheet: NH64NW

Area of mature sessile oak (*Quercus petraea*) woodland, with very occasional regeneration. Rowan (*Sorbus aucuparia*) is occasional, though there is more regeneration of this than the oak. In some areas the ground is moss-rich with a dense carpet. Elsewhere wavy hair-grass (*Deschampsia flexuosa*) is dominant, and there are some areas of bracken (*Pteridium aquilinum*) in places. There is a small amount of heath speedwell (*Veronica officinalis*), germander speedwell (*Veronica chamaedrys*), heather (*Calluna vulgaris*), avens (*Geum* sp. (*urbanum* or *rivale*)), rosebay willowherb (*Chamaenerion angustifolium*), broadleaved

willowherb (*Epilobium montanum*), selfheal (*Prunella vulgaris*), buttercup (*Ranunculus* sp.), and wood sage (*Teucrium scorodonia*).

NH626451 Map sheet: NH64NW

Coppiced woodland of birch (*Betula* sp.) and hazel (*Corylus avellana*) with some scattered, mature oak (*Quercus* sp.). Stock grazed, especially in the west, but ground flora continuous and bryophytes abundant. A small area to the south has been felled and is therefore more open.

NH626495 Map sheet: NH64NW

Strip of wet heath with broom (*Sarothamnus* [*Cytisus*] *scoparius*) and gorse (*Ulex europaeus*) invasion from the A9 road verge. Ground disturbed in 1994 for installation of gas pipeline. Some regeneration of Scots pine (*Pinus sylvestris*), birch (*Betula* sp.) and willow (*Salix* sp.).

NH628489 Map sheet: NH64NW

Area of natural woodland composed of mature oak (*Quercus* sp.), sweet chestnut (*Castanea sativa*), Scots pine (*Pinus sylvestris*), beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*), horse-chestnut (*Aesculus hippocastanum*), elm (*Ulmus* sp.) and lime (*Tilia* sp.). There is evidence of some grazing. These trees are interspersed with rowan (*Sorbus aucuparia*), birch (*Betula* sp.), which looks coppiced and ash. Some areas have birch as a dominant species and some ash. Here there is little regeneration. The general understorey is composed of chickweed (*Stellaria media*), bracken (*Pteridium aquilinum*), honeysuckle (*Lonicera periclymenum*), raspberry (*Rubus idaeus*), bluebell (*Hyacinthoides non-scripta*), herb-Robert (*Geranium robertianum*), broom (*Sarothamnus* [*Cytisus*] *scoparius*), slender St. John's wort (*Hypericum pulchrum*), wavy hair-grass (*Deschampsia flexuosa*), heath speedwell (*Veronica officinalis*), Yorkshire fog (*Holcus lanatus*) and creeping soft-grass (*Holcus mollis*). The dryer areas above the flush support heath bedstraw (*Galium palustre*), wood sage (*Teucrium scorodonia*), hairy wood-rush (*Luzula pilosa*), common polypody (*Polypodium vulgare*), gorse (*Ulex europaeus*), bramble (*Rubus fruticosus*), and marsh willow-herb (*Epilobium palustre*). There is an area of recently thinned birch containing mainly Yorkshire fog and bramble with wavy hair-grass, bent grass (*Agrostis* sp.), sheep's sorrel (*Rumex acetosella*) and sweet vernal grass (*Anthoxanthum odoratum*). Mosses include *Rhytidiadelphus* sp., *Dicranum magus*, *Polytrichum commune*, and *Pleurozium schreberi*. This area may have been grazed by deer. There is a strip of neutral marshy grassland adjacent to the river. The vegetation here is composed of soft rush (*Juncus effusus*), speedwell (*Veronica* sp.), selfheal (*Prunella vulgaris*), water forget-me-not (*Myosotis scorpioides*), bitter cress (*Cardamine* sp.), cock's foot (*Dactylis glomerata*), wavy hair-grass, yellow pimpernel (*Lysimachia vulgaris*) and marsh bedstraw (*Galium palustre*).

NH634483 Map sheet: NH64NW

Outflow from drain into sea colonised by reed canary grass (*Phalaris arundinacea*).

NH635450 Map sheet: NH64NW

Several houses here not recorded by Ordnance Survey. Not mapped in detail here. Area around houses either garden or improved grassland. There also appears to be a small pond at one point.

NH636486 Map sheet: NH64NW

Large pond surrounded by swamp vegetation and some marshy grassland. Variety of bird life seen adjacent to pond, including large group (at least 13) herons, oystercatchers and 4 buzzards.

NH638460 Map sheet: NH64NW

A heronry was reported in this woodland in 1992 and herons have been seen in the area recently (22/11/95). Thus, although apparently of little interest, the area is quite important.

NH638495 Map sheet: NH64NW

Stand of birch (*Betula* sp.) running to the south and north of the track that dissects the wood. Ground cover minimal due to grazing. This has also led to a lack of birch regeneration.

NH639490 Map sheet: NH64NW

Disused gravel pit (dry), colonised by birch (*Betula* sp.), with scattered willow (*Salix* sp.). Banks are covered with gorse (*Ulex* sp.) and broom (*Sarothamnus* [*Cytisus*] *scoparius*). Sparse understorey due to lack of topsoil. Area used for honey production? Large amount of beehives present.

NH641456 Map sheet: NH64NW

Craigphadrig - A wooded hill of old red sandstone with the remains of an iron age fort at the summit. Owned by Forest Enterprise. Although of plantation origin much of the woodland has gained semi-natural characteristics. The areas of pinewood supporting, amongst other species, creeping lady's tresses (*Goodyera repens*) are particularly interesting. Although no rare species were encountered the site is valuable for the range of habitats and species which it supports. It is situated at the culmination of a much larger system of habitats linking with the Great Glen to the south-west and the range habitats to the west. The site is of high amenity value and is visited by a large number of people. Currently the site is being managed for amenity purposes. However, with large areas of conifer plantation remaining, the long-term management strategy remains unclear. Gorse (*Ulex europaeus*) is found throughout the site and is dense and impenetrable in places. This could pose a future threat to any areas where the canopy opens sufficiently to allow the species to spread. Another potential long-term threat is the encroachment of housing developments. Although not obviously threatened at present, the close proximity of other housing in adjacent areas does suggest the possible danger of encroachment from single developments over a period of time.

The site was surveyed in detail by the Scottish Wildlife Trust in 1995. 1998 update: The presence of red squirrel has recently been confirmed. Roe deer are frequently sighted in the area.

NH644458 Map sheet: NH64NW

Area of housing not recorded by Ordnance Survey on this map. Not mapped in detail.

NH646489 Map sheet: NH64NW

Difficult to complete an accurate survey due to steep cutting with stream running along the bottom. Bank sides support a range of broadleaved trees and conifers. Species include oak (*Quercus* sp.), beech (*Fagus sylvatica*), birch (*Betula* sp.), ash (*Fraxinus excelsior*), spruce (*Picea* sp.) and larch (*Larix* sp.). Understorey appeared to be comprised of bramble (*Rubus fruticosus*), rush (*Juncus* sp.), grasses, mosses and ferns.

NH64NE (Produced 1995 and 1996)
(Includes some areas within Inverness District)

NH650496 Map sheet: NH64NE

Plantations of oak (*Quercus* sp.), wild cherry (*Prunus avium*), ash (*Fraxinus excelsior*), with some spruce (*Picea* sp.). Area of standing water with small islands covered in soft rush (*Juncus effusus*). The vegetation around the pond is composed of tufted hair-grass (*Deschampsia cespitosa*), soft rush and alder (*Alnus glutinosa*). Planted alder, with regeneration of willow (*Salix* sp.), wavy hair-grass (*Deschampsia flexuosa*) and cross-leaved heath (*Erica tetralix*). There are many pockets filled with water.

NH651486 Map sheet: NH64NE

Oak (*Quercus* sp.) woodland of very even age, therefore possibly a plantation. There is no real understorey but a small amount of rowan (*Sorbus aucuparia*) and oak regeneration. The ground layer is mostly composed of bracken (*Pteridium aquilinum*), honeysuckle (*Lonicera periclymenum*), wood sorrel (*Oxalis acetosella*), lesser celandine (*Ranunculus ficaria*), wavy hair-grass (*Deschampsia flexuosa*), bramble (*Rubus fruticosus*) hard fern (*Blechnum spicant*), male fern (*Dryopteris filix-mas*), buckler fern (*Dryopteris dilatata*), wood sage (*Teucrium scorodonia*) and a little gorse (*Ulex europaea*).

NH653467 Map sheet: NH64NE

Area of high habitat diversity with mudflats supporting wading birds, brackish pools with small areas of salt marsh, fresh water pool with reed beds dominated by reed mace (with swans and other birds nesting), an area of scrub to the north-east and a wooded area with a variety of ground flora on the embankment by the canal basin. The north-eastern pool by the scrub supports a small area of saltmarsh with an area dominated by wet heath adjacent supporting species including cross-leaved heath (*Erica tetralix*) and bog asphodel (*Narthecium ossifragum*). This is a very unusual habitat combination. Some development for public access has taken place around the area of this target note symbol with boardwalks and footpaths. However, it is unclear whether the management of this interesting site has been considered beyond that of amenity improvement.

1997 update - The site has now been surveyed by William Vickers and the information forwarded to Tony Hind, Countryside Ranger for Highland Council. The results of the survey showed the site to be botanically rich, relatively unique and deserving greater recognition.

NH653488 Map sheet: NH64NE

The verge of a forestry track which was found to be quite species-rich. The plantation either side has been brashed allowing greater light to reach this margin. The vegetation includes wood-rush (*Luzula* sp.), coltsfoot (*Tussilago farfara*), heather (*Calluna vulgaris*), compact rush (*Juncus conglomeratus*), self-heal (*Prunella vulgaris*), wavy hair-grass (*Deschampsia flexuosa*), plantain (*Plantago* sp.), Yorkshire fog (*Holcus lanatus*), various mosses, ragwort (*Senecio jacobaea*), cock's foot (*Dactylis glomerata*), blaeberry (*Vaccinium myrtillus*), raspberry (*Rubus idaea*), willow (*Salix* sp.), marsh bedstraw (*Galium palustre*), gorse (*Ulex europaea*), rosebay willowherb (*Chamaenerion angustifolium*), tormentil (*Potentilla erecta*), tufted hair-grass (*Deschampsia cespitosa*), orchid (*Dactylorhiza* sp.), foxglove (*Digitalis purpurea*) and hard fern (*Blechnum spicant*).

NH655480 Map sheet: NH64NE

Area of grassland adjacent to car park on the south side of Ord Hill. Much of area is amenity grassland with relatively few plant species and abundant rabbits. Some trees have been planted, mostly rowan (*Sorbus aucuparia*) and birch (*Betula* sp.), but many have not survived, either subject to vandalism, rabbits or wind throw. There are patches of thistle (*Cirsium* sp.), bracken (*Pteridium aquilinum*), bramble (*Rubus fruticosus*), rosebay willowherb (*Chamaenerion angustifolium*) and dog rose (*Rosa canina*). There are some mature but squat oaks (*Quercus* sp.), willows (*Salix* sp.) and some sycamore (*Acer pseudoplatanus*) regeneration. There is also some Scots pine (*Pinus sylvestris*) regeneration which may have come from the neighbouring plantation. There is a small pond and a larger one (3 to 4 metres diameter) which is enclosed by a fence, supporting a range of aquatic and emergent vegetation. Species include yellow iris (*Iris pseudacorus*), soft rush (*Juncus effusus*), common rush (*Juncus conglomeratus*), self-heal (*Prunella vulgaris*), marsh horsetail (*Equisetum palustre*), sorrel (*Rumex acetosa*), and wavy hair-grass (*Deschampsia flexuosa*). Dragonflies have been seen here. The larger pond is surrounded by willow and gorse (*Ulex europaeus*). It is fed by a stream coming down from the hill. There are birch and alder (*Alnus glutinosa*) planted, and some tall grasses including tufted hair-grass (*Deschampsia cespitosa*), creeping thistle (*Cirsium arvense*) and greater plantain (*Plantago major*).

NH657492 Map sheet: NH64NE

Mature birch (*Betula* sp.) woodland with an open canopy and little understorey. Probably grazed.

NH659489 Map sheet: NH64NE

Standing water in a runnel containing tormentil (*Potentilla erecta*), *Sphagnum* spp., *Polytrichum* sp., Yorkshire fog (*Holcus lanatus*), willow (*Salix* sp.), heath rush (*Juncus squarrosus*), soft rush (*Juncus effusus*), coltsfoot (*Tussilago farfara*), blaeberry (*Vaccinium myrtillus*), wavy hair-grass (*Deschampsia flexuosa*) and compact rush (*Juncus conglomeratus*).

NH659494 Map sheet: NH64NE

Two new houses have been built where broadleaved woodland was marked on the Ordnance Survey map. Some large exotics have been planted around these houses.

NH660486 Map sheet: NH64NE

Area of Scots pine (*Pinus sylvestris*) plantation on top of the hill. This area is slightly wet with heather (*Calluna vulgaris*) dominant with cross-leaved heath (*Erica tetralix*) and bell heather (*Erica cinerea*) also present. Other species include bog asphodel (*Narthecium ossifragum*), black bog rush (*Schoenus nigricans*), soft rush (*Juncus effusus*), compact rush (*Juncus conglomeratus*), bent grass (*Agrostis* spp.) wavy hair-grass (*Deschampsia flexuosa*) and Yorkshire fog (*Holcus lanatus*) A small area north of the triangulation point contains patches of *Sphagnum* spp., tormentil (*Potentilla erecta*), blaeberry (*Vaccinium myrtillus*) and various mosses including *Hylocomium splendens*, *Rhytidiadelphus triquetrus* and *Plagiothecium undulatum*. There is also regeneration of western hemlock (*Tsuga heterophylla*), willow (*Salix* sp.), birch (*Betula* sp.) and gorse (*Ulex europaeus*).

NH661489 Map sheet: NH64NE

Mature Scots pine (*Pinus sylvestris*) plantation with understorey of western hemlock (*Tsuga heterophylla*) with some holly (*Ilex aquifolium*), Douglas fir (*Pseudotsuga menziesii*), and rowan (*Sorbus aucuparia*) regeneration. The ground layer is made up of blaeberry (*Vaccinium myrtillus*), heather (*Calluna vulgaris*), *Hylocomium splendens* and several other mosses, *Sphagnum* spp., and wavy hair-grass (*Deschampsia flexuosa*).

NH661497 Map sheet: NH64NE

Possibly a felled plantation and now supporting gorse (*Ulex europaea*), Sitka spruce (*Picea sitchensis*), dog rose (*Rosa canina*), oak (*Quercus* sp.), birch (*Betula* sp.), sycamore (*Acer pseudoplatanus*), rowan (*Sorbus aucuparia*), willow (*Salix* sp.), broom (*Sarothamnus [Cytisus] scoparius*), heath speedwell (*Veronica officinalis*), tormentil (*Potentilla erecta*), male fern (*Dryopteris filix-mas*), selfheal (*Prunella vulgaris*), heath bedstraw (*Galium saxatile*), bent grass (*Agrostis* sp.) , wavy hair-grass (*Deschampsia flexuosa*), soft rush (*Juncus effusus*), stork's bill (*Erodium* sp.), bramble (*Rubus fruticosus*), honeysuckle (*Lonicera periclymenum*), meadow buttercup (*Ranunculus acris*), creeping thistle (*Cirsium arvense*), violet (*Viola* sp.), compact rush (*Juncus conglomeratus*), heather (*Calluna vulgaris*), wood-rush (*Luzula* sp.), mouse-ear (*Cerastium holosteoides*), spear thistle (*Cirsium vulgare*), bracken (*Pteridium aquilinum*) and bottle sedge (*Carex rostrata*). Mosses include *Rhytidiadelphus triquetrus*, *Rhytidiadelphus squarrosus*, *Hylocomium splendens*, *Polytrichum commune* and *Pleurozium schreberi*. Around the lochan is marsh cinquefoil (*Potentilla palustris*), *Sphagnum* sp., willow (*Salix* sp.), Scots pine (*Pinus sylvestris*) and western hemlock (*Tsuga heterophylla*). This area is rich in lichens including *Peltegera canina*, *Usnea subfloridana*, *Evernia prunastri*, *Hypogymnia physodes*.

NH662496 Map sheet: NH64NE

Very young conifer plantation.

NH663483 Map sheet: NH64NE

Area of mature sycamore (*Acer pseudoplatanus*) woodland with some regeneration beneath. Also Scots pine (*Pinus sylvestris*), horse chestnut (*Aesculus hippocastanum*), elder (*Sambucus nigra*), wild cherry (*Prunus avium*), holly (*Ilex aquifolium*) and Norway maple (*Acer platanoides*). There is a large heronry in a mature larch (*Larix* sp.). The understorey is

composed of hawthorn (*Crataegus monogyna*), hazel (*Corylus avellana*), elm (*Ulmus* sp.), rowan (*Sorbus aucuparia*) and broom (*Sarothamnus* [*Cytisus*] *scoparius*). There are some ash (*Fraxinus excelsior*) and cherry (*Prunus* sp.) saplings. The ground flora includes bracken (*Pteridium aquilinum*), bluebell (*Hyacinthoides non-scripta*) with mosses and ferns including male fern (*Dryopteris filix-mas*) and broad buckler fern (*Dryopteris dilatata*).

NH663486 Map sheet: NH64NE

Area of broadleaved woodland containing beech (*Fagus sylvatica*), oak (*Quercus* sp.), birch (*Betula* sp.) and sycamore (*Acer pseudoplatanus*), with the occasional willow (*Salix* sp.), rowan (*Sorbus aucuparia*) and juniper (*Juniperus communis*). The understorey is made-up of gorse (*Ulex europaeus*), broom (*Sarothamnus* [*Cytisus*] *scoparius*), bracken (*Pteridium aquilinum*), chickweed winter green (*Trientalis europaea*), violet (*Viola* sp.), Yorkshire fog (*Holcus lanatus*), bramble (*Rubus fruticosus*), wavy hair-grass (*Deschampsia flexuosa*), honeysuckle (*Lonicera periclymenum*), herb-Robert (*Geranium robertianum*), wood-sorrel (*Oxalis acetosella*), tutsan (*Hypericum androsaemum*), heath bedstraw (*Galium saxatile*), hedge woundwort (*Stachys sylvatica*), wood sage (*Teucrium scorodonia*), birds-foot trefoil (*Ornithopus perpusillus*), foxglove (*Digitalis purpurea*), hard fern (*Blechnum spicant*) and great wood-rush (*Luzula sylvatica*). There is also western hemlock (*Tsuga heterophylla*) regeneration interspersed.

NH663490 Map sheet: NH64NE

Hill fort area contains several species growing amongst the stone remains. These include wood-sorrel (*Oxalis acetosella*), *Polytrichum commune*, *Rhytidiadelphus triquetrus*, polypody fern (*Polypodium vulgare*), Yorkshire fog (*Holcus lanatus*), wavy hair-grass (*Deschampsia flexuosa*), foxglove (*Digitalis purpurea*), male fern (*Dryopteris filix-mas*), and a few creeping lady's tresses (*Goodyera repens*). There is also a large willow (*Salix* sp.) and some rowan (*Sorbus aucuparia*) regeneration.

NH665497 Map sheet: NH64NE

Species-rich ditch/bank at side of road. Species include self-heal (*Prunella vulgaris*), wood horse-tail (*Equisetum sylvaticum*), tufted hair-grass (*Deschampsia cespitosa*), meadowsweet (*Filipendula ulmaria*), wild angelica (*Angelica sylvestris*), dog rose (*Rosa canina*), broad-leaved willowherb (*Epilobium montanum*), soft rush (*Juncus effusus*), common mouse-ear (*Cerastium holosteoides*), chickweed (*Stellaria media*), meadow buttercup (*Ranunculus acris*), common sorrel (*Rumex acetosa*), Yorkshire fog (*Holcus lanatus*), rosebay willowherb (*Chamaenerion angustifolium*). On the steep bank which grades into a wet bank there are nettles (*Urtica dioica*), cleavers (*Galium aparine*), gorse (*Ulex europaea*), ivy (*Hedera helix*), brooklime (*Veronica beccabunga*), marsh thistle (*Cirsium palustre*), sow thistle (*Sonchus* sp.), sweet cicely (*Myrrhis odorata*), polypody fern (*Polypodium vulgare*), spear thistle (*Cirsium vulgare*) and snowberry (*Symphoricarpos rivularis*). The ditch is continuous but is filled in parts. Other ditch vegetation includes bush vetch (*Vicia sepium*), greater plantain (*Plantago major*), ragwort (*Senecio jacobaea*), ribwort plantain (*Plantago lanceolata*), germander speedwell (*Veronica chamaedrys*), and lady's bedstraw (*Galium verum*), yarrow (*Achillea millefolium*), bramble (*Rubus fruticosus*) and broom (*Sarothamnus* [*Cytisus*] *scoparius*).

NH665499 Map sheet: NH64NE

Christmas tree plantation.

NH666472 Map sheet: NH64NE

An area of mud flats important for wading birds, with some small salt-marsh areas. The area is popular with bird watchers and sometimes good for dolphin spotting.

1997 update - Unfortunately, before the completion of the Ross and Cromarty survey, an access road to the new football stadium was built through here.

NH666489 Map sheet: NH64NE

Mature woodland of beech (*Fagus sylvatica*), birch (*Betula* sp.) elm (*Ulmus* sp.), sycamore (*Acer pseudoplatanus*), and Norway maple (*Acer platanoides*), with scattered holly (*Ilex aquifolium*) and one yew (*Taxus baccata*). Ground flora of ferns with quite an open canopy, especially beneath the beech trees.

NH666499 Map sheet: NH64NE

Fairly stagnant pond with tufted hair-grass (*Deschampsia cespitosa*), rush (*Juncus* sp.) and duckweed (*Lemna minor*). Maybe undergoing succession and drying out. It may have been a quarry at some time.

NH667489 Map sheet: NH64NE

Pond area with only a small amount of water at present, surrounded by iris (*Iris pseudacorus*), vetchling (*Lathyrus* sp.) and soft rush (*Juncus effusus*). It may have been wetter in the past.

NH679463 Map sheet: NH64NE

The Longman coastal strip is a council refuse tip. The area has undergone a process of in-filling for many years. First artificial lagoons are created which are then filled with refuse. The remaining adjacent areas of mud flat, particularly to the east towards Seafield, are very important for wading birds. Although the council persists in extending the tip south-eastwards it seems inconceivable that they will be able to continue this process much longer due to the international importance of such habitat.

1997 update - much of the remaining mudflats towards Seafield were designated a Site of Special Scientific Interest this year, but not before Highland Council had secured the right to extend the tip eastwards to beyond the Mill Burn outflow.

Parts of the area currently support some good semi-natural habitats. Nearest the A9 road there is scrub with gorse (*Ulex europaeus*) and broom (*Sarothamnus [Cytisus] scoparius*) and a range of other species in a mosaic with semi-improved grassland. A variety of broadleaved trees have been planted throughout.

Although the new and controversial football stadium planned for the north-west tip of the site is unsightly from many angles, the location was of lesser wildlife value than other parts of the

site. The potential for future development as a form of country park (with good views over the firth and a range of habitats to explore) still remains. As Inverness desperately lacks a sea front (having been developed for industry over the years) this represents a final opportunity to produce an attractive coastal environment for locals and visitors alike.

NH693463 Map sheet: NH64NE

Area of mudflats important for wading birds - now particularly important for wildlife conservation as the Longman land-fill has already destroyed a large section of this area.

NH65NW (Produced 1996)

NH600557 Map sheet: NH65NW

Two small, wet areas within plantation, connected by drainage ditch. Surrounded by raised ground. Lower area completely covered in wet heath, dominated by deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]), with patches of acid grassland. Only of moderate species-richness as quite short - stock grazed. Supports *Sphagnum* species, typical sedges and bog asphodel (*Narthecium ossifragum*). Higher and larger area contains open water and is surrounded by tall sedges and *Sphagnum* dominated patches, grading into wet heath and pine, willow (*Salix* sp.) regenerating areas. The clumps of Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) are quite mature and appear semi-natural. Lichen (*Cladonia* sp.) is abundant in places. Area of wet modified bog to south is slightly richer in species. No sign of calcareous flushing.

NH600577 Map sheet: NH65NW

Wet heath dominated by deer sedge (*Trichophorum cespitosum*) [*Scirpus cespitosus*], with patches of acid grassland. Only of moderate species richness as stock grazed and quite short vegetation. The clumps of Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) are quite mature and appear semi-natural. Lichen (*Cladonia* sp.) is abundant in places. Area of modified bog to south is slightly richer in species.

NH600589 Map sheet: NH65NW

Area of new housing, too complex to map in detail.

NH602583 Map sheet: NH65NW

Complex mix of marshy grassland, good semi-improved grassland, tall herbs, and poor semi-improved grassland. This is due to past drainage patterns and lack of recent grazing. The area is now crossed by recent deep drains, possibly indicating intention to plant conifers.

NH602597 Map sheet: NH65NW

Narrow, steep-sided gully with ash (*Fraxinus excelsior*), rowan (*Sorbus aucuparia*), alder (*Alnus glutinosa*) and other trees. Some adjacent areas support dense gorse (*Ulex europaeus*), dog rose (*Rosa canina*), bramble (*Rubus fruticosus*) and rosebay willowherb (*Chamaenerion angustifolium*). Fairly impenetrable. Much of area below mature trees is in dense shade, but

species-richness is quite high in some places. Burn flows over exposed bedrock in some parts, with at least one small waterfall.

NH603552 Map sheet: NH65NW

Both arable areas taken from wet heath and wet grassland. Regenerating Scots pine (*Pinus sylvestris*) has been cut back.

NH603587 Map sheet: NH65NW

Conifer plantation surrounding ruin mound (Dunn Fort). Most is Scots pine (*Pinus sylvestris*) with scattered birch (*Betula* sp.) in places. Ground flora well developed with blaeberry (*Vaccinium myrtillus*), wavy hair-grass (*Deschampsia flexuosa*) and moss (*Rhytidiadelphus triquetrus*). Chickweed wintergreen (*Trientalis europaea*) abundant to the east of Glascairn. No creeping lady's tresses (*Goodyera repens*) found, but appears suitable in places. Dunn Fort topped by rosebay willowherb (*Chamaenerion angustifolium*) and a single yew (*Taxus baccata*).

NH604561 Map sheet: NH65NW

Small lochan in Scots pine (*Pinus sylvestris*) woodland. Large area of pine woodland and wet heath mosaic. Mature and regenerating pine, scattered juniper (*Juniperus communis*), grazed by cattle. Lochan area species-rich, including area of open water. Species include soft rush (*Juncus effusus*), heath rush (*Juncus squarrosus*), bulbous rush (*Juncus bulbosus*), wood-rush (*Luzula multiflora* sub-species *congesta*), common spikerush (*Eleocharis palustris*), jointed rush (*Juncus articulatus*) and *Sphagnum* species. Also devil's-bit-scabious (*Succisa pratensis*), bogbean (*Menyanthes trifoliata*), marsh lousewort (*Pedicularis palustris*), bog asphodel (*Narthecium ossifragum*), tormentil (*Potentilla erecta*), sundew (*Drosera* sp.), spearwort (*Ranunculus* sp.), marsh cinquefoil (*Potentilla palustris*). At least two species of dragonfly present.

NH604598 Map sheet: NH65NW

Area apparently once dense gorse (*Ulex europaeus*), has been cut back. Now dominated by rosebay willowherb (*Chamaenerion angustifolium*), with patches of short, neutral grassland. Very short gorse is beginning to emerge once more in places. Depression to north-east supports bramble (*Rubus fruticosus*), broad buckler fern (*Dryopteris dilatata*) and stinging nettle (*Urtica dioica*). Adjacent trees include ash (*Fraxinus excelsior*), rowan (*Sorbus aucuparia*), elder (*Sambucus nigra*) and some birch (*Betula* sp.). Cherry trees in this area all appear to be non native.

NH606568 Map sheet: NH65NW

Area of short grazed grassland with abundant bracken (*Pteridium aquilinum*) in places. Some patches of short ling heather (*Calluna vulgaris*) make this a heath/grassland in places, but still dominated by grass.

NH607574 Map sheet: NH65NW

Area dominated by dense birch (*Betula* sp.), occasional Scots pine (*Pinus sylvestris*), small open grassy areas, with patches of gorse (*Ulex europaeus*). Grazed by cattle.

NH607589 Map sheet: NH65NW

Complex mosaic of swamp (with abundant *Sphagnum* in places) dominated bottle sedge (*Carex rostrata*), planted conifers (some suffering from wind-throw) and abundant scattered broadleaved trees. Too complex to map accurately and much of area is inaccessible. A fragmented extension of Loch Culbokie, which was probably once much larger than now. An excellent, interesting habitat worthy of more detailed survey. Supports a wide range of species. Water horsetail (*Equisetum fluvalite*) is particularly abundant in places.

NH608567 Map sheet: NH65NW

Short grazed wet heath with some acid grassland mosaic. Modestly species-rich in places, but short grazed and apparently burned in past. Would benefit from being allowed to recover further. Field to the north is arable with abundant redshank (*Polygonum persicaria*) amongst vegetables.

NH609570 Map sheet: NH65NW

Large wooded area, dominated by Scots pine (*Pinus sylvestris*), mature birch (*Betula* sp.). Large open areas, dominated by wet heath with small grassy patches in mosaics. Heathland dotted with Scots pine, with occasional seedlings and birch regeneration. Some scrub areas dominated by gorse (*Ulex europaeus*), especially at boundaries. Area does not appear to be heavily overgrazed or disturbed. Stands of juniper (*Juniperus communis*) through the whole area.

NH610575 Map sheet: NH65NW

Road verges and ditches in this area are relatively species-rich, with abundant meadowsweet (*Filipendula ulmaria*) (indicating possible calcareous conditions), and a wide range of other common species including colt's-foot (*Tussilago farfara*), harebell (*Campanula rotundifolia*), sneezewort (*Achillea ptarmica*), lady's bedstraw (*Galium verum*), lady's mantle (*Alchemilla vulgaris*), common rush (*Juncus conglomeratus*), cock's foot (*Dactylis glomerata*), false oat grass (*Arrhenatherum elatius*), Yorkshire fog (*Holcus lanatus*), and many others. This suggests that sympathetic management of road verges in other areas may yield interesting results.

NH610581 Map sheet: NH65NW

Scots pine (*Pinus sylvestris*) of plantation origin, even-aged, but with well developed ground flora. Creeping lady's tresses (*Goodyera repens*) noted in this part of the wood and also some juniper (*Juniperus communis*). Small birch (*Betula* sp.) saplings abundant in places but little Scots pine regeneration.

NH610590 Map sheet: NH65NW

Loch in advanced stage of succession to swamp. Very little open water, but very wet. Dominated by bottle sedge (*Carex rostrata*) with some water horsetail (*Equisetum fluvalite*) and, around margins, other species including common cotton sedge (*Eriophorum angustifolium*), marsh cinquefoil, (*Potentilla palustris*) bog bean (*Menyanthes trifoliata*). An interesting habitat. Parts of adjacent woodland quite wet with abundant dead wood.

NH612578 Map sheet: NH65NW

Road verge dominated by male fern (*Dryopteris filix-mas*), scaly male fern (*Dryopteris affinis*) and broad buckler fern (*Dryopteris dilatata*).

NH612594 Map sheet: NH65NW

General target note for areas dominated by conifers. Of plantation origin, but have developed semi-natural ground flora under Scots pine (*Pinus sylvestris*) in general. However, lodgepole pine (*Pinus contorta*) has been planted more recently to the north of this target note.

NH615587 Map sheet: NH65NW

Roadsides in this area are relatively species-rich with some male fern (*Dryopteris filix-mas*) in places. Also abundant raspberry (*Rubus idaeus*), wood horsetail (*Equisetum sylvaticum*) and rosebay willowherb (*Chamaenerion angustifolium*).

NH616578 Map sheet: NH65NW

Scattered Scots pine (*Pinus sylvestris*) with juniper (*Juniperus communis*) (some supporting juniper galls) and some gorse (*Ulex europaeus*). Ground flora fairly short grazed by horses but still moderately species-rich. Wet heath/acid grassland mosaic with some small flushed areas. A few orchid spikes noted, possibly northern marsh orchid (*Dactylorhiza purpurella*). A little regeneration of Scots pine, birch (*Betula* sp.) and some rowan (*Sorbus aucuparia*) which does not appear to have been browsed.

NH616594 Map sheet: NH65NW

Small but relatively species-rich area of marshy grassland with meadowsweet (*Filipendula ulmaria*), soft rush (*Juncus effusus*), marsh thistle (*Cirsium palustre*) and a range of common grasses and herbs.

NH617566 Map sheet: NH65NW

Swamp area in middle of plantation, partly drained. In transitional stage. Willow (*Salix* spp.) colonising from the edge. Dominant species: bottle sedge (*Carex rostrata*), water horsetail (*Equisetum fluviatile*), marsh cinquefoil (*Potentilla palustris*), cross-leaved heath (*Erica tetralix*), marsh bedstraw (*Galium palustre*) and spearwort (*Ranunculus flammula*).

NH618585 Map sheet: NH65NW

Relatively species-rich grassland and marshy grassland. Species include abundant Yorkshire fog (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum odoratum*), bent grasses (*Agrostis* spp.), marsh thistle (*Cirsium palustre*), plus tufted hair-grass (*Deschampsia cespitosa*) and soft rush (*Juncus effusus*) in places, and a range of common herbs. Grass-of-Parnassus (*Parnassia palustris*) was noted in damp, seepage area by the trees to the south of this target symbol. Also a little juniper (*Juniperus communis*) within woodland. (A relatively rich habitat within which other interesting species, including orchids, are likely to occur although not noted at time of survey - late September 1996.)

NH619557 Map sheet: NH65NW

Species-rich verge/ditch in between road and arable field.

NH619575 Map sheet: NH65NW

Broad field margin of acid/marshy grassland with flushed areas showing patchy black bog-rush (*Schoenus nigricans*) and frequent bog asphodel (*Narthecium ossifragum*) with occasional orchids (*Dactylorhiza* spp). Also carnation sedge (*Carex panacea*), star sedge (*Carex echinata*), bulbous rush (*Juncus bulbosus*), articulated rush (*Juncus articulatus*), water horsetail (*Equisetum fluviatile*), eyebright (*Euphrasia* sp.), heath wood-rush (*Luzula multiflora*), lousewort (*Pedicularis* sp.), lesser spearwort (*Ranunculus flammula*), and yellow rattle (*Rhinanthus minor*). Owner plans to install pond. He is very sympathetic so, worth advising to avoid this interfering with calcareous flushing. Felled area to the south shows good recovery by ground flora, ranging from dry heath favouring Scots pine (*Pinus sylvestris*) regeneration to wet heath/acid grassland mosaic favouring birch (*Betula* sp.) regeneration.

NH619577 Map sheet: NH65NW

Broad field margins of acid grassland with calcareous flushing showing patchy black bog rush (*Schoenus nigricans*). Purple moor grass (*Molinia caerulea*) is dominant. Old Scots pines (*Pinus sylvestris*) and a small patch of juniper (*Juniperus communis*) scrub. Suspect drainage may be interfering with flushing. The owner has no plans to improve or develop this area. Roe deer encountered. Felled area in adjacent plantation with vigorous Sitka spruce (*Picea sitchensis*) regeneration and scattered rowan (*Sorbus aucuparia*). Chickweed wintergreen (*Trientalis europaea*) locally abundant. The farmer has plans to plant native trees in this area. He seems very sympathetic and may be worth consulting.

NH619587 Map sheet: NH65NW

Small marshy area dominated by purple moor-grass (*Molinia caerulea*) with bog asphodel (*Narthecium ossifragum*), devil's-bit scabious (*Succisa pratensis*) and cross-leaved heath (*Erica tetralix*). Relatively species-rich. Orchids reported by owner but not noted at time of survey. Area immediately to south-west, recorded in magenta on map, supports abundant black bog-rush (*Schoenus nigricans*) suggesting calcareous conditions.

NH620569 Map sheet: NH65NW

Mature Scots pine (*Pinus sylvestris*) woodland, unfenced and heavily poached in places. Understorey comprised scattered gorse (*Ulex europaeus*) with occasional birch (*Betula* sp.) and rowan (*Sorbus aucuparia*). Ground flora includes

Agrostis sp.
Calluna vulgaris
Deschampsia cespitosa
Deschampsia flexuosa
Hylocomium splendens
Juncus conglomeratus
Juncus effusus
Juncus squarrosus
Nardus stricta
Sphagnum sp.
Trichophorum cespitosum [Scirpus cespitosus]
Vaccinium myrtillus

NH620580 Map sheet: NH65NW

Small lochan, now very dry as a result of surrounding plantation. Scattered short, stunted pines (*Pinus* sp.) on very wet heath in immediate vicinity. Carpet of *Sphagnum* sp. has replaced open water. Colonised by bottle sedge (*Carex rostrata*) and common cotton grass (*Eriophorum angustifolium*). May eventually become wet heath unless felling results in another build up of ground-water.

NH620593 Map sheet: NH65NW

Area adjacent to shallow gully with burn is relatively species-rich with common species of waste ground including umbellifers, grasses, thistles (*Cirsium* sp.) and rosebay willowherb (*Chamaenerion angustifolium*). Viper's-bugloss (*Echium vulgare*) is locally abundant. Also bramble (*Rubus fruticosus*), dog rose (*Rosa canina*), gorse (*Ulex europaeus*) and a few small trees including rowan (*Sorbus aucuparia*) and willow (*Salix* sp.)

NH621591 Map sheet: NH65NW

Uncultivated area with old Scots pines (*Pinus sylvestris*), juniper (*Juniperus communis*) scrub and species-rich wet meadow, grading up slope to dry heath. Drain to south-west margin. *Sphagnum* sp. locally abundant. Mixed scrub layer of birch (*Betula* sp.), willow (*Salix* sp.), gorse (*Ulex europaeus*), broom (*Sarothamnus* [Cytisus] *scoparius*), and rowan (*Sorbus aucuparia*) as well as juniper. Raspberry (*Rubus idaeus*) dominant in places. Ground flora species include heather (*Calluna vulgaris*), blaeberry (*Vaccinium myrtillus*), heath rush (*Juncus squarrosus*), purple moor-grass (*Molinia caerulea*), tufted hair-grass (*Deschampsia cespitosa*), black sedge (*Carex nigra*), greater stitchwort (*Stellaria holostea*), and other stitchwort species, heath wood-rush (*Luzula multiflora*), wood horsetail (*Equisetum sylvaticum*), bog asphodel (*Narthecium ossifragum*), meadowsweet (*Filipendula ulmaria*), orchid (*Dactylorhiza* sp.), marsh thistle (*Cirsium palustre*), yellow rattle (*Rhinanthus minor*), marsh violet (*Viola palustris*), marsh lousewort (*Pedicularis palustris*), heath bedstraw (*Galium saxatile*), flea sedge (*Carex pulicaris*), hard fern (*Blechnum spicant*), and other

common herbs of arable and acidic environments. Plans for house and paddock in north-west corner, and cattle grazing in future.

NH622592 Map sheet: NH65NW

New house. Owner moved in recently, wishes to manage small area of surrounding grassland for wildlife. Given advice. Will consider cutting regime for grass, planting native broadleaves around margins and creating a small pool and wetland by stream. Pine marten reported.

NH624551 Map sheet: NH65NW

Schoolhouse Wood. Scots pine (*Pinus sylvestris*) woodland. Roe deer, pine marten, goldcrest and long tailed tit seen. Woodland has been thinned several years ago and is developing well. Understorey of birch (*Betula* sp.), beech (*Fagus sylvatica*) and willow (*Salix* sp.) saplings. Some gorse (*Ulex europaeus*), broom (*Sarothamnus* [*Cytisus*] *scoparius*) and the occasional juniper (*Juniperus communis*). Heather (*Calluna vulgaris*) dominates the ground flora, with patches of soft rush (*Juncus effusus*) and horsetail (*Equisetum* sp.) at upper Muirton Burn. Moss (*Hylocomium splendens*) occurs throughout. Muirton Burn is densely wooded for most part, with Scots pine and spruce (*Picea* sp.) regeneration. Also birch and the occasional willow.

NH624589 Map sheet: NH65NW

Broad field margin of acid grassland (frequent sheep's sorrel (*Rumex acetosella*)) shelving into gully with stream forming a 30-40m wide strip between farmland and road. Varied scrub layer of willow (*Salix* sp.), birch (*Betula* sp.), broom (*Sarothamnus* [*Cytisus*] *scoparius*), and gorse (*Ulex europaeus*), with birch and broom both dense and continuous in places. Mature oak (*Quercus* sp.) and rowan (*Sorbus aucuparia*) are also present. The footpath on the north-east side of the stream is well-frequented. This is a valuable habitat for farmland birds and 5 roe deer were encountered. There is a small but vigorous patch of self-sown sycamore (*Acer pseudoplatanus*).

NH625577 Map sheet: NH65NW

Bogbuie - Large flat area of plantation, mostly Scots pine (*Pinus sylvestris*), with pockets of Sitka spruce (*Picea sitchensis*) and larch (*Larix* sp.). Douglas fir (*Pseudotsuga menziesii*) and lodgepole pine (*Pinus contorta*) also present. Despite planting and excessive drainage, remnants of *Sphagnum* sp. show that this area was probably a raised bog. Felling in the last 5-10 years has considerably altered the habitat diversity and age structure of the plantation, especially this central area. Felled areas have been quickly colonised by marshy grassland species especially tufted hair-grass (*Deschampsia cespitosa*), with water horsetail (*Equisetum fluviatile*) frequent in places, grading into wet heath /acid grassland mosaic at fringes of mature stands. Frequent birch (*Betula* sp.), vigorous regeneration of Sitka spruce and some new stands with boundaries sometimes difficult to determine. Willow scrub (*Salix* sp.) is often abundant beside forestry tracks with patches of bramble (*Rubus fruticosus*) and willowherb (*Epilobium* sp.). A few broadleaved trees; beech (*Fagus sylvatica*) and oak (*Quercus* sp.), some recently planted. Mature stands in this area of Scots pine often show semi-natural ground flora developing. Juniper (*Juniperus communis*) and intermediate wintergreen (*Pyrola media*) both occasional in area. Creeping lady's-tresses (*Goodyera repens*) not found but would be expected.

NH625584 Map sheet: NH65NW

Area of mature Scots pine (*Pinus sylvestris*) grading into wet meadow on the fringes of the plantation. May be under threat from new housing and possible further new development. Abundant juniper (*Juniperus communis*) in south-east corner. Mosaic of habitats too complex to represent adequately at scale of 1:10,000. Fairly typical pinewood ground flora gives way to open areas of wet heath, with bog asphodel (*Narthecium ossifragum*) locally abundant, and marshy grassland with tufted hair-grass (*Deschampsia cespitosa*) and soft rush (*Juncus effusus*). Also small area of more species-rich marshy grassland with sedges present including black sedge (*Carex nigra*) and carnation sedge (*Carex panicea*), and a small area of wet modified bog with *Sphagnum* sp. and common cotton grass (*Eriophorum angustifolium*). Ground-flora becomes more neutral towards houses, with creeping soft-grass (*Holcus mollis*) and sweet vernal-grass (*Anthoxanthum odoratum*) abundant suggesting disturbance and influence from adjacent improved pasture. Abundant invertebrates; hawker dragonflies and painted lady butterflies when surveyed in September. Small pond recently constructed.

NH625586 Map sheet: NH65NW

Dense birch woodland (*Betula* sp.) with grassy understorey. Bent-grass (*Agrostis* sp.) and wavy hair-grass (*Deschampsia flexuosa*) appear to be dominant. Cleared area at centre may be for new housing, as much of the area has been recently developed. The south end, west of the track is wet heath/acid grassland mosaic with frequent heather (*Calluna vulgaris*) and cross-leaved heath (*Erica tetralix*), blaeberry (*Vaccinium myrtillus*), and mat grass (*Nardus stricta*). Bog asphodel (*Narthecium ossifragum*) is locally abundant with occasional juniper (*Juniperus communis*). Flushed area found to the north with tufted hair-grass (*Deschampsia cespitosa*) dominant and abundant willow (*Salix* sp.) scrub. East of the track there is a much wetter area with a pond and running water. There are patches of *Sphagnum* here. There is an area of coppiced woodland along the road which marks the eastern boundary. Roe deer encountered. Fox scats in evidence and unidentified scat -possibly wildcat. A small area with a rich mosaic of habitat that is far from ideal for housing from a nature conservation point of view.

NH626588 Map sheet: NH65NW

Small section not replanted as much of the surrounding plantation to the north has been. Species include birch (*Betula* sp.), rowan (*Sorbus aucuparia*) and Sitka spruce (*Picea sitchensis*), with deer appearing to prefer rowan. Area slopes gently downhill westward graded from acid grassland (east) to wet heath (west). The lower slopes are very wet with patchy *Sphagnum* - species-rich area with typical heath and acid loving plants and abundant mosses including *Pseudoscleropodium purum*, *Pleurozium schreberi* and *Hylocomium splendens*. Frequent chickweed wintergreen (*Trientalis europaea*), broad buckler fern (*Dryopteris dilatata*), wood horsetail (*Equisetum sylvaticum*) in dryer parts. Less frequent are hairy wood-rush (*Luzula pilosa*), marsh thistle (*Cirsium palustre*), wood sorrel (*Oxalis acetosella*), heath bedstraw (*Galium saxatile*), slender St. John's wort (*Hypericum pulchrum*), and hard fern (*Blechnum spicant*). Heather (*Calluna vulgaris*), blaeberry (*Vaccinium myrtillus*), wavy hair-grass (*Deschampsia flexuosa*) and common rush (*Juncus conglomeratus*) all locally abundant. Rosebay willowherb (*Chamaenerion angustifolium*), purple moor grass (*Molinia caerulea*), broom (*Sarothamnus [Cytisus] scoparius*), and gorse (*Ulex europaeus*) all present.

NH626590 Map sheet: NH65NW

Area clear felled but re-planted. Abundant regeneration of birch (*Betula* sp.) and Sitka spruce (*Picea sitchensis*), latter probably from soil seed bank. Also some gorse (*Ulex europaeus*) and broom (*Sarothamnus* [*Cytisus*] *scoparius*). Ground flora ranges from acid grassland to wet heath, much forming a mosaic. Too complex to map in detail.

NH627570 Map sheet: NH65NW

Approximately four hectares of a complex mosaic of acid/neutral grassland, marshy grassland, and heath. Grassland dominated by wavy hair-grass (*Deschampsia flexuosa*) and mat grass (*Nardus stricta*), with occasional tufted hair-grass (*Deschampsia cespitosa*), cock's foot (*Dactylis glomerata*), bent grass (*Agrostis* sp.), meadow grass (*Poa* sp.) and fox-tail (*Alopecurus* sp.). Marshy grassland dominated by soft rush (*Juncus effusus*), with abundant bottle sedge (*Carex rostrata*) in the wetter centre, tending towards swamp. Also heath rush (*Juncus squarrosus*), common rush (*Juncus conglomeratus*) and buttercup (*Ranunculus* sp.). The heath is dominated by heather (*Calluna vulgaris*), with heath rush (*Juncus squarrosus*), bell heather (*Erica cinerea*), green ribbed sedge (*Carex binervis*), deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]) and heath bedstraw (*Galium saxatile*). Occasional Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) seedlings scattered throughout. NB. Evidence of pine marten nearby reported at NH626568.

NH627587 Map sheet: NH65NW

House owner reported pine marten - introduced from elsewhere as they were causing damage. Now welcome guests.

NH628583 Map sheet: NH65NW

Species-rich area with a number of habitats represented in a mosaic too complex to map in detail. Open wet grassland with soft rush (*Juncus effusus*) and tufted hair-grass (*Deschampsia flexuosa*) dominant. This grades gradually into denser semi-natural Scot's Pine (*Pinus sylvestris*) wood and finally plantation. Scot's Pine area has abundant juniper (*Juniperus communis*) scrub particularly to south and south-west (Juniper and Scots Pine both with brown tips to needles suggesting some form of stress or disease). Open areas within trees support heath, both wet and dry, and a species-rich pocket of marshy grassland with abundant sedges (*Carex* sp.), water horsetail (*Equisetum fluviatile*), marsh cinquefoil (*Potentilla palustris*), and bog asphodel (*Narthecium ossifragum*). Also a small area with abundant *Sphagnum*, colonised by sedges including black sedge (*Carex nigra*) mapped as wet modified bog. Small artificial pond built next to house. Abundant invertebrates in this area. Painted lady and large blue hawker dragonflies noted. Also dense colonisation of plantation ride by alder (*Alnus glutinosa*) to south. Except for plantation fence line, boundaries of properties are not defined. Therefore ownership or plans for development of site are not clear.

NH628588 Map sheet: NH65NW

Felled area with mature lodgepole pine (*Pinus contorta*) still standing. Abundant Sitka spruce (*Picea sitchensis*) regeneration and birch (*Betula* sp.) scrub with some larch (*Larix* sp.) saplings. Ground flora grades from wet heath to acid grassland in the north, adjacent to a young spruce (*Picea* sp.) plantation.

NH630596 Map sheet: NH65NW

Apparently once a pond, now completely filled, supporting rank marshy grassland with abundant water horsetail (*Equisetum fluviatile*).

NH631588 Map sheet: NH65NW

Creeping lady's tresses (*Goodyera repens*) noted in an area of mature pine plantation of semi-natural character with abundant heather (*Calluna vulgaris*), blaeberry (*Vaccinium myrtillus*), and mosses including *Rhytidiadelphus triquetrus*. Similar ground flora in adjacent areas especially NH634587. Juniper (*Juniperus communis*) present but rare.

NH634590 Map sheet: NH65NW

Privately owned land with new house and poultry barn. Marshy grassland to the south west is tall and rank, with drain dug along north-west edge. Abundant regeneration of birch (*Betula* sp.) down slope from ditch gives way to wet heath/acid grassland mosaic with frequent regeneration of willow (*Salix* sp.), Sitka spruce (*Picea sitchensis*) and Scots pine (*Pinus sylvestris*). There is also a small, newly created pond. Slurry is enriching the ground down slope of the poultry barn, with ground flora noticeably more neutral. Creeping soft-grass (*Holcus mollis*) and soft rush (*Juncus effusus*) dominate. Juniper (*Juniperus communis*) and mature Scots pine (*Pinus sylvestris*) present along north-east boundary, and another new house has been built adjacent, with a garden of remarkably intact dry heath and scrub. Strip to north-west, between arable field and plantation, under separate ownership, shows similar wet heath/acid grassland composition to rest of area, but is notable for mature rowan (*Sorbus aucuparia*) and attempts to control gorse (*Ulex europaeus*) by burning. There is much disturbance from heavy vehicles in this area, with bare ground being colonised by agricultural weeds and neutral grasses rather than characteristic acid heath flora.

NH638598 Map sheet: NH65NW

Local abundance of Sitka spruce (*Picea sitchensis*) saplings and stands of mature trees by public road to north. Also saplings under Scots pine (*Pinus sylvestris*). Appears to have once been under spruce, felled and left to regenerate. (However, was the Scots pine area also once spruce?) If so then the ground flora has recovered remarkably.

NH640597 Map sheet: NH65NW

General target note. Area of maturing Scots pine (*Pinus sylvestris*) plantation, but has attained semi-natural character. Well developed ground flora. Heather (*Calluna vulgaris*), bell heather (*Erica cinerea*), blaeberry (*Vaccinium myrtillus*), wavy hair-grass (*Deschampsia flexuosa*) but little *Rhytidiadelphus triquetrus* (moss) to suggest creeping lady's tresses (*Goodyera repens*) sub-community of W18 *Pinus sylvestris*-*Hylocomium splendens* woodland (NVC). Otherwise conditions in places seem suitable for latter, even though none found. Some dead wood in places. Potentially very good pinewood habitat (appears too recently established for wood ants. Rides, small glades and track edges add to floral diversity.

NH641554 Map sheet: NH65NW

Semi-natural woodland with willow (*Salix* sp.), beech (*Fagus sylvatica*), rowan (*Sorbus aucuparia*), oak (*Quercus* sp.) and ash (*Fraxinus excelsior*). May once have been coppiced. Ground flora quite patchy; apparently grazed.

NH641582 Map sheet: NH65NW

Large un-planted area that appears to be undergoing succession from open water to bog with large patches of bottle sedge (*Carex rostrata*) amidst very wet ground dominated by cross-leaved heath (*Erica cinerea*) and *Sphagnum* mosses of which at least 6 separate species exist making this potentially a species-rich bog of great regional importance. Common cotton sedge (*Eriophorum angustifolium*) is in great abundance. Hares tail cotton sedge (*Eriophorum vaginatum*), an indicator of well developed bog, is established only in small pockets; elsewhere common cotton sedge and frequent bog asphodel (*Narthecium ossifragum*) suggests water movement is for the time being preventing hare's tail cotton sedge and *Sphagnum* from becoming well established. Stunted bog pines (*Pinus sylvestris*) and wide spread natural regeneration of Scots pine on the margins add interest to the area but also suggest that surrounding plantation may in the future interfere with or even arrest the development of the bog by lowering the water table. The only sizeable example of this interesting habitat found so far on the Black Isle. Northwards, a felled area is fast developing a characteristic wet heath ground flora with scattered mature Scots pines and some regeneration. Southwards a recently felled area contains an extremely complex mosaic of habitat with abundant brash (lying dead wood). Plantation furrows and raised banks have allowed wet and dry heath communities to develop alongside each other with the wetter ground on the west side having a higher incidence of soft rush (*Juncus effusus*) and tufted hair-grass (*Deschampsia cespitosa*), and elsewhere abundant wavy hair-grass (*Deschampsia flexuosa*) featuring in the early stages of heathland development.

NH643558 Map sheet: NH65NW

Occupant of Braedown reported sightings of pine marten, red squirrel and roe deer.

NH643567 Map sheet: NH65NW

Belmaduthy Burn.

North side - A wet heath/grassland mosaic with calcareous flushes. Heath dominated by heather (*Calluna vulgaris*), with heath rush (*Juncus squarrosus*), mat grass (*Nardus stricta*), wavy hair-grass (*Deschampsia flexuosa*) and soft rush (*Juncus effusus*). Shallow gullies support common rush (*Juncus conglomeratus*), jointed rush (*Juncus articulatus*) and orchid spikes. The scrub is juniper (*Juniperus communis*).

South side - Semi-improved marshy grassland, tending towards poor semi-improved acid grassland. Heavily poached in places through cattle grazing. The scrub is mostly juniper (*Juniperus communis*), with some gorse (*Ulex europaeus*) at the west end. Broom (*Sarothamnus* [*Cytisus*] *scoparius*) is occasional throughout.

NH643570 Map sheet: NH65NW

Belmaduthy Heath. *Scottish Wildlife Trust Nature Reserve and SSSI*. (See also site survey report, SWT 1994.) Wet heath with calcareous flushes. Species-rich, with abundant orchids, particularly in the areas of flushes, channels and seepage zones. Water originates from old red sandstone bedrock beneath the conifer plantations. The latter are to be carefully removed to ensure minimum disturbance to these areas. However original planting was accompanied by ploughing which has already influenced the channels beneath the trees. Sheep grazing was reintroduced this year for the first time in over a decade. The aim is to combat the encroachment of rank vegetation into the calcareous areas. Progress is to be monitored annually.

NH643580 Map sheet: NH65NW

Small felled area showing lush wet heath/acid grassland mosaic. Many scattered granny pines - Scots pine (*Pinus sylvestris*). Frequent mixed regeneration of Scot's pine, larch (*Larix* sp.), and spruce (*Picea* sp.).

NH647559 Map sheet: NH65NW

Spruce (*Picea* sp.) plantation which appears to have been planted in an area previously mature woodland. Mature yew (*Taxus baccata*), holly (*Ilex aquifolium*), beech (*Fagus sylvatica*) and hazel (*Corylus avellana*) noted. Old wall noted, possibly once a church or other religious site. Signs of pine marten noted.

NH649550 Map sheet: NH65NW

Resident at South Lodge reported sightings of pine marten, red squirrel and wildcat.

NH65NE (Produced 1996)

NH650562 Map sheet: NH65NE

Small area of waste ground which was once a conifer plantation. It is now dominated by rosebay willowherb (*Chamaenerion angustifolium*) towards the north-eastern end, changing into spear thistle (*Cirsium vulgare*) dominant at the south west end. Docks (*Rumex* sp.), wavy hair-grass (*Deschampsia flexuosa*), and tufted hair-grass (*Deschampsia cespitosa*) are frequent throughout, and there are a few mullein (*Verbascum* sp.) plants. There are young broadleaved trees planted in species-blocks throughout the area. Oak (*Quercus* sp.) covers approximately half of the area - at the south-west end, with the rest being made up of whitebeam (*Sorbus aria*), rowan (*Sorbus aucuparia*), ash (*Fraxinus excelsior*), cherry (*Prunus* sp.), and horse chestnut (*Aesculus hippocastanum*). At the northern end, next to the house, is a small patch of mature trees- willow (*Salix* sp.), birch (*Betula* sp.), rowan, and Scots pine (*Pinus sylvestris*), all with fairly good regeneration.

NH653553 Map sheet: NH65NE

Area almost dried out, but appears to have once been an alder (*Alnus glutinosa*)/willow (*Salix* sp.) carr. There are some planted stands of even-aged Scots pine (*Pinus sylvestris*). Birch

(*Betula* sp.) and ash (*Fraxinus excelsior*) were also present. Gorse (*Ulex europaeus*) and bramble (*Rubus fruticosus*) occurred in places. Ground flora species include wood avens (*Geum urbanum*), water avens (*Geum rivale*), common dog-violet (*Viola riviniana*), meadowsweet (*Filipendula ulmaria*) and bog myrtle (*Myrica gale*).

NH653561 Map sheet: NH65NE

This seems to be the site of a Victorian Japanese garden - there is a stone bridge crossing the river (approx. 1/2 way along the target note area), which is now surrounded by (at north end) and covered with bamboo. There is a mature yew (*Taxus baccata*) at the southern end of the bridge. The area was also once a conifer plantation which has been felled in the last few years, with abundant dead wood remaining. At the southern end there are some rowan (*Sorbus aucuparia*), and birch (*Betula* sp.), many of which have been blown over - presumably since losing the protection of the conifers. On the top of the east bank, roughly adjacent to the bridge, is a patch of sycamore (*Acer pseudoplatanus*), and at the north end are some fairly young cherry (*Prunus* sp.), rowan, birch and Scots Pine (*Pinus sylvestris*). There are frequent rhododendron (*Rhododendron ponticum*) patches, in some places beginning to take over, and occasional patches of bracken (*Pteridium aquilinum*), and broom (*Sarothamnus [Cytisus] scoparius*). The ground flora is species-rich, with a range of common tall herbs, including spear thistle (*Cirsium vulgare*), rosebay willowherb (*Chamaenerion angustifolium*), docks (*Rumex* sp.), and foxglove (*Digitalis purpurea*). Wavy hair-grass (*Deschampsia flexuosa*) is common. The north end of the east bank may be more acidic as wavy hair-grass is dominant, and heath bedstraw (*Galium saxatile*) is common. Bent grasses (*Agrostis* spp.) are also common here. The very north end is fairly wet and rushes (*Juncus* sp.) are common. The area is likely to dry, as a drainage channel has recently been dug along the road.

NH654554 Map sheet: NH65NE

Open area of wet grassland on the edge of a conifer plantation. Supports some Scots pine (*Pinus sylvestris*) of varying ages. Black bog-rush (*Schoenus nigricans*) is dominant (indicating calcareous conditions), and old runnels support deer sedge (*Trichophorum cespitosum*) [*Scirpus cespitosus*]. Other species include juniper (*Juniperus communis*), cross-leaved heath (*Erica tetralix*), tormentil (*Potentilla erecta*), wild angelica (*Angelica sylvestris*), marsh horsetail (*Equisetum palustre*), devil's-bit scabious (*Succisa pratensis*), self-heal (*Prunella vulgaris*), tufted hair-grass (*Deschampsia cespitosa*), jointed rush (*Juncus articulatus*), grass-of-Parnassus (*Parnassia palustre*), bog myrtle (*Myrica gale*), carnation sedge (*Carex panicea*), glaucous sedge (*Carex flacca*), yellow rattle (*Rhinanthus minor*), purple moor-grass (*Molinia caerulea*), compact rush (*Juncus conglomeratus*), heath wood-rush (*Luzula multiflora*), flea sedge (*Carex pulicaris*), and mosses (*Hylocomium splendens* and *Pleurozium schreberi*).

NH656562 Map sheet: NH65NE

An area of young birch (*Betula* sp.) within the conifer plantation. The ground flora is dry heath, dominated by heather (*Calluna vulgaris*) with some grassland dominated by wavy hair-grass (*Deschampsia flexuosa*). Some single standards of birch remain. There is abundant dead timber on the ground, probably a remnant of conifer plantation. Species include soft rush (*Juncus effusus*), common rush (*Juncus conglomeratus*) and ferns (*Dryopteris* sp.). There is some rowan (*Sorbus aucuparia*) regeneration. Towards the south the area conforms more to neutral grassland with less birch regeneration.

NH661580 Map sheet: NH65NE

Red kite seen here; also great tit, coal tit, long-tailed tit and goldcrest.

NH662551 Map sheet: NH65NE

Area of felled plantation now colonised by rosebay willow herb (*Chamaenerion angustifolium*), elder (*Sambucus nigra*) and some raspberry (*Rubus idaeus*).

NH666565 Map sheet: NH65NE

Drainage channel is being dug here.

NH668558 Map sheet: NH65NE

Area of relatively acid marshy grassland containing some elder scrub (*Sambucus nigra*), broom (*Sarothamnus* [*Cytisus*] *scoparius*), and ferns. Also areas of planted Scot's pine (*Pinus sylvestris*) with other conifers plus oak (*Quercus* sp.) and cherry (*Prunus avium*). Patches of soft-rush (*Juncus effusus*) with abundant wavy hair-grass (*Deschampsia flexuosa*) throughout.

NH670562 Map sheet: NH65NE

Area of less dense birch (*Betula* sp.), and planted oak (*Quercus* sp.), ash (*Fraxinus excelsior*) and alder (*Alnus glutinosa*) with rabbit guards. The ground flora is dry heath/acid grassland mosaic, predominantly grass with patches of heather (*Calluna vulgaris*) and abundant birch scrub, with alder in the wetter areas.

NH670563 Map sheet: NH65NE

Area of birch (*Betula* sp.) woodland with occasional willow (*Salix* sp.), and small sections of young planted trees throughout. The latter are mostly oak (*Quercus* sp.) and ash (*Fraxinus excelsior*), with occasional patches of alder (*Alnus glutinosa*). The trees are of various ages, and regeneration is good. Also a few areas of exotic conifer seedlings. Broom (*Sarothamnus* [*Cytisus*] *scoparius*) is occasional, with frequent rhododendron (*Rhododendron ponticum*). The latter is mostly small, but has taken over a sizeable area in some places. There are several wet hollows, some of which may be seasonal. Lying dead wood is relatively abundant. Ground flora is diverse and varies throughout the wood. Mostly grassy, it is dominated by wavy hair-grass (*Deschampsia flexuosa*), and mosses, particularly *Rhytidiadelphus triquetrus* and *Hylocomium splendens*. Areas of heath dominated by heather (*Calluna vulgaris*) also occur, and also wetter areas with cross-leaved heath (*Erica tetralix*), mosses (*Polytrichum* sp. and *Sphagnum* sp.), and occasional soft rush (*Juncus effusus*) and tufted hair-grass (*Deschampsia cespitosa*). Some small areas are dominated by bracken (*Pteridium aquilinum*), but elsewhere this is mostly patchy. Other species noted include hard fern (*Blechnum spicant*), male fern (*Dryopteris filix-mas*), broad buckler fern (*Dryopteris dilatata*) and Yorkshire fog (*Holcus lanatus*).

NH671563 Map sheet: NH65NE

Area of birch (*Betula* sp.) wood, with occasional willow (*Salix* sp.), and small sections of young planted trees throughout. The planted sections are mostly oak (*Quercus* sp.), and ash (*Fraxinus excelsior*), with the occasional patch of alder (*Alnus glutinosa*). There are also a few areas of exotic conifer seedlings - spruce (*Picea* sp.), and fir. There is occasional broom (*Sarothamnus* [*Cytisus*] *Scoparius*) and frequent rhododendron (*Rhododendron ponticum*), which is mostly small, but in some places has taken over a sizeable area. There are several wet, hollows, some of which may be seasonal. There is a fairly large amount of dead wood lying about. The trees are of varying ages, and regeneration is good. The ground flora is diverse and varies throughout the wood - mostly grassy, dominated by wavy hair-grass (*Deschampsia flexuosa*), and mosses - *Rhytidiadelphus triquetrus*, and *Hylocomium splendens*. There are also areas of heath dominated by heather (*Calluna vulgaris*), and wet areas with cross-leaved heath (*Erica tetralix*), moss (*Polytrichum* sp.), *Sphagnum*, occasional rushes (*Juncus* sp.), and tufted hair-grass (*Deschampsia cespitosa*). There are also small areas dominated by bracken (*Pteridium aquilinum*), but this is mostly patchy. Other species noted include: hard-fern (*Blechnum spicant*), male fern (*Dryopteris filix-mas*), broad buckler-fern (*Dryopteris dilatata*) and Yorkshire fog (*Holcus lanatus*).

NH672555 Map sheet: NH65NE

Area of swamp vegetation with the water table quite low in the autumn season. Species include creeping thistle (*Cirsium arvense*), meadow sweet (*Filipendula ulmaria*), greater pond sedge (*Carex riparia*) and some raspberry (*Rubus idaeus*).

NH672556 Map sheet: NH65NE

Wet area adjacent to the river containing sharp flowered rush (*Juncus acutiflorus*), marsh marigold (*Caltha palustris*), hedge woundwort (*Stachys sylvatica*), goat willow (*Salix caprea*), nettle (*Urtica dioica*), sweet cicely (*Myrrhis odorata*), hogweed (*Heracleum sphondylium*), male fern (*Dryopteris filix-mas*), tufted hair-grass (*Deschampsia cespitosa*) and marsh woundwort (*Stachys palustris*). There is an area of swamp vegetation which may recently have dried out because the water table is not above the vegetation level. Species include reed canary grass (*Phalaris arundinacea*), willow (*Salix* sp.), marsh woundwort and ground elder (*Aegopodium podagraria*).

NH672559 Map sheet: NH65NE

Scots pine (*Pinus sylvestris*) plantation with some exotics. Understorey composed of blaeberry (*Vaccinium myrtillus*) and heather (*Calluna vulgaris*). Some birch (*Betula* sp.) regeneration and some rhododendron (*Rhododendron ponticum*). Towards the west end birch and pine are mixed.

NH672561 Map sheet: NH65NE

Area containing seedlings of ash (*Fraxinus excelsior*) which are mostly dead, perhaps due to the treatment of rhododendron (*Rhododendron ponticum*) which has taken place here.

NH672595 Map sheet: NH65NE

Disused quarry. Heather (*Calluna vulgaris*), soft rush (*Juncus effusus*), wavy hair-grass (*Deschampsia flexuosa*), heath rush (*Juncus squarrosus*), heath bedstraw (*Galium saxatile*), green ribbed sedge (*Carex binervis*), bottle sedge (*Carex rostrata*) and violet (*Viola* sp.) were noted here. The ground layer contained the moss *Hylocomium splendens*.

NH673554 Map sheet: NH65NE

Newly dug lake in clearing with pipes coming off at both ends surrounded by bare earth. The lake empties to the south and rejoins the river. As the work has taken place only recently there are no signs of colonisation by marsh or swamp species yet.

NH673558 Map sheet: NH65NE

Small area of conifer plantation.

NH673566 Map sheet: NH65NE

Avenue of lime (*Tilia* sp.) trees which have been marked for some reason (possibly for felling).

NH674553 Map sheet: NH65NE

Area of young ash (*Fraxinus excelsior*), sycamore (*Acer pseudoplatanus*), maple (*Acer campestre*) and oak (*Quercus* sp.) that may have been planted. The trees are surrounded by tall grass and ruderals amongst the stumps of mature deciduous trees. At the west end there is a patch of dog rose (*Rosa canina*) which is very thick. Some spruce (*Picea* sp.) is also present which may have regenerated naturally.

NH675552 Map sheet: NH65NE

Plantation of ash (*Fraxinus excelsior*), oak (*Quercus* sp.), beech (*Fagus sylvatica*) and cherry (*Prunus* sp.) in rough patch of ruderal and tall grasses.

NH675560 Map sheet: NH65NE

Birch (*Betula* sp.) woodland with an understorey of heather (*Calluna vulgaris*). There is some regeneration of spruce (*Picea* sp.) and birch. Some areas where wood-rush (*Luzula* sp.) occur. Some encroachment of rhododendron (*Rhododendron ponticum*) from the riverside. Some has been treated with a herbicide.

NH676563 Map sheet: NH65NE

Oak (*Quercus* sp.) and beech (*Fagus sylvatica*) planted between the river and the track.

NH676570 Map sheet: NH65NE

Small area of planted trees adjacent to the houses. Species include horse chestnut (*Aesculus hippocastanum*), alder (*Alnus glutinosa*) and willow (*Salix* sp.). There is a granny pine and all the trees are surrounded by rough grass.

NH678554 Map sheet: NH65NE

Oak (*Quercus* sp.) planted on bank beside road.

NH679565 Map sheet: NH65NE

Oak (*Quercus* sp.) planted, surrounded by tall heather (*Calluna vulgaris*). Sitka spruce (*Picea sitchensis*) regeneration all around. No mature standards here, but birch (*Betula* sp.) woodland around periphery.

NH679566 Map sheet: NH65NE

Plantation of exotic oak (*Quercus* sp.). The ground flora is composed of rank heather (*Calluna vulgaris*) and there is considerable spruce (*Picea* sp.) regeneration. There are no mature trees.

NH681558 Map sheet: NH65NE

Area bounded by a wall, perhaps walled garden of old Rosehaugh House. Now abundant natural regeneration, especially sycamore (*Acer pseudoplatanus*) and birch (*Betula* sp.). Abundant very tall ruderals: rosebay willowherb (*Chamaenerion angustifolium*), stinging nettle (*Urtica dioica*), bramble (*Rubus fruticosus*), raspberry (*Rubus idaeus*), and areas of Japanese knotweed (*Polygonum cuspidatum*). Amongst the remains of the buildings large fern species are abundant including hart's tongue (*Phyllitis scolopendrium*) male fern (*Dryopteris filix-mas*); mosses also abundant where it is moist. There are several mature giant sequoia (*Sequoiadendron giganteum*) and beech (*Fagus sylvatica*). There are various remnants of walls, railings, buildings and gateways. Some areas are impenetrable because of extensive vegetative growth.

NH681560 Map sheet: NH65NE

Plantation of western hemlock (*Tsuga heterophylla*).

NH684567 Map sheet: NH65NE

Bog of Shannon Wood. This is an area of mixed mature birch (*Betula* sp.) woodland and plantations containing single species stands of oak (*Quercus* sp.), spruce (*Picea* sp.) and Scots pine (*Pinus sylvestris*) of varying ages. In the younger plantations birch regeneration occurs especially amongst the spruce where it forms almost 50% ground cover. Willow scrub (*Salix* sp.) is also frequent. The understorey is made up of woody sub-shrubs (ericoids) of which heather (*Calluna vulgaris*) makes up the majority, being quite tall in some areas. Blaeberry (*Vaccinium myrtillus*) is also found, plus other dry heath species. The proportions of mature birch plantation and dry heath vary throughout this woodland which makes accurate mapping exceedingly difficult. Drainage channels criss-cross this area sometimes containing running water, suggesting that the area would naturally be much wetter. *Sphagnum* spp. were also noted in wetter areas.

NH685564 Map sheet: NH65NE

Undergrowth treated with herbicide, mostly killing off rhododendron. Birch (*Betula* sp.) scrub has been cut away, although some regeneration of both birch and rhododendron (*Rhododendron ponticum*) is still occurring. Beech (*Fagus sylvatica*), oak (*Quercus* sp.) and birch have been planted. There is also Scots pine (*Pinus sylvestris*) regeneration. Heather (*Calluna vulgaris*) occurs in patches beneath the existing canopy of birch.

NH691564 Map sheet: NH65NE

Primarily a birch (*Betula* sp.) woodland with conifers planted along the northern border, mainly Scots pine (*Pinus sylvestris*). At the western edge there is evidence of rhododendron (*Rhododendron ponticum*) removal and there is birch, willow (*Salix* sp.) and Scots pine regeneration. The understorey is tending towards heath containing heather (*Calluna vulgaris*), heath rush (*Juncus squarrosus*), sort rush (*Juncus effusus*) and wavy hair-grass (*Deschampsia flexuosa*). Moving into the woodland, towards the east the heath becomes the dominant understorey. Common rush (*Juncus conglomeratus*) was found here and also a small number of orchid (*Dactylorhiza* sp.) spikes. Towards the south, adjacent to the agricultural land the woodland becomes more dense. There are oak (*Quercus* sp.) seedlings planted throughout with occasional 10-15 year Scots pine, gorse (*Ulex europaeus*) and broom (*Sarothamnus* [*Cytisus*] *scoparius*). The middle section of the woodland is at first a more mature mixed woodland of birch and Scots pine but quickly becomes more open with heather and cross-leaved heath (*Erica tetralix*), becoming a bog towards the centre. At the eastern end of this section, a wildlife pond has been created by a mechanical digger and the spoil has been left on the north bank. The west bank merges with the bog and has attained a swamp like nature with beds of bottle sedge (*Carex rostrata*). The western edge has beds of reed mace (*Typha latifolia*). There appear to be two small islands again surrounded by bottle sedge. Unfortunately several tonnes of rotten potatoes have been dumped in the north eastern corner. The third section is more conifer plantation apart from a 30-50m border of mixed woodland. There are pheasant feeders throughout this area

NH691569 Map sheet: NH65NE

Birch (*Betula* sp.) woodland. Understorey a mosaic of grasses and heath with abundant regeneration of birch and occasional willow (*Salix* sp.). Wavy-hair-grass (*Deschampsia flexuosa*) is the dominant grass. Heather (*Calluna vulgaris*) with soft rush (*Juncus effusus*), common rush (*Juncus conglomeratus*) and heath rush (*Juncus squarrosus*) are also present. Occasional gorse (*Ulex europaeus*) and broom (*Sarothamnus* [*Cytisus*] *scoparius*). There are several pheasant pens and numerous feeders scattered throughout.

NH694558 Map sheet: NH65NE

A mature broadleaf woodland surrounding the policies of Avoch House and the fields of Rosehaugh Mains. The tree species are almost of equal abundance and are beech (*Fagus sylvatica*), sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), elm (*Ulmus* sp.) and lime (*Tilia* sp.). There are occasional yew (*Taxus baccata*) and elder (*Sambucus nigra*). The disused quarry at the top of the woodland is overgrown predominantly with sycamore. There are two large giant sequoia (*Sequoiadendron giganteum*).

NH696556 Map sheet: NH65NE

New housing.

NH697554 Map sheet: NH65NE

New housing.

NH699553 Map sheet: NH65NE

New housing.

NH65SW (Produced 1996)

NH601501 Map sheet: NH65SW (This note produced 1997)

Broadleaved woodland, entirely birch (*Betula* sp.). Variable ground flora. Mossy in places, dominated by *Hylocomium splendens*. Elsewhere grassy, dominated by tufted hair-grass (*Deschampsia cespitosa*). Bracken (*Pteridium aquilinum*) dominates in open areas. Other species include violet (*Viola riviniana*), perforate Saint John's wort (*Hypericum perforatum*), wintergreen (*Pyrola* sp.), chickweed wintergreen (*Trientalis europaea*), wood sorrel (*Oxalis acetosella*), hard fern (*Blechnum spicant*), tormentil (*Potentilla erecta*), hairy wood-rush (*Luzula pilosa*), sheep's fescue (*Festuca ovina*), Yorkshire fog (*Holcus lanatus*), and wavy hair-grass (*Deschampsia flexuosa*).

NH601507 Map sheet: NH65SW

Birch (*Betula* sp.) woodland undergoing management. Heavy thinning in progress.

NH601546 Map sheet: NH65SW

Area of swamp and bog planted with conifers. Lodgepole pine (*Pinus contorta*) dominates in places, especially wetter areas. However, Scots pine (*Pinus sylvestris*) is abundant throughout and dominant in many parts of the plantation as a whole, making it a fairly good wildlife habitat with potential for improvement. Small hollows with bottle sedge (*Carex rostrata*) and *Sphagnum* appear to be scattered throughout the plantation. Much of the area was evidently once very wet, but is drying as trees mature and through drainage. This is part of a much larger woodland which links with Monadh Mhor SSSI to the west. A good habitat, deserving more sympathetic management.

NH602511 Map sheet: NH65SW

Area of birch woodland with considerable development for new housing.

NH602548 Map sheet: NH65SW

Knoll of grassland/heathland mosaic with regenerating birch (*Betula* sp.) and Scots pine (*Pinus sylvestris*), with the occasional juniper (*Juniperus communis*). Spacing irregular and of uneven age. The small swamp to the east includes small areas of open water and tends

towards bog in places. Bottle sedge (*Carex rostrata*) is dominant, with abundant *Sphagnum*. The habitat to the east is denser and more mature with a more natural character.

NH606501 Map sheet: NH65SW

Large recently felled area. There is some regeneration of birch (*Betula* sp.) and some conifers. There is a large patch of bracken (*Pteridium aquilinum*) encroachment, and no sign of replanting.

NH606546 Map sheet: NH65SW

Area of old Scots pine (*Pinus sylvestris*) plantation, previously thinned and later replanted. Ground flora well developed and not obviously plantation. Contains some open areas of wet heath. The boundary between semi-natural areas and the adjacent plantation is unclear, with a transition from one to the other.

NH607520 Map sheet: NH65SW

Area of birch (*Betula* sp.) woodland, with considerable development for new housing.

NH608512 Map sheet: NH65SW

Area of broadleaved trees including cherry (*Prunus* sp.), ash (*Fraxinus excelsior*) and poplar (*Populus* sp.), and Scots pine (*Pinus sylvestris*) planted as shelter belt and screening around grain silos. Trees all damaged by rabbits or deer up to 2 feet above ground level, which may lead to tree deaths. Could be council property. See also NH609513

NH608527 Map sheet: NH65SW

Area planted with spruce (*Picea* sp.), but many trees appear quite stunted, and broom (*Sarothamnus* [*Cytisus*] *scoparius*) dominates in places. Ground flora moderately rich in places, with common grasses and herbs. Strong smell of fox noted.

NH609513 Map sheet: NH65SW

Area of broadleaved trees including cherry (*Prunus* sp.), ash (*Fraxinus excelsior*) and poplar (*Populus* sp.), and Scots pine (*Pinus sylvestris*) planted as shelter belt and screening around grain silos. Trees all damaged by rabbits or deer up to 2 feet above ground level, which may lead to tree deaths. Could be council property. See also NH608512.

NH618534 Map sheet: NH65SW

Complex area of spruce (*Picea* sp.) plantation with abundant regenerating birch (*Betula* sp.), scattered broom (*Sarothamnus* [*Cytisus*] *scoparius*) and a series of deep drainage channels. Reed mace (*Typha angustifolia*) noted in one of the channels to the west of this target symbol. Track now long overgrown with broom and heather (*Calluna vulgaris*).

NH621530 Map sheet: NH65SW

Mixed broadleaved woodland containing rowan (*Sorbus aucuparia*), beech (*Fagus sylvatica*), sycamore (*Acer pseudoplatanus*), birch (*Betula* sp.), lime (*Tilia* sp.), ash (*Fraxinus excelsior*), horse chestnut (*Aesculus hippocastanum*) and oak (*Quercus* sp.). Most trees are mature, but there is some rowan regeneration. There is a grassy understorey, dominated by cock's foot (*Dactylis glomerata*), and common bent grass (*Agrostis capillaris*).

NH621536 Map sheet: NH65SW

Area of abandoned fields. Dominated by common ragwort (*Senecio jacobaea*) over large areas, with some spear thistle (*Cirsium vulgare*) to the north. Grass quite rank. Yorkshire fog (*Holcus lanatus*) appears to be abundant in places, but other common species are also well represented. It is therefore difficult to determine dominant species, particularly as all was dead and straw-like when surveyed (November 1996). Scattered broadleaved trees which have been planted appear to be failing, with only cherry (*Prunus* sp.) and hazel (*Coryllus avellana*) showing above tubes at time of survey. Drain running west to east has been fenced on both sides and the banks are severely eroded by rabbit burrows.

NH621539 Map sheet: NH65SW

Mature semi-natural broadleaved woodland with uneven age structure. Diverse and relatively species-rich. Dominated by birch (*Betula* sp.), which is regenerating in places, with willow (*Salix* sp.) and some alder (*Alnus glutinosa*) in wetter areas. Willow becomes dense and impenetrable to the north. To the south, trees thin a little, with patches of wet heath and acid grassland. Wettest parts support abundant bog myrtle (*Myrica gale*), with purple moor-grass (*Molinia caerulea*) and some *Sphagnum*. However, no bog has formed as willow tends to choke the wettest hollows. Juniper (*Juniperus communis*) is abundant in the south, with some large, mature specimens. Area appears capable of supporting a range of orchids, including coralroot orchid (*Corallorhiza trifida*) in places, but none noted due to time of survey (November 1996). Area mapped only approximately due to complexity. Pheasants, reared locally, are abundant throughout this area, but there is no grazing by livestock. Dead wood is abundant in places.

NH622532 Map sheet: NH65SW

Rough grassland with abundant juniper (*Juniperus communis*) scrub along northern margins clearly associated with birch (*Betula* sp.) regeneration in the plantation to the north (See target note NH624535). Mown areas with stakes arranged suggest future development/management but it is not clear what this will mean.

NH624500 Map sheet: NH65SW

Area of recently felled plantation. Area on lower slope is turning into wet grassland/scrub. Regeneration is mostly birch (*Betula* sp.), with some conifers and no signs of replanting.

NH624535 Map sheet: NH65SW

Mature Scots pine (*Pinus sylvestris*) plantation with creeping lady's tresses (*Goodyera repens*) frequent in the north east corner and also to the south of the track. Understorey varies from

moss rich typical of W18a *Pinus sylvestris-Hylocomium splendens* woodland, *Erica cinerea-Goodyera repens* sub-community (NVC) through taller dwarf shrub with heather (*Calluna vulgaris*), blaeberry (*Vaccinium myrtillus*) vegetation, to more grassy areas just north of the track containing abundant wavy hair-grass (*Deschampsia flexuosa*). Regeneration of Scots pine, birch (*Betula* sp.), rowan (*Sorbus aucuparia*) and oak (*Quercus* sp.) noted, but also non-native spruce (*Picea* sp.) and beech (*Fagus sylvatica*), which may adversely affect the semi-natural characteristics of the pinewood. Abundant brash (lying dead branches). To the south and west of this compartment is a young Sitka spruce (*Picea sitchensis*) plantation almost overwhelmed by birch regeneration; one of a number of indications in this area of a strong tendency to form oak/ birch woodland. The western corner of the Sitka spruce plantation has a small area of birch and willow (*Salix* sp.) carr with abundant reed canary grass (*Phalaris arundinacea*) present throughout the drainage system here.

NH627521 Map sheet: NH65SW

Broadleaved woodland dominated by sycamore (*Acer pseudoplatanus*). Understorey exclusively comprised of red-berried elder (*Sambucus racemosa*).

NH627534 Map sheet: NH65SW

Recently thinned Scots pine (*Pinus sylvestris*) plantation with abundant brash. Creeping lady's tresses (*Goodyera repens*) present, and the area is clearly developing into W18a *Pinus sylvestris-Hylocomium splendens* woodland, *Erica cinerea-Goodyera repens* sub-community (NVC).

NH628519 Map sheet: NH65SW

Well maintained ornamental garden composed of many exotic species, with scope to spread to surrounding woodlands.

NH629502 Map sheet: NH65SW

Conifer plantation: According to the Forestry Officer (FA/FE), selected areas are due to be clear-felled. However, the Scots pine (*Pinus sylvestris*) is to be retained after selective thinning and will remain standing for the foreseeable future. Western hemlock (*Tsuga heterophylla*) is regenerating successfully, although it was pointed out that the timber quality is poor. Area was planted in 1930, 31 and 32. The site is comprised of Scots pine, western hemlock, spruce (*Picea* sp.) and lodgepole pine (*Pinus contorta*). Heather (*Calluna vulgaris*) is present along the track and in some more open areas of the plantation. Lichen (*Cladonia* sp.) is abundant.

NH630531 Map sheet: NH65SW

Woodside of Drumnamarg. Predominantly Scots pine (*Pinus sylvestris*) plantation which is mature and developing semi-natural characteristics. Small pockets of exotic conifers with abundant regeneration. Creeping lady's tresses (*Goodyera repens*) rare but present.

NH631528 Map sheet: NH65SW

Redburn Muir. Large area of young Sitka spruce (*Picea sitchensis*) and Scots pine (*Pinus sylvestris*) plantation. Many young trees clearly struggling in the flat, wet ground. Many areas especially to the east and west margins have been overwhelmed by dense broom (*Sarothamnus* [*Cytisus*] *scoparius*) or rosebay willowherb (*Chamaenerion angustifolium*), or simply left unplanted and forming patches of very wet marshy grassland with tufted hair-grass (*Deschampsia cespitosa*) and soft rush (*Juncus effusus*). The lochan at NH632059 has been fenced off and probably in-filled, but in the event has now gone through succession to dense birch (*Betula* sp.) and willow (*Salix* sp.) carr. There is water running into this area. The lochan at NH627526 appears to still be in use as a flight pond and for observation/culling of deer, with patches of reedmace (*Typha latifolia*).

NH631537 Map sheet: NH65SW

Shantulloch wood. A mixture of dense medium aged and mature Scots pine (*Pinus sylvestris*) plantation with compartments of Sitka spruce (*Picea sitchensis*) and larch (*Larix* sp.). Creeping lady's tresses (*Goodyera repens*) found here suggesting semi-natural Caledonian pinewood developing. However, wood sorrel (*Oxalis acetosella*), blackberry (*Rubus fruticosus*) and honeysuckle (*Lonicera periclymenum*) were all frequent suggesting a counter tendency towards oak (*Quercus* sp.) / birch (*Betula* sp.) woodland. Much of the mature, thin eastern compartment has an understorey dominated by bracken (*Pteridium aquilinum*) which may in time smother much of the characteristic ground flora. There is little regeneration here. The burn side and steep gully on the north bank have been cleared at least once, leaving only scattered mature birch and alder (*Alnus glutinosa*). Soft rush (*Juncus effusus*) dominates the burn side with bramble (*Rubus fruticosus*), rosebay willowherb (*Chamaenerion angustifolium*) and broad buckler fern (*Dryopteris dilatata*) on the steep slopes, and small, dense patches of heath speedwell (*Veronica officinalis*). Attempts have been made to stabilise the slopes with fast growing conifers (*Cupressus* sp.) which are regenerating in other places. From examining the brash, they appear to have been cleared recently from the flatter areas adjacent to the burn. North-east of the junction with Muirton Burn. The burn side has a richer scrub vegetation of elder (*Sambucus nigra*), red elder (*Sambucus racemosa*), alder, willow (*Salix* sp.), rowan (*Sorbus aucuparia*), rosebay willowherb and raspberry (*Rubus idaeus*). The gullies appear to be too steep for commercial forestry and therefore it is to be hoped that regeneration of indigenous woodland may occur.

NH631548 Map sheet: NH65SW

Balnaguie belt. Shelter belt from Muirends (north-east) to northern edge of Shantulloch Wood heavily poached by cattle with dense bracken (*Pteridium aquilinum*) occupying all the open space along the western edge of the field. The small amount of grass cover that remains on the north and eastern edges is overgrazed, but could develop a more diverse sward if grazing was reduced. Tree cover is mostly of mature birch (*Betula* sp.) and willow (*Salix* sp.) scrub. The willow has been stripped by the cattle. The plantation to the north has recently been thinned, with abundant brash and developing mossy ground flora. Occasional regeneration of oak (*Quercus* sp.), birch, Scots pines (*Pinus sylvestris*) and exotic conifers.

NH633538 Map sheet: NH65SW

Felled area of Shantulloch Wood plantation, notable for a complex mosaic of heathland and grassland communities. The western half appears to have been felled earlier than the eastern

half and shows well developed dry heath with abundant Scots pine (*Pinus sylvestris*) regeneration (approx. 3-6 years old).

NH634506 Map sheet: NH65SW

Area within black dotted line is a tree nursery (see also NH636503, & NH637501).

NH636503 Map sheet: NH65SW

Area bordered by black dotted line is a tree nursery. See also NH637501, & NH634506

NH636513 Map sheet: NH65SW

Pocket of giant hogweed (*Heracleum mantegazzianum*). This seems to have been sprayed but is spreading out along, and on to, the track and into the woodland edge. At present the area covered is approximately 30 metres square.

NH636534 Map sheet: NH65SW

Mature Scots Pine (*Pinus sylvestris*) plantation with some birch (*Betula* sp.), and oak (*Quercus* sp.). The understorey is dominated by heather (*Calluna vulgaris*), with abundant moss (*Hylocomium splendens*), creeping lady's tresses (*Goodyera repens*), frequent blaeberry (*Vaccinium myrtillus*), bell heather (*Erica cinerea*), moss (*Plagiothecium undulatum*) and wavy hair-grass (*Deschampsia flexuosa*). There are occasional *Dicranum majus*, *Pleurozium schreberi*, *Rhytidiadelphus triquetrus* mosses, and wood-rush (*Luzula* sp.).

NH637501 Map sheet: NH65SW

Clear-felled area. Tall ruderals mainly rosebay willowherb (*Chamaenerion angustifolium*) with some regeneration of birch (*Betula* sp.), willow (*Salix* sp.) and bramble (*Rubus fruticosus*).

NH637542 Map sheet: NH65SW

Dense, wide margin of birch (*Betula* sp.) and willow (*Salix* sp.) with rowan (*Sorbus aucuparia*) and dense scrub of gorse (*Ulex europaeus*) and broom (*Sarothamnus [Cytisus] scoparius*). This excellent habitat and wildlife corridor running from east to west is threatened by housing development at the west end.

NH638530 Map sheet: NH65SW

Housing development within a birch (*Betula* sp.) woodland, on south side of fence line. Area overgrazed by sheep and vegetation receding with no tree regeneration.

NH641529 Map sheet: NH65SW

Birch (*Betula* sp.) woodland with dense willow (*Salix* sp.) understorey, and rowan (*Sorbus aucuparia*), and alder (*Alnus glutinosa*) alongside burn. The ground flora is rich, and there is some regeneration despite heavy browsing. Deer are undoubtedly present, rabbits are numerous and fox scats were found. Grassland on southern edge shows previous (recent)

extent of wood with residual woodland ground flora of bryophytes, wavy hair-grass (*Deschampsia flexuosa*), and herbs including wood sorrel (*Oxalis acetosella*). The stones in the field are piled up, and support mosses and common ferns.

NH642531 Map sheet: NH65SW

Stretch of disused railway, which is grazed by many rabbits, but which is still a fairly species-rich area. Willow (*Salix* sp.) is abundant with frequent elder (*Sambucus nigra*). There are also some mature oak (*Quercus* sp.), ash (*Fraxinus excelsior*), and birch (*Betula* sp.). There are brambles (*Rubus fruticosus*), broom (*Sarothamnus* [*Cytisus*] *scoparius*), stinging nettles (*Urtica dioica*) and docks (*Rumex* sp.). The ground flora is fairly rich and includes rosebay willowherb (*Chamaenerion angustifolium*), hedge woundwort (*Stachys sylvatica*), mouse-ear (*Cerastium* sp.), chickweed (*Stellaria media*), thyme-leaved speedwell (*Veronica serpyllifolia*), common dog-violet (*Viola riviniana*), forget-me-nots (*Myosotis* sp.), plantains (*Plantago* sp.), and abundant thistles, ferns and mosses. There is new housing at the north-east end. There are reported sightings of red squirrel, roe deer, foxes, and pine marten.

NH642533 Map sheet: NH65SW

Hill of Hirdie Wood - Old curling pond, silted up at west end, dominated by bottle sedge (*Carex rostrata*). At the west end, are abundant ash (*Fraxinus excelsior*), alder (*Alnus glutinosa*), willow (*Salix* sp.), wild angelica (*Angelica sylvestris*), horsetail (*Equisetum* sp.), spearwort (*Ranunculus* sp.), marsh willowherb (*Epilobium palustre*), and meadowsweet (*Filipendula ulmaria*). At the top of the bank, at the west end, near the road is a blackthorn (*Prunus spinosa*) hedge. At the east end is abundant Scots pine (*Pinus sylvestris*) with abundant bracken (*Pteridium aquilinum*). The north edge of the pond has abundant rosebay willowherb (*Chamaenerion angustifolium*), and marshy grassland with some dry areas containing heath bedstraw (*Galium saxatile*), greater stitchwort (*Stellaria holostea*), bugle (*Ajuga reptans*), butterbur (*Petasites hybridus*), and bent-grass (*Agrostis* sp.). The gully has a burn running through it, and very wet wooded banks with abundant alder and birch (*Betula* sp.) regeneration, and occasional hazel (*Corylus avellana*), willow (*Salix* sp.), elder (*Sambucus nigra*), crab apple (*Malus sylvestris*), and sycamore (*Acer pseudoplatanus*). This grades into oak (*Quercus* sp.) on the upper slope, and Sitka spruce (*Picea sitchensis*) plantation at the top. The Sitka spruce is also encroaching down the slope somewhat. The whole area is covered with dead wood, and is very species-rich, with abundant mosses including *Hylocomium splendens*, *Polytrichum commune*, *Hypnum* sp. and *Plagiothecium undulatum*. There are also many herbs including, opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*), creeping buttercup (*Ranunculus repens*), wood sorrel (*Oxalis acetosella*), herb Robert (*Geranium robertianum*), marsh thistle (*Cirsium palustre*), and also bramble (*Rubus fruticosus*).

NH642536 Map sheet: NH65SW

Species-rich marshy grassland with abundant meadowsweet (*Filipendula ulmaria*), soft rush (*Juncus effusus*), tufted hair-grass (*Deschampsia cespitosa*) and bottle sedge (*Carex rostrata*). Also some standing water with bottle sedge dominant. Angelica (*Angelica sylvestris*) and water avens (*Geum rivale*) also noted amongst many other herbs. Small area of grassland at the west end of the track, wet in places and tending to heath with heather (*Calluna vulgaris*).

NH643501 Map sheet: NH65SW

Highland Wildlife Park. Field system has been divided into open and caged compounds for the various birds and mammals that are kept on the site

NH645537 Map sheet: NH65SW

Area of Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) woodland. At the south east edge and north corner there is ample regeneration of birch and rowan (*Sorbus aucuparia*) with occasional beech (*Fagus sylvatica*) regeneration. Scattered bracken (*Pteridium aquilinum*) throughout, becoming more abundant in south west corner where tree cover is more open.

NH646548 Map sheet: NH65SW

Birch (*Betula* sp.) woodland situated on the west side of the road and virtually destroyed by housing development. Rhododendron has been planted in the cleared strip between the houses and the road. On the east side of the road. At least one plot has been sectioned off for possible development in a Scots pine (*Pinus sylvestris*) plantation. Along the road there is Rhododendron (*Rhododendron ponticum*) encroachment and regeneration of beech (*Fagus sylvatica*).

NH648547 Map sheet: NH65SW

Two wild fowler's flight ponds with tall species-rich flora. Tufted hair-grass (*Deschampsia cespitosa*) and soft rush (*Juncus effusus*) are dominant with other wetland herbs and arable weeds. Birch (*Betula* sp.), raspberry (*Rubus idaeus*) and ferns are present on the islands.

NH65SE (Produced 1996)

NH653501 Map sheet: NH65SE

Neglected coppiced woodland. Canopy well developed. Dominated by birch (*Betula* sp.), but with scattered rowan (*Sorbus aucuparia*) and willow (*Salix* sp.). Some birch coppice stools 1-2m. across. Ground flora hard to determine due to sheep/cattle grazing. Little if any regeneration of tree species due to the above.

NH655527 Map sheet: NH65SE

Site of old tidal mill.

NH656502 Map sheet: NH65SE

Poor semi-improved grassland field. Appears to be poor species diversity but it would seem that the field has not been ploughed for some time. May have been improved with fertiliser. Frequent scattered clumps of rush (*Juncus* sp.). Same as fields at NH657502 and NH654500.

NH660503 Map sheet: NH65SE

Extensive conifer nursery. Production of trees for Christmas season etc., mostly Norway spruce (*Picea abies*). Nursery/plantation covers an extensive area to the east / south-east of Dunderfit Hill, north of 'Paulfield' (NH654500) and north-west of Loch Lundie (NH670503)

NH663535 Map sheet: NH65SE

Area of broadleaved trees with mature alder (*Alnus glutinosa*), ash (*Fraxinus excelsior*), willow (*Salix* sp.), rowan (*Sorbus aucuparia*), elder (*Sambucus nigra*) and birch (*Betula* sp.). Open areas all planted with oak (*Quercus* sp.) and cherry (*Prunus* sp.), with occasional sycamore (*Acer pseudoplatanus*). Ground at lower edge of slope is marshy, with extensive strip of black bog rush (*Schoenus nigricans*), indicating calcareous conditions, with bog myrtle (*Myrica gale*) and soft rush (*Juncus effusus*). North-western slope of Ord Hill is planted with oak and cherry, with mature broadleaved trees including beech (*Fagus sylvatica*), oak, elm (*Ulmus* sp.), birch, rowan, and the occasional Scots pine (*Pinus sylvestris*).

NH669501 Map sheet: NH65SE

Mature, thinned, plantation of Scots pine (*Pinus sylvestris*) growing at the head of Loch Lundie. This mature band also runs from NH670501 to NH671504. Ground flora is a common mix of mosses, lichens and fungi. Vegetation appears to be heavily grazed by deer and rabbits, but some Scots pine and birch (*Betula* sp.) saplings were present.

NH670503 Map sheet: NH65SE

Loch Lundie. An important habitat for birds. See RSPB for further details.

NH671501 Map sheet: NH65SE

Extensive covering of moss and lichen species (*Cladonia* spp.) on ridge of hill, forming an intact ground layer. Appears to have developed due to lack of disturbance, elevation of site and precipitation.

NH673507 Map sheet: NH65SE

Three shallow ponds. Open water, but reedmace (*Typha latifolia*) and common reed (*Phragmites australis*) are encroaching within all three. Some of the vegetation appears to have been cut back. The ponds' structure will obviously alter if they are not dragged. All three still retain their outline as per the original O/S map.

NH674510 Map sheet: NH65SE

Reed bed. Relatively extensive area of common reed (*Phragmites australis*).

NH677533 Map sheet: NH65SE

Disused quarry, colonised by elm (*Ulmus* sp.), beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*), willow (*Salix* sp.), elder (*Sambucus nigra*), sycamore (*Acer pseudoplatanus*) and horse-chestnut (*Aesculus hippocastanum*). Continuation of NH686530. Visually attractive area.

NH679531 Map sheet: NH65SE

Disused quarry, colonised by elm (*Ulmus* sp.), beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*), willow (*Salix* sp.), elder (*Sambucus nigra*), sycamore (*Acer pseudoplatanus*) and horse-chestnut (*Aesculus hippocastanum*). Continuation of NH686530. Visually attractive area.

NH683518 Map sheet: NH65SE

General note:- Headland consisting of steep sea cliffs to north and east with flat top and gentler slope to north-west. The top is primarily dry heath, dominated by heather (*Calluna vulgaris*), with many tree stumps indicating onetime woodland cover. North-west slope consists of heath slopes with patches of wood-rush (*Luzula* sp.) grading into birch (*Betula* sp.) and gorse (*Ulex europaeus*) scrub towards the bottom of the slopes and eventually into birch woodland to the south-west. Slopes to the south-east show occasional patches of wet heath/grassland mosaic, grading into birch stands and more wooded areas in a mosaic with large areas of bracken (*Pteridium aquilinum*) and gorse. Some areas around housing have been planted with broadleaved trees. Mature Scots pine (*Pinus sylvestris*) and larch (*Larix* sp.) are occasionally found over the top and especially on the slopes to the north-east. Also some beech (*Fagus sylvatica*) and mature juniper (*Juniperus communis*) occur on the top. Evidence found of small areas cleared of vegetation to grow feed crop plants, as well as pheasant rearing pens and three constructed ponds. A cormorant roost was found on the cliffs of the headland, and the goat population appears to have been cleared off the area.

NH686530 Map sheet: NH65SE

Species-rich band of semi-natural broadleaved woodland, comprising mature stands of elm (*Ulmus* sp.), beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*), willow (*Salix* sp.), elder (*Sambucus nigra*), sycamore (*Acer pseudoplatanus*) and horse-chestnut (*Aesculus hippocastanum*). Partly grazed, good regeneration in the understorey but some rabbit damage.

NH689546 Map sheet: NH65SE

Trees marked on map removed. Field now improved grassland.

NH690527 Map sheet: NH65SE

Coastal vegetation present; thrift (*Armeria maritima*), dog rose (*Rosa canina*), labiate species (*Labiatae*), cross-leaved heath (*Erica tetralix*), gorse (*Ulex europaeus*), ash (*Fraxinus excelsior*) and biting stonecrop (*Sedum acre*).

NH692531 Map sheet: NH65SE

Conifer plantation dominated by Scots pine (*Pinus sylvestris*) with spruce (*Picea* sp.) along coastline. Top and south facing slopes rich in fungi. There were 17 species recorded including; false chanterelle (*Hygrophoropsis aurantiaca*), oyster mushroom (*Pleurotus* sp.), fly agaric (*Amanita muscaria*), *Boletus* sp., *Russula* sp., common puffball (*Lycoperdum perlatum*), hedgehog fungus (*Hydnum repandum*), plums and custard (*Tricholomopsis rutilans*), shaggy parasol (*Macrolepiota rhacodes*), *Lepiota* sp., orange-peel fungus (*Aleuria aurantia*), orange jelly (*Dacrymyces stillatus*), jelly antler fungus (*Calocera viscosa*), fairies'

bonnets (*Coprinus disseminatus*), horn of plenty (*Craterellus cornicoides*), beefsteak fungus (*Fistulina hepatica*) and destroying angel (*Amanita virosa*).

NH694548 Map sheet: NH65SE

Trees marked on map removed. Field now improved grassland.

NH697534 Map sheet: NH65SE

Sewage works with new road constructed along side of coast. New tree planting around works site; hawthorn (*Crataegus monogyna*), willow (*Salix* sp.), dog rose (*Rosa canina*) and blackthorn (*Prunus spinosa*).

NH697542 Map sheet: NH65SE

Wooded road verge. Pruned back hard, along with ground flora. Species include elm (*Ulmus* sp.), ash (*Fraxinus excelsior*), beech (*Fagus sylvatica*) and elder (*Sambucus nigra*).

NH66NW (Produced 1998)

NH600665 Map sheet: NH66NW

Marshy grassland with patchy soft rush (*Juncus effusus*) and abundant meadowsweet (*Filipendula ulmaria*), marsh marigold (*Caltha palustris*), horsetails (*Equisetum* sp.) and others. This meadow is enclosed by broadleaved trees, mainly willow (*Salix* sp.), sycamore (*Acer pseudoplatanus*), elder (*Sambucus nigra*), ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*) and elm (*Ulmus* sp.). Also clump of alder (*Alnus glutinosa*) within and scattered birch (*Betula* sp.).

NH600673 Map sheet: NH66NW

Very young conifers - mainly spruce (*Picea* sp.), sparsely planted (or naturally regenerating) over previously felled area, colonised by various herbs including stinging nettle (*Urtica dioica*) on ridges of piled up deadwood and other species associated with disturbed ground plus abundant soft rush (*Juncus effusus*), grasses and scattered broom (*Sarothamnus* [*Cytisus*] *scoparius*) and gorse (*Ulex europaeus*).

NH601666 Map sheet: NH66NW

Very varied woodland between Allt Graad river and Black Rock Gorge road: Conifer plantation - mainly spruces (*Picea* spp.), Douglas fir (*Pseudotsuga menziesii*) and larch (*Larix* sp.). Significant patches of semi-natural broadleaved woodland composed of beech (*Fagus sylvatica*), birch (*Betula* sp.), ash (*Fraxinus excelsior*), elm (*Ulmus* sp.), oak (*Quercus* sp.), sycamore (*Acer pseudoplatanus*), rowan (*Sorbus aucuparia*), elder (*Sambucus nigra*), bird cherry (*Prunus padus*), holly (*Ilex aquifolium*) and, along parts of the river banks, alder (*Alnus glutinosa*) plus a patch dominated by Norway maple (*Acer platanoides*). Also a few Scot's pine (*Pinus sylvestris*). Ground flora includes abundant ramsons (*Allium ursinum*), bugle (*Ajuga reptans*), wood-rush (*Luzula* spp), male-fern (*Dryopteris filix-mas*), red campion (*Silene dioica*), greater stitchwort (*Stellaria holostea*), violets (*Viola* sp.), herb Robert

(*Geranium robertianum*), wood-sorrel (*Oxalis acetosella*). Also patches of bracken (*Pteridium aquilinum*), broom (*Sarothamnus* [*Cytisus*] *scoparius*), and gorse (*Ulex europaeus*) on some steep river/track-side banks. Butterflies - green-veined white (*Pieris napi*) nectaring on ramsons; also speckled wood (*Parage aegeria*). Birds include bullfinch (*Pyrrhula pyrrhula*) and dipper (*Cinclus cinclus*).

NH601696 Map sheet: NH66NW

Fyrish Hill - Mature Caledonian pinewood with well developed understorey. Not surveyed thoroughly, but appears to be a quite important area of habitat. A valuable source for potential pinewood regeneration over a larger area. The hillsides to the north-west support a scattering of Scots pine (*Pinus sylvestris*) and are separated only by a narrow, shallow part of the ravine and a corner of the lodgepole pine (*Pinus contorta*) plantation. The area of Scots pine continues eastwards around the hill just above the conifer plantation in an almost unbroken line, but with a variable ground flora. The remainder of Fyrish Hill is a mixture of wet and dry heath and several patches of modified bog which appear to have been burned and grazed for many years. This would appear to provide good conditions for further pinewood regeneration. However, this is currently quite limited, presumably due to deer grazing, and regeneration of exotic conifer species in the area is also likely and could compromise the integrity of any native pinewood development.

NH603692 Map sheet: NH66NW

Steep narrow gully. Except for lower stretch, conifers press close to the stream with only a narrow line of broadleaved trees. Most broadleaves (except for clumps of birch (*Betula* sp.) appear to have been planted and are mostly beech (*Fagus sylvatica*) and sycamore (*Acer pseudoplatanus*). Ground flora is therefore quite limited. However, access is difficult and some more interesting areas might exist. At point of this target note, the bottom of the gully was a tangle of fallen trees with a scattering of mature beech and conifers pressing close to stream. Considerable management would be required to turn this into a broadleaved woodland corridor.

NH604671 Map sheet: NH66NW

Novar Quarry. Disused glacial sand and gravel quarry now largely covered by regenerating vegetation - mainly larch (*Larix* sp.) and birch (*Betula* sp.) plus Scot's pine (*Pinus sylvestris*). Also patchy broom (*Sarothamnus* [*Cytisus*] *scoparius*), gorse (*Ulex europaeus*), and areas colonised by stinging nettle (*Urtica dioica*), creeping thistle (*Cirsium arvense*), spear thistle (*Cirsium vulgare*), dock (*Rumex* sp.) and other herbs characteristic of waste ground. Also clumps of rhubarb. Several marshy areas occur on southern margin, mostly covered by birch with soft rush (*Juncus effusus*) beneath and more open areas of marshy grassland. Also one patch with small birch and eared willow (*Salix aurita*) among mosses (especially *Philonotis fontana*), horsetail (*Equisetum* sp.), mare's-tail (*Hippuris vulgaris*), northern marsh orchid (*Dactylorhiza purpurella*), marsh thistle (*Cirsium palustre*), round-leaved sundew (*Drosera rotundifolia*), sedges (*Carex* spp.) and rushes (*Juncus* spp.). Sundew have spread north on to barer ground.

Cliffs have sand martins nesting. Surrounding woodland is mainly conifer plantation with larch and Scot's pine to south, north and west, spruce (*Picea* sp.) and fir (*Pseudotsuga* sp.) to east. However, many areas of Scot's pine and larch to south are becoming semi-natural, mixed

with mature birch, beech (*Fagus sylvatica*), oak (*Quercus* sp.), ash (*Fraxinus excelsior*), alder (*Alnus glutinosa*), willow (*Salix* sp.), rowan (*Sorbus aucuparia*) and bird cherry (*Prunus padus*). Understorey mainly of heather (*Calluna vulgaris*), with bell heather (*Erica cinerea*), blaeberry (*Vaccinium myrtillus*), sorrel (*Oxalis* sp.), chickweed wintergreen (*Trientalis europaea*) heath bedstraw (*Galium saxatile*), wavy hair-grass (*Deschampsia flexuosa*), wood-rush (*Luzula* sp.), and bracken (*Pteridium aquilinum*) which is dominant in clearings. Also in barer areas of quarry - heath speedwell (*Veronica officinalis*), forget-me-not (*Myosotis* sp.), self-heal (*Prunella vulgaris*), tormentil (*Potentilla erecta*), sorrel, creeping buttercup (*Ranunculus repens*), mouse-ear (*Cerastium* sp.). Green tiger beetles seen.

Felled area to north-west of quarry supports soft rush, sorrel, foxglove (*Digitalis purpurea*), bramble (*Rubus fruticosus*), field forget-me-not (*Myosotis arvensis*), heath speedwell (*Veronica officinalis*), heath bedstraw (*Galium saxatile*), creeping buttercup (*Ranunculus repens*), wavy hair-grass (*Deschampsia flexuosa*), common cotton sedge (*Eriophorum angustifolium*).

NH604677 Map sheet: NH66NW

Very boggy area of over one hectare, under mature birch (*Betula* sp.) and Scot's pine (*Pinus sylvestris*). Ground flora is composed of tussocks of mosses (including *Sphagnum* sp., *Polytrichum* sp., *Hylocomium splendens*, *Rhytidiadelphus triquetrus*, *Pseudoscleropodium purum*, *Pleurozium schreberi*), a little soft rush (*Juncus effusus*), cross-leaved heath (*Erica tetralix*) and heather (*Calluna vulgaris*). Oak (*Quercus* sp.) mixed with birch occurs to south up to track. Female horntail/woodwasp (*Urocerus gigas*) seen.

NH606669 Map sheet: NH66NW

Semi-improved neutral grassland. Species include cock's foot (*Dactylis glomerata*), Yorkshire fog (*Holcus lanatus*), sorrel (*Rumex* sp.), germander speedwell (*Veronica chamaedrys*), clover (*Trifolium* sp.), common ragwort (*Senecio jacobaea*), dock (*Rumex* sp.) and creeping thistle (*Cirsium arvense*), plus a broad strip of marshy grassland towards west side of field dominated by soft rush (*Juncus effusus*), and with cuckoo flower (*Cardamine pratensis*); planted with spruce (*Picea* sp.) and larch (*Larix* sp.). Along southern margin, broadleaved trees have been planted - mainly alder (*Alnus glutinosa*). Herbicide has been applied around new trees. Ground very uneven.

NH606678 Map sheet: NH66NW

Mature Scot's pine (*Pinus sylvestris*).- W18 *Pinus sylvestris*-*Hylocomium splendens* woodland (NVC) community developed: b and possibly c sub-communities. Supports patches of wood-rush (*Luzula* sp.), but overrun by bracken (*Pteridium aquilinum*). Mature birch (*Betula* sp.) wood on northern margin supports abundant chanterelle mushrooms. Beetle (*Olceoptoma thoracicium*) on bracken, plus dor beetle (*Geotrupes stercorarius*). Marshy grassland/swamp to north supports numerous damselflies, hawker dragonflies (pond to west), common toads, and common lizard.

NH606683 Map sheet: NH66NW

Power line ride. A mosaic of dense bracken (*Pteridium aquilinum*) with some moderately rich marshy grassland and clumps of birch (*Betula* sp.) and willow (*Salix* sp.). Conifer

regeneration is encroaching in places. The marshy grassland has little soft rush (*Juncus effusus*) and may be of some botanical interest in places. However, access was difficult and these areas were not surveyed in detail.

NH607660 Map sheet: NH66NW

Small copper butterfly (*Lycaena phlaeus*) nectaring on dandelion (*Taraxacum officinale*) at top of embankment overlooking wooded river valley. Docks (*Rumex* spp.) abundant in nearby tall vegetation - possible caterpillar food plants. Speckled wood butterflies (*Pararge aegeria*) also seen in area.

NH608662 Map sheet: NH66NW

Eilean nan Cearc - broadleaved woodland (mature/regenerating), with sycamore (*Acer pseudoplatanus*), alder (*Alnus glutinosa*), birch (*Betula* sp.), ash (*Fraxinus excelsior*), willow (*Salix* sp.), elm (*Ulmus* sp.) and bird cherry (*Prunus padus*), plus a few conifers, including Scot's pine (*Pinus sylvestris*). Evidence of some (not recent) felling. Ground flora includes violets (*Viola* sp.), germander speedwell (*Veronica chamaedrys*), forget-me-nots (*Myosotis* sp.), ramsons (*Allium ursinum*), wood-sorrel (*Oxalis acetosella*) and male fern (*Dryopteris filix-mas*). Also patches of marshy grassland with soft rush (*Juncus effusus*), marsh marigold (*Caltha palustris*), creeping buttercup (*Ranunculus repens*), horsetail (*Equisetum* sp.), meadowsweet (*Filipendula ulmaria*) and cuckoo flower (*Cardamine pratensis*). Strip of tall ruderal vegetation running parallel with river is dominated by rosebay willowherb (*Chamaenerion angustifolium*), with stinging nettle (*Urtica dioica*) and thistles (*Cirsium* spp.). Also bluebells (*Hyacinthoides non-scripta*), honeysuckle (*Lonicera periclymenum*), bramble (*Rubus fruticosus*) and rose (*Rosa* sp.).

NH610672 Map sheet: NH66NW

Similar to Novar Quarry (NH604671) - regenerating birch (*Betula* sp.) and alder (*Alnus glutinosa*) along streams plus gorse (*europaeus*) and spruce (*Picea* sp.). Cross-leaved heath (*Erica tetralix*) in wet places; bell heather (*Erica cinerea*) in drier parts. Variety of herbs, including abundant self-heal (*Prunella vulgaris*), sedges (*Carex* sp.) and grasses. Round-leaved sundew (*Drosera rotundifolia*) abundant in patches, and some common butterwort (*Pinguicula vulgaris*). Patches of marshy grassland, mainly soft rush (*Juncus effusus*) and two small stagnant ponds. Lake to east has become a swamp. Butterflies active - meadow brown (*Maniola jurtina*) and speckled wood (*Pararge aegeria*). Buzzards nesting in area.

NH614678 Map sheet: NH66NW

Novar House grounds - scattered mature trees, including oak (*Quercus* sp.), lime (*Tilia* sp.), sycamore (*Acer pseudoplatanus*) and beech (*Fagus sylvatica*) in parkland to south and east of house. Neglected formal gardens - ponds and grotto (NH613679) and sunken garden with pond (NH611678). Several exotic species - some have spread into more natural parkland, e.g. monkey flower (*Mimulus guttatus*) and blood drop-emlets (*Mimulus luteus*) along burns running down from ponds.

NH614691 Map sheet: NH66NW

Dry heath dominated by heather (*Calluna vulgaris*) and bell heather (*Erica cinerea*). Creeping lady's tresses (*Goodyera repens*) was frequent here and under a fringe of Scots pine (*Pinus sylvestris*) at the edges of the spruce (*Picea* sp.) plantation to the north. Greater wood-rush (*Luzula sylvatica*) was abundant in both areas. Wavy hair grass (*Deschampsia flexuosa*), blaeberry (*Vaccinium myrtillus*), and the moss *Hylocomium splendens* were also frequent in this area.

NH616675 Map sheet: NH66NW

Pheasant pen - birch (*Betula* sp.) and conifers. Spotted flycatcher seen nearby with four young at NH618679. 100+ young mallard on lake, pair of oystercatcher, heronry in conifers on west side of lake.

NH619670 Map sheet: NH66NW

Area too complex to map in detail. Apparently once laid out as formal gardens with outbuildings and other structures. Tracks, concrete foundations, fallen brickwork and a few standing structures remain. However, the area is now dominated by a complex mosaic of broadleaved woodland (birch (*Betula* sp.) abundant) with a few scattered conifers, marshy grassland, rosebay willowherb (*Chamaenerion angustifolium*), short neutral grassland occasionally showing moderate species richness, plus bare ground and concrete with short herbs and moss. The woodland to the north is dense, mature sycamore (*Acer pseudoplatanus*) and beech (*Fagus sylvatica*) with a scattering of Scots pine (*Pinus sylvestris*) on higher, dryer ground adjacent to the railway line, with younger regenerating birch (*Betula* sp.) along the south-east margin. Under mature trees the ground flora is sparse. Under the lower lying birch is marshy grassland with neutral grassland at the eastern end.

NH620661 Map sheet: NH66NW

Wooded wildlife corridor. The area has been modified by artificial levee construction in the past, presumably in an effort to control flooding. However, the riverbanks and adjacent habitats remain fairly species rich over all despite areas of dense rosebay willowherb (*Chamaenerion angustifolium*), other tall herbs and bracken (*Pteridium aquilinum*) in places. Alder (*Alnus glutinosa*) is dominant in most parts, but other trees include rowan (*Sorbus aucuparia*), willow (*Salix* sp.), elm (*Ulmus* sp.), ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*) and others. Ground flora quite rich in parts, with a wide range of common species such as ramsons (*Allium ursinum*) bluebell (*Endymion non-scriptus*), common comfrey (*Symphytum officinale*), ground ivy (*Glechoma hederacea*), wood anemone (*Anemone nemorosa*), lesser celandine (*Ranunculus ficaria*) and wood rushes (*Luzula* spp.). The corridor represents the lowest extension of a much larger habitat system which includes Black Rock Gorge and links upland habitats to the west with coastal habitats adjacent to the Cromarty Firth. It is worthy of a more detailed survey.

NH621658 Map sheet: NH66NW

Large field, formerly arable, now left and being colonised by an abundant scattering of rosebay willowherb (*Chamaenerion angustifolium*) plus some grass, moss and a few common herbs. Area adjacent to track along western margin is poorly drained and fairly species rich in

places, with reed canary grass (*Phalaris arundinacea*), meadowsweet (*Filipendula ulmaria*), marsh marigold (*Caltha palustris*), horsetail (*Equisetum* sp.) and other common species.

NH622654 Map sheet: NH66NW

Area of willow (*Salix* sp.) carr and marshy grassland dominated by soft rush (*Juncus effusus*). There is some evidence that at least part of the area was more intensively managed in the past (particularly in the north with abundant rosebay willowherb (*Chamaenerion angustifolium*)). Now may be showing some signs of recovery and certainly has potential for further habitat development if drainage were impeded.

NH622692 Map sheet: NH66NW

Moderately species rich neutral grassland dominated by Yorkshire fog (*Holcus lanatus*) and sweet vernal grass (*Anthoxanthum odoratum*), with a range of other grasses and common herbs such as germander speedwell (*Veronica chamaedrys*). Also scattered clumps of cock's foot (*Dactylis glomerata*) which will eventually dominate and shade out other species if the area is not grazed or cut from time to time. Adjacent larch (*Larix* sp.) plantation to west supports a similar ground flora, but with a scattering of fox glove (*Digitalis purpurea*) and ferns, particularly scaly male fern (*Dryopteris affinis*).

NH624696 Map sheet: NH66NW

Very complex area following the course of the power lines. Large parts are quite marshy and fairly species rich in places. A raised ridge (rocky substrate and probably partly formed by an old dike) runs down the centre, parallel to the power lines and just north of the southern most lines. This is dominated by gorse (*Ulex europaeus*) and bracken (*Pteridium aquilinum*). The area to the south of this is predominantly marshy grassland with abundant soft rush (*Juncus effusus*) and generally less rich than areas to the north of the ridge. Marshy areas north of the ridge are sometimes quite species rich, ranging from very wet heath/grassland mosaic, rich in sedges (*Carex* spp.) and herbs (such as lousewort (*Pedicularis sylvatica*), and sometimes approaching M15a *Scirpus cespitosus*-*Erica tetralix* wet heath, *Carex panicea* sub-community (NVC)), to moderately species rich marshy grassland with abundant compact rush (*Juncus conglomeratus*), very little soft rush and both neutral and acid loving species. Drier grassland north of the ridge is more acidic with an abundance of herbs such as tormentil (*Potentilla erecta*) and milkwort (*Polygala serpyllifolia*). A few spikes of northern marsh orchid (*Dactylorhiza purpurella*) were found, but this species was more abundant on the northern verge of the track which bisects the area to the north-east.

Other patches of drier grassland support a mixture of both acid and neutral species. The entire ridge is grazed by sheep, but more intensively in the north-east section, beyond the track. That area is much poorer in species as a result of this.

NH625654 Map sheet: NH66NW

Saltmarsh. Only moderately species rich in terms of plants. Species include saltmarsh grass (*Puccinellia maritima*) with a scattering of common scurvy-grass (*Cochlearia officinalis*), sea plantain (*Plantago maritima*), sea arrowgrass (*Triglochin maritima*) and a few other common species; comparable with Udale Bay (RSPB reserve) on the Black Isle, and only a little smaller. Likely to be important for birds, particularly in the winter months. Lapwing, mute swan, mallard and abundant oystercatchers noted during brief visit.

NH625678 Map sheet: NH66NW

This plantation contains evidence of a reasonably high population of red squirrels, despite being predominantly spruce (*Picea* sp.).

NH627672 Map sheet: NH66NW

Upper saltmarsh grades into wet coastal grassland and patches of wet woodland with alder (*Alnus glutinosa*) and willow (*Salix* sp.). The result is a complex area of saltmarsh species including saltmarsh grass (*Puccinellia maritima*), scurveygrass (*Cochlearia officinalis*) and some patches of sea club-rush (*Scirpus maritima*), plus marshy grassland species including soft rush (*Juncus effusus*), marsh marigold (*Caltha palustris*) and some patches of reed canary grass (*Phalaris arundinacea*), with sedges (*Carex* spp.) in a number of small seepage channels. Drier areas support silverweed (*Potentilla anserina*) suggesting a tendency towards MG11 *Festuca rubra*-*Agrostis stolonifera*-*Potentilla anserina* grassland (NVC). However, the whole area is grazed by rabbits and probably livestock from time to time. Therefore grass species were difficult to identify. Such habitats were probably far more extensive prior to construction of the Evanton airfield. Some parts may remain threatened by industrial development and are offered no protection under current legislation.

NH631694 Map sheet: NH66NW

General area moderately species rich due to diversity of habitats. Broadleaved woodland is almost exclusively birch (*Betula* sp.) with ground flora dominated by creeping soft-grass (*Holcus mollis*) or bracken (*Pteridium aquilinum*) in drier parts. However, some areas have a heathy ground flora and species richness increases in places. Clumps of gorse (*Ulex europaeus*) and broom (*Sarothamnus* [*Cytisus*] *scoparius*) are scattered in places, particularly around the old gravel pit to the east, and sand quarry to the west. The former is quite overgrown and supports abundant conifer regeneration in places. The sand quarry is relatively bare and has nesting sand martins.

NH638699 Map sheet: NH66NW

Neutral grassland. Occasional gorse (*Ulex europaeus*), becoming dense towards eastern edge. Dominant grasses: Yorkshire fog (*Holcus lanatus*) and cock's-foot (*Dactylis glomerata*). Willow (*Salix* sp.) scrub at ditch edge. Frequent other species: common nettle (*Urtica dioica*), creeping thistle (*Cirsium arvense*), buttercup (*Ranunculus* sp.), wild angelica (*Angelica sylvestris*), hogweed (*Heracleum sphondylium*), common sorrel (*Rumex acetosa*) and broad-leaved dock (*Rumex obtusifolius*).

NH642699 Map sheet: NH66NW

Semi-improved neutral grassland. Frequent broom (*Sarothamnus* [*Cytisus*] *scoparius*), occasional gorse (*Ulex europaeus*). Grasses: tufted hair-grass (*Deschampsia cespitosa*), Yorkshire fog (*Holcus lanatus*), bent grasses (*Agrostis* spp.). Herbs: rose-bay willowherb (*Chamaenerion angustifolium*), foxglove (*Digitalis purpurea*), hogweed (*Heracleum sphondylium*), wild angelica (*Angelica sylvestris*), creeping buttercup (*Ranunculus repens*), germander speedwell (*Veronica chamaedrys*), broad-leaved dock (*Rumex obtusifolius*), meadow vetchling (*Lathyrus pratensis*), vetch (*Vicia* sp.). Frequent willow (*Salix* sp.), and birch (*Betula* sp.), occasional rowan (*Sorbus aucuparia*), rarely elder (*Sambucus nigra*).

Grassy towards the centre, with more trees/scrub along borders plus silverweed (*Potentilla anserina*) and soft rush (*Juncus effusus*).

NH644699 Map sheet: NH66NW

Scots pine (*Pinus sylvestris*) plantation, with rowan (*Sorbus aucuparia*) saplings abundant. Understorey of grasses and mosses with heather (*Calluna vulgaris*), bell heather (*Erica cinerea*), blaeberry (*Vaccinium myrtillus*), and great wood-rush (*Luzula sylvatica*).

NH648688 Map sheet: NH66NW

New industrial estate (not mapped in detail). This development has destroyed almost four hectares of mature broadleaved woodland. The mature trees which remain around the margins do not constitute a woodland due to edge effects. The amenity tree planting on improved lawn will not compensate for habitat destruction. Such development is unsustainable due to its irreversibility.

NH66NE (Produced 1996 and 1998)

NH653688 Map sheet NH66NE

Ten mature giant redwood (*Sequoiadendron giganteum*) trees, all over 30 metres tall noted, adjacent to the front wall of the Redwood Nursing Home.

NH654654 Map sheet: NH66NE

Gully draining water from adjacent arable and improved grassland. Dense scrub, especially eastern slope. Species include honeysuckle (*Lonicera periclymenum*), stinging nettle (*Urtica dioica*), broom (*Sarothamnus* [*Cytisus*] *scoparius*), gorse (*Ulex europaeus*), elder (*Sambucus nigra*), cock's-foot (*Dactylis glomerata*). Large resident bird population.

NH658654 Map sheet: NH66NE

Area of rough grazing with a complex and interesting mosaic of plant communities as follows: South corner very wet area with water table above ground level. Possibly an old pond. Sedge (*Carex* sp.) and wetland grass (possibly *Glyceria* sp.) dominant. Frequent lesser spearwort (*Ranunculus flammula*), marsh bedstraw (*Galium palustre*), cuckoo flower (*Cardamine pratensis*). Frogs present at site. Broad tractor track running along south-west edge. Broad perimeter of damp semi-improved grassland with frequent soft rush (*Juncus effusus*) and occasional tree stumps. Central area 30x40m. and patches elsewhere, especially to the north and west of wet heath/acid grassland mosaic, with very low sward. Species include deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]), heath rush (*Juncus squarrosus*), cross-leaved heath (*Erica tetralix*). Also sweet vernal-grass (*Anthoxanthum odoratum*), field wood-rush (*Luzula campestris*). Herbs included marsh lousewort (*Pedicularis palustris*), tormentil (*Potentilla erecta*), marsh violet (*Viola palustris*), chickweed wintergreen (*Trientalis europaea*), heath milkwort (*Polygala serpyllifolia*) and marsh thistle (*Cirsium palustre*). Saplings of birch (*Betula* sp.) and willow (*Salix* sp.), appear to be regenerating. Also patches of mosses and *Sphagnum*. Encroaching gorse (*Ulex europaeus*). Some disturbance from tractor. Drainage ditch on western edge. Birch and willow

regeneration. 100m north-east (NH659655) another area of wet heath/acid grassland mosaic similar to the central area, above, in species composition. Heath wood-rush (*Luzula multiflora*), dense headed heath wood-rush (*Luzula multiflora* ssp. *congesta*) noted. Frequent heath spotted orchid (*Dactylorhiza maculata*) and devils-bit scabious (*Succisa pratensis*). To north-west, beyond a thin belt of birch, is a narrower strip of the same bordering a large area which was mapped as wet heath in 1993 and has recently been ploughed up.

NH658659 Map sheet: NH66NE

This area of dense gorse (*Ulex europaeus*) has been burned back.

NH659659 Map sheet: NH66NE

Rough, tussocky (wet) grassland. Scattered gorse (*Ulex europaeus*). Knapweed (*Centaurea* sp.), dock (*Rumex* sp.) and black sedge (*Carex nigra*) frequent. Also rush (*Juncus* sp.) and mosses, including *Thuidium tamariscinum*.

NH660658 Map sheet: NH66NE

Birch (*Betula* sp.) woodland with frequent willow (*Salix* sp.). Well drained with grassy understorey. Grazed but not recently. Signs of deer browsing. No regeneration and very little dead wood. Area recently cut and brashed for tractor access. All trees mature. Would probably require fencing and selective felling to improve age structure and encourage regeneration, otherwise likely to die off through overgrazing. Gully to north-west supports dense willow, birch, elder (*Sambucus nigra*) and broom (*Sarothamnus* [*Cytisus*] *scoparius*). Rich ground flora of common herbs.

NH661662 Map sheet: NH66NE

Saltmarsh with slender spike rush (*Eleocharis uniglumis*).

NH661699 Map sheet: NH66NE

Quarry is no longer at this site and has been moved eastwards to NH663699. This area is now semi-improved grassland and tall herbs.

NH663684 Map sheet: NH66NE

Large areas of saltmarsh, with some patches of coastal grassland. Tidal ponds to west of river, shingle beach to south-west. Species bordering the shingle beach include sea-blite (*Suaeda* sp.), sea purslane (*Halimione portulacoides*), orache species (*Atriplex* spp.), thrift (*Armeria maritima*) and buttercup (*Ranunculus* sp.). On slightly higher ground, species include sea plantain (*Plantago maritima*), clover (*Trifolium* spp.), lady's bedstraw (*Galium verum*), Yorkshire fog (*Holcus lanatus*), yarrow (*Achillea millefolium*), ribwort plantain (*Plantago lanceolata*), sea aster (*Aster tripolium*) and pipewort (*Eriocaulon septangulare* [*E. aquaticum*]). Bordering south side of tidal ponds, species include glasswort (*Salicornia* sp.) and bladder wrack (*Fucus vesiculosus*).

NH667654 Map sheet: NH66NE

Sparsely wooded area of Scots pine (*Pinus sylvestris*) with birch (*Betula* sp.) to east, and gorse (*Ulex europaeus*) encroaching. Very grassy, short, sheep grazed understorey dominated by neutral grasses, docks (*Rumex* sp.) and clover (*Trifolium* sp.). Black sedge (*Carex nigra*) and sweet vernal-grass (*Anthoxanthum odoratum*) frequent. Herbs present include tormentil (*Potentilla erecta*), devils-bit scabious (*Succisa pratensis*), chickweed wintergreen (*Trientalis europaea*) and orchid species. Patches of soft rush (*Juncus effusus*). Evidently damp and acidic before improvement and grazing. Pine not regenerating but some occasional rowan (*Sorbus aucuparia*).

NH667665 Map sheet: NH66NE

Freshwater spring with rush (*Juncus* sp.), marsh-marigold (*Caltha palustris*), silverweed (*Potentilla anserina*), grading to saltmarsh with scurvy grass (*Cochlearia officinalis*) and saltmarsh flat sedge (*Blysmus rufus*).

NH668660 Map sheet: NH66NE

Trees becoming sparse with some juniper (*Juniperus communis*). Scrub layer burnt along edge of fields and neutral grassland. Tall ruderals including rosebay willowherb (*Chamaenerion angustifolium*) along burn.

NH669662 Map sheet: NH66NE

Species-rich broadleaved woodland strip with dense scrub following drainage ditch. Dominant species include ash (*Fraxinus excelsior*), gorse (*Ulex europaeus*), and cherry (*Prunus* sp.). Rabbit infestation noted.

NH672659 Map sheet: NH66NE

Substantial area of species-rich grassland grazed by cattle. Overall the sward is dominated by neutral grasses with sweet-vernal grass (*Anthoxanthum odoratum*) abundant in low sward. Black sedge (*Carex nigra*) is frequent. There is also a complex, small scale mosaic of other habitats, too small to be reflected on the map. Species include mat-grass (*Nardus stricta*), locally abundant, with frequent tormentil (*Potentilla erecta*), and occasional heath milkwort (*Polygala serpyllifolia*), deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]), and heath rush (*Juncus squarrosus*), with a range of other species suggesting wet heath/acid grassland mosaic. Soft rush (*Juncus effusus*) patchy throughout, with marsh lousewort (*Pedicularis palustris*) abundant. North-west corner supports a marshy strip of meadowsweet (*Filipendula ulmaria*), marsh marigold (*Caltha palustris*), silverweed (*Potentilla anserina*), marsh thistle (*Cirsium palustre*), horsetails (*Equisetum* sp.). Common and heath spotted orchids (*Dactylorhiza fuchii*/*D. maculata*) are occasional throughout. Other parts support frequent heath wood-rush (*Luzula multiflora*), dense headed heath wood-rush (*Luzula multiflora* ssp. *congesta*), heath dog-violet (*Viola canina*), thyme-leaved speedwell (*Veronica serpyllifolia*) and rarely yellow rattle (*Rhinanthus minor*), devil's-bit scabious (*Succisa pratensis*), chickweed wintergreen (*Trientalis europaea*), and two patches of open water, one with water-crowfoot (*Ranunculus* sp.). Roe deer present. Rabbits prolific, hence height of sward. It seems likely the area was originally wet heath and acid grassland, but was found too wet for cultivation and not re-seeded, as on adjacent fields. The soil may then have been

gradually neutralised by runoff from adjacent fertilised arable land, creating the predominantly neutral but (residually) acidic species composition recorded. Orchids thriving suggesting the grazing regime is appropriate, but gorse (*Ulex europaeus*) is apparently a problem. Significant efforts have been recently made in this area to cut and burn the gorse, probably to improve grazing quality. This type of grazing, though impoverished by original standards is, in the context of the Black Isle a rare and dwindling wildlife habitat, particularly with its extensive orchid colony, and would benefit from some kind of positive management agreement to control the gorse and reverse the eutrophication.

NH672665 Map sheet: NH66NE

Very steep sided gully with diverse habitat of trees, scrub, common herbs, ferns and mosses. Vegetation rank but relatively species rich, with a border of grassland between arable field and woodland. Species include willow (*Salix* sp.), ash (*Fraxinus excelsior*), elder (*Sambucus nigra*) elm (*Ulmus* sp.) and cherry (*Prunus* sp.). South end is dominated by service tree (*Sorbus* sp.). Narrow, upper end of gully has been used as a dump for some years.

NH674667 Map sheet: NH66NE

Gully (stream), narrow, steep earth banks. Elm (*Ulmus* sp.) and ash (*Fraxinus excelsior*) occasional. Blackthorn (*Prunus spinosa*) and bracken (*Pteridium aquilinum*) dominant, especially at lower end. Ground damp with various mosses, lesser celandine (*Ranunculus ficaria*) and wood sorrel (*Oxalis acetosella*). Partly enclosed. Grazed.

NH675658 Map sheet: NH66NE

Green lane with ditch beside, now overgrown with abundant pink purslane (*Montia sibirica*). North end supports abundant common nettle (*Urtica dioica*) and rosebay willowherb (*Chamaenerion angustifolium*) and a mature scrubby corner with rowan (*Sorbus aucuparia*), birch (*Betula* sp.) and elder (*Sambucus nigra*).

NH676656 Map sheet: NH66NE

Track between Laurels (farm) and improved grassland is overgrown with gorse (*Ulex europaeus*) and bramble (*Rubus fruticosus*). Young trees including ash (*Fraxinus excelsior*), willow (*Salix* sp.) and rowan (*Sorbus aucuparia*) present. Ground flora poor, damp with pink purslane (*Montia sibirica*). Enclosed.

NH677667 Map sheet: NH66NE

Gully (stream). Lower end supports young rowan (*Sorbus aucuparia*) with a marshy ground flora with abundant lesser celandine (*Ranunculus ficaria*) and frequent bracken (*Pteridium aquilinum*). Upper end: grassy slopes with bracken and scattered broom (*Sarothamnus* [*Cytisus*] *scoparius*) and gorse (*Ulex europaeus*). Soft-rush (*Juncus effusus*) and stinging nettle (*Urtica dioica*) frequent. Short eared owl seen here. Unenclosed. Grazed. Potentially good wildlife habitat, but heavily poached by cattle preventing regeneration

NH678659 Map sheet: NH66NE

Top corner of plantation dominated by gorse (*Ulex europaeus*) and tall ruderals including rosebay willowherb (*Chamaenerion angustifolium*), common nettle (*Urtica dioica*) and cleavers (*Galium aparine*). Also areas of tall denser scrub and trees including wild cherry (*Prunus avium*), rowan (*Sorbus aucuparia*), elder (*Sambucus nigra*) and birch (*Betula* sp.). Small patch of remnant mature birch woodland with ground flora supporting heath bedstraw (*Galium saxatile*) and tormentil (*Trientalis europaea*), suggesting potential for regeneration when conifers are felled. Fox droppings recorded and evidence of raptors feeding.

NH680659 Map sheet: NH66NE

Small pocket of birch (*Betula* sp.). A new house has been built within this woodland. The woodland is now a garden and is used to graze a pony. Ground flora grassy with patches of soft rush (*Juncus effusus*). Buzzards reported to have nested in these woods.

NH683690 Map sheet: NH66NE

All terrestrial habitats along this stretch of coastline have been severely modified or destroyed by road construction. The semi-improved neutral grassland which exists is the result of lower levels of cutting. All trees have been planted. Tall herbs are invading in many places. Large stretches are bare, constructed, rock embankments. This area of coast is known to be important for narrow-leaved eel grass (*Zostera angustifolia*).

NH688651 Map sheet: NH66NE

Newhall Burn woodland. Broadleaved, semi-natural wood, dominated by dense birch (*Betula* sp.). Willow frequent in wetter parts. Occasional rowan (*Sorbus aucuparia*), ash (*Fraxinus excelsior*) and Scots pine (*Pinus sylvestris*). Some regeneration. No shrub layer. Ground flora includes moss (*Polytrichum* sp.) and abundant heather (*Calluna vulgaris*). Tufted hair-grass (*Deschampsia cespitosa*) and mosses *Hylocomium splendens*, *Thuidium tamariscinum*, and *Rhytidiadelphus* sp. are all frequent. Relatively undisturbed. Partly enclosed. NOTE: Tree type and ground flora changes at Newhall Burn and adjacent slopes. See map NH 66 SE and relevant target note.

NH689661 Map sheet: NH66NE

Small plantation of elm (*Ulmus* sp.) and birch (*Betula* sp.), on grassy slope.(in protective tubes)

NH693663 Map sheet: NH66NE

Small pocket of mature birch (*Betula* sp.). No shrub layer. Ground flora heavily grazed (improved grassland). Enclosed. Adjacent is a small pocket of mature Scots pine (*Pinus sylvestris*) which also has a heavily grazed ground flora (improved grassland). Enclosed.

NH693697 Map sheet: NH66NE

“Oak Wood” and adjacent woodland habitats have been completely destroyed without trace (since production of the Ordnance Survey map in 1982) and turned to arable land. This

represents the loss of over ten hectares of semi-natural habitat (at least 8 ha. on this map and 2 ha. on the adjacent map) in one single agricultural development. Without the requirement of planning permission, such habitat destruction can occur in hidden locations such as this without anyone being aware until it is too late.

NH697656 Map sheet: NH66NE

Mixed woodland in grounds of Newhall House. Small pockets and strips of mature native trees including elm (*Ulmus* sp.), oak (*Quercus* sp.) birch (*Betula* sp.) and beech (*Fagus sylvatica*) with exotic conifers. Shrub layer includes rhododendron (*Rhododendron ponticum*), hawthorn (*Crataegus monogyna*) and blackthorn (*Prunus spinosa*). Ground flora includes lesser celandine (*Ranunculus ficaria*).

NH699691 Map sheet: NH66NE

Neutral grassland, formerly managed as part of the golf course. Yorkshire fog (*Holcus lanatus*) now dominates, along with bent grasses (*Agrostis* spp.) and some perennial rye grass (*Lolium perenne*). Common herbs are widely scattered (e.g. meadow buttercup (*Ranunculus acris*) and white clover (*Trifolium repens*)), but the area is not particularly rich. The grassland several hundred metres to the north is similar, but supports more cock's foot (*Dactylis glomerata*) and is fringed by tall herbs such as hogweed (*Heracleum sphondylium*), suggesting a later stage in succession.

NH699697 Map sheet: NH66NE

Mature broadleaved woodland of plantation origin. Apparently once "policy" woodland for House of Rosskeen. Supports a wide range of tree species including sycamore (*Acer pseudoplatanus*), beech (*Fagus sylvatica*), lime (*Tilia* sp.), birch (*Betula* sp.), oak (*Quercus* sp.) and others. Rhododendron (*Rhododendron ponticum*) occurs in places. Small, open areas support stinging nettles (*Urtica dioica*) in places, suggesting former disturbance and soil enrichment. Most of the wood is dense, and access is difficult. Not fully explored, but the features described above appear to be fairly constant.

NH66SW (Produced 1996 and 1998)

NH606603 Map sheet: NH66SW

Findon Wood - Species-rich, semi-natural mixed woodland, with steep gully and stream. Some disturbance by tipping. Tree species include cherry (*Prunus* sp.), elder (*Sambucus nigra*), alder (*Alnus glutinosa*), beech (*Fagus sylvatica*), oak (*Quercus* sp.), Scots pine (*Pinus sylvestris*), sycamore (*Acer pseudoplatanus*), holly (*Ilex aquifolium*), ash (*Fraxinus excelsior*), rowan (*Sorbus aucuparia*), hazel (*Corylus avellana*), larch (*Larix* sp.), birch (*Betula* sp.), yew (*Taxus baccata*), and willow (*Salix* sp.). There is good regeneration of oak, birch, and sycamore. Parts of the gully have very steep to vertical rock faces. Rhododendron (*Rhododendron ponticum*) occurs throughout and could become a problem, with some stands of bracken (*Pteridium aquilinum*) which do not appear to be a problem at present. A track runs through the wood, and there are some clearings at the north end which may have been enclosures at one time. At the north end, the woodland is dominated by oak. The ground flora includes speedwells (*Veronica* spp.), opposite-leaved golden saxifrage (*Chrysosplenium*

oppositifolium), herb Robert (*Geranium robertianum*), chickweed wintergreen (*Trientalis europaea*), cleavers (*Galium aparine*), honeysuckle (*Lonicera periclymenum*), monkshood (*Aconitum napellus*), ivy (*Hedera helix*), gooseberry (*Ribes uva-crispa*), water avens (*Geum rivale*), wood avens (*Geum urbanum*), bramble (*Rubus fruticosus*), rosebay willowherb (*Chamaenerion angustifolium*), broadleaved willowherb (*Epilobium montanum*), mustard (? sp.), garlic (*Allium* sp.), bluebells (*Hyacinthoides non-scriptus*), wood millet (*Milium effusum*), great wood-rush (*Luzula sylvatica*), wood sorrel (*Oxalis acetosella*), greater stitchwort (*Stellaria holostea*), Yorkshire fog (*Holcus lanatus*), and bryophytes throughout. Rabbits were seen, and there was evidence of deer grazing. Some fox and pine marten scats were also seen, and there is a rookery at the south end of the wood.

NH606647 Map sheet: NH66SW

Coastal strip. Surveyed April 1998. (Areas south of the Firth were surveyed in 1996.) Shingle with large areas of gently sloping bedrock - old red sandstone, showing signs of considerable weathering and erosion. Also some low (ca. 2 to 3 metres) vertical outcrops.

Habitats comprise a narrow strip between agricultural land and the beach. A mixture of rank neutral grassland, tall herbs including abundant carrot family species (*Umbelliferae*), and bracken (*Pteridium aquilinum*) with a scattering of scrub - gorse (*Ulex europaeus*) and broom (*Sarothamnus* [*Cytisus*] *scoparius*) plus a few trees (particularly ash (*Fraxinus excelsior*) and elm (*Ulmus* sp.)). Small patches are fairly herb-rich with species including bluebell (*Hyacinthoides non-scriptus*). Surveyed mid April, therefore full interest possibly not evident. Most of the south-western half, by the road, has been considerably modified by road construction and is of limited wildlife interest.

NH609604 Map sheet: NH66SW

Area has been cleared, possibly for future development.

NH609621 Map sheet: NH66SW

Rocky strip of beach to south-west of target note with some patches of saltmarsh, with sea club-rush (*Scirpus maritimus*), false fox sedge (*Carex otrubae*), sea sandwort (*Honkenya peploides*) and common saltmarsh grass (*Puccinellia maritima*). The adjacent bank has scrub and trees, and some wet areas. Along the bank are species-rich areas with meadowsweet (*Filipendula ulmaria*), marsh woundwort (*Stachys palustris*), garlic (*Allium* sp.), water avens (*Geum rivale*), wood avens (*Geum urbanum*), hogweed (*Heracleum sphondylium*), sweet cicely (*Myrrhis odorata*) and cow parsley (*Anthriscus sylvestris*). Some areas are more dense with abundant dog rose (*Rosa canina*), bramble (*Rubus fruticosus*), gorse (*Ulex europaeus*), thistles (*Carduus* sp.) and docks (*Rumex* spp.) interspersed with occasional mature trees. Elder (*Sambucus nigra*) and broom (*Sarothamnus* [*Cytisus*] *scoparius*) are frequent. Also there are some patches of bracken (*Pteridium aquilinum*). There are some rocky outcrops from the bank. The strip of woodland by the beach is a mixture of ash (*Fraxinus excelsior*), cherry (*Prunus* sp.), elder (*Sambucus nigra*), birch (*Betula* sp.), willow (*Salix* sp.), and rowan (*Sorbus aucuparia*). Reasonable understorey and ground flora. Evidence of abundant rabbit population, and some pine marten scats found. Small amount of disturbance.

NH610609 Map sheet: NH66SW

Birch (*Betula* sp.) woodland with abundant rowan (*Sorbus aucuparia*) in the north end. There has been extensive grazing, and hence little regeneration in this part of the wood, and most of the rowan has been ring-barked. There is also abundant rabbit activity, keeping the herb layer very short. In the central and southern areas, the wood is more mixed, with patches of oak (*Quercus* sp.), and some larch (*Larix* sp.), Scots (*Pinus sylvestris*), and elder (*Sambucus nigra*). There is less evidence of grazing and the herb layer is longer. There is also more regeneration (though no signs of oak regeneration in the south-west corner) and some large stands of bracken (*Pteridium aquilinum*). Ground flora throughout the woodland is species-rich, with several species of fern, tormentil (*Potentilla erecta*), heath bedstraw (*Galium saxatile*), dog violet (*Viola riviniana*), honeysuckle (*Lonicera periclymenum*), wood-rush (*Luzula* spp.), bramble (*Rubus fruticosus*), rosebay willowherb (*Chamaenerion angustifolium*), dog rose (*Rosa canina*), wavy hair-grass (*Deschampsia flexuosa*), dock (*Rumex* sp.), cock's foot (*Dactylis glomerata*), gorse (*Ulex europaeus*), germander speedwell (*Veronica chamaedrys*), heath speedwell (*Veronica officinalis*), heather (*Calluna vulgaris*), sheep's sorrel (*Rumex acetosella*), common sorrel (*Rumex acetosa*), sweet vernal grass (*Anthoxanthum odoratum*), Yorkshire fog (*Holcus lanatus*), spear thistle (*Cirsium vulgare*), stinging nettle (*Urtica dioica*), cleavers (*Galium aparine*), and chickweed wintergreen (*Trientalis europaea*).

NH612602 Map sheet: NH66SW

Drainage ditch with running water which comes from target note Grid Ref. NH616603 area and crosses under the road. Supports much vegetation including yellow vetch (*Vicia lutea*), yellow iris (*Iris pseudacorus*), docks (*Rumex* spp.), marsh-marigold (*Caltha palustris*), lesser stitchwort (*Stellaria graminea*), cleavers (*Galium aparine*), monkey flower (*Mimulus guttatus*), brooklime (*Veronica beccabunga*), water-cress (*Rorippa nasturtium-aquaticum*), creeping thistle (*Cirsium arvense*), water forget-me-not (*Myosotis scorpioides*), marsh woundwort (*Stachys palustris*), soft rush (*Juncus effusus*), bur-reed (*Sparganium* sp.), creeping buttercup (*Ranunculus repens*), dog rose (*Rosa canina*), Yorkshire fog (*Holcus lanatus*), tufted vetch (*Vicia cracca*), meadowsweet (*Filipendula ulmaria*), false oat grass (*Arrhenatherum elatius*), stinging nettle (*Urtica dioica*), hogweed (*Heracleum sphondylium*), and cock's foot (*Dactylis glomerata*).

NH616603 Map sheet: NH66SW

Complex mosaic of habitats, difficult to map at this scale. Includes acid grassland mosaic with abundant gorse (*Ulex europaeus*). Some rabbit grazing. Semi-improved grassland areas support violets (*Viola* sp.), tormentil (*Potentilla erecta*) and moss (*Rhytidiadelphus squarrosus*). Quite wet in places. Marshy grassland seems to be undergoing succession to a drier community. Quite species-rich with little soft rush (*Juncus effusus*). Where tall ruderals occur on this site, rosebay willowherb (*Chamaenerion angustifolium*) dominates. The swamp areas support a range of species including creeping buttercup (*Ranunculus repens*), marsh-marigold (*Caltha palustris*), meadowsweet (*Filipendula ulmaria*), soft rush, yellow iris (*Iris pseudacorus*), marsh willowherb (*Epilobium palustre*), marsh cinquefoil (*Potentilla palustris*) and common marsh-bedstraw (*Galium palustre*). Area of open water may be seasonal, with quite a low level of water at time of survey. Appears to be undergoing succession and is vegetating over. Still a good habitat. Area of thick willow (*Salix* sp.) carr at south of area. Altogether many varied habitats, relatively species-rich, many invertebrates found such as

grasshoppers and caterpillars, also some frogs. Several drains cross the site and perhaps attempts have been made to drain the surrounding land. Enclosed by a fence.

NH617616 Map sheet: NH66SW

Felled plantation

NH617618 Map sheet: NH66SW

Felled plantation with a little regeneration of Scots pine (*Pinus sylvestris*) (which could possibly have been planted) in one corner. The whole area has been colonised by rosebay willowherb (*Chamaenerion angustifolium*), stinging nettle (*Urtica dioica*), dock (*Rumex* sp.), thistle (*Cirsium* sp.), and sweet vernal grass (*Anthoxanthum odoratum*). There is some regeneration of birch (*Betula* sp.).

NH618602 Map sheet: NH66SW

Marshy grassland with tall water horsetail (*Equisetum fluviatile*), meadowsweet (*Filipendula ulmaria*), yellow vetch (*Vicia lutea*), tufted hair-grass (*Deschampsia cespitosa*), silverweed (*Potentilla anserina*), marsh cinquefoil (*Potentilla palustris*), and scattered soft rush (*Juncus effusus*). Adjacent bare ground has been ploughed, then left. Species include field pansy (*Viola arvensis*), redshank (*Polygonum persicaria*), knot grass (*Polygonum aviculare*), common hemp nettle (*Galeopsis tetrahit*), and mugwort (*Artemisia vulgaris*).

NH618622 Map sheet: NH66SW

Access denied to Wester Toberchurn and Easter Shoretown, so area not surveyed in detail.

NH619612 Map sheet: NH66SW

Area of marshy grassland containing wood-rush (*Luzula* sp.), hare's tail cotton sedge (*Eriophorum vaginatum*), common yellow sedge (*Carex demissa*), marsh pennywort (*Hydrocotyle vulgaris*), lousewort (*Pedicularis sylvatica*), Dutch rush (*Equisetum hyemale*), marsh marigold (*Caltha palustris*), forget-me-not (*Myosotis* sp.), purple moor grass (*Molinia caerulea*), black sedge (*Carex nigra*), lady's bedstraw (*Galium verum*), bugle (*Ajuga reptans*) and milkwort (*Polygala vulgaris*).

NH622614 Map sheet: NH66SW

Pond now vegetated. Dominated by bottle sedge (*Carex rostrata*), with abundant bog bean (*Menyanthes trifoliata*) and frequent marsh cinquefoil (*Potentilla palustris*), surrounded by willow (*Salix* sp.). Adjacent conifers felled in a 20 metre strip.

NH623612 Map sheet: NH66SW

A new house has been built here with a small pond which seems to be of little wildlife interest at present.

NH635627 Map sheet: NH66SW

New fence erected, surrounding strip of mature trees under-planted with deciduous trees.

NH638623 Map sheet: NH66SW

Northern marsh orchids (*Dactylorhiza purpurella*).

NH639610 Map sheet: NH66SW

Christmas tree plantation.

NH639626 Map sheet: NH66SW

Defunct dry stone dike, quite species-rich either side of the burn, containing great wood-rush (*Luzula sylvatica*).

NH640603 Map sheet: NH66SW

Regeneration of rowan (*Sorbus aucuparia*) on both sides of the road.

NH641645 Map sheet: NH66SW

Area of scrub with scattered trees and tall ruderal including stinging nettle (*Urtica dioica*), hogweed (*Heracleum sphondylium*). Gorse (*Ulex europaeus*) appears in tufts along the shoreline and there is scattered hawthorn (*Crataegus monogyna*) and elder (*Sambucus nigra*).

NH642602 Map sheet: NH66SW

Area of mature Scots pine (*Pinus sylvestris*) plantation with a ground flora dominated by heather (*Calluna vulgaris*) and supporting various mosses. Good regeneration.

NH642613 Map sheet: NH66SW

Gully by side of road has formed a wildlife corridor, linking conifer plantation to road. Rowan (*Sorbus aucuparia*) is dominant, interspersed with dense scrub - mostly gorse (*Ulex europaeus*), and broom (*Sarothamnus* [*Cytisus*] *scoparius*). Species-rich ground flora includes greater stitchwort (*Stellaria holostea*), lesser stitchwort (*Stellaria graminea*), water forget-me-not (*Myosotis scorpioides*), heath bedstraw (*Galium saxatile*), lady's mantle (*Alchemilla vulgaris*), sweet cicely (*Myrrhis odorata*), cow parsley (*Anthriscus sylvestris*), brambles (*Rubus fruticosus*), hogweed (*Heracleum sphondylium*), germander speedwell (*Veronica chamaedrys*), bush vetch (*Vicia sepium*), ferns, meadow grass (*Poa* sp.), red fescue (*Festuca rubra*), cock's foot (*Dactylis glomerata*), tufted hair-grass (*Deschampsia cespitosa*), stinging nettle (*Urtica dioica*), dock (*Rumex* sp.), wild angelica (*Angelica sylvestris*), marsh-marigold (*Caltha palustris*), cleavers (*Galium aparine*) and rosebay willowherb (*Chamaenerion angustifolium*).

NH645648 Map sheet: NH66SW

Conifers indicated on map , but no longer present. Small patch of Scots pine (*Pinus sylvestris*).

NH646619 Map sheet: NH66SW

Mosaic of scrub with some planted trees and marshland areas. Species include birch (*Betula* sp.), sycamore (*Acer pseudoplatanus*), alder (*Alnus glutinosa*), and Scots pine (*Pinus sylvestris*). Scrub layer includes gorse (*Ulex europaea*), bracken (*Pteridium aquilinum*), bramble (*Rubus fruticosus*), dog rose (*Rosa canina*) and raspberry (*Rubus idaeus*).

NH646649 Map sheet: NH66SW

Red sandstone cliff with strip of ash (*Fraxinus excelsior*) woodland, probably planted. There are ferns and dog rose (*Rosa canina*). Elder (*Sambucus nigra*) dominates the shrub layer.

NH649618 Map sheet: NH66SW

Acid heath, species-rich but grazed. Remnant of Scots pine (*Pinus sylvestris*) woodland, abundance of orchids. Species include heather (*Calluna vulgaris*), heath rush (*Juncus squarrosus*), green-ribbed sedge (*Carex binervis*), bugle (*Ajuga reptans*), and lousewort (*Pedicularis sylvatica*).

NH66SE (Produced 1996)

NH651617 Map sheet: NH66SE

Mosaic of acid grassland and dry heath on sloping ground with areas dominated by broom (*Sarothamnus* [*Cytisus*] *scoparius*) scrub. Denser scrub found at top of slope grading to heath-dominated area at bottom of slope. Occasional clumps of willow (*Salix* sp.), wild cherry (*Prunus avium*) and mature Scots pine (*Pinus sylvestris*).

NH651638 Map sheet: NH66SE

Area of rough ground with scattered gorse (*Ulex europaeus*) and tall ruderal plus occasional planted broadleaved tree. Area possibly at one time dominated by gorse scrub, recently cleared. Adjacent area appears to be marked out for future housing development.

NH653627 Map sheet: NH66SE

Broadleaved woodland dominated by birch (*Betula* sp.), (mature), with occasional alder (*Alnus glutinosa*). Hazel (*Corylus avellana*) is abundant down the sides of this woodland (next to streams), plus occasional elder (*Sambucus nigra*), goat willow (*Salix caprea*), wild cherry (*Prunus avium*). Lesser celandine (*Ranunculus ficaria*), wood anemone (*Anemone nemorosa*) and opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*) are all abundant by these streams. In the main body of woodland, the ground flora is heavily grazed by livestock. Partly enclosed. Also a small pocket of oak (*Quercus* sp.), with a blaeberry (*Vaccinium myrtillus*) ground flora.

NH663640 Map sheet: NH66SE

Previously improved grazing now given over to pig rearing with resultant loss of vegetation.

NH668641 Map sheet: NH66SE

Vegetated drainage channel. Species include common reed (*Phragmites australis*), meadowsweet (*Filipendula ulmaria*), rosebay willowherb (*Chamaenerion angustifolium*), gorse (*Ulex europaeus*), marsh thistle (*Cirsium palustre*), creeping thistle (*Cirsium arvense*), dog rose (*Rosa canina*), Yorkshire fog (*Holcus lanatus*), cleavers (*Galium aparine*), bramble (*Rubus fruticosus*), hogweed (*Heracleum sphondylium*), bird's foot trefoil (*Ornithopus perpusillus*), raspberry (*Rubus idaeus*), hawthorn (*Crataegus monogyna*), and cock's foot (*Dactylis glomerata*). Dragonfly seen.

NH668645 Map sheet: NH66SE

Dry heath, dominated by heather (*Calluna vulgaris*), gorse (*Ulex europaeus*), heath rush (*Juncus squarrosus*), and sedges (*Carex* spp.). Also present are purple moor grass (*Molinia caerulea*), tormentil (*Potentilla erecta*), Yorkshire fog (*Holcus lanatus*), marsh thistle (*Cirsium palustre*), bramble (*Rubus fruticosus*), wood-rush (*Luzula* spp.), devil's bit scabious (*Succisa pratensis*), sneezewort (*Achillea ptarmica*), and small patches of cross-leaved heath (*Erica tetralix*), selfheal (*Prunella vulgaris*), and ragwort (*Senecio jacobaea*). There is also some birch (*Betula* sp.) regeneration and some large areas of meadowsweet (*Filipendula ulmaria*). The corner of the field is surrounded by bracken (*Pteridium aquilinum*), broom (*Sarothamnus* [*Cytisus*] *scoparius*), and gorse (*Ulex europaeus*). The field is small and covered mostly with ruderals especially redshank (*Polygonum persicaria*). Probably set-aside.

NH669636 Map sheet: NH66SE

This area of birch (*Betula* sp.), (varying age) and mature Scots pine (*Pinus sylvestris*) woodland has been used for building plots. About six new houses have been erected amongst the trees.

NH669642 Map sheet: NH66SE

Species-rich stream with meadowsweet (*Filipendula ulmaria*), tufted hair-grass (*Deschampsia cespitosa*), water forget-me-not (*Myosotis scorpioides*), alder (*Alnus glutinosa*), broom (*Sarothamnus* [*Cytisus*] *scoparius*), cock's foot (*Dactylis glomerata*), yellow iris (*Iris pseudacorus*), stinging nettle (*Urtica dioica*), creeping thistle (*Cirsium arvense*), yarrow (*Achillea millefolium*), stitchwort (*Stellaria* sp.), rosebay willowherb (*Chamaenerion angustifolium*), tufted vetch (*Vicia cracca*) and raspberry (*Rubus idaeus*).

NH672600 Map sheet: NH66SE

Old abandoned quarry, now used as a dump. Half filled with old cars and other refuse. Water polluted and apparently lifeless. Could otherwise have been an interesting habitat.

NH673638 Map sheet: NH66SE

Birch (*Betula* sp.) woodland with clearing beneath power lines. Regeneration of birch but ground layer predominantly heather (*Calluna vulgaris*) with occasional cross-leaved heath (*Erica tetralix*) and willow (*Salix* sp.) regeneration. Other species include tormentil (*Potentilla erecta*), deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]), heath rush (*Juncus squarrosus*), star sedge (*Carex echinata*), marsh lousewort (*Pedicularis palustris*), soft rush (*Juncus effusus*), purple moor-grass (*Molinia caerulea*), and tufted hair-grass (*Deschampsia cespitosa*). Also present were mat-grass (*Nardus stricta*), chickweed wintergreen (*Trientalis europaea*), *Sphagnum* spp., wood-rush (*Luzula* sp.) and hard fern (*Blechnum spicant*). Scots pine (*Pinus sylvestris*) regeneration does not appear to be healthy. There is a good moss carpet including *Polytrichum* sp.. The ride running west to east continues through the woodland beneath power lines until it splits north and south at the west end.

NH677603 Map sheet: NH66SE

Although all of plantation origin, the woodland is mainly Scots pine (*Pinus sylvestris*) and the ground flora is well developed. The area supports a range of habitats in the rides by tracks and in a few small areas of wetland adjacent to lochans, and a small patch of broadleaved woodland. Therefore relatively species-rich. Signs of pine martens noted. Roe deer abundant. Also abundant butterflies (survey June), particularly speckled wood but also noted small copper, red admiral and green veined white. Some large areas felled; all re-planted with spruce (*Picea* sp.). As these develop they will become species-poor and will substantially reduce the area of better habitat.

NH678626 Map sheet: NH66SE

Flush within wet heath supporting devils-bit scabious (*Succisa pratensis*), marsh pennywort (*Hydrocotyle vulgaris*), cotton grass (*Eriophorum* sp.), orchids (*Dactylorhiza* sp.), common rush (*Juncus conglomeratus*), marsh willowherb (*Epilobium palustre*), marsh lousewort (*Pedicularis palustris*), angelica (*Angelica sylvestris*), star sedge (*Carex echinata*), horsetail (*Equisetum* sp.), meadowsweet (*Filipendula ulmaria*), purple moor-grass (*Molinia caerulea*), Yorkshire fog (*Holcus lanatus*) and bog asphodel (*Narthecium ossifragum*).

NH679628 Map sheet: NH66SE

Mosaic of wet heath and woodland, with flushes. Heather (*Calluna vulgaris*) dominant. Cross-leaved heath (*Erica tetralix*) frequent. Occasional juniper (*Juniperus communis*). Various sedges and rushes present. Birch (*Betula* sp.) and Scots pine (*Pinus sylvestris*) are regenerating over this area of heath, which is generally heavily grazed. Owner at Wood of Brae. Enclosed. Stock grazed.

NH679629 Map sheet: NH66SE

Young birch (*Betula* sp.) woodland (10-15 years) with occasional mature birch, Scots pine (*Pinus sylvestris*), larch (*Larix* sp.) and rowan (*Sorbus aucuparia*). Understorey predominantly wavy hair-grass (*Deschampsia flexuosa*) and mosses including *Hylocomium splendens*, *Rhytidiadelphus triquetrus* and occasional *Thuidium tamariscinum*, with dense blaeberry (*Vaccinium myrtillus*) in places. Patches of wood sorrel (*Oxalis acetosella*), and occasional chickweed wintergreen (*Trientalis europaea*).

NH680630 Map sheet: NH66SE

Flush on edge of wet heath. Drainage flowing from adjacent conifer plantation. Species include cotton sedge (*Eriophorum* sp.), bog asphodel (*Narthecium ossifragum*), *Sphagnum* sp., marsh marigold (*Caltha palustris*) and sedge (*Carex* sp.).

NH681632 Map sheet: NH66SE

Mature alder (*Alnus glutinosa*) woodland in deep gully, with no regeneration. Understorey a mosaic of neutral creeping soft-grass (*Holcus mollis*) grassland and marshy grassland with meadowsweet (*Filipendula ulmaria*), tufted hair-grass (*Deschampsia cespitosa*) and black sedge (*Carex nigra*). Gradation to a more acidic community on upper slopes where bracken (*Pteridium aquilinum*) is abundant. Birch (*Betula* sp.), larch (*Larix* sp.) and ash (*Fraxinus excelsior*) also found on upper slopes. Part of woodland complex following burn through The Den.

NH682607 Map sheet: NH66SE

Loch/pond within a forestry commission plantation of Scots pine (*Pinus sylvestris*), now dominated by an acid bog community of *Sphagnum* sp. and sedge (*Carex* sp.). Dead standing pine border the bog, with heather (*Calluna vulgaris*) and a moss carpet. See target note NH684606.

NH682649 Map sheet: NH66SE

Birch (*Betula* sp.) woodland. Mixed maturity. Occasional Scots pine (*Pinus sylvestris*) and rowan (*Sorbus aucuparia*). Scrub layer: Gorse (*Ulex europaeus*) abundant, with bramble (*Rubus fruticosus*). Ground flora includes heather (*Calluna vulgaris*), soft rush (*Juncus effusus*), meadowsweet (*Filipendula ulmaria*), devil's-bit scabious (*Succisa pratensis*), ragwort (*Senecio jacobaea*), and tufted hair-grass (*Deschampsia cespitosa*). Mosses include *Thuidium Tamariscinum*. Enclosed. Stock grazed. New housing on the fringes.

NH683629 Map sheet: NH66SE

Braelangwell Wood. Mixed semi-natural woodland (SSSI grade 3). See target note NH689631.

NH684606 Map sheet: NH66SE

Lochan in advanced stage of succession to sedge swamp. Dominated by bottle sedge (*Carex rostrata*) with abundant *Sphagnum recurvum*. Adjacent areas in advanced succession to blanket mire (unmodified bog) but modified by abundant Scots pine (*Pinus sylvestris*) growth. However, still fairly species-rich with abundant *Sphagnum* species.

NH688626 Map sheet: NH66SE

Area of dry heath with patchy birch (*Betula* sp.), willow (*Salix* sp.) and Scots pine (*Pinus sylvestris*) of varying ages. Heath dominated by heather (*Calluna vulgaris*) with frequent cross-leaved heath (*Erica tetralix*). Rush species frequent especially heath rush (*Juncus*

squarrosus). Occasional northern marsh orchid (*Dactylorhiza purpurella*), heath spotted orchid (*Dactylorhiza maculata*), and common spotted orchid (*Dactylorhiza fuchsii*). This farm is generally less intensively managed than usual for the Black Isle. Grazing meadows to the west of the target note are relatively acidic with frequent mat grass (*Nardus stricta*) and black sedge (*Carex nigra*). Large wetter areas of soft rush (*Juncus effusus*) supporting nesting curlews and possibly snipe.

NH689631 Map sheet: NH66SE

Braelangwell Wood. Mixed semi-natural woodland (SSSI grade 3). Originally a Larch (*Larix* sp.)/Scots pine (*Pinus sylvestris*) plantation, which was felled about 50 years ago. Subsequent natural regeneration accounts for the present growth of birch (*Betula* sp.), Scots pine and alder (*Alnus glutinosa*) adjacent to burn running south-west to north-east. Birch concentrated around steeper, wetter slopes to north and east with Scots pine dominant to south and west, with scattered granny pines and areas of younger pine. Shrub layer sparse with some birch and alder regeneration, and juniper (*Juniperus communis*) locally frequent. Woodland unenclosed and stocking density of cattle and sheep too high to allow significant regeneration. Ground flora grassy with abundant moss (*Hylocomium splendens*) in drier areas. Wetter slopes are species-rich with calcareous flushes and small open heathy areas. Abundant butterwort (*Pinguicula vulgaris*), bugle (*Ajuga reptans*), and water avens (*Geum rivale*). Occasional orchids (*Dactylorhiza* spp.), yellow pimpernel (*Lysimachia nemorum*), and wild strawberry (*Fragaria vesca*) all noted during survey. Flushes known to support rarer communities of broad-leaved cotton grass (*Eriophorum latifolium*), grass of Parnassus (*Parnassia palustris*), yellow saxifrage (*Saxifraga azoides*), hair sedge (*Carex capillaris*), purging flax (*Linum catharticum*) and black bog rush (*Schoenus nigricans*). Nesting great spotted woodpeckers and fox cubs encountered. June.

NH689641 Map sheet: NH66SE

The Den. Broadleaved wooded gully. Alder (*Alnus glutinosa*) of mixed maturity fringes the meandering Braelangwell Burn. Scattered birch (*Betula* sp.) and rowan (*Sorbus aucuparia*). Frequent gorse (*Ulex europaeus*). Ground flora poor. Bracken (*Pteridium aquilinum*) dominates the slopes and most of the gully floor. Enclosed. Stock grazed. Roe deer numerous. No regeneration. Also exposed earth banks.

NH689649 Map sheet: NH66SE

Mixed mature semi-natural broadleaved woodland on the banks of Newhall Burn. Oak (*Quercus* sp.), beech (*Fagus sylvatica*), lime (*Ulmus* sp.) and birch (*Betula* sp.) are locally dominant. Sycamore (*Acer pseudoplatanus*), rowan (*Sorbus aucuparia*), alder (*Alnus glutinosa*) and hawthorn (*Crataegus monogyna*) are present. Young saplings of ash (*Fraxinus excelsior*) are abundant. "Shrub" layer dominated by bracken (*Pteridium aquilinum*). Elder (*Sambucus nigra*) and gorse (*Ulex europaeus*) are also present. Ground flora includes water avens (*Geum rivale*) and wood avens (*Geum urbanum*), which are dominant by the burn and on adjacent slopes. There are also patches of grass, mostly tufted hair-grass (*Deschampsia cespitosa*), with cock's-foot (*Dactylis glomerata*) and bent (*Agrostis stolonifera*) on sloping ground. Lesser celandine (*Ranunculus ficaria*) and pignut (*Conopodium majus*) also present. Enclosed. Grazed. New housing. See sheet map NH 66 NE and relevant target note for information on the birch dominated area.

NH691635 Map sheet: NH66SE

Stock proof fence along the line of old dike. Small break in canopy reveals much better regeneration of birch (*Betula* sp.) and alder (*Alnus glutinosa*) than in the main body of Braelangwell Wood. Ground flora typical of the area; grassy with wavy hair-grass (*Deschampsia flexuosa*) and tufted hair-grass (*Deschampsia cespitosa*) abundant. Occasional cross-leaved heath (*Erica tetralix*) and orchids (*Dactylorhiza* sp.). Localised calcareous flushes support black bog rush (*Schoenus nigricans*). Woodland contains evidence of pheasant rearing e.g. small enclosures.

NH692628 Map sheet: NH66SE

Birch (*Betula* sp.) woodland with grassy acidic understorey and abundant moss (*Hylocomium splendens*). Some regeneration of birch and rowan (*Sorbus aucuparia*). However, browsing and deer tracks evident throughout. Also evidence of horses and pine marten. Canopy mainly low and dense with clearings dominated by bracken (*Pteridium aquilinum*). On banks to the east, trees more widely spaced, taller and more mature. Herbs such as water avens (*Geum rivale*), marsh-marigold (*Caltha palustris*), and bugle (*Ajuga reptans*) found on wetter ground. Occasional Scots pine (*Pinus sylvestris*) and exotic conifers. Substantial birch regeneration and encroaching gorse (*Ulex europaeus*) along ride to north.

NH694623 Map sheet: NH66SE

Felled plantation with abundant birch (*Betula* sp.) and some larch (*Larix* sp.) regeneration. Occasional Scots pine (*Pinus sylvestris*) and mature birch have been left.

NH695635 Map sheet: NH66SE

Planted larch (*Larix* sp.) with frequent birch (*Betula* sp.) and oak (*Quercus* sp.). No shrub layer. Ground flora poor with tufted hair-grass (*Deschampsia cespitosa*), bracken (*Pteridium aquilinum*) and bramble (*Rubus fruticosus*). Lesser celandine (*Ranunculus ficaria*), meadowsweet (*Filipendula ulmaria*), opposite leaved golden saxifrage (*Chrysosplenium oppositifolium*) are all frequent near the stream. Enclosed. Grazed.

NH696631 Map sheet: NH66SE

Felled plantation now regenerating with larch (*Larix* sp.), birch (*Betula* sp.), Scots pine (*Pinus sylvestris*), and Western hemlock (*Tsuga heterophylla*). Across the road in the corner of the field at grid reference NH695632 lies a small area of species-rich neutral grassland with flush. Species include soft rush (*Juncus effusus*), marsh marigold (*Caltha palustris*), cuckoo flower (*Cardamine pratensis*), brooklime (*Veronica beccabunga*), pignut (*Conopodium major*), wild angelica (*Angelica sylvestris*), meadow vetchling (*Lathyrus pratensis*), and horsetails (*Equisetum* sp.).

NH696638 Map sheet: NH66SE

Area of marshy grassland with purple moor-grass (*Molinia caerulea*) dominant. Small burn along western edge is possibly the remains of a neglected drainage ditch. Occasional cross-leaved heath (*Erica tetralix*) and frequent sedges including carnation sedge (*Carex panacea*), common sedge (*Carex nigra*) and common yellow sedge (*Carex demissa*). Also scattered

stunted alder (*Alnus glutinosa*) which have been browsed. Occasional orchids (*Dactylorhiza* spp.). This area may have been too wet to allow expansion of adjacent woodland except for alder which is not successfully regenerating. This area lies adjacent to a mixed broadleaved woodland of plantation origin which is located within the grounds of Braelangwell House. Beech (*Fagus sylvatica*) is dominant but also includes mature ash (*Fraxinus excelsior*), alder, Norway maple (*Acer platanoides*), elm (*Ulmus* sp.) and lime (*Tilia* sp.). Mature Scots pine (*Pinus sylvestris*) and exotic conifers are occasionally found. The woodland has taken on a semi-natural appearance with some regeneration favouring the Norway maple. Grassy understorey of Yorkshire fog (*Holcus lanatus*) and tufted hair-grass (*Deschampsia cespitosa*), with bracken (*Pteridium aquilinum*) encroaching where there are breaks in the canopy.

NH697603 Map sheet: NH66SE

Narrow strip of very wet alder (*Alnus glutinosa*) woodland. Sedges (*Carex* sp.) and mosses abundant, as well as a range of common herbs. Evidence of past grazing.

NH699602 Map sheet: NH66SE

Dense, wet, alder (*Alnus glutinosa*) woodland with scattered Scots pine (*Pinus sylvestris*). Relatively species-rich in places. Mosses abundant. North side is wet heath with Scots pine regeneration. Apparently ungrazed. (see target note for NH700603, map NH76SW. Target note refers to same woodland).

NH699642 Map sheet: NH66SE

Birks Burn, semi-natural wooded gully (small/narrow), dominated by mature ash (*Fraxinus excelsior*), with frequent alder (*Alnus glutinosa*). Shrub layer includes hazel (*Corylus avellana*), hawthorn (*Crataegus monogyna*) and elder (*Sambucus nigra*). Ground flora includes abundant lesser celandine (*Ranunculus ficaria*), with frequent tufted hair-grass (*Deschampsia cespitosa*), pignut (*Conopodium majus*) and meadowsweet (*Filipendula ulmaria*). Unenclosed.

NH67NW (Produced 1996 and 1998)

NH625756 Map sheet: NH67NW

Complex mosaic of acid grassland, marshy grassland, and wet heath, suppressed by grazing. Some of area may have been a bog, but drainage has caused a lowering of water table, though some areas remain quite wet. (Some patches are tending towards dry modified bog). Moderately species rich patches have survived and the area as a whole probably supports a relatively long list of common species. Nearby areas to north-west are at an earlier stage in development towards this habitat, with relatively intact heath. Areas along the glen to the east are at a later development stage with an absence of heath species over large areas. Species including sedges (*Carex* spp.), cross-leaved heather (*Erica tetralix*), heather (*Calluna vulgaris*), acid grasses including wavy hair-grass (*Deschampsia flexuosa*), bent-grass (*Agrostis* sp.), *Sphagnum* spp. and a range of common acid loving herbs such as tormentil (*Potentilla erecta*).

NH626764 Map sheet: NH67NW

General area mostly heavily grazed by sheep, now or in past producing mosaic or wet heath/grassland of varying proportions. Gently sloping, therefore quite wet in places - hollows and channels support rank marshy grasslands of soft rush (*Juncus effusus*) and tufted hair-grass (*Deschampsia cespitosa*), all apparently relatively poor in species. The area to the south of this target note was apparently once a small pinewood, now few living trees remain but tree stumps are abundant. This is the most heavily grazed area, (tending to poor semi-improved/improved grassland in places) and no regeneration is likely to take place. A large block of new conifers have been planted to the north-west (new fence line only approximate), apparently extending eastwards over the skyline. The area grades into modified bog to north and east, with ample evidence of peat cutting adjacent to this target note.

NH629767 Map sheet: NH67NW

Extensive dry modified bog, drained and heavily grazed in places. Small patches of wet modified bog remain but only one substantial area which lies to the south of this target note. Hare's tail cotton-sedge (*Eriophorum vaginatum*) is still abundant to dominant, and *Sphagnum* is abundant in places, but patches of bare peat common and water table is clearly low. Peat extraction has occurred in the past, to west, where there are numerous tracks. The most intact areas lie to the south and towards the summit of Cnoc an t-Sraithaidh, but in the latter area topography is aiding drainage and species richness shows little increase. Over all, large areas have potential for considerable improvement (for wildlife) with blockage of drains and reduction in grazing.

NH646766 Map sheet: NH67NW

Large area considerably modified by drainage, heavy grazing by sheep and burning. Much of area which was probably once bog or very wet heath now appears as considerably modified wet heath with patches of short grass and moss. Bare peat is abundant throughout, particularly to the south. This does not constitute management that would lead to grassy upland pasture. Rather it is leading to considerable erosion and habitat degradation. (Removal of hill sheep subsidies would have an immediate positive impact on this area). Habitat degradation decreases westwards, up slope to Cnoc an t-Sraithaidh, but grazing is still too intensive to permit tree regeneration and wetter areas are still too heavily drained.

NH67NE (Produced 1999)

NH651766 Map sheet: NH67NE

South of Strathroy river - general area note - Very complex mosaic of bog, marshy grassland, heath and dryer grassland. Most modified to the south and west where grazing is heaviest, and deep drainage channels have been dug. To the north and west, the area experiences a moderate amount of grazing and some drainage. However, some parts appear to have been heavily burned in the past, creating dry modified bog and wet heath from what was probably much richer wet modified or unmodified bog. A little peat erosion is occurring in places. The central area, around this target symbol, is the most intact, with some areas of bog virtually unmodified. Hare's tail cotton sedge (*Eriophorum vaginatum*) dominates, and *Sphagnum* species are abundant. The dryer grassland, although appearing quite poor from a distance, is

relatively rich in places, particularly in some parts adjacent to the road. However, these areas are probably very sensitive to grazing and may vary from year to year.

NH651785 Map sheet: NH67NE

Although apparently quite uniform from a distance, this area is actually quite complex. A combination of hydrology, affected by underlying fluvioglacial/glacial deposits, and management, has rendered the area a mosaic of wet heath, wet and dry modified bog, and patches of dryer heath. The area is not particularly species rich, but this subtle variation in conditions has made mapping quite difficult.

NH651794 Map sheet: NH67NE

Extensive new conifer plantations extend for several kilometres to north and west. The trees are slowly lowering the water table, causing the remaining areas of bog to degrade. In such areas, hare's tail cotton sedge (*Eriophorum vaginatum*) and *Sphagnum* are still abundant, but heather (*Calluna vulgaris*) and deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]) are also abundant; early evidence of succession to dryer conditions. Intact bog pools suggest that the area was formerly very wet and probably quite interesting. Deep ploughing has been necessary to allow conifers to establish.

NH663775 Map sheet: NH67NE

Fluvioglacial/glacial deposits in the area adjacent to the river make hydrology complex and unpredictable. Many areas are underlain by boulders, cobbles or pebbles, which assist drainage, making conditions dryer than expected. Elsewhere, the damming effect of such deposits causes very wet conditions in hollows. As a result, the area is diverse and relatively species rich.

NH667784 Map sheet: NH67NE

General area note - A complex area of habitats amid extensive, dense conifer plantations. The conifers appear to have lowered the water table over the whole area, leading to some slightly unusual conditions. The areas of wet modified bog grade into marshy grassland which is often dominated by soft rush (*Juncus effusus*), but sometimes shows moderate species richness. Most areas of bog are dominated by hare's tail cotton sedge (*Eriophorum vaginatum*), but heather (*Calluna vulgaris*) is often co-dominant. The tufts of hare's tail cotton sedge appear raised in relation to other vegetation (notably *Sphagnum*), probably due to a fall in the water table. However, all species appear healthy, and conditions appear wet enough to support such species. On the heath, heather is often rank and sometimes shows similar, tussocky conditions to the bog whereby wet heath sometimes forms a mosaic with dry, or areas which one would expect to be wet support dry heath. Over all, the area is fairly species rich, with a wide range of common species. The channel immediately east of this target symbol is apparently of fluvioglacial origin - a meltwater channel of geomorphological interest.

NB. A short eared owl was sighted at NH666783 where it had been using a juniper (*Juniperus communis*) bush for cover.

NH670773 Map sheet: NH67NE

This part of Strathroy is a complex mosaic of marshy grassland, dryer grassland and heath. The whole area is grazed by cattle, and most of the marshy grassland is dominated by soft rush (*Juncus effusus*). However, the area as a whole is surprisingly species rich, and the dryer grassland is not as improved as it first appears. Grazing intensity will have considerable influence on this. Much of the marshy grassland is very wet, and parts support a range of herbs, grasses and sedges not normally found in habitats so dominated by soft rush. Part of the area is a SSSI and, as a whole, the system of habitats deserves a more detailed survey.

NH671752 Map sheet: NH67NE

Complex mosaic of Scots pine (*Pinus sylvestris*), larch (*Larix* sp.) and heath. Northern section appears quite natural and grades imperceptibly into denser, more plantation-like stands to the south. However, the latter still supports a healthy ground flora over large areas.

NH680753 Map sheet: NH67NE

Large area of bog, modified by drainage channels. Some parts relatively dry with *Sphagnum* species only scattered. However, hare's tail cotton sedge (*Eriophorum vaginatum*) is abundant throughout, and no bare peat is evident (usually common on dry modified bog). Probably still undergoing succession as area continues to dry out. Successful restoration following filling of channels still appears possible. Lichen (*Cladonia* sp.) is also very abundant in places.

NH683750 Map sheet: NH67NE

General area note - A complex area of heath and grassland (with some bog in places). Grazed by sheep and cattle, with species richness determined by level of grazing. Some new fences appear to have reduced grazing pressure on areas to the south (on adjacent map), along the edge of the conifer plantation. Areas of heath/grassland mosaic are all quite heavily grazed. However, species richness is variable and some parts support an interesting range of common species.

NH686769 Map sheet: NH67NE

Very complex area of marshy grassland and acid grassland with patches of more neutral grassland, heath, bracken (*Pteridium aquilinum*), willow (*Salix* sp.), birch (*Betula* sp.) and Scots pine (*Pinus sylvestris*). Most of the marshy grassland is quite species rich, with some parts very wet and tending towards swamp in places. Species include cuckoo flower (*Cardamine pratensis*), marsh marigold (*Caltha palustris*), water forget-me-not (*Myosotis scorpioides*), violet (*Viola* sp.) butterwort (*Pinguicula vulgaris*), horsetail (*Equisetum* sp.), marsh thistle (*Cirsium palustre*), sedges (*Carex* spp.) and many others. Soft rush (*Juncus effusus*) varies in abundance, but is scarce in richer areas. Whole area is grazed by cattle, but not very intensively. Where grazing is focused, areas tend to be more grassy, with nutrient enrichment causing some localised areas to be neutral.

NH695755 Map sheet: NH67NE

Very complex area of mature pinewood (*Pinus sylvestris*) with a scattering of birch (*Betula* sp.) and juniper (*Juniperus communis*). Most of the ground is dominated by blaeberry (*Vaccinium myrtillus*), with heather (*Calluna vulgaris*) only occasionally dominant. Appears diverse and relatively species rich. Other species noted include hairy wood-rush (*Luzula pilosa*) and wavy hair-grass (*Deschampsia flexuosa*). Small patches of bog and wet heath occur, but mainly along the north and western margins. Mapping is only approximate but reflects the proportion of open space to closed canopy in most areas. The south-west section has been fenced off and is more grassy, having been grazed by livestock.

NH695770 Map sheet: NH67NE

Area mapped from opposite hillside - not surveyed in detail, particularly where topography obscures the depression at the point of this target symbol. Appears to be mainly uniform dry heath with a scattering of Scots pine (*Pinus sylvestris*) and several patches of gorse (*Ulex europaeus*) and bracken (*Pteridium aquilinum*). Bare scree (talus slopes) occur in places. These are stable and inactive and generally too small to map at this scale.

NH67SW (Produced 1998)

NH600739 Map sheet: NH67SW

A large area of marshy grassland. Meadowsweet (*Filipendula ulmaria*) is abundant, as is juniper (*Juniperus communis*). Other species include meadow buttercup (*Ranunculus repens*), Devil's-bit scabious (*Succisa pratensis*) and horsetail (*Equisetum* sp.).

NH600749 Map sheet: NH67SW

Young plantation mainly of Sitka spruce (*Picea sitchensis*) plus a few broadleaved trees including rowan (*Sorbus aucuparia*), oak (*Quercus* sp.), sycamore (*Acer pseudoplatanus*) and beech (*Fagus sylvatica*). Ground flora is marshy grassland dominated by tufted hair-grass (*Deschampsia cespitosa*), with soft rush (*Juncus effusus*), compact rush (*Juncus conglomeratus*) and marsh thistle (*Cirsium palustre*). Also patches of acid and neutral grassland with sweet vernal grass (*Anthoxanthum odoratum*), creeping soft-grass (*Holcus mollis*), bent grasses (*Agrostis* spp), plus wet heath with heather (*Calluna vulgaris*), cross-leaved heath (*Erica tetralix*), and heath bedstraw (*Galium saxatile*). Also foxglove (*Digitalis purpurea*), stitchwort (*Stellaria* sp.), tormentil (*Potentilla erecta*), sorrel (*Rumex* sp.), sneezewort (*Achillea ptarmica*) and St. John's wort (*Hypericum* sp.). Scattered scrub, mainly broom (*Sarothamnus* [*Cytisus*] *scoparius*). Ferns and mosses in damp ditches. Large hawkmoth dragonfly and Scotch argus (*Erebia aethiops*) butterflies noted.

NH601723 Map sheet: NH67SW

Complex, relatively species rich marshy grassland supporting a range of common grasses, sedges and herbs, including grass of Parnassus (*Parnassia palustre*) and very little soft rush (*Juncus effusus*). Tends towards flush in places with species such as bog asphodel (*Narthecium ossifragum*). Drier parts vary from acid to neutral grassland, and some large patches of heath mosaic occur to the east. Entire area grazed by cattle from time to time.

However, although this may be suppressing flora to some extent, a certain level of grazing is probably necessary to keep soft rush, purple-moor grass (*Molinia caerulea*) and other rank species in check. Area is complex and is mapped according to most dominant habitat.

NH601738 Map sheet: NH67SW

Young broadleaved plantation containing ash (*Fraxinus excelsior*), rowan (*Sorbus aucuparia*), cherry species (*Prunus avium/padus*), and poplar (*Populus* spp.).

NH602733 Map sheet: NH67SW

Young birch (*Betula* sp.) and rowan (*Sorbus aucuparia*) plantation with a dry heath understorey. Heather (*Calluna vulgaris*) was dominant, and blaeberry (*Vaccinium myrtillus*) was abundant. Crowberry (*Empetrum nigrum*) was frequent in this area. In the heath to the south, blaeberry was dominant, and heather was frequent.

NH605710 Map sheet: NH67SW

Deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]), on gentle slopes and level ground, heath rush (*Juncus squarrosus*) in dryer parts. Small patches of dry modified bog remain. Large areas have been burned from time to time. (Red grouse appear abundant.) Conifers are colonising lower slopes to east, mostly Scot's pine (*Pinus sylvestris*), but occasional lodgepole pine (*Pinus contorta*), from adjacent plantations.

NH605744 Map sheet: NH67SW

Inchlumpie Wood - Young plantation of Sitka spruce (*Picea sitchensis*), but wet heath currently dominating with marshy grassland increasing to the north. Species found include heather (*Calluna vulgaris*), cross-leaved heath (*Erica tetralix*), green ribbed-sedge (*Carex binervis*), soft-rush (*Juncus effusus*), wavy hair-grass (*Deschampsia flexuosa*), tufted hair-grass (*Deschampsia cespitosa*), purple moor-grass (*Molinia caerulea*), heath bedstraw (*Galium saxatile*), tormentil (*Potentilla erecta*), foxglove (*Digitalis purpurea*), wood-sorrel (*Oxalis acetosella*), chickweed wintergreen (*Trientalis europaea*) and wood-rushes (*Luzula* spp.)

Moss species include: *Polytrichum* sp., *Hylocomium splendens* and *Rhytidiadelphus triquetrus*. Seedlings - rowan (*Sorbus aucuparia*) and birch (*Betula* sp.). Also boulders and dead wood with lichens.

NH609726 Map sheet: NH67SW

Regenerating spruces (*Picea* sp.) over previously felled plantation, currently acid grassland/dry heath mosaic (wet heath in hollows left by harvested trees). Wavy hair-grass (*Deschampsia flexuosa*) is the dominant species.

NH610738 Map sheet: NH67SW

Birch (*Betula* sp.) woodland with rhododendron (*Rhododendron ponticum*). Has been selectively felled and planted with oak (*Quercus* sp.).

NH611741 Map sheet: NH67SW

Ardross Castle - Park-land - improved lawn with many herbaceous borders. Many large mature exotic trees e.g. giant sequoia (*Sequoiadendron giganteum*), monkey puzzle (*Araucaria araucana*), noble fir (*Abies procera*), common silver fir (*Abies alba*), and Corsican pine (*Pinus nigra*).

NH611743 Map sheet: NH67SW

Ardross Castle - Area of mixed, predominantly broadleaved woodland. No one species dominant. Abundant rhododendron (*Rhododendron ponticum*) in understorey.

NH612736 Map sheet: NH67SW

Bryophyte spring running down to river had liverworts in it.

NH614731 Map sheet: NH67SW

New Sitka spruce (*Picea* sp.) plantation with some Scots pine (*Pinus sylvestris*) found here. Currently this area is predominantly dry heath with blaeberry (*Vaccinium myrtillus*), cowberry (*Vaccinium vitis-idaea*) and crowberry (*Empetrum nigrum*), with saplings of rowan (*Sorbus aucuparia*), birch (*Betula* sp.) and greater wood-rush (*Luzula sylvatica*). The birch woodland along the sides of the burn also have dry heath with a similar species composition. Also some marshy grassland with pockets of wet heath with horsetails (*Equisetum* sp.), common cotton sedge (*Eriophorum angustifolium*) and the moss *Polytrichum commune* were also found here.

NH614739 Map sheet: NH67SW

Old birch (*Betula* sp.) woodland with greater spotted woodpecker.

NH616741 Map sheet: NH67SW

Area of mixed, predominately broadleaved woodland. No one species dominant. Abundant rhododendron (*Rhododendron ponticum*) in understorey.

NH617713 Map sheet: NH67SW

Area probably a remnant of pinewoods and heath habitat pre-dating conifer planting. All open areas have been scarified, but no signs of tree regeneration. Ample evidence of deer (including browsed saplings) and a small flock of sheep also noted. (Efforts to encourage regeneration will have been wasted if deer are not managed properly). Area to north-west supports native pinewoods (*Pinus sylvestris*), grading into planted conifers down slope.

NH619731 Map sheet: NH67SW

This area comprises felled conifer plantation which has now for the most part become marshy grassland with tufted hair-grass (*Deschampsia cespitosa*). In the pinewood adjacent to the north of this area crossbills were spotted feeding.

NH620725 Map sheet: NH67SW

A man-made, small lake (dam), approximately 40m long and 10m wide. Semi-natural conifers (*Pinus sylvestris*) at the edge of the steep sided banks. The margins of the lake are predominantly sedges (*Carex* sp.), rush (*Juncus* sp.). Also noted were black bog-rush (*Schoenus nigricans*) and Yorkshire fog (*Holcus lanatus*). Stands of birch (*Betula* sp.) and, nearer to the waters edge, alder (*Alnus glutinosa*) were also present.

NH620730 Map sheet: NH67SW

Dalreoch Wood - Recently felled woodland, now marshy grassland. There is extensive growth of grass but also abundant lying dead wood and bare ground. Grass species include bent grass (*Agrostis* spp.), false-oat grass (*Arrhenatherum elatius*), tufted-hair grass (*Deschampsia cespitosa*), Yorkshire fog (*Holcus lanatus*), wavy-hair grass (*Deschampsia flexuosa*) and sweet-vernal grass (*Anthoxanthum odoratum*). Herbs found included foxglove (*Digitalis purpurea*), wood sorrel (*Oxalis acetosella*), heather (*Calluna vulgaris*), sheep sorrel (*Rumex acetosella*), chickweed (*Stellaria* sp.) and marsh thistle (*Cirsium palustre*). Heath rush (*Juncus squarrosus*), soft rush (*Juncus effusus*), sharp-flowered rush (*Juncus acutiflorus*), jointed rush (*Juncus articulatus*) and hairy wood rush (*Luzula pilosa*) were found also. Sedges include green-ribbed sedge (*Carex binervis*) and star sedge (*Carex echinata*). Mosses found included *Polytrichum commune* and *Hylocomium splendens*.

NH621708 Map sheet: NH67SW

Large areas of conifer plantation are dominated by Scot's pine (*Pinus sylvestris*) often with well developed ground flora. These are frequently indistinguishable from semi-natural pinewood. Areas have therefore been mapped as semi-natural only where larger trees and areas of open ground are found.

NH621732 Map sheet: NH67SW

Dalreoch Wood - Semi-natural birch (*Betula* sp.) woodland with abundant lying dead wood and occasional Scots pine (*Pinus sylvestris*). Mosses were abundant and included *Polytrichum commune*, *Pleurozium schreberi*, *Hylocomium splendens*, *Thuidium tamariscinum* and *Rhytidadelphus triquetrus*. Other species found were wood sorrel (*Oxalis acetosella*), blaeberry (*Vaccinium myrtillus*), heath wood-rush (*Luzula multiflora*), wavy-hair grass (*Deschampsia flexuosa*), tufted-hair grass (*Deschampsia cespitosa*), bent grass (*Agrostis* sp.), broad-buckler fern (*Dryopteris dilatata*) and hard fern (*Blechnum spicant*).

NH622718 Map sheet: NH67SW

Area formerly conifer plantation, felled and now reverted to acid grassland with patches of heath and bracken (*Pteridium aquilinum*).

NH622735 Map sheet: NH67SW

A roughly circular dip contains wet ground with rocks close to the surface. Mosses are dominant, but other species include wild strawberry (*Fragaria vesca*), tormentil (*Potentilla erecta*), violet (*Viola* sp.), common sorrel (*Rumex acetosella*), heath bedstraw (*Galium saxatile*) and tufted-hair grass (*Deschampsia cespitosa*). The steep-sided slope to the east

supports a semi-natural birch (*Betula* sp.) woodland with frequent Norway spruce (*Picea abies*) and abundant juniper (*Juniperus communis*). The summit of the slope supports semi-natural birch woodland with frequent blackthorn (*Prunus spinosa*), and wavy-hair grass (*Deschampsia flexuosa*) dominating the field layer. The site was revisited on the 21/10/98 to find the circular dip now completely flooded.

NH623723 Map sheet: NH67SW

Rather interesting border of coniferous plantation with a range of broadleaved trees including oak (*Quercus* sp.), beech (*Fagus sylvatica*), rowan (*Sorbus aucuparia*), willow (*Salix* sp.), birch (*Betula* sp.); and also Scot's pine (*Pinus sylvestris*), larch (*Larix* sp.), and some scrub including patches of juniper (*Juniperus communis*). Also grasses, some heather (*Calluna vulgaris*), and mosses.

NH624713 Map sheet: NH67SW

Area probably a remnant of pinewood pre dating conifer planting. Whole area has been scarified in patches. Parts were probably much wetter prior to this. However no tree regeneration and ample signs of deer in area. (Efforts to encourage regeneration will have been wasted if deer are not managed properly.)

NH625707 Map sheet: NH67SW

Open area of predominately great wood rush (*Luzula sylvatica*), with some blaeberry (*Vaccinium myrtillus*), bell heather (*Erica cinerea*), heather (*Calluna vulgaris*), tormentil (*Potentilla erecta*) and wood Sorrel (*Oxalis acetosella*). Adjacent is mature larch (*Larix* sp.) with some regeneration, with plantations of Scots pine (*Pinus sylvestris*) further away from the path, where there is some regeneration also. Good sized juniper (*Juniperus communis*) bushes on both sides of the path.

NH625709 Map sheet: NH67SW

Stream side rich in vegetation. Canopy consists of larch (*Larix* sp.), some mature and dead, stands of Scots pine (*Pinus sylvestris*), western hemlock (*Tsuga heterophylla*), birch (*Betula* sp.) and rowan (*Sorbus aucuparia*). Regeneration of Scots pine is occurring on the higher parts of the steep sided bank. Ground flora consists of great wood rush (*Luzula sylvatica*), hairy wood rush (*Luzula pilosa*), hard fern (*Blechnum spicant*), wavy hair grass (*Deschampsia flexuosa*), lesser spearwort (*Ranunculus flammula*), tormentil (*Potentilla erecta*), wood sorrel (*Oxalis acetosella*), blaeberry (*Vaccinium myrtillus*), cowberry (*Vaccinium vitis-idaea*), dog violet (*Viola canina*), moss (*Polytrichum commune*), forget-me-not (*Myosotis* sp.) and thyme-leaved speedwell (*Veronica serpyllifolia*). Juniper (*Juniperus communis*) is also present in this area. A grey wagtail's nest was seen in the bare path, and Red squirrel in the Scots pine trees to the north.

NH625733 Map sheet: NH67SW

This eutrophic lochan has extensive water horsetail (*Equisetum fluviatile*) in the eastern end. The lochan is lined with birch (*Betula* sp.), frequent Alder (*Alnus glutinosa*), and occasional Scots pine (*Pinus sylvestris*) and spruce (*Picea* sp.), with a conifer plantation behind the broadleaves on the southern side. The embankment supports good semi-natural birch

woodland, with grey willow (*Salix cinerea*), and regenerating juniper (*Juniperus communis*) and rowan (*Sorbus aucuparia*). Understorey supports heather (*Calluna vulgaris*), blaeberry (*Vaccinium myrtillus*), heath bedstraw (*Galium saxatile*), wood sage (*Teucrium scorodonia*), wavy-hair grass (*Deschampsia flexuosa*), bracken (*Pteridium aquilinum*), hard fern (*Blechnum spicant*) and great wood rush (*Luzula sylvatica*).

NH628734 Map sheet: NH67SW

Semi-natural broadleaved woodland with coniferous plantation behind. The broadleaved area is dominated by alder (*Alnus glutinosa*) and hazel (*Corylus avellana*), but also abundant sycamore (*Acer pseudoplatanus*), beech (*Fagus sylvatica*) and birch (*Betula* sp.), with occasional rowan (*Sorbus aucuparia*) and dog-rose (*Rosa canina*). The well-developed understorey supports wood sage (*Teucrium scorodonia*), wood avens (*Geum urbanum*), water avens (*Geum rivale*), herb Robert (*Geranium robertianum*), vetch species (*Vicia* spp.), violet (*Viola* sp.), comfrey (*Symphytum officinale*), great wood-rush (*Luzula sylvatica*) and broad-buckler fern (*Dryopteris dilatata*).

NH629738 Map sheet: NH67SW

Stretch of semi-natural broadleaved woodland. Species include beech (*Fagus sylvatica*), sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), alder (*Alnus glutinosa*) and rowan (*Sorbus aucuparia*), with occasional conifers and a few introduced species. A line of tall herbs including stinging nettle (*Urtica dioica*), broad-leaved dock (*Rumex obtusifolius*) and rosebay willowherb (*Chamaenerion angustifolium*) extends from the road to the western edge of the burn. An ornamental garden exists between the Norway spruce (*Picea abies*) plantation on the west and the broadleaved woodland. South of the garden is around 20 m of ornamental conifers, giving way to Scots pine (*Pinus sylvestris*) and abundant beech. The field layer is dominated by ground elder (*Aegopodium podagraria*).

NH630729 Map sheet: NH67SW

Red squirrels, observed in Sitka spruce (*Picea* sp.) tree.

NH634746 Map sheet: NH67SW

Band of mature Scots pine (*Pinus sylvestris*) between fields and edge of dense conifer plantation, approximately 40m wide and 300m long. Clearly originally planted, however interesting understorey now developing dominated by heather (*Calluna vulgaris*), bell heather (*Erica cinerea*), wavy hair-grass (*Deschampsia flexuosa*) and mosses. A few fallen moss and lichen-covered trees lying around. An abundance of fungi growing in both the soil and rotting wood, including chanterelle (*Cantharius cibarius*) and hedgehog fungus (*Hydnum repandans*).

NH637721 Map sheet: NH67SW

Ride for two National Grid overhead power cables north-east of track. A complex mixture of wet and dry heath with heath/grassland mosaic and marshy grassland. Species include heather (*Calluna vulgaris*), cross-leaved heath (*Erica tetralix*), blaeberry (*Vaccinium myrtillus*) and cowberry (*Vaccinium vitis-idaea*). Occasional patches of broom (*Sarothamnus* [*Cytisus*] *scoparius*) and gorse (*Ulex europaeus*), a few scattered birch (*Betula* sp.) saplings and spruce

(*Picea* sp.). Mosses including dense *Polytrichum commune* in parts. Grasses - wavy-hair grass (*Deschampsia flexuosa*) and mat-grass (*Nardus stricta*).

NH639749 Map sheet: NH67SW

Mature Scots pine (*Pinus sylvestris*) plantation with interesting understorey. Some Scots pine regeneration, and some juniper (*Juniperus communis*). Understorey dominated by mosses including *Polytrichum* sp., *Pleurozium schreberi*, *Hylocomium splendens*, and *Sphagnum* spp.; also wavy hair-grass (*Deschampsia flexuosa*), heather (*Calluna vulgaris*), and blaeberry (*Vaccinium myrtillus*). Other species include tufted hair-grass (*Deschampsia cespitosa*), hairy wood-rush (*Luzula pilosa*), compact rush (*Juncus conglomeratus*), hard fern (*Blechnum spicant*), cross-leaved heath (*Erica tetralix*), heath bedstraw (*Galium saxatile*), crowberry (*Empetrum nigrum*), tormentil (*Potentilla erecta*), wood sorrel (*Oxalis acetosella*) and devil's-bit scabious (*Succisa pratensis*).

NH640717 Map sheet: NH67SW

New plantation over old felled area. Currently mainly grassland with tufted hair-grass (*Deschampsia cespitosa*) and bent grass (*Agrostis* sp.). Also gorse (*Ulex europaeus*), bracken (*Pteridium aquilinum*), vetch (*Vicia* sp.), mat grass (*Nardus stricta*), raspberry (*Rubus idaeus*), rush (*Juncus* sp.) and cock's foot (*Dactylis glomerata*).

NH641706 Map sheet: NH67SW

The flora within this field is very diverse. The most abundant species is wild pansy (*Viola tricolor*). Rosebay willowherb (*Chamaenerion angustifolium*) is also present. The most abundant grass species are tufted hair grass (*Deschampsia cespitosa*) and sweet vernal grass (*Anthoxanthum odoratum*).

NH641733 Map sheet: NH67SW

4+ orange ladybirds (*Calvia 14-guttata*) sunbathing on trunks of sycamore (*Acer pseudoplatanus*) and rail of nearby footbridge. Aphids - probable prey - also present.

NH644721 Map sheet: NH67SW

Relatively new housing development within semi-natural woodland (also a new house under construction in eastern corner). This represents a loss of at least 2.5 hectares of habitat and disturbance to wider area.

NH645704 Map sheet: NH67SW

Although this wood is of plantation origin it is reaching semi-natural status. The dominant tree species is Scots Pine (*Pinus sylvestris*). Rowan (*Sorbus aucuparia*) and birch (*Betula* sp.) saplings are abundant. There are also some mature oaks (*Quercus* sp.) to the west of the woods. Exotic tree species include lodgepole pine (*Pinus contorta*) and spruce (*Picea* sp.) of which there are many saplings in some areas. The ground flora resembles that of a W18b *Pinus sylvestris*-*Hylocomium splendens* woodland, *Vaccinium myrtillus*-*Vaccinium vitis-idaea* sub-community. Blaeberry (*Vaccinium myrtillus*) is abundant along with wavy hair grass (*Deschampsia flexuosa*).

NH646746 Map sheet: NH67SW

Previously an area of felled conifers; successive vegetation now well established. Heather (*Calluna vulgaris*) and wavy-hair grass (*Deschampsia flexuosa*) are dominant; heather is less dominant towards southern edge. A few rowan (*Sorbus aucuparia*) and birch (*Betula* sp.) saplings. Also present are bell heather (*Erica cinerea*), a little cross-leaved heath (*Erica tetralix*), blaeberry (*Vaccinium myrtillus*), tormentil (*Potentilla erecta*), hairy wood-rush (*Luzula pilosa*), greater wood-rush (*Luzula sylvatica*); green-ribbed sedge (*Carex binervis*), yellow sedge (*Carex demissa*), soft rush (*Juncus effusus*), compact rush (*Juncus conglomeratus*), broad buckler fern (*Dryopteris dilatata*), common polypody (*Polypodium vulgare*), hard fern (*Blechnum spicant*), and bracken (*Pteridium aquilinum*). Mosses include *Pleurozium schreberi*, *Polytrichum commune*, *Sphagnum* spp., and others. Also Yorkshire fog (*Holcus lanatus*), bent grass (*Agrostis* spp.) and a little tufted-hair grass (*Deschampsia cespitosa*). Also a scattering of herbs including foxglove (*Digitalis purpurea*), heath bedstraw (*Galium saxatile*), wood-sorrel (*Oxalis acetosella*), marsh thistle (*Cirsium palustre*) and raspberry (*Rubus idaeus*). Finally, together amongst piles of dead brush towards the south-east corner of this area, wood horsetail (*Equisetum sylvaticum*) and chickweed wintergreen (*Trientalis europaea*).

NH648745 Map sheet: NH67SW

Stand of semi-improved neutral grassland. Probably set-aside. Species include Yorkshire fog (*Holcus lanatus*), perennial rye-grass (*Lolium perenne*), false oat-grass (*Arrhenatherum elatius*), cock's foot (*Dactylis glomerata*), Timothy (*Phleum pratense* agg.), meadow foxtail (*Alopecurus pratensis*), red fescue (*Festuca rubra*), bent grasses (*Agrostis* spp.), common couch (*Agropyron repens*), lady's bedstraw (*Galium verum*), spear thistle (*Cirsium vulgare*), creeping thistle (*Cirsium arvense*), clover (*Trifolium* spp.), daisy (*Bellis perennis*), cleavers (*Galium aparine*), common mouse-ear (*Cerastium holosteoides* [*C. fontanum*]) and dove's-foot crane's-bill (*Geranium molle*).

NH649743 Map sheet: NH67SW

Young rowan (*Sorbus aucuparia*) plantation, with occasional Sitka spruce (*Picea sitchensis*) regeneration, and a little birch (*Betula* sp.) and Scots pine (*Pinus sylvestris*) regeneration. Occasional dead wood. Understorey dominated by creeping soft-grasses (*Holcus mollis*) on lower slopes, giving way to wavy hair-grass (*Deschampsia flexuosa*) on upper reaches. Frequent bent grass (*Agrostis* sp.) also on upper reaches. Frequent patches of heather (*Calluna vulgaris*). Occasional broad buckler fern (*Dryopteris dilatata*) and a little hard fern (*Blechnum spicant*). Abundant mosses. Gorse (*Ulex europaeus*) bordering the site. Several stands of soft rush (*Juncus effusus*). Other species include chickweed wintergreen (*Trientalis europaea*), blaeberry (*Vaccinium myrtillus*), bramble (*Rubus fruticosus*), heath bedstraw (*Galium saxatile*), foxglove (*Digitalis purpurea*), common sorrel (*Rumex acetosa*), wood sorrel (*Oxalis acetosella*), tufted hair-grass (*Deschampsia cespitosa*) and hairy wood-rush (*Luzula pilosa*).

NH67SE (Produced 1999)

NH650743 Map sheet: NH67SE

Felled plantation. Possibly replanted with Sitka spruce (*Picea sitchensis*), but could be regenerating naturally. Much regeneration of rowan (*Sorbus aucuparia*) and birch (*Betula* sp.). Other species include heather (*Calluna vulgaris*), blaeberry (*Vaccinium myrtillus*), wavy hair-grass (*Deschampsia flexuosa*) and some rush (*Juncus* sp.). Will tend towards spruce domination, as it out competes slower growing broadleaves for light

NH665702 Map sheet: NH67SE

Largely disused sand and gravel quarry whose workings have increased since the map was published, changing the face of the surrounding land. Much of the north and east of the site appears to be disused and has either flooded or been colonised by vegetation making increasingly good habitat for wildlife including a sand martin colony at grid reference NH673708. Aggregate processing is carried out on the south side of the site and an environmental waste company also has premises there although there is no evidence of landfill activities.

NH670731 Map sheet: NH67SE

Includes all the adjoining birch (*Betula* sp.) to the west. These previous conifer plantation areas have been felled and planted randomly with oak (*Quercus* sp.) in tubes. Birch has colonised and now dominates. Heather (*Calluna vulgaris*) and blaeberry (*Vaccinium myrtillus*) carpet the ground.

NH678706 Map sheet: NH67SE

New hamlet of Mossfield and Achnagarron containing houses only and no shops. Current development is to the north west corner.

NH680725 Map sheet: NH67SE

Coppiced woodland with cherry (*Prunus* sp.), elm (*Ulmus* sp.), oak (*Quercus* sp.), sycamore (*Acer pseudoplatanus*), beech (*Fagus sylvatica*) and ash (*Fraxinus excelsior*).

NH680746 Map sheet: NH67SE

Formerly heather (*Calluna vulgaris*) moorland, the area to the north of the new fence (which runs roughly west to east here and eastward to the edge of the map) is now predominately grassland having been grazed extensively by sheep and cattle. Only the parts immediately northwards and adjacent to the fence retain much heather, and this is as a mosaic with grassland. To the east, enclosed by old and new fencing, heather dominates (showing continuous cover in most places) along with regenerating Scots pine (*Pinus sylvestris*). These areas may have recovered since the fence was constructed. The enclosed area to the west is predominantly grass, but supports some patches of short-grazed heath and some mature Scots pine. As such, it may hold potential for some recovery if grazing were reduced.

NH682711 Map sheet: NH67SE

Stoneyfield landfill site. Now officially inactive (Aug 97), it has been landscaped and partially screened. The adjacent lochan is new and artificial and may well be deliberate habitat creation. One pair of mute swans in residence when surveyed.

NH683735 Map sheet: NH67SE

Naturalised plantation or fragment of ancient woodland. Well structured ground flora of heather (*Calluna vulgaris*), cross-leaved heath (*Erica tetralix*) and blaeberry (*Vaccinium myrtillus*). Also some juniper forming small dominant strands. Woodland also contains mature individuals of oak (*Quercus* sp.) and beech (*Fagus sylvatica*) with small patches of willow (*Salix* sp.). Open area south of woodland is made up of wet heath/grassland mosaic with some flushed areas moderately herb rich and rich in sedges - more information needed. Additionally the area contains an abundance of dead wood and is generally rich in insects, particularly beetles.

NH688714 Map sheet: NH67SE

"Stoneyfield lochs"- Reclaimed sand and gravel pits now a privately owned "permit only" fishing business. Dammed and landscaped, the site offers good habitat for wildlife with some emergent vegetation including reedmace (*Typha latifolia*) bordering some pool sides.

NH689730 Map sheet: NH67SE

Clearing dominated by bracken (*Pteridium aquilinum*) with abundant chickweed wintergreen (*Trientalis europaea*) in places.

NH691712 Map sheet: NH67SE

An area of plantation and scrub on a site felled probably within the last 6-8 years. Mainly birch (*Betula* sp.), spruce (*Picea* sp.), and gorse (*Ulex europaeus*). Spruce mainly planted, but some has regenerated naturally within occasional patches of acid grassland.

NH691738 Map sheet: NH67SE

Predominantly Scot's pine (*Pinus sylvestris*) plantation, with occasional self-seeded birch (*Betula* sp.), with a ground flora of heather (*Calluna vulgaris*), blaeberry (*Vaccinium myrtillus*), and mosses such a *Polytrichum*, *Sphagnum* and others.

NH692733 Map sheet: NH67SE

A small area of young, planted spruce (*Picea* sp.) with occasional birch (*Betula* sp.), and a ground flora of heather (*Calluna vulgaris*).

NH693721 Map sheet: NH67SE

This target note is to be used in conjunction with target notes NH696722 & NH695719 and covers an integrated mosaic of habitats. The area is composed of patches of modified bog and a diverse marshy grassland. Some bogs are in fact bog pools in a later stage of succession and

at present, its very possible that some areas will turn into wet heath with vegetation spreading from existing areas of acid grassland on better drained ground. The species list below is for the area covered by all three target notes.

Species:

Alchemilla vulgaris agg.
Anemone nemorosa
Anthoxanthum odoratum
Bellis perennis
Betula pendula
Betula pubescens
Cardamine flexuosa
Cardamine pratensis
Carex binervis
Carex nigra
Carex rostrata
Cerastium fontanum
Cerastium glomeratum
Cirsium palustre
Deschampsia flexuosa
Drosera rotundifolia
Epilobium montanum
Epilobium palustre
Eriophorum angustifolium
Eriophorum vaginatum
Filipendula ulmaria
Galium saxatile
Geum rivale
Juncus effusus
Lotus corniculatus
Myosotis arvensis
Myosotis discolor
Oxalis acetosella
Pedicularis sylvatica
Polygala serpyllifolia
Polygala vulgaris
Potentilla erecta
Potentilla palustris
Potentilla sterilis
Ranunculus flammula
Ranunculus repens
Rumex acetosella
Rumex obtusifolius
Salix cinerea
Stellaria holostea
Trientalis europaea
Ulex europaeus
Vaccinium myrtillus
Veronica spp.
Viola riviniana

NH695719 Map sheet: NH67SE

Area of modified bog has been damaged, possibly destroyed by the use of heavy vehicles, producing small patches of bare peat too small to map. (See also target note NH693721.)

NH696722 Map sheet: NH67SE

Marsh grassland not currently being grazed, supports interesting species, including heath spotted orchid (*Dactylorhiza maculata*). (See species list below for others.) There is some evidence from species composition and the presents of tree stumps that the area was at one point an open woodland. Some clumps of trees are still present. (See also target note NH693721.)

Species:

Anemone nemorosa
Caltha palustris
Cardamine pratensis
Potentilla sterilis
Veronica serpyllifolia
Viola riviniana

NH696732 Map sheet: NH67SE

Birch (*Betula* sp.) woodland with ground flora mostly dominated by cock's foot (*Dactylis glomerata*), but with some marshy areas where water table is above ground level. Heath spotted orchid (*Dactylorhiza maculate*) found in one of these areas. Woodland also contains some willow (*Salix* sp.) and a mosaic of other habitats.

NH696735 Map sheet: NH67SE

Strip of woodland has been cleared for power cable, creating dry heath. Clearing not marked on base map.

NH696741 Map sheet: NH67SE

Very complex mosaic of birch (*Betula* sp.), wet heath/grassland mosaic, marshy grassland and poor semi-improved grassland, with small patches of modified bog grazed by cattle and ground poached in places. However, as a whole, area is relatively species rich and could improve with reduced grazing. Poor semi-improved grassland is very variable from moderately species rich to quite poor. Grassland beneath birch is more improved as grazing seems to have been concentrated there. North-east section was fenced off about 5 years ago as part of farm premium scheme. Grass has virtually disappeared and most of area is wet heath dominated by heather (*Calluna vulgaris*). Regeneration of Scot's pine (*Pinus sylvestris*) and birch is evident, but still quite short, and some are browsed. North-east corner supports unmodified bog with pine which extends beyond the map in that direction. Green hairstreak butterfly seen in area.

NH697716 Map sheet: NH67SE

Mixed woodland moderately well structured and supporting a range of tree species, including elm, (*Ulmus* sp.), alder (*Alnus glutinosa*), birch, (*Betula* sp.), rowan, (*Sorbus aucuparia*) and Scots pine (*Pinus sylvestris*), with some willow, (*Salix* sp.) on the south side. Some evidence of coppicing in the past, mainly of birch. Forest floor very boggy turning to swamp in places.

NH698739 Map sheet: NH67SE

Clearing through wood accommodating power cable and pylons. Clearing supports wet heath with a mosaic of *Sphagnum* bog patches, all between 2x2m and 2x3m in size, and increasing in frequency further north, up the track. Dense clumps of hairs-tail cotton sedge (*Eriophorum vaginatum*) occur in places. Green hairstreak butterfly sighted.

NH68NW (Produced 1999)

NH615860 Map sheet: NH68NW

Large area of modified bog extending several hundred metres to the south-east and south. Not mapped in that direction as it represents upland. Transition zone to wet heath is very complex and sometimes broad. Areas of marshy grassland to north are dominated by soft rush (*Juncus effusus*) but most are very wet and support abundant *Sphagnum*, thus appearing flush-like or bog-like in places. Only the largest of these have been mapped. Steeper slopes of the small ravine to the north are a combination of dry heath and bracken (*Pteridium aquilinum*). Some areas above this have been burned and appear fairly dry, but support sufficient cross-leaved heath (*Erica tetralix*) to still be classed as wet heath.

NH615869 Map sheet: NH68NW

Area is quite heavily grazed as the heath appears fairly short and mainly wet, but may contain some dryer areas. The grassy area is a complex mosaic of species poor marshy grassland dominated by soft rush (*Juncus effusus*) and poor semi-improved/improved grassland grazed short by sheep. The area was mapped from a ravine but appears to be species poor and not worthy of a closer look. The fence line separating the grazed areas from the 'new' conifer plantation was also mapped from a distance and is only approximate. The plantation appears to extend westward for a number of kilometres.

NH618878 Map sheet: NH68NW

Mix of semi natural Scots pine (*Pinus sylvestris*), planted conifers, broadleaved trees, wet modified bog and wet heath. At the south end the wet modified bog and Scots pine still dominate, whilst elsewhere it is a patchwork of plantation spruce (*Picea* sp.) and larch (*Larix* sp.) over the wet ground. Many broadleaved trees in tubes have also been planted (into mounds), some strangely into very boggy areas. Eventually the spruce may shade out some of the semi natural Scots pine and dry out some of the wet ground.

NH619869 Map sheet: NH68NW

A complex steep sided (though not completely inaccessible) ravine supporting a mosaic of heath, bracken (*Pteridium aquilinum*) and stands of Scots pine (*Pinus sylvestris*), birch (*Betula* sp.), gorse (*Ulex europaeus*) and willow (*Salix* sp.). Most of the heath, even on some steep slopes, appears to be wet (although only just), but dry heath patches were evident, particularly in rocky areas. Mapped from the south side only, mainly from the track, therefore smaller features such as flushes may have been overlooked.

NH621876 Map sheet: NH68NW

Semi-natural pinewood (*Pinus sylvestris*) with a ground flora gradually being improved by grazing from both sheep and cattle. What appears to have formerly been wet heath is now mainly grass and in places heavily poached ground.

NH624868 Map sheet: NH68NW

Large area apparently felled and recently replanted. Ground flora of heath and acid grassland still visible, but area not surveyed in detail.

NH626853 Map sheet: NH68NW

General area is represented as a complex mosaic of wet heath, marshy grassland with patches of bracken (*Pteridium aquilinum*) and wetter areas tending towards bog or flush. Whole area has been modified by grazing, drainage and burning. Not surveyed in detail and has been mapped from vantage point of Cnoc an Liath-bhaid.

NH627871 Map sheet: NH68NW

Formerly improved and marshy grassland dominated by soft rush (*Juncus effusus*) which appears to have been heavily sprayed with herbicide and now all vegetation is dead and straw-like.

NH627876 Map sheet: NH68NW

New (incomplete?) sewage treatment works and access road with likely outlet at point of this target note.

NH627881 Map sheet: NH68NW

Raw sewage outlet, discharging directly into the Dornoch Firth. The nearby drain on the map is no longer visible on the ground but evidence of alterations within the vicinity suggest that this drain may have been covered over because of its use in carrying raw effluent.

NH637870 Map sheet: NH68NW

Mixed woodland of mostly birch (*Betula* sp.), but nearer the waterside there is some alder (*Alnus glutinosa*) and willow (*Salix* sp.). Birch dominates at the foot of the slope and oak (*Quercus* sp.) at the top, near the road. Very mixed, and other species include ash (*Fraxinus excelsior*), hazel (*Corylus avellana*) and beech (*Fagus sylvatica*). Further to the north-west

alder dominates, with an understorey of abundant, and here the ground is particularly swampy. Heading inland from here mature beech progressively takes over.

NH68NE (Produced 1999)

NH652859 Map sheet: NH68NE

A complex area of upland supporting a variety of habitats, ranging from dry heath through to wet heath with some large patches of wet heath/acid grassland mosaic. Species include heather (*Calluna vulgaris*), bell heather (*Erica cinerea*), cross-leaved heath (*Erica tetralix*), bog asphodel (*Narthecium ossifragum*), Yorkshire fog (*Holcus lanatus*), fescue sp. (*Festuca* sp.), spearwort (*Ranunculus* sp.), butterwort (*Pinguicula vulgaris*), harebell (*Campanula rotundifolia*) and yarrow (*Achillea millefolium*). Some patches of bracken (*Pteridium aquilinum*) and marshy grassland intermingle with various rush species (*Juncus* spp.)

NH658867 Map sheet: NH68NE

Mosaic of wet and dry heath with some modified bog. Includes large patches of bog myrtle (*Myrica gale*) with a ground flora of purple moor grass (*Molinia caerulea*). The dry heath is interspersed with bracken (*Pteridium aquilinum*) forming small dominant stands.

NH660859 Map sheet: NH68NE

Large, complex, undulating area, dominated by wet heath, forming a mosaic with grassland in places. Wetter areas-particularly around clumps of willow (*Salix* sp.) are tending towards marshy grassland and/or flush. A large area around this target symbol and extending westwards towards the road has been ploughed and recently planted with conifers. As the seedlings are still small, the boundary of this area is difficult to determine and since the existing habitats remain fairly intact, the new plantation has not been mapped at this time. However, if most of the seedlings survive it is likely to be in excess of 10 hectares. Willow is scattered throughout. Patches of bracken (*Pteridium aquilinum*) are occasional, and small areas of dry heath can be found in places. Not mapped in detail, but some areas appear relatively species rich. Bog asphodel (*Narthecium ossifragum*) is abundant in places.

NH665867 Map sheet: NH68NE

Predominately wet heath/acid grassland mosaic although sedges (*Carex* spp.), jointed rush (*Juncus articulatus*) and flush associated bog asphodel (*Narthecium ossifragum*) are also present. This slope is subject to grazing which has significantly reduced the heather cover making it much wetter on the surface, introducing more light and giving the whole slope the appearance of a large flush. This may also explain the presence of the flush associated plants. A similar situation also exists further east within the same extended enclosure at NH676872 and a more detailed survey could be considered to identify possible flushes.

NH668853 Map sheet: NH68NE

Very complex area of bog, flush and marshy grassland. Mapped as 'valley mire' due to the flushes and associated water movement. However, large areas are very wet and support abundant sphagnum. The National Vegetation Classification (NVC) does not recognise a true

valley mire community in the Highlands. However, areas in a situation such as this, with abundant flushes, come quite close. In fact the flushes are probably M15a - *Scirpus cespitosus-Erica tetralix* wet heath, *Carex panicea* sub-community and possibly M6 - *Carex echinata-Sphagnum recurvum/auriculatum* mire, and the bog M19 *Calluna vulgaris-Eriophorum vaginatum* mire. The marshy grassland component is only where soft rush (*Juncus effusus*) comes to dominate and does not represent truly discreet units.

NH668875 Map sheet: NH68NE

An otter was spotted here swimming close to the shores of the Dornoch Firth.

NH672875 Map sheet: NH68NE

Regenerating Scots pine (*Pinus sylvestris*) seedlings appear to be the progeny of single 'granny' pine nearby, covering approximately 40 square metres and containing 30-40 saplings less than 1m high.

NH673855 Map sheet: NH68NE

Complex area, considerably modified in the past but now reverted to wet acid grassland with abundant flushing (similar to reverted "lazybed" areas found on the west coast and islands, but without obvious signs of parallel drainage).

NH680855 Map sheet: NH68NE

Calcareous flush with large areas dominated by black bog rush (*Schoenus nigricans*)..Appears relatively species rich including bog asphodel (*Narthecium ossifragum*) and common butterwort (*Pinguicula vulgaris*). However, no orchids were found, although surveyed late in October and subjected to grazing which could have removed any trace.

NH684876 Map sheet: NH68NE

Large patches of broom (*Sarothamnus [Cytisus] scoparius*), gorse (*Ulex europaeus*) and bracken (*Pteridium aquilinum*), but also the occasional island of heath/acid grassland mosaic and scattered juniper (*Juniper communis*). Probably grazed until quite recently. The scrub, bracken and ungrazed coastal fields and their dilapidated fences indicate that this land is currently unworked. It is owned by Balnagowan estates and is up for sale which may explain its 'neglect'. Left to nature this coastal strip could alter significantly over a relatively short period of time, considering the remnants of heath species. Of interest are the many archaeological features along this coast. The large area of bracken at grid reference NH680874 may also suggest previous grazing and the nearby abandoned croft of "Woodside" may have been the tenant farmers dwelling.

NH689851 Map sheet: NH68NE

Complex area of Scots pine (*Pinus sylvestris*) woodland of which most appears to be of plantation origin. However the ground flora appears semi-natural in places, with the southern and eastern margins grading into more semi-natural habitats with a scattering of Scots pine which appears natural. The area to the south which is now wet heath was once densely wooded. However this and some other areas to the north and east (now dominated by gorse

(*Ulex europaeus*) and birch (*Betula* spp.) were felled during The second World War. The whole general area, including the woodland, is grazed by cattle and this is quite heavy in places with poaching of the ground widespread. However some parts are still moderately rich with species including bog asphodel (*Narthecium ossifragum*) and sedges (*Carex* spp.).

NH689856 Map sheet: NH68NE

A narrow steep-sided gorge dominated by hazel (*Corylus avellana*) in most places, but also supports a range of other native tree species. Mature blackthorn (*Prunus spinosa*) occurs in clumps in places along the top of the slope. The ground flora is relatively rich in places with common herbs such as violet (*Viola* sp.), herb Robert (*Geranium robertianum*) and opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*).

NH690860 Map sheet: NH68NE

Marshy grassland surveyed from a distance (from road due east), but appears very wet in places, probably supporting areas of *Sphagnum* and may be relatively species rich. The large area of scrub, bracken (*Pteridium aquilinum*) and trees to the north and west was also surveyed from the road as most of it appears relatively impenetrable.

NH691874 Map sheet: NH68NE

Scots pine (*Pinus sylvestris*) both semi-natural and plantation, spanning both sides of the railway line with a further outlier at NH697877. According to a local resident this wood used to be much more extensive but was felled by Canadian loggers during the second World War. The trees that were left were too small to harvest and these now represent what is visible today.

NH693872 Map sheet: NH68NE

Wet modified bog with colonisation of Scots pine (*Pinus sylvestris*) and suffering from grazing and poaching by cattle. A clogged drainage ditch runs alongside with planted Scots pine on its east side. The modified bog extends north-west but its original size may be reduced due to drainage and colonisation. It is still very wet, supporting hares-tail cotton sedge (*Eriophorum vaginatum*) and *Sphagnum*, but may eventually succumb to pine encroachment.

NH698876 Map sheet: NH68NE

Dense small scrubby birch (*Betula* sp.) and pockets of wet heath. This regenerating birch seems to have appeared since the Ordnance Survey map was produced. Unenclosed, it is also grazed by cattle as is all the land west to the wall at NH692874, which could represent the boundary between Balnagowan estates and the neighbouring landowner (farmer).

NH68SE (Produced 1999)

NH663831 Map sheet: NH68SE

Large, complex area of willow (*Salix* sp.) with a ground flora of marshy grassland, wet heath/grassland mosaic, and patches of bog and areas of flush. The large area of flushes to

the north-east appears to be mostly M6 *Carex echinata-Sphagnum recurvum/auriculatum* mire (NVC). Clearly the whole area was managed for agriculture in the past, although it has "recovered" considerably. Recently, some areas have been burned. As these areas are mainly bog or very wet heath, all that this has achieved is to degrade the habitat and drastically reduce the amount of *Sphagnum* in the area.

Areas further to the north have also clearly been more intensively managed in the past, more recently turning to marshy grassland, acid grassland and bracken (*Pteridium aquilinum*).

NH664841 Map sheet: NH68SE

A broad area of seepage/flushing with abundant bog myrtle (*Myrica gale*). Much of the area is neither truly flush nor simply wet heath. In National Vegetation Classification (NVC) terms it is probably mostly M15a *Scirpus cespitosus-Erica tetralix* wet heath, *Carex panicea* sub-community. However, more discreet flushes are also evident. A number of these support black bog-rush (*Schoenus nigricans*), indicating calcareous conditions. This has been encountered widely in this area, along the lower south-east facing slopes of the Struy ridge.

NH674823 Map sheet: NH68SE

Network of dry modified bogs, wet and dry heaths. Very patchy, with many small bog pools and patches dominated by *Sphagnum*. Hare's tail cotton sedge (*Eriophorum vaginatum*) is very dense in parts, forming tussocks. Some small patches of bare peat scattered over whole area. Much evidence of peat cutting. Poached ground and cow pats suggest rough grazing earlier in the year, no stock present at time of survey.

NH676829 Map sheet: NH68SE

River corridor forming an intricate patchwork of low willow (*Salix* sp.) scrub, patches of birch (*Betula* sp.) and rowan (*Sorbus aucuparia*), interspersed with marshy grassland, some acid grassland in well drained areas, and also large areas of bracken (*Pteridium aquilinum*) and gorse (*Ulex europaeus*).

NH677840 Map sheet: NH68SE

Steep bank, appears to be protected from grazing near to waterfall. Rich ground flora, under cherry (*Prunus* sp.). Also subject to fly tipping. Species include opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*), red campion (*Silene dioica*), wood sorrel (*Oxalis acetosella*), wood avens (*Geum urbanum*), herb Robert (*Geranium robertianum*), germander speedwell (*Veronica chamaedrys*) and lady's bedstraw (*Galium verum*). A more detailed survey in spring would probably reveal more.

NH682849 Map sheet: NH68SE

Base-rich flushed area covering about one hectare, dominated by black bog rush (*Schoenus nigricans*), within an area of dry heath. Appears to have a high diversity of herbs and sedges, but species unidentified due to the time of year (late October). The adjacent heath also appears to have been planted at some point while the surrounded area shows no signs of plantation. No evidence of grazing.

NH683843 Map sheet: NH68SE

Well structured riparian woodland with a diversity of species. Much hazel (*Corylus avellana*), rowan (*Sorbus aucuparia*) and willow (*Salix* sp.). Also good ground flora with many herbs and grasses.

NH690836 Map sheet: NH68SE

Spruce (*Picea* sp.) plantation. Evidence suggests that the area formerly supported semi-natural pinewoods (*Pinus sylvestris*). All that remains now are a few small, isolated clumps within the plantation. The latest 1:50,000 OS map shows a large gap west of Admiral's Farm, separating two plantations. This no longer exists, but evidence suggests that it was formerly grassland (probably rough grazing) with little or no heather (*Calluna vulgaris*).

NH697834 Map sheet: NH68SE

Field begins as improved at road end and grades into wet heath with mature Scots pine (*Pinus sylvestris*) and willow (*Salix* sp.). Some evidence of pine regeneration, bound on the north-east side by gorse (*Ulex europaeus*). This field has "protected status" because of the occurrence of orchids. The field is rented by the residents of "Inchintaury" from a nearby crofter and does not belong to Balnagowan estate. Grazing is limited to one horse and a pony due to the protected status.

NH70 >

NH75NW
NH76NW
NH76NE
NH76SW
NH76SE
NH77NW

NH77NE
NH77SW
NH77SE
NH78NW
NH78SW
NH78SE

NH75NW (Produced 1996)

NH700599 Map sheet: NH75NW

Felled plantation judging by O.S. map, with abundance of grassed-over stumps. Now comprised of earth and grazed acid grassland with scattered soft rush (*Juncus effusus*). There is extensive scrub removal along the roadside.

NH705565 Map sheet: NH75NW

Area of felled pine (*Pinus* sp.), replanted with broadleaved trees along the burn. Newly created pond fed by burn and surrounded by planting. Red squirrels have been seen here.

NH707599 Map sheet: NH75NW

The burn empties into an old pond which is heavily poached by cattle. This area has previously been drained, but the new residents have unblocked the drain and replenished the pond for amenity and potentially wildlife value.

NH708581 Map sheet: NH75NW

Carse of Raddery - Area of mixed habitat. Northwest has fence trampled at bottom end and has been devastated by felling and sheep grazing. Remaining birch (*Betula* sp.), rowan (*Sorbus aucuparia*), and willow (*Salix* sp.) are heavily browsed. Acid sward dominated by wavy hair-grass (*Deschampsia flexuosa*) with occasional heather (*Calluna vulgaris*) being colonised by gorse (*Ulex europaeus*) and rosebay willowherb (*Chamaenerion angustifolium*). Heath bedstraw (*Galium saxatile*), wood-sorrel (*Oxalis acetosella*), and mosses: *Pleurozium schreberi*, *Rhytidiadelphus squarrosus*, *Hylocomium splendens*, all present, suggesting previous woodland cover. Dumping at bottom of slope and much disturbance from tractors - very poorly managed. South-west is similar, but with abundant dead wood and wind blown trees. No regeneration, and sward appears heavily sheep-grazed with eutrophication from dung showing up as many small patches of nettles (*Urtica dioica*). Heavily poached around watering hole. Scots pine (*Pinus sylvestris*) was clearly more abundant once (together with birch and rowan coppice), but now reduced to a few standards and a dying unmanaged wood. The field to the east of the target note symbol comprises rough grassland with ribwort plantain (*Plantago lanceolata*) which is unusually abundant. Gorse and rosebay willowherb are encroaching. The mature broadleaved woodland beside the burn is predominantly beech (*Fagus sylvatica*) with sweet chestnut (*Castanea sativa*), elm (*Ulmus* sp.), birch, rowan, and larch (*Larix* sp.). The neutral grassy understorey is made up mainly of creeping soft-grass (*Holcus mollis*). Male fern (*Dryopteris filix-mas*) occasionally abundant in places.

NH711593 Map sheet: NH75NW

Lords-and-ladies (*Arum maculatum*) is growing close to the wall, next to the road. This plant is quite rare in the Highlands.

NH713599 Map sheet: NH75NW

Birch (*Betula* sp.), with grassy understorey, and very little regeneration due to grazing.

NH714573 Map sheet: NH75NW

Remnants of heath/grassland mosaic, which is very closely cropped by sheep.

NH714595 Map sheet: NH75NW

Den of Raddery Wood - Mixed broadleaved woodland with scattered conifers - native and exotic. Present are mature beech (*Fagus sylvatica*) of mixed age, with birch (*Betula* sp.) dominant and also rowan (*Sorbus aucuparia*), elm (*Ulmus* sp.), ash (*Fraxinus excelsior*), yew (*Taxus baccata*), hazel (*Corylus avellana*), sycamore (*Acer pseudoplatanus*), willow (*Salix* sp.), oak (*Quercus* sp.), horse chestnut (*Aesculus hippocastanum*), blackthorn (*Prunus spinosa*), lime (*Tilia* sp.), and alder (*Alnus glutinosa*). The ground flora is dominated by great wood-rush (*Luzula sylvatica*), with a moss layer comprising *Rhytidiadelphus triquetrus*, *Hylocomium splendens*, and *Pleurozium schreberi*. There is a burn running north-east to south with often very steep banks. Ferns are abundant here, especially male fern (*Dryopteris filix-mas*), broad buckler fern (*Dryopteris dilatata*), and hard fern (*Blechnum spicant*). Regeneration is generally good, especially of rowan and sycamore, and dead wood is plentiful. There is bracken (*Pteridium aquilinum*) on the western edge, and cow parsley (*Anthriscus sylvestris*). Oak is dominant in this area with hazel on the steeper slopes and at the bottom of the gully. Species found throughout this area include: herb Robert (*Geranium robertianum*), bugle (*Ajuga reptans*), honeysuckle (*Lonicera periclymenum*), germander speedwell (*Veronica chamaedrys*), water avens (*Geum rivale*), wood avens (*Geum urbanum*), wild strawberry (*Fragaria vesca*), barren strawberry (*Potentilla sterilis*), dog violet (*Viola canina*), raspberry (*Rubus idaeus*), wild angelica (*Angelica sylvestris*), foxglove (*Digitalis purpurea*), red campion (*Silene dioica*), bluebell (*Hyacinthoides non-scripta*), opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*), hedge woundwort (*Stachys sylvatica*), yellow pimpernel (*Lysimachia nemorum*), slender St. John's wort (*Hypericum pulchrum*), thyme-leaved speedwell (*Veronica serpyllifolia*), and ivy (*Hedera helix*).

NH715566 Map sheet: NH75NW

Plantation woodland, now managed for wildlife and amenity. Area north of farm road is predominantly Scots pine (*Pinus sylvestris*). A few pockets of exotics have been removed and willow (*Salix* sp.) planted in some wet hollows. The Scots pine is still fairly dense and the ground flora not yet well developed. Area to south is Sitka spruce (*Picea sitchensis*), dense and with little ground flora. This is to be retained for the time being, but will eventually be managed for wildlife. (Owned by G. T. of Inverness, a local SWT member).

NH715594 Map sheet: NH75NW

Glade below Den of Raddery wood. There is cattle grazing in this glade. The banks are steep and covered with mixed broadleaf woodland. Birch (*Betula* sp.) dominates, with ash (*Fraxinus excelsior*), oak (*Quercus*), beech (*Fagus sylvatica*), and alder (*Alnus glutinosa*) also present. There is a grassy understorey and brooklime (*Veronica beccabunga*) in the burn. If the meadow were not heavily grazed, this could be rich in orchid species' (*Dactylorhiza* spp.).

NH717560 Map sheet: NH75NW

Dense, mature broadleaved woodland occupying steep embankments either side of the line of an old railway, between Avoch and Fortrose. Trees include mature oak (*Quercus* sp.), beech (*Fagus sylvatica*), the occasional Scots pine (*Pinus sylvestris*), and others. Ground flora is dominated by wood-rush (*Luzula sylvatica*) in places, but elsewhere is moderately species-rich. The railway tracks are now gone, and the line is a footpath. As well as an important amenity and landscape feature, the woodland shows considerable wildlife potential. Unfortunately there is a lack of strong links with other habitats in the area, and the site lies between two villages which have experienced considerable development in recent years. While the site itself is not well suited to development, due to steep slopes, there is a danger of further isolation through development of surrounding land.

NH718577 Map sheet: NH75NW

Patches of bare, bulldozed ground, either side of fence. South-east section is probably the handling area for timber operations. North-west section may be a small quarry/borrow pit, but could be the beginning of some form of development.

NH719564 Map sheet: NH75NW

New housing development. Not mapped in detail. Appears to have destroyed a little semi-natural habitat adjacent to the clump of broadleaved trees at the centre of the site. However, most of area was probably agricultural land. A more serious threat to wildlife lies in the fact that no buffer zone was left between housing and the woodland to the west, by Craig Burn. Development has pushed right up to the woodland margin.

NH720574 Map sheet: NH75NW

Area of clear felled plantation, not re-planted. Currently dominated by wavy hair-grass (*Deschampsia flexuosa*) with large patches of lying deadwood. Some regeneration of birch (*Betula* sp.) in places. Also dense stands of rosebay willowherb (*Chamaenerion angustifolium*). Some areas support heather (*Calluna vulgaris*) and other heath species, but only in patches.

NH720591 Map sheet: NH75NW

Mixed broadleaved woodland, with ash (*Fraxinus excelsior*) and alder (*Alnus glutinosa*) dominant, and birch (*Betula* sp.) and willow (*Salix* sp.) present. There is good regeneration of alder and willow. There is a long rank grassy understorey supporting common herbs, e.g., buttercup (*Ranunculus* sp.), creeping thistle (*Cirsium arvense*), nettle (*Urtica dioica*), meadow

vetchling (*Lathyrus pratensis*), yarrow (*Achillea millefolium*), hogweed (*Heracleum sphondylium*), bramble (*Rubus fruticosus* agg), dog rose (*Rosa canina*), broom (*Sarothamnus* [*Cytisus*] *scoparius*), and gorse (*Ulex europaea*). The grass is too long for many herbs and would benefit from some light grazing. Grass species include creeping soft-grass (*Holcus mollis*), cock's-foot (*Dactylis glomerata*), bents (*Agrostis* sp.), and crested dog's tail (*Cynosurus cristatus*). There is also soft rush (*Juncus effusus*). The area is becoming marshier in the middle, with abundant tufted hair-grass (*Deschampsia cespitosa*), and soft rush. The north end is more acidic, with a shorter sward. Species here include sweet grasses (*Glyceria* sp.), fescue (*Festuca* sp.), bent grass (*Agrostis* sp.), lousewort (*Pedicularis sylvatica*), yellow rattle (*Rhinanthus minor*), orchids (*Dactylorhiza* sp.), devil's-bit scabious (*Succisa pratensis*), self-heal (*Prunella vulgaris*), jointed rush (*Juncus articulatus*), bulbous rush (*Juncus bulbosus*), hawkweeds (*Hieracium* sp.), red clover (*Trifolium pratense*), with rare heath rush (*Juncus squarrosus*). There is a burn on the west edge.

NH723587 Map sheet: NH75NW

Christmas tree (*Picea abies*) plantation new to area and close to large complex of semi-natural broadleaved woodland centring on Fairy Glen and running up north-west edge of the plantation along Rosemarkie Burn. Regeneration of exotics would be undesirable as would be heavy use of herbicide. The edge of the plantation is abundant in common herbs, especially wild pansy (*Viola tricolour*), and hawkweeds (*Hieracium* spp.), with a clear demarcation line where herbicide has recently been applied.

NH725568 Map sheet: NH75NW

New road with street lamps built through heart of mature broadleaved woodland. Scheduled for development of about 7 houses, but currently halted (local knowledge suggests drainage problems have prevented further development). Prominent landscape feature. Mature sycamore (*Acer pseudoplatanus*) with oak (*Quercus* sp.). Ground flora well developed with wood avens (*Geum urbanum*), red campion (*Silene dioica*), male fern (*Dryopteris filix-mas*), germander speedwell (*Veronica chamaedrys*) and other common herbs and grasses, plus *Thuidium tamariscinum*, *Mnium hornum* and a range of other common mosses. Fairly diverse, but would benefit from active management. Because mature, would take many years to replace (the woodland covers around 4 ha, although the original planning application suggests less than 2 ha to be developed. The Local Plan at the time had most of the woodland scheduled to be retained as woodland/green space, but following the planning application this was suddenly changed so that all the woodland could be developed). This appears to be an important arm of habitat, bringing wildlife to the heart of Fortrose, by connecting with more extensive habitats to the north and west. As such it should have been strengthened, not severed.

NH725598 Map sheet: NH75NW

A most interesting area of gully, extending south west from here to the road junction. This vicinity is especially rich with wet heath/acid grassland mosaic and juniper (*Juniperus communis*) scrub on the south side and species-rich marshy grassland around the burn. Meadowsweet (*Filipendula ulmaria*) is especially abundant. There is a mosaic of birch (*Betula* sp.), and willow (*Salix* sp.) thicket, dense in places with occasional mature Scots pine (*Pinus sylvestris*), and open areas of marshy grassland. Soft rush (*Juncus effusus*) is dominant, and gorse (*Ulex europaea*) scrub is patchy. Much of the north bank is carpeted with bracken

(*Pteridium aquilinum*). Overall, a varied and secluded complex of habitats which falls just short of forming a continuous corridor linking the Fairy Glen to the plantation north and east of here. In its present state this area provides extremely valuable habitat for mammals, birds and invertebrates.

NH727582 Map sheet: NH75NW

Fairy Glen - Mature broadleaved woodland managed by the RSPB. This area is rich in ferns and bryophytes and has been designated as a SSSI. A river runs through this glen and there is a water fall at the north end.

NH729576 Map sheet: NH75NW

A very rich and varied broadleaved woodland. Dominated by birch (*Betula* sp.) in places, but with mature oak (*Quercus* sp.), rowan (*Sorbus aucuparia*), beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*) and a range of other tree species. Scrub layer of gorse (*Ulex europaeus*) and broom (*Sarothamnus [Cytisus] scoparius*) in places, mainly around margins. Ground flora well developed. Varies from herbs and grasses to dense stands of fern (particularly *Dryopteris* spp.) and great wood-rush (*Luzula sylvatica*). An important arm of the Fairy Glen woodland.

NH729591 Map sheet: NH75NW

Grazed area comprising alder (*Alnus glutinosa*) woodland, and heath/grassland mosaic, moving into poor semi-improved field. It is generally species-poor with signs of cattle grazing.

NH734578 Map sheet: NH75NW

Very large stand of Japanese knotweed (*Polygonum cuspidatum [Reynoutria japonica]*).

NH735564 Map sheet: NH75NW

Area in process of being developed for housing. Developer stated that adjacent plots are also to be developed.

NH735571 Map sheet: NH75NW

New housing estate development. Some houses completed, others under construction. Bare ground to east end will presumably also be developed leaving only a small, improved field (currently with horses). This appears to be a well sited, low impact development which does not seem to have damaged any wildlife habitat.

NH736584 Map sheet: NH75NW

New small sand/gravel quarry surrounded by improved grassland. This find was rather unexpected and a little strange. The precise purpose of the quarry was unclear, but it does not appear to be of a commercial scale at present. Access is via an un-surfaced track from the north-east corner of the field, and appears unsuited to anything but occasional traffic.

NH737578 Map sheet: NH75NW

Rookery within small Scots pine (*Pinus sylvestris*)/sycamore (*Acer pseudoplatanus*) amenity woodland.

NH738570 Map sheet: NH75NW

Area apparently still used for touring caravans in summer, but 2/10/96 was empty and appeared as amenity grassland, unfenced and open to public.

NH743562 Map sheet: NH75NW

Golf course. Some small areas within course are moderately species-rich, but are too small to map. Grassland is predominantly coastal, tending slightly towards healthy conditions in places. Marram grass (*Ammophila arenaria*) dominates some areas, but quite species-rich in places. The small plantations are stunted lodgepole pine (*Pinus contorta*).

NH743590 Map sheet: NH75NW

Eathie Coast - Coastal strip. Complex mosaic of bracken (*Pteridium aquilinum*), scrub and coastal grassland, with some clumps of trees on steeper slopes. Ash (*Fraxinus excelsior*) is the dominant tree species both here and in nearby areas above the coastal escarpment. This suggests a tendency to develop W9 *Fraxinus excelsior*-*Sorbus aucuparia*-*Mercurialis perennis* woodland (NVC), a community associated with calcareous bedrock. Scrub varies considerably. Steeper slopes is mainly gorse (*Ulex europaeus*), but dog rose (*Rosa canina*), bramble (*Rubus fruticosus*), blackthorn (*Prunus spinosa*), willow (*Salix* sp.) and hawthorn (*Crataegus monogyna*) are all common and often intermixed. Burnet rose (*Rosa pimpinellifolia*) is common on steepest slopes and rocky outcrops where competition from taller species is reduced. Elsewhere, ivy (*Hedera helix*) covers steep slopes and cliff faces adjacent to clumps of trees. Coastal grassland is dominated by marram grass (*Ammophila arenaria*) in places, but is often quite rich in small patches. Mapping has simplified this area considerably due to scale.

NB. The path to the top of the escarpment, marked on the Ordnance Survey map, is now overgrown and totally impassable.

NH76NW (Produced 1996 and 1998)

NH701650 Map sheet: NH76NW

Small corner of Broadleaved woodland, by Newhall Burn. Burn fringed by mature alder (*Alnus glutinosa*), with frequent elm (*Ulmus* sp.), beech (*Fagus sylvatica*) and sycamore (*Acer pseudoplatanus*). Young ash (*Fraxinus excelsior*) is occasional. Dense understorey of hawthorn (*Crataegus monogyna*) and fallen trees/branches. Ground flora damp with butterbur (*Petasites hybridus*) and lesser celandine (*Ranunculus ficaria*) dominant and frequent wood anemone (*Anemone nemorosa*), pignut (*Conopodium majus*) and wood avens (*Geum urbanum*). Partly enclosed.

NH701652 Map sheet: NH76NW

Broadleaved woodland (small corner). Mature elm (*Ulmus* sp.) and beech (*Fagus sylvatica*) dominant plus patches of dense elder (*Sambucus nigra*). Young ash (*Fraxinus excelsior*) occasional. Ground flora damp with dead (lying) decaying wood covered (hidden) by soft rush (*Juncus effusus*). Lesser celandine (*Ranunculus ficaria*) frequent. Actively managed with tree

felling in progress and dead wood removal. All as a result from storm damage? Partly enclosed.

NH702653 Map sheet: NH76NW

Damp mixed, even aged, broadleaved woodland (NE of avenue to Newhall House) with sycamore (*Acer pseudoplatanus*), elm (*Ulmus* sp.), alder (*Alnus glutinosa*) and beech (*Fagus sylvatica*), most frequent. Also horse chestnut (*Aesculus hippocastanum*) and wild cherry (*Prunus avium*). Marshy floor with hollows and ditches. Lesser celandine (*Ranunculus ficaria*) dominant, yellow iris (*Iris pseudacorus*), marsh-marigold (*Caltha palustris*) and meadowsweet (*Filipendula ulmaria*) in wetter areas. Some standing water. Butterbur (*Petasites hybridus*) dominant along roadside. Regeneration favours sycamore. Canopy dense.

NH703688 Map sheet: NH76NW

Hardly any signs remain of the former oil depot. The area is now covered in semi-improved neutral grassland of only moderate species richness. Housing development has commenced along the southern margin and appears set to expand further into the area.

NH706651 Map sheet: NH76NW

Most substantial and low-lying area of broadleaved woodland on the lower reaches of Newhall Burn. Even-aged alder (*Alnus glutinosa*) dominant with willow (*Salix* sp.) and sycamore (*Acer pseudoplatanus*), probably a carr prior to drainage, still very damp, with some very wet areas to burn showing swamp communities of reed canary-grass (*Phalaris arundinacea*), yellow iris (*Iris pseudacorus*) and meadowsweet (*Filipendula ulmaria*), particularly in a strip along the north-east edge, adjacent to the drainage ditch. Probably still inundated occasionally at high tides and when burn in spate. Sparse shrubby layer of hawthorn (*Crataegus monogyna*) and bramble (*Rubus* sp.). Ground flora dominated by lesser celandine (*Ranunculus ficaria*) and butterbur (*Petasites hybridus*). Also frequent wood anemone (*Anemone nemorosa*), cleavers (*Galium aparine*), pignut (*Conopodium majus*) and occasional opposite-leaved golden-saxifrage (*Chrysosplenium oppositifolium*). Abundant deadwood. Browsing evident. Roe deer reported. Closed canopy, little natural regeneration, favouring sycamore. Enclosed. Southern fringe to north of drain more species-rich with hedgerow species woundwort sp. (*Stachys* sp.), sweet cicely (*Myrrhis odorata*), bugloss (*Anchusa* [*Lycopsis*] *arvensis*), common fumitory (*Fumaria officinalis*). To north of the woodland is an area of permanent set-aside used as rough grazing and dominated by soft rush (*Juncus effusus*), and a belt of successfully regenerating alder (*Alnus glutinosa*) and willow (*Salix* sp.). Ground flora rich with abundant orchids (*Dactylorhiza* sp.) (local information). An agreement with the landowner to conserve this area of regeneration, together with thinning of the existing mature woodland would considerably enhance the wildlife potential of this area. Corn marigold (*Calendula segetum*) abundant, reported in field prior to improvement c. 1993. Otter spraints noted on previous survey along Newhall Burn (1993).

NH708655 Map sheet: NH76NW

Udale Bay - SSSI Saltmarsh. Extensive area of saltmarsh and mudflats home to internationally important wintering birds including pink-footed geese (*Anser brachyrhynchus*), greylag geese (*Anser anser*), knot (*Caladris canutus*) and bar-tailed godwits (*Linosa* sp.) and other wildfowl and waders. Thin distribution of mussel beds. Designated a Special Protection Area

(SPA), under RAMSAR Convention, and National Nature Reserve (NNR), owned primarily by RSPB. Surveyed in May 1996, but still requires a comprehensive vegetation survey as not surveyed in detail due to the risk of disturbance to breeding lapwings (*Vanellus vanellus*). Saltmarsh currently undergoing accretion, so somewhat more extensive than the current OS boundary implies, but too complicated to map accurately. Extent of narrow-leaved eel grass (*Zostera angustifolia*) and dwarf eel grass (*Zostera noltii*) monitored by the RSPB at 2-3 year intervals. Upper saltmarsh is one of the two most extensive such communities in the area and a locally rare community. Patches of saltmarsh grass (*Spartina townsendii*) was planted by the previous landowner and is now controlled from spreading vegetatively by spraying. Grazed with cattle to encourage waders. Grazing delayed to mid June to protect fledglings. Species on saltmarsh included scurvy grass (*Cochlearia officinalis*), frequent sea plantain (*Plantago maritima*), sea arrow grass (*Triglochin maritima*) and rarely northern marsh orchid (*Dactylorhiza purpurella*) sea kale (*Crambe maritima*) sea sandwort (*Honkenya peploides*) at north end. Upper saltmarsh heavily modified by extensive drainage system and associated spoil. Two patches of gorse (*Ulex europaeus*) cock's foot (*Dactylis glomerata*), probably on spoil heaps, but especially a long earth bank with cock's foot dominant running north to south, behind which is an extensive network of fields, semi-improved grassland and arable land, not subject to tidal inundation. This area has been identified as a potential lowland wet grassland site, initially rejected by SMRT but subject to review. RSPB has blocked the drain running off Gordon's Mill field behind the earth bank, to increase fresh water flooding of the field and to create feeding and roosting sites for passage and wintering wildfowl and waders. The result is a very wet area which forms a brackish lagoon at least in the winter months (another group of brackish pools exists at grid reference NH707659), but surveyed in May when water table was low, so mapped as saltmarsh because of influence of salinity on vegetation. Rabbit warren at grid reference NH707659. Sward on saltmarsh grazed consistently short and difficult to determine precise extent of saltmarsh community and transition to grassland. Great potential to develop this area for wildlife by extending the area of tidal and freshwater inundation.

NH712690 Map sheet: NH76NW

No access to oil depot and adjacent distillery property to the north and east. However, some reasonable views were obtained through the perimeter fence. The oil depot land is mainly poor semi-improved neutral grassland, grazed by sheep in places, with patches of gorse (*Ulex europaeus*) and some tall herbs. Relatively species poor. Rabbits appear abundant.

NH719697 Map sheet: NH76NW

Former access route between Invergordon aluminium smelter and pier. Now abandoned and roughly landscaped. Adjacent woodlands to south and north-west are mostly of plantation origin but are now well established and semi-natural. Moderately species rich in places, but many trees are not yet mature and some are quite young, the result of natural regeneration. Ground flora cover is mostly entire, but large areas are relatively poor and grassy.

NH721650 Map sheet: NH76NW

Udale Burn (lower end, Jemimaville). Broadleaved woodland in gully of Udale Burn. Dominated by scattered mature birch (*Betula* sp.) and elm (*Ulmus* sp.) on slopes, with young alder (*Alnus glutinosa*) fringing the burn. Shrub layer is patchy gorse (*Ulex europaeus*) and hawthorn (*Crataegus monogyna*) on slopes. Also area of wet meadow with open areas dominated by bracken (*Pteridium aquilinum*), and yellow iris (*Iris pseudacorus*) beside

stream. Ground flora includes lesser celandine (*Ranunculus ficaria*), pignut (*Conopodium majus*) and wood anemone (*Anemone nemorosa*). Enclosed. Stock grazed. NOTE: Area by Udale road, to the east side of Udale Burn, supported wild strawberry (*Fragaria vesca*) in roadside verge/ditch.

NH721698 Map sheet: NH76NW

Virtually all structures shown on the Ordnance Survey map in this area have disappeared; replaced by extensive arable land.

NH722652 Map sheet: NH76NW

Linear strip of ash (*Fraxinus excelsior*) and birch (*Betula* sp.), between beach and road. Also hawthorn (*Crataegus monogyna*). On the opposite side of the road, Hart's tongue fern (*Phyllitis scolopendrium*) was found beside a wall.

NH729651 Map sheet: NH76NW

Broadleaved, wooded gully with stream. Dominated by mature elm (*Ulmus* sp.), oak (*Quercus* sp.), with frequent ash (*Fraxinus excelsior*). Shrubs including elder (*Sambucus nigra*) and hawthorn (*Crataegus monogyna*) fringe the bottom of the slopes. Grassy slopes support bracken (*Pteridium aquilinum*). Gully floor is dominated by lesser celandine (*Ranunculus ficaria*) and opposite leaved golden saxifrage (*Chrysosplenium oppositifolium*). Also present meadowsweet (*Filipendula ulmaria*), ground elder (*Aegopodium podagraria*), stinging nettle (*Urtica dioica*), dock (*Rumex* sp.), creeping thistle (*Cirsium arvense*), hogweed (*Heracleum sphondylium*). An old wall runs through, covered in mosses and bracken. Stock grazed. No regeneration.

NH733650 Map sheet: NH76NW

Wooded gully, with a road and stream running down the middle. Dominated by mature elm (*Ulmus* sp.) and alder (*Alnus glutinosa*), with occasional elder (*Sambucus nigra*) and hawthorn (*Crataegus monogyna*). Ground flora dominated by lesser celandine (*Ranunculus ficaria*).

NH76NE (Produced 1996 and 1998)

NH751654 Map sheet: NH76NE

Narrow, steep sided gully, broadening towards South end. Dominated by scrub and bracken (*Pteridium aquilinum*) with some areas of neutral grassland, marshy in places. Also blackthorn (*Prunus spinosa*) with some willow (*Salix* sp.), gorse (*Ulex europaeus*), broom (*Sarothamnus* [*Cytisus*] *scoparius*) and dog rose (*Rosa canina*) plus some alder (*Alnus glutinosa*) and hazel (*Corylus avellana*). Some parts moderately species-rich but bracken invading. A fox, two roe deer and pheasants sighted. N.B. Some dumping on west side halfway along. Used to be grazed and more species-rich. Now grazing halted and becoming poorer (local information.)

NH756656 Map sheet: NH76NE

Planted broadleaves in area of dense, tall herbs (extends north to east but at this scale obscured by scrub symbols). Much appears to be ash (*Fraxinus excelsior*) with some oak (*Quercus* sp.). Some saplings have died and some browsed but many surviving. Also mature trees and scrub - mainly gorse (*Ulex europaeus*).

NH758655 Map sheet: NH76NE

"Set aside" resulting in increase in species-richness i.e. common herbs and grasses.

NH760650 Map sheet: NH76NE

Two red kites sighted during visit in 1993.

NH763660 Map sheet: NH76NE

Narrow, very steep sided ravine. Densely wooded with species including ash (*Fraxinus excelsior*), elm (*Ulmus* sp.), hawthorn (*Crataegus monogyna*) and elder (*Sambucus nigra*). Some dumping at lower end.

NH766652 Map sheet: NH76NE

Rhododendrons recently planted.

NH770650 Map sheet: NH76NE

New ponds, recently created, with islands for water fowl.

NH777666 Map sheet: NH76NE

Gully very steep and vegetation dense. Not entered but appears to be even richer than nearby gullies. Blackthorn (*Prunus spinosa*) is abundant.

NH779666 Map sheet: NH76NE

Steep sided gully with gorse (*Ulex europaeus*), bracken (*Pteridium aquilinum*), some elder (*Sambucus nigra*) and patches of grassland. At first glance appears not particularly species-rich, but on closer inspection supports a wide range of common herbs and grasses. Fox sighted and also rabbits, suggesting that the ravines and coastal escarpment in this area have a well developed ecology. At the point of this target note dumping of re-enforced concrete and farm refuse has occurred destroying part of the gully. Such practices now appear to be widespread, showing that farm managers in the area have either little understanding of or no interest in local wildlife. This appears to be a significant threat to the wildlife of the coastal escarpment and gullies in this area and is hard to detect without close inspection. The fact that ploughing is taken up to the very edge of each field also reduces opportunities for wildlife.

NB. This is part of a much larger system comprising a relict coastline escarpment and numerous gullies. This requires protection and management as a whole to avoid fragmentation. Appears possible that an enterprising person might be able to manage the

whole area sustainably (on a part time basis at least) for both wildlife and profit. Produce include sloe (*Prunus spinosa*), elderberry and elder flower (*Sambucus nigra*), bramble (*Rubus fruticosus*), rose hip (*Rosa* spp.), gorse flower (*Ulex europaeus*) plus herbs such as burdock (*Arctium* sp.) and colt's-foot (*Tussilago farfara*). Some low intensity grazing is also feasible and desirable.

NH787667 Map sheet: NH76NE

Broadleaved woodland - wide range of tree spp. including oak (*Quercus* sp.), ash (*Fraxinus excelsior*), elm (*Ulmus* sp.), lime (*Tilia* sp.) and sycamore (*Acer pseudoplatanus*). Some sycamore regeneration (quite thick in places and a possible concern). Tall, mature to north, shorter, more scrubby to south but with large mature willow (*Salix* sp.). Widely planted beneath with native species including oak (*Quercus* sp.) and ash (*Fraxinus excelsior*). Ground grassy in many parts with large areas of lesser celandine (*Ranunculus ficaria*). To south, tall herbs dominate in places.

NH789672 Map sheet: NH76NE

Mature woodland on embankment behind houses. Fragmented and considerably modified by disturbance from adjacent properties. Trees include ash (*Fraxinus excelsior*), sycamore (*Acer pseudoplatanus*) and oak (*Quercus* sp.). Large areas of butterbur (*Petasites* sp.) were noted in clearings, and also some tall herbs.

NH790657 Map sheet: NH76NE

Navity Woods. Complex area of wet heath, mature pinewood (*Pinus sylvestris*), birch (*Betula* sp.) woodland with some gorse (*Ulex europaeus*) scrub, marshy grassland and other habitats. Much of wet heath was probably once a bog (though not for many years.) Old drainage channels are evident in places and now little *Sphagnum* remains. Most is M16d *Erica tetralix-Sphagnum compactum* wet heath, *Juncus squarrosus-Dicranum scoparium* sub-community (NVC). Much of area beneath Scots pine to west is grassy, ranging from poor semi-improved to better semi-improved with some marshy grassland. Scots all mature, some dying. No regeneration of the latter except for a few scattered seedlings towards the centre of the wet heath. However, some birch (*Betula* sp.) regeneration in places in south. Generally interesting habitat but stock grazed by cattle, and heather (*Calluna vulgaris*) short. Should not deteriorate further unless grazing increases or drains are cleared.

NH791668 Map sheet: NH76NE

Policy woodland of Cromarty House. Mature broadleaved woodland with pockets of spruce (*Picea* sp.) plantation in places. The woodland supports mature stands of elm (*Ulmus* sp.), ash (*Fraxinus excelsior*), sycamore (*Acer pseudoplatanus*) (dominant in places), and beech (*Fagus sylvatica*) (frequent throughout). The scrub layer is generally sparse, although rhododendron (*Rhododendron ponticum*) is dense in places. Elder (*Sambucus nigra*), snowberry (*Symphoricarpos rivularis*) and bramble (*Rubus fruticosus*) were also noted. The ground flora varies from patchy to well developed, but is relatively species-rich in places. Stinging nettle (*Urtica dioica*) is locally abundant. Other species include lesser celandine (*Ranunculus ficaria*) (locally dominant in some parts), wood avens (*Geum urbanum*), cleavers (*Galium aparine*), stitchwort (*Stellaria* sp.), dock (*Rumex* sp.) and rosebay willowherb (*Chamaenerion*

angustifolium) frequent around woodland edge. The woodland is actively managed with tree felling, dead wood removal and planting of broadleaved trees (in tubes).

NB. at NH789664 there is a small, wet glade with horsetails (*Equisetum* sp.) and soft rush (*Juncus effusus*), fed by a stream. Alder (*Alnus glutinosa*) and willow (*Salix* sp.) have been planted here.

NH793651 Map sheet: NH76NE

Area of steep-sided gullies containing Scots pine (*Pinus sylvestris*) including dead standing and fallen specimens with obvious regeneration and on going feature. There are also broadleaved trees such as willow (*Salix* sp.), birch (*Betula* sp.), elder (*Sambucus nigra*) and hazel (*Corylus avellana*). The understorey is mainly bracken (*Pteridium aquilinum*) and grasses. Evidence of foxes present.

NH793655 Map sheet: NH76NE

Part of area underlain by concrete covered by thick humus layer - mossy in places but area as a whole dominated by grasses.

NH793667 Map sheet: NH76NE

Area of ground scarified by pigs. Young saplings of sycamore (*Acer pseudoplatanus*) frequent throughout. Bordered by mature trees including elm (*Ulmus* sp.), ash (*Fraxinus excelsior*), Scots pine (*Pinus sylvestris*) and Douglas fir (*Pseudotsuga menziesii*). Enclosed.

NH794653 Map sheet: NH76NE

A stand of mature Scots pine (*Pinus sylvestris*) with birch (*Betula* sp.); some dead, fallen and standing. Scots pine showing no evidence of regeneration. This area and the birch woodland immediately adjoining show evidence of having been grazed in the past. Signs of roe deer, foxes and rabbits. Long-tailed tits were seen.

NH795651 Map sheet: NH76NE

Coastline mostly inaccessible, therefore mapped from vantage points. Very complex mosaic, dominated by gorse (*Ulex europaeus*) and/or bracken (*Pteridium aquilinum*) but with areas of neutral grassland. Latter appear to be relatively species-rich in places with a range of common herbs including burdock (*Arctium* sp.), lesser celandine (*Ranunculus ficaria*) and primrose (*Primula vulgaris*). It appeared at the time of survey (mid march) that some orchid leaves were beginning to show, but this was not confirmed. No strong evidence of truly maritime community development.

NH795692 Map sheet: NH67NE

Poor semi-improved grassland with false oat grass (*Arrhenatherum elatius*), marram grass (*Ammophila arenaria*) and some bent grasses (*Agrostis* spp.) also present. Soil is dune sand.

NH796670 Map sheet: NH76NE

Neutral grassland on slopes. Poor semi-improved (quite short) in places but much is slightly richer; dominated by cock's-foot (*Dactylis glomerata*) but with a range of other grasses and herbs.

NH76SW (Produced 1996)

NH700603 Map sheet: NH76SW

Small area of alder (*Alnus glutinosa*) carr woodland, fenced and ungrazed. The trees are multi-stemmed, small and dense. Also occasional pine (*Pinus sylvestris*) and juniper (*Juniperus communis*). The ground flora is diverse with fragments of heather (*Calluna vulgaris*) heath to the western end. Orchids (*Dactylorhiza* sp.) found here. Site requires a more detailed survey. (See also target note NH699602, map no NH66SE which refers to same woodland.)

NH700635 Map sheet: NH76SW

Burn with broadleaved trees including mature oak (*Quercus* sp.), ash (*Fraxinus excelsior*), rowan (*Sorbus aucuparia*), cherry (*Prunus* sp.), birch (*Betula* sp.) and larch (*Larix* sp.) along path edge. Rich ground flora including moschatel (*Adoxa moschatellina*).

NH701637 Map sheet: NH76SW

Marshy grassland occurring along a thin strip between track and drain. Willow (*Salix* sp.) and alder (*Alnus glutinosa*) planted along drain. Horsetails (*Equisetum* sp.) and compact rush (*Juncus conglomerata*) in wetter places.

NH703631 Map sheet: NH76SW

Felled conifer plantation with replanting of broadleaf spp. in tubes. Spruce (*Picea sitchensis*) regeneration abundant, with gorse (*Ulex europaeus*) scrub colonising.

NH703636 Map sheet: NH76SW

Mature oak (*Quercus* sp.) woodland with alder (*Alnus glutinosa*). Little evidence of oak regeneration but some alder regeneration is appearing. Grazing has occurred but little evidence grazing at present. Pheasant feeders placed in trees. Understorey of bramble (*Rubus fruticosus*), gorse (*Ulex europaeus*), raspberry (*Rubus idaeus*) and hawthorn (*Crataegus monogyna*). Birch (*Betula* sp.) regeneration and mature beech (*Fagus sylvatica*) with rowan (*Sorbus aucuparia*) and willow (*Salix* sp.) on eastern edge toward gorse scrub. Some old drainage ditches in filling with mosses. Marsh marigold (*Caltha palustris*) present. Species-rich ground flora. Dense birch regeneration on eastern edge of woodland.

NH704639 Map sheet: NH76SW

Track no longer present in ploughed field. garden around house planted with Sitka spruce (*Picea sitchensis*), sycamore (*Acer pseudoplatanus*), and cypress (*Cupressus* sp.) along track to house. Very unsympathetic to surrounding broadleaved woodlands.

NH706631 Map sheet: NH76SW

Felled conifers with Sitka spruce (*Picea sitchensis*) regeneration. Scots pine (*Pinus sylvestris*) compartments left standing. Birch (*Betula* sp.), rowan (*Sorbus aucuparia*) and holly (*Ilex aquifolium*) regeneration occurring.

NH706636 Map sheet: NH76SW

Artificial pond approximately 25x20m. with fish tanks. Gorse (*Ulex europaea*) and willow (*Salix* sp.) around edges. Water crowfoot (*Ranunculus* sp.) in pond. Some soft rush (*Juncus effusus*) and horsetail (*Equisetum* sp.) present.

NH706641 Map sheet: NH76SW

Ballyskelly Burn - Semi-natural mixed broadleaved woodland in gully of Ballyskelly Burn. Dominated throughout by alder (*Alnus glutinosa*), forming a dense stand at the upper end. Occasional throughout is ash (*Fraxinus excelsior*), elm (*Ulmus* sp.) and rowan (*Sorbus aucuparia*). In the middle stretches of the burn wild cherry (*Prunus avium*) and hazel (*Corylus avellana*) are abundant. A healthy, diverse ground flora exists. The slopes above the burn and wood are grassy with bracken (*Pteridium aquilinum*) and common nettle (*Urtica dioica*).

NH709638 Map sheet: NH76SW

Water indicated on map no longer present. May have been drained and in-filled. Grassy area at present.

NH710644 Map sheet: NH76SW

Mature semi-natural broadleaved woodland at entrance to herb nursery (NH710643). Tree species include beech (*Fagus sylvatica*), oak (*Quercus* sp.) elm (*Ulmus* sp.) holly (*Ilex aquifolium*), lime (*Tilia* sp.), alder (*Alnus glutinosa*), hawthorn (*Crataegus monogyna*), horse chestnut (*Aesculus hippocastanum*), elder (*Sambucus nigra*) and willow (*Salix* sp.). A single giant sequoia (*Sequoiadendron giganteum*) is present at eastern wall of garden. Sycamore (*Acer pseudoplatanus*) regeneration prevalent, with a little beech. Many escapee species from herb garden including green alkanet (*Pentaglottis sempervirens*) and Solomon's seal (*Polygonatum* sp.).

NH725629 Map sheet: NH76SW

Deer fence enclosed area of Scots pine (*Pinus sylvestris*) woodland said by the owners to contain about 70 red, fallow and roe deer. This woodland is seriously degraded, (dying on its feet) with absolutely no evidence of regeneration. The ground flora is grazed to millimetres. In the now open areas, where the dead trees have fallen, gorse (*Ulex europaeus*) and soft rush (*Juncus effusus*) is widespread. Juniper (*Juniperus communis*) within the woodland has

greenery only above deer browsing height, i.e. above two metres, otherwise it is bare wood. Access to this area was denied by the owners therefore survey only superficial. Evidence of deer, fox and pine marten out with deer fence.

NH727609 Map sheet: NH76SW

Field of rough pasture with mature Scots pine (*Pinus sylvestris*) with some birch (*Betula* sp.). The scrub is mainly juniper (*Juniperus communis*) with occasional gorse (*Ulex europaeus*). The north corner of the field has been fenced off (electric fence) and is becoming species-rich and wetter at the boundary with the wet heath to the north-west. Again the scrub in this area and the wet heath is dominated by juniper. There are signs of Scots pine regeneration. The area also holds a population of large brown hares.

NH729645 Map sheet: NH76SW

Narrow wooded gully cutting through arable land. Oak (*Quercus* sp.), ash (*Fraxinus excelsior*) and wych elm (*Ulmus glabra*) abundant. Frequent species include cherry (*Prunus* sp.), elder (*Sambucus nigra*), and young ash (*Fraxinus excelsior*). Gorse (*Ulex europaeus*) borders the gully. The ground flora is limited including nettle (*Urtica dioica*), and umbellifers are prominent, with bracken (*Pteridium aquilinum*). Where the gully narrows there are exposed earth banks with tree roots. The area is grazed in parts.

NH730604 Map sheet: NH76SW

Linear area (shallow gully) with small burn running through. Supports Scots pine (*Pinus sylvestris*), birch (*Betula* sp.), willow (*Salix* sp.) and other trees, with gorse (*Ulex europaeus*), juniper (*Juniperus communis*), and some broom (*Sarothamnus* [*Cytisus*] *scoparius*). Stock grazed but ranges from poor semi-improved to moderately species-rich. Acidic in character but nutrient enriched due to cattle excrement. Therefore appears neutral in places. Some parts quite marshy. A potentially important habitat but heavy grazing is reducing species-richness and preventing tree and scrub regeneration. NB. Too little grazing would lead to gorse encroachment and any habitat management will need to consider this.

NH730631 Map sheet: NH76SW

Scots pine (*Pinus sylvestris*) woodland with ground flora dominated by heather (*Calluna vulgaris*) with evidence of regeneration. Access denied by owners therefore only superficial survey achieved.

NH732629 Map sheet: NH76SW

May have been old area of wet heath that held a plantation. Indications of past management activities as shown by drainage channels, now in-filling. Wide spread regeneration of Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.). Mosaic of wet heath with soft rush (*Juncus effusus*) and cross-leaved heath (*Erica tetralix*), with wetter areas supporting heath rush (*Juncus squarrosus*), common cotton sedge (*Eriophorum angustifolium*) and *Sphagnum* mosses. Occasional willow (*Salix* sp.) and juniper (*Juniper communis*) noted. There is also widespread lichen (*Cladonia portentosa*), mat grass (*Nardus stricta*), black sedge (*Carex nigra*), deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]) and heather (*Calluna vulgaris*). Also scattered dead and fallen Scots pine. Ground heavily poached in places. Area

becomes drier towards the west with very occasional spruce (*Picea* sp.) regeneration. At western limit there is regeneration of Scots pine, larch (*Larix* sp.) and lodgepole pine (*Pinus contorta*). Roe deer observed.

NH734648 Map sheet: NH76SW

Wooded gully adjacent to the road. Dominated by planted spruce (*Picea* sp.) and elder (*Sambucus nigra*). Frequent willow (*Salix* sp.) and alder (*Alnus glutinosa*). Ground flora is diverse with lesser celandine (*Ranunculus ficaria*), meadowsweet (*Filipendula ulmaria*), bluebell (*Hyacinthoides non-scripta*) and bracken (*Pteridium aquilinum*) on open slopes and at the stream edge. Ground elder (*Aegopodium podagraria*) is abundant on roadside verge.

NH737619 Map sheet: NH76SW

Blocks of mature Scots pine (*Pinus sylvestris*), originally plantation. Ground flora poor, bare grassy with extensive patches of common chickweed (*Stellaria media*). Heavy grazing by cattle.

NH738616 Map sheet: NH76SW

Felled but a few broadleaved trees recently planted and ground flora fairly diverse. However, likely development uncertain therefore mapped as recently felled.

NH739609 Map sheet: NH76SW

Not surveyed in detail, but some areas of Scots pine (*Pinus sylvestris*) have a fairly well developed ground flora. Rides and track sides are quite varied and add diversity to the area.

NH745605 Map sheet: NH76SW

Very complex area, now managed for amenity and wildlife as part of Hillockhead B&B. Apparently once heavily grazed, but now species-rich in places, although the vegetation is still short. The area marked as marshy grassland is not dominated by soft rush (*Juncus effusus*) but is grassy and quite species-rich. Surveyed in May therefore not all species visible. (N.B Andrea Nixon 1995 produced a species list for this site held in SWT office). Shows potential as a species-rich meadow. Some suggestion of neutral/ calcareous conditions. Species noted here: water avens (*Geum rivale*), marsh thistle (*Cirsium palustre*), bulbous rush (*Juncus bulbosus*), marsh marigold (*Caltha palustris*), heath rush (*Juncus squarrosus*), marsh lousewort (*Pedicularis sylvatica*). Adjacent wet heath/ grassland mosaic is short and very grassy with cross-leaved heath (*Erica tetralix*) as the main heath species. Informal way marked paths created including access to coast. Walkers welcome.

NH746604 Map sheet: NH76SW

Very complex area, now managed for amenity and wildlife as part of Hillockhead B&B. Apparently once heavily grazed but now species-rich in places, although the vegetation is still short. The area marked as marshy grassland is NOT dominated by Soft rush (*Juncus effusus*) but grassy and quite species-rich. Surveyed here in May, therefore not all species very visible. Shows potential as a species-rich wet meadow. Some suggestion of neutral-calcareous conditions. A list for the main species of the calcareous flushes, the grassland and ditch

vegetation has been drawn up. See also "Brief Survey at Hillockhead" Andrea Nixon 1995 SWT Office, Inverness. Adjacent wet heath/ grassland mosaic is short and very grassy with *Erica tetralix* as the main heath species. NB. Informal way marked paths created including access to coast- walkers welcome.

Achillea ptarmica
Alnus glutinosa
Anthoxanthum odoratum
Athyrium filix-femina
Calluna vulgaris
Caltha palustris
Cardamine pratensis
Carex dioica
Carex echinata
Carex panicea
Carex pulicaris
Cirsium palustre
Cratoneuron sp.
Deschampsia cespitosa
Drosera rotundifolia
Eleocharis palustris
Epilobium palustre
Equisetum palustre
Erica tetralix
Eriophorum angustifolium
Eriophorum latifolium
Geum rivale
Holcus lanatus
Juncus articulatus
Juncus bulbosus
Juncus effusus
Juncus squarrosus
Juniperus communis
Linum catharticum
Lotus corniculatus
Menyanthes trifoliata
Molinia caerulea
Nardus stricta
Narthecium ossifragum
orchid species
Pedicularis palustris
Pedicularis sylvatica
Pinguicula vulgaris
Potentilla erecta
Prunella vulgaris
Ranunculus acris
Ranunculus flammula
Rubus fruticosus agg.
Rubus idaeus
Sagina nodosa

Schoenus nigricans
Selaginella selaginoides
Sorbus aucuparia
Succisa pratensis
Trifolium pratense
Triglochin palustris
Ulex europaeus

NH748601 Map sheet: NH76SW

Probably once improved grassland but now planted with scattered broadleaved trees (a number of different species). May eventually turn into woodland but spacing irregular and for time being grassland with trees is a better description than broadleaved plantation.

NH748613 Map sheet: NH76SW

Large area felled, eventual fate uncertain but north corner has been re-ploughed. Regeneration of Scots pine (*Pinus sylvestris*) abundant. Ground flora of heath and grassland species quite rich in places.

NH748627 Map sheet: NH76SW

Mature semi-natural broadleaved woodland dominated by mature birch (*Betula* sp.). Ground flora poor, heavily poached by cattle. Occasional patches of germander speedwell (*Veronica chamaedrys*), daisy (*Bellis perennis*) and rush (*Juncus* sp.). No evidence of regeneration.

NH749606 Map sheet: NH76SW

Mixed semi-natural woodland in a steep gully, dominated by mature birch (*Betula* sp.) with frequent mature Scots pine (*Pinus sylvestris*). Understorey of coppiced hazel (*Corylus avellana*). Rowan (*Sorbus aucuparia*) and birch saplings frequent throughout. Ground flora fairly diverse, dominated by wood-sorrel (*Oxalis acetosella*) and frequent chickweed wintergreen (*Trientalis europaea*). Area is unenclosed with some evidence of grazing.

NH76SE (Produced 1996)

NH750603 Map sheet: NH76SE

Once improved grassland, now left and becoming richer in species. However, cock's foot (*Dactylis glomerata*) is abundant and may reduce species-richness with succession. Some broadleaved trees planted, scattered throughout, and path to beach way-marked.

NH751606 Map sheet: NH76SE

Good semi-natural birch (*Betula* sp.) woodland with some Scots pine (*Pinus sylvestris*). Species-rich in places, but some areas of bracken (*Pteridium aquilinum*) and great wood-rush (*Luzula sylvatica*). Actively managed with piles of logs and neat habitat piles of brashings.

NH751646 Map sheet: NH76SE

Ostrich farm. Seven birds noted.

NH752608 Map sheet: NH76SE

Relatively species-rich grassland, especially on steeper slopes. Abundant bluebell (*Endymion non-scriptus*).

NH753633 Map sheet: NH76SE

Muirhead. Small area of dense alder (*Alnus glutinosa*) woodland with occasional birch (*Betula* sp.) and rowan (*Sorbus aucuparia*). Ground flora relatively diverse, with tussocks of purple moor-grass (*Molinia caerulea*). Coralroot orchid (*Corallorhiza trifida*) was reported from here from survey in 1993 but has not been confirmed since then. There are also flushed areas in and adjacent to the woodland.

NH753647 Map sheet: NH76SE

Narrow but deep gully with dense trees, including oak (*Quercus* sp.) and scrub plus grassland rich in common herbs. A good habitat.

NH754631 Map sheet: NH76SE

Complex area of mature Scots pine (*Pinus sylvestris*) woodland with some broadleaved trees, scrub (both gorse (*Ulex europaeus*) and juniper (*Juniperus communis*)) and grassy areas with wet heath species. Stock grazed, therefore most of the ground flora is short cropped. Appears mildly acidic. Much of the area was apparently once a bog, now long drained and grazed to a short wet heath/grassland mosaic. Seepage channels with abundant small sedges (*Carex* spp.) occur throughout. Some areas of stunted "bog pine" (*Pinus sylvestris*) remain. Area as a whole relatively species-rich but not totally natural due to management. Both lying and standing dead wood abundant in places. Signs of woodpecker. Some tree regeneration, but not recent (ca. 10 years). Mapping only approximate due to complex nature of site. Area mapped magenta to the west of this target note is black bog rush (*Schoenus nigricans*) indicating some calcareous flushing. Therefore some uncommon species could be present (see NH753633 for example). However, adjacent area, although essentially dry modified bog, is grassy, species-poor, and heavily poached by cattle.

NH758641 Map sheet: NH76SE

Kenny's Plantation. Mature mixed woodland, heavily stock grazed (cattle). No regeneration and trees, particularly birch (*Betula* sp.), beginning to die back.

NH759622 Map sheet: NH76SE

Area complex and difficult to map, but planted with conifers in places plus broadleaved trees in tubes. Dense gorse (*Ulex europaeus*) in places and also small areas of rank grass. Relatively species-rich.

NH762625 Map sheet: NH76SE

01/05/96. Pine marten sighted by road. Older Scots pine (*Pinus sylvestris*) with younger plantation behind. Quite varied and fairly interesting habitat.

NH763616 Map sheet: NH76SE

Deep, narrow gully with dense elder (*Sambucus nigra*), blackthorn (*Prunus spinosa*) and several oak (*Quercus* sp.). Supports some ferns, mosses and common herbs.

NH767626 Map sheet: NH76SE

Pine marten spraint on rock. Area below is steep and slopes inaccessible. Appears quite diverse and possibly species-rich in laces. NB. Person at Upper Eathie reported that sika deer are now established in the area.

NH769640 Map sheet: NH76SE

Long, broad gully becoming narrower and shallower to the west. (Beyond NH762634 becomes shallow and poorer in species, although meadowsweet (*Filipendula ulmaria*) is locally dominant.) A few scattered trees occur, particularly towards the eastern end, including hazel (*Corylus avellana*). The scrub is mainly gorse (*Ulex europaeus*) but with patches of blackthorn (*Prunus spinosa*). The ground is mainly grassy, tending to poor semi-improved in places (particularly in the south-west), but generally quite herb-rich. Lower lying parts marshy in places with marsh marigold (*Caltha palustris*), meadowsweet, tufted hair-grass (*Deschampsia cespitosa*) and some soft rush (*Juncus effusus*) and a range of common herbs. Roe deer sighted.

NH771631 Map sheet: NH76SE

New deer fence and track. Ground prepared for conifers. Planting of Douglas fir (*Pseudotsuga menziesii*) has begun over a large area. Therefore all mapped as conifer plantation.

NH773635 Map sheet: NH76SE

Pond within improved grassland. Fringed by soft rush (*Juncus effusus*). Frog spawn and tadpoles and palmate newts were noted.

NH780638 Map sheet: NH76SE

Marshy area dominated by black bog rush (*Schoenus nigricans*). A calcareous flush. Surveyed in early April and may support some interesting species although none were visible at the time. Several orchid spikes noted (either early purple (*Orchis mascula*) or northern marsh (*Dactylorhiza purpurella*)). Very wet and not very accessible.

NH788644 Map sheet: NH76SE

Mosaic of bracken (*Pteridium aquilinum*) and gorse (*Ulex europaeus*) scrub with some scattered elder (*Sambucus nigra*) in places. Grassland relatively herb-rich in places.

NH77NW (Produced 1999)

NH702760 Map sheet: NH77NW

Large, complex area of Scots pine (*Pinus sylvestris*) woodland with birch (*Betula* sp.), and juniper (*Juniperus communis*) in places. Relatively species rich ground flora, mainly dry and often dominated by blaeberry (*Vaccinium myrtillus*). Becomes wetter to the east. Surveyed mainly from around a hundred metres in from the periphery, therefore the centre was not visited. However the woodland appears fairly consistent in the range of variation of tree density and open areas. Some denser stands of Scots pine appear almost plantation like, but age range suggests a more natural origin. Only beyond the fence to the north-west (plus a small patch to the south-west) are any obviously planted areas found, and even these are of Scots pine.

NH709763 Map sheet: NH77NW

Steep sided river valley/gorge, probably a glacial meltwater channel. Many parts heavily wooded, a complex mix of birch (*Betula* sp.), rowan (*Sorbus aucuparia*), oak (*Quercus* sp.), Scots pine (*Pinus sylvestris*) and other trees, with willow (*Salix* sp.) in wetter parts. Ground flora very varied; some bracken (*Pteridium aquilinum*), but most parts relatively species rich. Ranges from grassy to heath. Hairy wood-rush (*Luzula pilosa*) is scattered widely, along with a wider range of other species such as chickweed wintergreen (*Trientalis europaea*), blaeberry (*Vaccinium myrtillus*), wavy hair-grass (*Deschampsia flexuosa*), and mosses such as *Rhytidiadelphus triquetrus*. Access is difficult in places and the area was not thoroughly explored. The area is part of a much larger river corridor system and would benefit from a more detailed survey.

NH716771 Map sheet: NH77NW

The whole hill and north side of Beinn an Lochain shows potential to be a very good pinewood. Since the Ordnance Survey map was published, vegetation boundaries showing divisions between stands of Scots pine (*Pinus sylvestris*) have become very blurred as natural regeneration now covers the whole area in varying degrees of density. Many species are already present to demonstrate its potential, including birch (*Betula* sp.), juniper (*Juniper communis*), willow (*Salix* sp.), blaeberry (*Vaccinium myrtillus*), and some rowan (*Sorbus aucuparia*). There is a definite component of deadwood on the wide summit, increasing the value to wildlife. The wet heath and bog on the flat top and saddle between the two hills creates a variation to the habitat. Significantly, capercaillie were in evidence during the survey. A new stock fence crosses the north slope of Beinn an Lochain for no apparent reason, but the even aged character of the Scots pine regeneration suggests pressure from sheep, cattle and deer has been reduced or halted quite recently. Certainly the two ruins and the large three sided enclosure on the south side of the hill indicate that grazing did occur sometime in the past

NH718750 Map sheet: NH77NW

Marshy grassland dominated by soft rush (*Juncus effusus*), but relatively species rich in places. Species include northern marsh orchid (*Dactylorhiza purpurella*), meadowsweet (*Filipendula ulmaria*), silverweed (*Potentilla anserina*) and germander speedwell (*Veronica chamaedrys*). These conditions continue north-eastwards where soft rush eventually becomes

less abundant and sedges (*Carex* spp.), cotton sedge (*Eriophorum vaginatum*), horsetail (*Equisetum* sp.), heath spotted orchid (*Dactylorhiza maculata*), lousewort (*Pedicularis sylvatica*), tormentil (*Potentilla erecta*) and other herbs become quite abundant in places. A fragrant orchid (*Gymnadenia conopsea*) spike was also noted. The semi-improved neutral grassland (solid orange) in the area is moderately species rich, with common grasses and herbs including speedwells (*Veronica* spp.), forget-me-not (*Myosotis* sp.), violet (*Viola* sp.) and meadow buttercup (*Ranunculus acris*). (Phase 2 survey would be useful.)

NH719768 Map sheet: NH77NW

Large area of flush fed by run-off from the steep slope immediately north of the enclosure. Spreading under semi-natural Scots pine (*Pinus sylvestris*), birch (*Betula* sp.), willow (*Salix* sp.) and juniper (*Juniperus communis*), it supports an array of wild flowers and sedges (see species list). Subject to repeated grazing all traces of heather (*Calluna vulgaris*) have gone, although some blaeberry (*Vaccinium myrtillus*) persists. Previous drains which enclose this zone have clogged with rush (*Juncus* sp.), increasing the saturation of flatter patches which now contain *Sphagnum* and sundew (*Drosera rotundifolia*). An alteration to the fence line a little to the east has increased the enclosed area which has, through continual grazing, changed the former wet heath to rough grazing. The slope outside the enclosure immediately north of the target note symbol also displays a complex mix of vegetation and includes the main source of the flush. Scots pine, much willow and juniper and some birch grow over bracken (*Pteridium aquilinum*) lower down, and heather and blaeberry higher up the slope. See also Target note NH721770.

NH721770 Map sheet: NH77NW

"Badnaguin"- remains of an old croft or sheiling. The surrounding land still shows signs of improvement from grazing and still may be grazed. Heather (*Calluna vulgaris*) has lost out to grasses as the dominant species. Further away from the ruin, the habitat has turned to a mix of bracken (*Pteridium aquilinum*), willow (*Salix* sp.), heather, and marshy grassland. This is very close to another target note (NH719768) and could be considered in the same context.

NH737779 Map sheet: NH77NW

Complex area of Scots pine (*Pinus sylvestris*) woodland, wet modified and unmodified bog and areas of bottle sedge (*Carex rostrata*) swamp. Woodland along south-east shore of Lochan has a dry heath ground flora dominated by blaeberry (*Vaccinium myrtillus*) and heather (*Calluna vulgaris*). (A single red throated diver was seen on the lochan.) Modification of bog appears to be partly a matter of succession and topography -the least modified being adjacent to the lochan and on lower ground (although the areas mapped as being wet modified support some less modified patches.) However, the adjacent conifer plantations will also have played a part, in particular the lodgepole pine (*Pinus contorta*) to the north and west, some of which is actually planted on bog. In the area to the south-west of the lochan, bog pools are abundant and parts are quite unmodified. However, due to the hummocky nature of the area conditions vary considerably. Over all, the area is quite rich. It is also surprisingly extensive, the lack of vantage point causing a deceptive perspective. It is unknown whether or not the area is a SSSI, but it appears as though it should be. NB-This area is much wetter and richer than the wet modified bog beyond the plantations to the west. Phase two required - the flora and fauna of this area definitely warrants more careful study. On this brief visit, in addition to the species mentioned previously, only common species such as bog asphodel (*Narthecium*

ossifragum), round leaved sundew (*Drosera rotundifolia*), curlew, chaffinches and tits were noted. However, the area and its surroundings appear very favourable for a wide range of species such as crested tits, crossbill, pine marten and red squirrel. Capercaillie have been noted (yesterday) in the pinewoods to the south-west, and conditions appear favourable for this species over a large area. Although no attempt was made to identify *Sphagnum* species, a number of different ones were clearly present, suggesting the possibility of less common species. NB Crossbill, pine marten, red squirrel confirmed by local resident .

NH738761 Map sheet: NH77NW

Complex mosaic of birch (*Betula* sp.), willow (*Salix* sp.), bracken (*Pteridium aquilinum*), and gorse (*Ulex europaeus*) in places. Some parts quite wet. Moderately species rich. The river corridor was all mapped from the northern side, therefore some smaller details may have been missed to the south of the river. As a whole the area is species rich, but this is scattered and patchy due to grazing by livestock and bracken encroachment.

NH739774 Map sheet: NH77NW

Complex plantation dominated by Scots pine (*Pinus sylvestris*) over large areas, but with some lodgepole pine (*Pinus contorta*) and larch (*Larix* sp.). Birch (*Betula* sp.) is scattered in places. Most of the ground flora is dry heath dominated by blaeberry (*Vaccinium myrtillus*) and heather (*Calluna vulgaris*), giving the plantation a strong semi-natural character except for the even age and spacing of the trees. Rides and track sides support a range of habitats including dry heath, bracken (*Pteridium aquilinum*) and gorse (*Ulex europaeus*). Some parts to the west of this target note have been felled and the ground flora here is dominated by wavy hair grass (*Deschampsia flexuosa*). However, most of the area appears to have been replanted and therefore has not been mapped separately. The replanted areas which were inspected closely had been planted with spruce (*Picea* sp.) rather than Scots pine. This will inevitably lead to some habitat degradation, unfortunate in an area of clear importance to wildlife. Capercaillie were noted in the pinewoods to the west, and large areas within the Scots pine plantation also seem well suited to this and other species of bird and plants. A local resident reported a capercaillie lek to the east of this target note.

NH739792 Map sheet: NH77NW

Herb rich flush creating small bog-like wooded basin with some *Sphagnum*. Mainly dominated by sedges including yellow sedge (*Carex demissa*) and black sedge (*Carex nigra*). Herbs include marsh lousewort (*Pedicularis palustris*), butterwort (*Pinguicula vulgaris*), sundew (*Drosera rotundifolia*), bogbean (*Menyanthes trifoliata*), marsh cinquefoil (*Potentilla palustris*), devil's-bit scabious (*Succisa pratensis*) and marsh thistle (*Cirsium palustre*)

NH740764 Map sheet: NH77NW

Several magpies noted here being the most northerly noted during Phase one survey to date. N.B. A new house is marked by this target symbol.

NH742753 Map sheet: NH77NW

Small but relatively species rich area of marshy grassland. Northern marsh orchid (*Dactylorhiza purpurella*) is abundant as well as a range of common herbs including bugle

(*Ajuga reptans*), tormentil (*Potentilla erecta*), common sedges and grasses. Scrub is mainly broom (*Sarothamnus* [*Cytisus*] *scoparius*) and some gorse (*Ulex europaeus*), but short, heavily browsed willows (*Salix* sp.) is scattered throughout.

NH743782 Map sheet: NH77NW

Area of coniferous woodland, felled approximately 5 to 8 years ago, now dry heath/acid grassland mosaic, with patches of bracken (*Pteridium aquilinum*), wavy-hair grass (*Deschampsia flexuosa*), heather (*Calluna vulgaris*), blaeberry (*Vaccinium myrtillus*), gorse (*Ulex europaeus*), the occasional foxglove (*Digitalis purpurea*), and a very small patch of hare's tail cotton-sedge (*Eriophorum vaginatum*) indicating wetter conditions.

NH743792 Map sheet: NH77NW

Very wet marshy grassland dominated by soft rush (*Juncus effusus*), with patches of swamp, and acid/neutral flush covering approximately 5% of area, with horsetails (*Equisetum* spp), bottle sedge (*Carex rostrata*), common cotton sedge (*Eriophorum angustifolium*), plus early-purple orchid (*Orchis mascula*), and ragged robin (*Lychnis flos-cuculi*) at the edges.

NH746767 Map sheet: NH77NW

Deceptively (from outside) rich and complex area of woodland dominated by Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) with abundant rowan (*Sorbus aucuparia*) in places. The broad strip of woodland runs south-west to north-east. The south-west end is grazed, but around Lamington and to the north-east the woodland becomes more natural with a healthy ground flora of dry and wet heath with small patches of modified bog in places. The habitat extends north-eastwards on to adjacent map.

NH747783 Map sheet: NH77NW

Very young plantation of Douglas fir (*Pseudotsuga menziesii*), spruce (*Picea* spp), and Scot's pine (*Pinus sylvestris*), with rowan (*Sorbus aucuparia*) at the north east end, and the occasional birch (*Betula* sp.). Ground flora mostly dry heath/acid grassland mosaic, with heather (*Calluna vulgaris*), bell heather (*Erica cinerea*), blaeberry (*Vaccinium myrtillus*), and wavy hair-grass (*Deschampsia flexuosa*).

NH77NE (Produced 1999)

NH750784 Map sheet: NH77NE

Recently felled area with some areas of Sitka spruce (*Picea sitchensis*) and Scots pine (*Pinus sylvestris*) which seem to have regenerated naturally. All trees between 1-2m in height. Ground flora composed of dry heath dominated by heather (*Calluna vulgaris*).

NH751771 Map sheet: NH77NE

Complex area Scots pine (*Pinus sylvestris*) woodland with birch (*Betula* sp.), rowan (*Sorbus aucuparia*) and, in wetter parts willow (*Salix* sp.). Ground flora relatively species rich, varies between dry heath, wet heath and bog. Local resident reported otter in this general area, but

location of holt unknown. Jays were seen regularly by the road to the east. Curlew nest in fields to the north. Also reported by local residents, the general area supports red squirrels, pine marten and badgers. The plantation beyond the road to the north also supports capercaillie and crossbills.

NH753790 Map sheet: NH77NE

Mostly plantation, but large areas dominated by Scots pine (*Pinus sylvestris*), with a fairly well developed ground flora. Large parts were probably much wetter in the past as remnants of bog remain in places. Forest Enterprise have constructed a new access road, car park and trails by Aldie Burn to the North of this target note.

NH757781 Map sheet: NH77NE

Complex semi-natural pinewoods (*Pinus sylvestris*) with ground flora of wet heath, becoming dry to the west. A line approximately 550m long and 100m wide, running north to south, to the west of this target note is now dominated by new housing. It is difficult to see how planning permission was given for this in an area of such important habitat (Caledonian forest = EC designated habitat).

NH758753 Map sheet: NH77NE

Walled garden. Well tended, used for growing plants and large areas of lawn. A number of trees also, but not mapped in detail. A pair of osprey were noted in this area, apparently nesting on the estate (precise location withheld here but known by RSPB and gamekeeper.)

NH758756 Map sheet: NH77NE

Complex river corridor - relatively species rich in places. Supports a wide range of trees including alder (*Alnus glutinosa*), birch (*Betula* sp.), willow (*Salix* sp.), beech (*Fagus sylvatica*), sycamore (*Acer pseudoplatanus*), oak (*Quercus* sp.) and others. The habitat broadens out at this point to incorporate an area formerly quarried. Much of the ground flora of the woodland is dominated by creeping soft-grass (*Holcus mollis*) and greater wood rush (*Luzula sylvatica*), but a wide range of other common species were also present. At the point of this target note, the west bank of the river supports some giant hogweed. The "swamp/marginal" vegetation to the north is dominated by horsetail (*Equisetum* sp.). Due to the complexity and uneven topography, the quarry areas to the North-east and east were difficult to map accurately. Areas dominated by gorse (*Ulex europaeus*) also supported bramble (*Rubus fruticosus*) and stinging nettle (*Urtica dioica*), and were sometimes impenetrable.

NH759753 Map sheet: NH77NE

Mink sighted running across road into this area.

NH759772 Map sheet: NH77NE

Mosaic of bog, dry heath, modified bog and mature Scots pine (*Pinus sylvestris*) woodland, which does not appear planted. Some trees are mature and well structured (i.e. "granny" pines). North-east corner of area grades to acid and marshy grassland. Some succession occurring in

dry areas , with willow (*Salix* sp.), birch (*Betula* sp.) and gorse (*Ulex europaeus*) scrub. Also many Scots pine seedlings. On the whole, a diverse and unspoilt area, though some of the bog areas have been poached by livestock.

NH760784 Map sheet: NH77NE

Very complex mosaic of bog and wet heath with a scattering of Scots pine (*Pinus sylvestris*) throughout. Too complex to map in detail. Bog is wet modified where *Sphagnum* is abundant and there is no bare peat showing. The wet heath has only a scattering of *Sphagnum* and abundant deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]). However, as this occurs as a mosaic, mapping is only approximate. Some parts moderately species rich, but area heavily grazed by sheep and modified by a number of drainage channels. Becomes wetter and less modified to the north.

NH762751 Map sheet: NH77NE

The area immediately surrounding the castle and either side of the drive has not been surveyed in detail. However distant views suggest purely ornamental gardens around the castle and improved grassland with an abundant scattering of planted trees either side of the main driveway. The riverbanks to the east of this area were also only surveyed from a distance. However they appear to have a fairly dense, uniform tree cover with little of note.

NH762774 Map sheet: NH77NE

An area of semi-natural Scots pine (*Pinus sylvestris*) woodland with scattered patches of wet heath. No less than eight pits have been excavated by mechanical digger, fairly recently in close proximity to each other, yet there appears to be no obvious point of access and no signs of ground damage except for slight disturbance to the east of the pits where evidence of bare ground can be found. The largest pit is approximately 3m x 2m.

NH762777 Map sheet: NH77NE

This area of mature native pinewood shows some signs of disturbance including new fencing, suggesting that some form of development may have been planned. The new house approximately 100m to the south of this T-note has destroyed about 1ha of good semi-natural pinewood habitat.

NH764773 Map sheet: NH77NE

A moderately steep slope with thick gorse (*Ulex europaeus*), patches of dry heath, and much evidence of young Scots pine (*Pinus sylvestris*) seedlings and saplings. The upper end of the slope is dominated by mature Scots pine and gorse encroachment will most certainly overrun the young trees if not controlled.

NH766793 Map sheet: NH77NE

Large, complex mosaic of heath and modified bog. Mostly dry but with abundant *Sphagnum* throughout the area. Numerous tree stumps suggest that Scots pine (*Pinus sylvestris*) was once very abundant. Now only a few scattered trees remain. Whole area apparently grazed by cattle. However a scattering of interesting species such as bog asphodel (*Narthecium ossifragum*)

and common sundew (*Drosera rotundifolia*) can still be found. As this range of habitats is repeated across the area, and as no good vantage points were available on this fairly level site, the area has not been mapped in detail. Modification of bog appears to be mainly due to drainage channels. Site would be considerably improved for wildlife by reduced grazing and blocking of these channels.

NH768762 Map sheet: NH77NE

Bog and swamp dotted with Scots pine (*Pinus sylvestris*). May be a kettle hole loch. Area scattered with dead trees which have probably died as a result of becoming too heavy for inundation vegetation to support them, and have fallen through into the water below - typical of kettle hole succession. No open water, mainly *Sphagnum* species and bottle sedge (*Carex rostrata*). Also common wintergreen (*Pyrola minor*) found growing around the edge of the modified bog. The area needs a more detailed survey.

NH768779 Map sheet: NH77NE

Wet heath/acid grassland mosaic, grazed by livestock. Wet heath 30% Acid grassland 70%

NH769797 Map sheet: NH77NE

Broadleaved woodland, relatively impenetrable in places and therefore not mapped in detail. Dominated by birch (*Betula* sp.), but wetter areas to the north support abundant willow (*Salix* sp.) and alder (*Alnus glutinosa*). Conifers are less abundant than Ordnance Survey symbols suggest. Felling may have occurred (piles of old brushings remain in places), opening the canopy and allowing rapid, dense birch regeneration. Ground flora ranges from bracken (*Pteridium aquilinum*) on south facing slopes, through heath under the younger birch, to marshy grassland in the wetter, northern part. Area south of burn is again dominated by birch, but is more mature. Ground flora ranges from heathy to grassy.

NH771755 Map sheet: NH77NE

Plantation has been harvested, revealing a ground flora of heather (*Calluna vulgaris*). This has subsequently been encroached upon by birch (*Betula* sp.), willow (*Salix* sp.), soft rush (*Juncus effusus*), gorse (*Ulex europaeus*), broom (*Sarothamnus* [*Cytisus*] *scoparius*) and natural Scots pine (*Pinus sylvestris*) regeneration. This has created a mixed ground flora all less than a metre high. Most areas marked as heath and wet heath within 500m of the road are of the above.

NH772761 Map sheet: NH77NE

Swampy birch (*Betula* sp.), alder (*Alnus glutinosa*), willow (*Salix* sp.) woodland. Subject to fly tipping, some domestic, some industrial with "hardcore", industrial containers and asbestos.

NH772783 Map sheet: NH77NE

Wet heath/acid grassland mosaic grazed by livestock. Wet heath 40%, acid grassland 60%

NH773756 Map sheet: NH77NE

An area of felled conifers and disused quarry supporting a variety of species. Predominantly heath and scrub with heather (*Calluna vulgaris*), cross-leaved heath (*Erica tetralix*), moss (*Polytrichum commune*), gorse (*Ulex europaeus*), soft rush (*Juncus effusus*) and broom (*Sarothamnus* [*Cytisus*] *scoparius*). Also young willow (*Salix* sp.), Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) covering some areas.

NH774756 Map sheet: NH77NE

Drainage ditch well populated with northern marsh orchid (*Dactylorhiza purpurella*).

NH774784 Map sheet: NH77NE

Wet heath/acid grassland mosaic grazed by livestock. Wet heath 20% Acid grassland 80%

NH777775 Map sheet: NH77NE

Pitmaduthy Moss. Once probably shallow open water, Pitmaduthy moss is now a large area of swamp, unmodified and some modified bog where the degree of modification is more pronounced only at the margins. Pools of open water are surrounded by swamp/bog dominated by *Sphagnum* and bottle sedge (*Carex rostrata*). A quaking bog which extends all the way to the edges even though these have been heavily colonised by willow (*Salix* sp.), birch (*Betula* sp.), and Scots pine (*Pinus sylvestris*), much of which is scattered and stunted. On the south side, mature Scots pine dominates over wet heath in a narrow corridor up to the fence line which runs the length of the moss. It is here that the ground begins to rise and the moss abruptly ends. On the north perimeter, mature Scots pine and willow dominate as a narrow corridor and, where the ground rises, patches of bracken (*Pteridium aquilinum*), birch, rowan (*Sorbus aucuparia*) and elder (*Sambucus nigra*) make a scattered appearance. There is little heather (*Calluna vulgaris*). Generally this is a very rich, secluded habitat that is attractive to wildlife and is worthy of a much more detailed survey (if one has not already been carried out by SNH). It would be particularly useful to determine the extent of any drainage. Surveying was difficult due to the swampy ground and the extent of wood/scrub colonisation around the margins which was plotted only roughly. (Part of this area is a SSSI.)

NH777788 Map sheet: NH77NE

Oblong shaped area of predominantly mature birch (*Betula* sp.) woodland straddling a farm access road, it contains a small component of mature Scots pine (*Pinus sylvestris*) and on the west side, a mixture of modified bog, wet and dry heath and some marshy grassland. To the east there are scattered patches of bracken (*Pteridium aquilinum*), mainly near the drain, some juniper (*Juniperus communis*) and patches of heath and wet heath. Two pylons here cross the path and beneath these is heath flora, grasses and some marshy grassland. Significantly, both these areas have been subjected to grazing and the ground flora is short, with very little heather (*Calluna vulgaris*) visible (especially on east side) and grasses dominant in some parts.

NH783783 Map sheet: NH77NE

Target note includes all the birch (*Betula* sp.) habitat to the north and south-west. These are mosaics of mature birch over ground flora that varies from wet modified bog, wet heath, dry

heath, acid grassland and bracken (*Pteridium aquilinum*). The influence of grazing, which has significantly altered the composition of the ground flora in favour of grasses especially on the higher ground, is constant throughout. As may be expected, there is no regeneration of birch or Scots pine (*Pinus sylvestris*) despite nearby seed sources. A fence to the north, at grid reference NH785783, has probably been erected to exclude sheep from a very wet area, and here pine of all ages grows amongst a mosaic of birch, willow (*Salix* sp.) and bog.

NH786788 Map sheet: NH77NE

Complex mosaic of marshy and drier acid grassland, sometimes with heath species. The marshy grassland supports abundant soft rush (*Juncus effusus*), but the area as a whole is reasonably species rich even though grazed by cattle. The improved field with soft rush to the north-west appears to have been very similar at one time, but has been improved for agriculture. The field to the west of this is quite recent. The area appears to have supported abundant birch (*Betula* sp.) and Scots pine (*Pinus sylvestris*) at one time. This is a good example of progressive habitat loss which can easily go undetected.

NH787784 Map sheet: NH77NE

Complex area of bog/marsh with abundant willow (*Salix* sp.) in places. Much of the area is wet and fairly inaccessible. *Sphagnum* spp. are abundant and cotton sedges (*Eriophorum* spp.) are present in places. However soft rush (*Juncus effusus*) is abundant over large areas, giving the impression of a transition from bog to very wet, marshy grassland. As the area has characteristics of both these habitats they were difficult to separate and map accurately

NH790782 Map sheet: NH77NE

Very complex mosaic of Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) woodland, with a ground flora which is predominantly heathy but, in the south, occasionally grassy. Some of the damper grassy areas support abundant heath spotted orchid (*Dactylorhiza maculata*). The heath is predominantly wet, but dry hummocks are present in many parts, some possibly the result of ploughing in the past. The densest, most uniform stands of Scots pine have been mapped as plantation, however they may well be the product of natural regeneration. Trees become more scattered to the north-east and broadleaves become scarce except for adjacent to the road. Patches of bog are scattered in this area. This is mostly modified except for in the eastern corner. A pair of osprey were noted circling in the distance towards the centre of the area (near the target note symbol) hence this area was mapped from a distance.

NH793793 Map sheet: NH77NE

Very complex mosaic of Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) woodland. Ground flora predominantly heathy except for a few areas where trees have been thinned. Heath mainly wet, although dry hummocks are frequent. Wet heath indicators such as cross-leaved heath (*Erica tetralix*) and heath rush (*Juncus squarrosus*) were scattered throughout. See also target note NH790782.

NH798787 Map sheet: NH77NE

Area of road realignment. The western verge of the old road supports areas of bog, wet heath and abundant heath spotted orchid (*Dactylorhiza maculata*) in places. The new road appears

to have cut through an area of woodland, bog and heath which was probably quite species rich formerly. The "policy" woodlands to the south, fringing on the eastern side of the road, although of plantation origin and quite dense, are relatively semi-natural, with a well developed ground flora in places, only becoming plantation like to the south. Species include beech (*Fagus sylvatica*), birch (*Betula* sp.), rowan (*Sorbus aucuparia*), sweet chestnut (*Castanea sativa*), willow (*Salix* sp.), sycamore (*Acer pseudoplatanus*), Scots pine, a number of exotic conifer species and others. Over all, a rich , diverse area ,worthy of protection (may be an SSSI. If not it probably should be.)

NH798791 Map sheet: NH77NE

Scots pine (*Pinus sylvestris*) woodland with some birch (*Betula* sp.) - dense and plantation like (obviously of plantation origin) but with well developed ground flora and some uneven spacing of trees giving a semi-natural appearance in places. The area of heath and bog to the north is quite diverse. Although poached by cattle in places, parts of the bog area are very wet and relatively intact.

NH77SW (Produced 1999)

NH700743 Map sheet: NH77SW

Unmodified bog (M18 *Erica tetralix-Sphagnum papillosum* mire (NVC))beneath Scots pine (*Pinus sylvestris*), with some birch (*Betula* sp.). Very wet, with abundant hare's-tail cotton sedge (*Eriophorum vaginatum*) and *Sphagnum* spp. Continues westwards beyond map edge. Along with the bog at NH710748, these are the most intact areas of bog noted in this area to date (28/04/99). However, other locations in the are (notably "Bog of Burracks" at NH720740) also support bog, parts of which are only a little more modified. In isolation these sites may be quite fragile. They need to be protected and managed as a system whereby weak links could be strengthened.

NH703735 Map sheet: NH77SW

General area - A very complex area, difficult to map fully at this scale. Mostly quite wet, ranging from intact bog to poor marshy grassland. Almost entirely grazed and poached by cattle (except the wettest bogs). However, relatively species rich as a whole, with large areas of Scots pine (*Pinus sylvestris*), birch (*Betula* sp.) and some juniper (*Juniperus communis*). Willow (*Salix* sp.) in wetter hollows. Also abundant gorse (*Ulex europaeus*). The marshy grassland is dominated by soft rush (*Juncus effusus*), but some parts are relatively species rich.

NH703741 Map sheet: NH77SW

Badachonacher Moss - Scots pine (*Pinus sylvestris*) plantation. Mostly quite dense but with well developed ground flora in places. This section was not explored thoroughly, but may support areas of interesting habitat. The name and conditions in adjacent areas suggest that the area was wet prior to planting, and patches of bog could still remain.

NH708728 Map sheet: NH77SW

Complex mosaic of marshy grassland, swamp with reedmace (*Typha* sp.) and some open water. Also gorse (*Ulex europaeus*), broom (*Sarothamnus* [*Cytisus*] *scoparius*) and neutral grassland on higher ground. Adjacent to an active sand quarry. The hollows appear to be the result of excavation, but are now moderately species rich habitat. The active quarry area is relatively bare, but sand martins were seen in flight and must be nesting near by. As a whole, an interesting area of habitats which could improve and extend or degrade depending on how the quarry is managed.

NH710708 Map sheet: NH77SW

Fairly complex strip of habitat between conifer plantation and deep drainage channel. A mosaic of gorse (*Ulex europaeus*), broom (*Sarothamnus* [*Cytisus*] *scoparius*), bramble (*Rubus fruticosus*), raspberry (*Rubus idaeus*) and neutral grassland. Appears moderately species rich in places but surveyed in early April therefore full interest probably not apparent. The channel supports aquatic vegetation in places including species such as water mint (*Mentha aquatica*), and extends for some considerable distance in both directions. Holds potential for improvement as a wildlife corridor.

NH710748 Map sheet: NH77SW

Area of intact woodland bog (M18 *Erica tetralix*-*Sphagnum papillosum mire* (NVC)) with bog pools. Very wet, with abundant hare's-tail cotton sedge (*Eriophorum vaginatum*) and *Sphagnum* spp. Extends to north beyond map edge where there is also a small lochan with bottle sedge (*Carex rostrata*).

NH713703 Map sheet: NH77SW

Former aluminium works. Most of the structures have been removed. Very complex area. Large central part is now uniform, level, improved grassland. To east, area is a mixture of poor semi-improved grassland, small areas of marshy grassland, and bare ground. Trees have been planted in places.

NH716737 Map sheet: NH77SW

Complex mosaic of Scots pine (*Pinus sylvestris*), birch (*Betula* sp.), wet heath and bog. Relatively species rich in many places. Area marked as plantation is even aged and evenly spaced, but has a relatively well developed ground flora.

NH717748 Map sheet: NH77SW

Grazed but relatively species rich marshy grassland, connected to an area within the plantation and to an area to the north, and to wet alder woodland to the north-east. Supports horsetail (*Equisetum* sp.) and a range of common herbs including meadowsweet (*Filipendula ulmaria*), abundant marsh violet (*Viola palustris*) and very little soft rush (*Juncus effusus*). The marshy grassland to the east of the alder woodland is dominated by soft rush but still supports abundant common herbs beneath. The system extends north-eastwards beyond the edge of the map.

NH731748 Map sheet: NH77SW

Pine marten spraint noted here. Area to east is semi-natural Scots pine (*Pinus sylvestris*) woodland on wet heath with a scattering of birch (*Betula* sp.) and occasional juniper (*Juniperus communis*). Drier parts support blaeberry (*Vaccinium myrtillus*). Area to west is dense plantation, but is still dominated by Scots pine, with a well developed ground flora in places. (Ponds to north-east are artificial and used for duck shooting.

NH732726 Map sheet: NH77SW

Small but fairly interesting pond, supporting a range of common species including a stand of common reed (*Phragmites australis*), marsh marigold (*Caltha palustris*), water forget-me-not (*Myosotis scorpioides*), yellow iris (*Iris pseudacorus*) and others. Surrounded by alder (*Alnus glutinosa*) and willow (*Salix* sp.). The pond is fed by a channel from the west which supports the same range of species plus additional ones such as bottle sedge (*Carex rostrata*), and therefore extends the habitat considerably.

NH736743 Map sheet: NH77SW

Large, complex mosaic of Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) with wet heath and small areas of wet modified bog. Birch dominates to the south and is dense and fairly uniform. It appears that a fairly sudden change in land use (possibly removal of livestock) led to large scale birch regeneration. The area also has a scattering of large, mature Scots pine. Some management - thinning of the birch has occurred quite recently.

NH741721 Map sheet: NH77SW

A mosaic of reed canary-grass (*Phalaris arundinacea*) and rank neutral grassland with tall herbs. Surveyed in April, but still appears fairly rich, with a range of common herbs. Meadowsweet (*Filipendula ulmaria*) abundant in places. Also a scattering of alder (*Alnus glutinosa*) saplings and broom (*Sarothamnus* [*Cytisus*] *scoparius*). Area to north-west of railway is somewhat similar. The deeply incised drainage channels in this general area, although mostly artificial, appear to be relatively rich in common species. They represent narrow but important wildlife corridors in this area which is otherwise dominated by monoculture crops.

NH744746 Map sheet: NH77SW

Large, complex area dominated by birch (*Betula* sp.) woodland. Virtually impenetrable in places, but becomes more fragmented to north-east, with wet heath and acid grassland dominated by purple moor-grass (*Molinia caerulea*) and tufted hair-grass (*Deschampsia cespitosa*). The ride running south-west to north-east is due to power lines. Regeneration of birch is abundant there, but kept in check by strimming.

NH77SE (Produced 1998 and 1999)

NH751748 Map sheet: NH77SE

Dense birch (*Betula* sp.) woodland. (See also target note NH752741.) Also some small patches of wet heath and some parts particularly wet with clumps of willow (*Salix* sp.).

NH752741 Map sheet: NH77SE

Dense birch (*Betula* sp.) woodland. Virtually impenetrable in places and not mapped in detail, but there appears to be a few open areas. Probably once grazed then left to regenerate profusely.

NH762748 Map sheet: NH77SE

The area either side of this driveway has not been surveyed in detail due to access restrictions. However, views from a distance indicate fairly uniform improved grassland with an abundance of scattered, planted trees, some quite mature.

NH768732 Map sheet: NH77SE

Complex marshy/swampy area. The woodland at the base of the slope to the north is very wet/flooded and dominated by alder (*Alnus glutinosa*) and, in places, willow (*Salix* sp.). This wet habitat extends eastwards, becoming marshy grassland, and southwards to the coast where some stands of reed canary-grass (*Phalaris arundinacea*) are found, with saltmarsh beyond. The saltmarsh, dominated by saltmarsh grass (*Puccinellia* sp.), is relatively species rich, with plants such as scurvy grass (*Cochlearia officinalis*), sea plantain (*Plantago maritima*), greater sea-spurrey (*Spergularia media*) and orache (*Atriplex* sp.). Glasswort (*Salicornia* sp.) is scattered widely seawards of the area dominated by saltmarsh grass. The substrate is quite sandy (rather than silt/mud) and relatively bare. Much of the adjacent neutral grassland is quite coastal in character. (Patches of lyme-grass (*Elymus arenarius*) occur about six hundred metres due east of this target note, to the south of the track). Parts are relatively species rich. Rank, cock's foot (*Dactylis glomerata*) dominates in some places, particularly north of the track.

NH776734 Map sheet: NH77SE

Giant hogweed (*Heracleum mantegazzianum*) is extremely abundant along this stretch of the river, extending as far as the coastal grassland where the river changes course from south-east to south-west. The entire length of the track on the south-west bank, from Pipers Knowe, supports giant hogweed and some large stands of Japanese knotweed (*Polygonum cuspidatum*). The former covers the path for long stretches (stout stick required). Giant hogweed has also been found further up stream on map NH77NE, but at the time of writing the target note the stretch of river between Pipers Knowe and the north edge of the map had not been explored. The species has also been found scattered along the coast westward of here.

NH777736 Map sheet: NH77SE

Wet alder (*Alnus glutinosa*) and sycamore (*Acer pseudoplatanus*) dominated woodland, with no sign of conifers as indicated by the Ordnance Survey map symbols. Ground flora of mosses and ferns, but significant cover of giant hogweed (*Heracleum mantegazzianum*) along river side. Healthy component of dead wood. Further inland, at NH772743, there is also another area of wet woodland (on the former flood plain of the river), which appears similar but has a tree cover of sycamore, Scots pine (*Pinus sylvestris*) (plantation origin?) and birch (*Betula* sp.) over a ground flora and much fern, but with a greater abundance of grasses and herbs. This strip of woodland from Kildary may have associations with the former Milntown Castle (and

possibly Balnagown Castle?) upstream suggesting wooded cover for many years. There are certainly some impressive specimens within the wood and some evidence of coppicing.

NH778732 Map sheet: NH77SE

Relatively species rich, though sometimes quite rank, neutral grassland. Seaward parts are coastal in character while areas adjacent to the river tend to support tall herbs including giant hogweed (*Heracleum mantegazzianum*) by the river, and grasses such as cock's foot (*Dactylis glomerata*), false oat grass (*Arrhenatherum elatius*) and Yorkshire fog (*Holcus lanatus*). Red fescue (*Festuca rubra*) is particularly abundant and, at the seaward margins, this is joined by herbs such as scurvy grass (*Cochlearia officinalis*) and sea arrow grass (*Triglochin maritima*), suggesting a transition towards upper saltmarsh. Saltmarsh pools and channels also occur in this area. The appearance is one of a saltmarsh in which most of the area is in a late stage of succession to coastal grassland. (NB. Otter tracks were noted at NH780730 on the west bank of the river). Regularly inundated saltmarsh (with abundant saltmarsh grass (*Puccinellia* sp.)) was mainly confined to channels and lower hollows within the coastal grassland, and was surprisingly scarce around the seaward margins. Loose turf and isolated hummocks ("Hags") of substrate, topped by vegetation, suggest that the area is in a relatively late stage in succession to coastal grassland and is either at a late erosional stage or experiencing a period of relative equilibrium along the coastal margins. Certainly the shape of the main high water margin appears to have changed little since this Ordnance Survey map was produced.

NH794716 Map sheet: NH77SE

Butterflies nectaring on creeping thistle (*Cirsium arvense*): small copper (*Lycaena phlaeus*), common blue (*Polyommatus icarus*), meadow browns (*Maniola jurtina*), green-veined whites (*Pieris napi*) and small tortoiseshells (*Aglais urticae*).

NH798722 Map sheet: NH77SE

Strandline vegetation. Species include orache (*Atriplex* sp.), red goosefoot (*Chenopodium* sp.), sea sandwort (*Honkenya peploides*), common scurveygrass (*Cochlearia officinalis*). Coastal grassland supports sea plantain (*Plantago maritima*), lyme-grass (*Elymus arenarius*), scentless mayweed (*Tripleurospermum maritimum*) and perennial sow-thistle (*Sonchus arvensis*). Neutral grassland supports Yorkshire fog (*Holcus lanatus*), cock's foot (*Dactylis glomerata*), false oat-grass (*Arrhenatherum elatius*) and herbs including harebell (*Campanula rotundifolia*) in flower. Flock of ringed plovers seen flying over Firth; lapwings also seen feeding in fields nearby. 100+ waders, including oystercatcher and redshank seen further north (NH792713) at water's edge - tide out, plus about 10 grey seals on sand bank near The Pot.

NH78NW (Produced 1999)

NH702867 Map sheet: NH78NW

Area surveyed at high tide. Saltmarsh may be more extensive than shown (in pink), but this could not be confirmed.

NH711858 Map sheet: NH78NW

Large, mostly impenetrable area of dense gorse (*Ulex europaeus*) with occasional broom (*Sarothamnus* [*Cytisus*] *scoparius*). Scattered open patches occur, but only those close to margins could be seen clearly. These vary from wet heath/grassland mosaic to grassland

which is more or less neutral. Clumps of birch (*Betula* sp.) and rowan (*Sorbus aucuparia*) occur in places. All accessible areas are grazed by cattle.

NH735854 Map sheet: NH78NW

Area dominated by poor semi-improved grassland. However, this varies in places from improved to patches which are moderately species rich. At time of survey (October 1999) some parts were quite rich in fungi species.

NH78SW (Produced 2000)

NH702826 Map sheet: NH78SW

Wet heath grading into modified bog in places. Very variable. Mostly dominated by heather (*Calluna vulgaris*), but deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]) abundant. *Sphagnum* spp. abundant throughout, but this is mainly *Sphagnum capillifolium* in dryer parts. Other species such as bog asphodel (*Narthecium ossifragum*) and bog myrtle (*Myrica gale*) are locally abundant. Willow (*Salix* sp.) is scattered throughout.

NH703812 Map sheet: NH78SW

Extensive mosaic of soft rush (*Juncus effusus*) and grassland ranging from improved to poor semi-improved, but very variable in parts, with small areas a little richer, particularly to the north and west.

NH704821 Map sheet: NH78SW

Gully supports complex mosaic of habitats including scrub - gorse (*Ulex europaeus*), with willow (*Salix* sp.) dominant in wetter parts, marshy grassland, bracken (*Pteridium aquilinum*), and smaller patches of other habitats such as grassland, tall herbs, and wet heath. Mostly relatively inaccessible and mapped from western rim.

NH706808 Map sheet: NH78SW

Very complex area, all modified by agricultural development. Transition from more "improved" to more natural is found throughout, and habitats are often difficult to define clearly. In particular, transition from wet heath, through wet heath/grassland mosaic (often heavily grazed), through heath-like habitat (with sedges for example) but lacking heather (*Calluna vulgaris*), to marshy grassland dominated by soft rush (*Juncus effusus*), is common and impossible to map accurately. Also, a number of fence lines have been altered, making precise mapping difficult due to lack of reference points.

NH711803 Map sheet: NH78SW

Wet heath/acid grassland mosaic. Very variable, from moderately species rich to heavily grazed (short cropped) and species poor. Grades into wet heath to south and east, where a large conifer plantation lies just beyond the map boundary. Lower areas along the north-east margin grade into wet modified bog and marshy grassland. Some of the latter is relatively species rich and tends towards flush with sedges (*Carex* spp.) in parts. Boundaries are often

only approximate as transition zones occur, particularly between wet heath and wet heath/grassland mosaic.

NH718800 Map sheet: NH78SW

Marshy grassland. Relatively species rich in places, tending towards flush with abundant sedges (*Carex* spp.) in places. *Sphagnum* abundant in parts and grades into adjacent bogs. Herbs include marsh cinquefoil (*Potentilla palustris*), marsh thistle (*Cirsium palustre*), devil's-bit scabious (*Succisa pratensis*), creeping buttercup (*Ranunculus repens*) and others. Water table close to surface in parts and, although adjacent bogs have been modified, parts appear fairly intact.

NH721833 Map sheet: NH78SW

General area - very complex and difficult to map accurately. Much of the habitat is dry heath, with abundant regeneration of birch (*Betula* sp.) and/or Scots pine (*Pinus sylvestris*) over large areas, with gorse (*Ulex europaeus*) and some broom (*Sarothamnus* [*Cytisus*] *scoparius*) throughout, often as large stands. Large areas have been planted with broadleaved trees and in some places conifers. Most of the trees are quite young and a ground flora of heath dominated by heather (*Calluna vulgaris*), or tall grasses remains. In other areas, tall grass dominates, and sometimes signs of planting were not evident. It was therefore difficult to separate planted from unplanted areas in some places. Where regeneration of Scots pine is very abundant, particularly to the south of the area, it is sometimes difficult to distinguish this from planted areas. Although most planted areas have been mapped as continuous tree cover, it is likely, even when the trees mature, that open areas of heath and/or grassland will remain within. Large areas dominated by birch around 5 metres tall, occur, and natural regeneration is often difficult to distinguish from planting. Where height and spacing is less regular these have been mapped as semi-natural. More regular, denser stands have been mapped as planted.

NB. Crossbills were noted in this area.

NH722816 Map sheet: NH78SW

General Area - Wet heath with areas of modified bog. Quite complex and difficult to separate habitat types in places. Much of the heath is very wet, tending towards dry modified bog in places. Dominated by heather (*Calluna vulgaris*) and deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]), with lichen (mainly *Cladonia portentosa*) very abundant in places, particularly in the north-east. (see also target note NH731819). The heath appears to have been disturbed in the past. This is suggested by the unstable, fragile condition of the substrate in places, leading to bare peat or peat covered only by a fragile layer of lichen. Peat extraction (small scale) is evident in patches throughout the area, but more widespread disturbance may be due to excessive burning and/or grazing in the past. Lowering of the water table may also have had an influence in parts, particularly adjacent to conifer plantations and adjacent to areas where peat has been extracted. Conifer planting has encroached on the heath in the south-west and particularly the north-west, covering an area of around 1 square kilometre. Most of this appears to be lodgepole pine (*Pinus contorta*).

NB. Small patches of dry heath also occur, with heather, blaeberry (*Vaccinium myrtillus*), crowberry (*Empetrum nigrum*) and bell heather (*Erica cinerea*), but most are too small to map at this scale.

NH730834 Map sheet: NH78SW

Area planted with conifers. Interior not surveyed, but probably contains some open areas. Appears to have formerly been grassland, and most open spaces now appear to be dominated by rank cock's foot (*Dactylis glomerata*). A large area to the east has been clear-felled and then re-planted with conifers, but leaving some open areas. These support habitats ranging from heath and acid grassland (especially to south), to areas of more neutral grassland. Broadleaved trees, gorse (*Ulex europaeus*) and some marshy grassland are scattered throughout open areas.

NH731819 Map sheet: NH78SW

The wet heath is dominated by heather (*Calluna vulgaris*), deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]) and lichen (mainly *Cladonia portentosa*). The latter is, in many places, covering ground which might otherwise be bare. It is very fragile, and easily disturbed. This suggests some form of widespread disturbance in the past; possibly excessive burning of areas too wet to support this. Some areas are tending towards dry modified bog, and common cotton sedge (*Eriophorum angustifolium*) is abundant in places. The bog itself is dominated by hare's tail cotton sedge (*Eriophorum vaginatum*) and *Sphagnum*, with heather on dryer hummocks.

NH733814 Map sheet: NH78SW

Complex area. Open water of lochan grades into bottle sedge (*Carex rostrata*) swamp which then becomes bog dominated by *Sphagnum* spp. The western part also supports abundant soft rush (*Juncus effusus*), suggesting nutrient enrichment (possibly due to disturbance while adjacent conifers were being planted). However, this has not been mapped as marshy grassland as conditions are very wet and *Sphagnum* remains abundant. Hare's tail cotton sedge (*Eriophorum vaginatum*) becomes more abundant towards margins and within boggy areas extending outward from this. A good illustration of the process of succession from open water to unmodified bog prior to raised bog formation.

NB. Boundary between swamp and bog is very approximate due to broad transition zone. Patches of bog to east are more modified (due to drainage and proximity of conifers) but still support abundant hare's tail cotton sedge and *Sphagnum* in places.

NH734825 Map sheet: NH78SW

Peat cutting in progress. Small scale hand cutting still practised in this area.

NH738811 Map sheet: NH78SW

The open heath of Hill of Tain has been reduced to only 8 to 9 hectares = less than 1/6 of the area shown on the 1:10,000 Ordnance Survey map. What remains is very wet heath dominated by heather (*Calluna vulgaris*) and deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]) with abundant lichen (mostly *Cladonia portentosa*) and in places, mosses and crowberry (*Empetrum nigrum*). Only a few small patches support any *Sphagnum*. The rest has been planted with lodgepole pine (*Pinus contorta*).

NH749812 Map sheet: NH78SW

Tain Quarry - The quarry is long abandoned and in an advanced stage of recolonisation by vegetation. Little evidence of the quarry remains except the uneven topography and the foundations of a building. Gorse (*Ulex europaeus*) is abundant and access is difficult, but fairly mature Scots pine (*Pinus sylvestris*) is also abundant throughout. Other species include rowan (*Sorbus aucuparia*), willow (*Salix* sp.), birch (*Betula* sp.) and broom (*Sarothamnus* [*Cytisus*] *scoparius*). Small patches of neutral grassland occur, but the majority of ground flora is heath. Adjacent areas appear to have been disturbed in the past. To the west the abundant, scattered Scots pine may have been planted (or more recently regenerated) but in such a way as to appear natural. Young trees were not examined thoroughly. It was later noted that plantations to the north and west were dominated by lodgepole pine. Therefore if some of the trees are from regeneration it is possible that not all of them are Scots pine.

NH78SE (Produced 2000)

NH750818 Map sheet: NH78SE

A former conifer plantation, felled some time ago. Now abundant regeneration of both Scots pine (*Pinus sylvestris*) and lodgepole pine (*Pinus contorta*). Broom (*Sarothamnus* [*Cytisus*] *scoparius*) and some gorse (*Ulex europaeus*) are abundant. Ground flora is well developed, probably because it was already well established beneath the former plantation (was probably mainly Scots pine with some lodgepole pine in places). Ground is very uneven, creating a small scale mosaic. However, the majority is dry and therefore it has been mapped as dry heath. Although sloping west to east the area lacks good vantage points, and mapping is therefore only approximate.

NH752837 Map sheet: NH78SE

Area to the south of Tarlogie Farm appears to have formerly been a conifer plantation. Now a very complex mosaic of gorse (*Ulex europaeus*), broom (*Sarothamnus* [*Cytisus*] *scoparius*), marshy grassland, wet heath/grassland mosaic and acid grassland. The area to the south is more neutral but still has a mosaic of scrub and grassland. The new pool is the site of the former quarry from which material was extracted to construct the approaches to the Dornoch Bridge. Small pockets of recently planted broadleaved trees are scattered throughout both areas. These are mostly too small to map. Due to the complexity, mapping is only approximate.

NH752847 Map sheet: NH78SE

Saltmarsh - very short and heavily grazed, appears fairly poor in plant species. However, the abundance of droppings throughout the area suggests that this bay is very important for geese.

NH759832 Map sheet: NH78SE

The middle three cottages in the row have disappeared and a small number of new dwellings are being built in their place. The dense conifer plantation behind is actually closer than it appears on the Ordnance Survey map.

NH764830 Map sheet: NH78SE

A former conifer plantation now with dense gorse (*Ulex europaeus*), broom (*Sarothamnus* [*Cytisus*] *scoparius*) and stands of birch (*Betula* sp.) and some willow (*Salix* sp.) (natural regeneration). Although apparently species poor the gaps between the scrub and beneath the trees show moderate species richness in places, ranging from grassland (some marshy) to continuous great wood rush (*Luzula sylvatica*). In addition to the larger areas of planted broadleaved trees in the south, smaller patches have been planted closer to the road. These are too small to map and, as much of the area is fairly impenetrable and complex, mapping is only approximate.

NH770824 Map sheet: NH78SE

Approximately 64 northern marsh orchids (*Dactylorhiza purpurella*), 35 of which were in various flowering stages, at the base of the embankment to the west of the A9 Tain bypass.

NH771821 Map sheet: NH78SE

There is a new housing estate ("Stag Croft Park") at this site which may in time spread into adjoining fields.

NH789827 Map sheet: NH78SE

A coastal defence of large boulders has been constructed forming an artificial barrier. Gaps have been left to allow the tide to bring sediment in which is then deposited and left to build up.

NH790820 Map sheet: NH78SE

As the substrate throughout this area is very sandy, most of the "rough" of the golf course is tending towards dune grassland, with at least a scattering of marram grass (*Ammophila arenaria*). A little of the adjacent improved grassland is similar, but being more heavily grazed the species composition is less apparent. Only the paler appearance gives a clue to its potential if grazing were reduced. Some areas have no marram grass and appear as neutral, coastal grassland. These appear to have been influenced by adjacent agricultural improvement. However, the transition to dune grassland is complex and only the more obvious stands of neutral grassland have been mapped as such.

NH80 >

NH86NW
NH87NW
NH87NE

NH87SW
NH88SW
NH88SE

NH86NW (Produced 1996 and 1998)

NH801655 Map sheet: NH86NW

Mature broadleaved woodland, beginning to thin as trees die. No regeneration. Abundant dead wood. Species include oak (*Quercus* sp.), ash (*Fraxinus excelsior*), elm (*Ulmus* sp.), beech (*Fagus sylvatica*) and sycamore (*Acer pseudoplatanus*), with some elder (*Sambucus nigra*). Ground grassy with some patches of bracken (*Pteridium aquilinum*), but may be moderately species-rich in places (surveyed March).

The coastline is mostly inaccessible. Therefore mapped from vantage points. Very complex mosaic, dominated by gorse (*Ulex europaeus*) and/or bracken (*Pteridium aquilinum*), but with areas of neutral grassland. Latter appear to be relatively species-rich in places with a range of common herbs. No strong evidence of truly maritime community development.

NH801670 Map sheet: NH86NW

Little evidence of buildings remaining (several walls, floors and an empty cottage). Area has turned to rank, semi-improved grassland with tall herbs such as dock (*Rumex* sp.). Not particularly species-rich, but more so than surrounding fields.

NH802671 Map sheet: NH86NW

Mature broadleaved woodland with a wide range of tree species including: ash (*Fraxinus excelsior*), birch (*Betula* sp.), beech (*Fagus sylvatica*), oak (*Quercus* sp.), elm (*Ulmus* sp.), elder (*Sambucus nigra*) and some sweet chestnut (*Castanea sativa*) and willow (*Salix* sp.). Ground flora well developed in places, but elsewhere rank bracken (*Pteridium aquilinum*) or wood-rush (*Luzula sylvatica*). Some areas damp, some to west disturbed by tractor tracks.

NH803669 Map sheet: NH86NW

Sheep grazed, poor semi-improved grassland. Surveyed in March but could be relatively species-rich in places.

NH803692 Map sheet: NH86NW

Extremely complex and varied mosaic of dune grassland, dominated by marram grass (*Ammophila arenaria*) with patches of improved and poor semi-improved grassland and some areas of tall herbs, particularly creeping thistle (*Cirsium arvense*) and stinging nettle (*Urtica dioica*). Some patches are moderately species-rich, with herbs such as wild thyme (*Thymus praecox*), harebell (*Campanula rotundifolia*) and germander speedwell (*Veronica chamaedrys*). False oat-grass (*Arrhenatherum elatius*) is abundant in places. Sweet vernal-grass (*Anthoxanthum odoratum*) is also frequent. However, much of the area is heavily grazed

by both sheep and rabbits. Marshy grassland occurs in several small areas and is sometimes moderately species-rich. The area becomes heavily grazed and improved to east and west.

The marram-dominated areas have been mapped as open dune due to the abundance of the species. However, the area in general showed evidence of long stability and might better have been described as dune grassland. Some parts were a little unstable, particularly on steeper slopes and tops of mounds. However, this was at least partly due to disturbance by livestock, and rabbit burrowing. (The Phase 1 manual was followed rigidly as it insists upon the use of the "open dune" category for areas with abundant marram. However, the area in question appears to be both relatively stable and long established as well as supporting abundant marram.)

NH804696 Map sheet: NH86NW

Moderately species-rich marshy grassland with compact rush (*Juncus conglomeratus*), jointed rush (*Juncus articulatus*), ragged robin (*Lychnis flos-cuculi*), marsh thistle (*Cirsium palustre*), marsh marigold (*Caltha palustris*), horsetail (*Equisetum* sp.) and a range of other common plant species. Soft rush (*Juncus effusus*) becomes increasingly abundant to east as the habitat becomes poorer, but is absent in the richer areas.

NH806665 Map sheet: NH86NW

A dump for farm refuse including dead sheep at this locale. Marshy grassland dominated by soft rush (*Juncus effusus*) grading into flush. Willow shrubs (*Salix* sp.) severely browsed. Jack snipe (*Lymnocryptes minimus*) seen. General area gives the impression that it was once woodland. Now so severely grazed that woodland is nearly gone.

NH807671 Map sheet: NH86NW

Dry heath (H12 *Calluna vulgaris-Vaccinium myrtillus* heath NVC) with scattered clumps of Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) with some rowan (*Sorbus aucuparia*) and other species. Ground flora beneath denser stands of trees often dominated by wood-rush (*Luzula sylvatica*) and/or bracken (*Pteridium aquilinum*). Latter two species also dominate much lower (seaward) slopes. NB. "Drooping cave" and "Fiddlers well" in coastal cliffs to north (below this point) show calcareous deposits suggesting that springs in this area may encourage the growth of calcicoles (lime-loving species) otherwise uncommon in this area.

NH810669 Map sheet: NH86NW

Derelict gun emplacements and other buildings from Second World War. Much of the area is scarified by pigs. (Local breeder crosses wild boar with domestic pigs. Wild boar occasionally escape and roam free around this part of the Black Isle.) Some patches relatively species-rich due to a range of micro habitats. Slope below here very grassy except for rock faces. Cliff ledges support seabird populations including fulmar.

NB. Underground bunkers would appear to be potential bat roosts. However, thorough exploration showed them to be uninhabited.

NH819689 Map sheet: NH86NW

Derelict World War II army base and gun emplacement. Area now mainly poor semi-improved grassland with patches of tall herbs, particularly creeping thistle (*Cirsium arvense*), stinging nettle (*Urtica dioica*) and ragwort (*Senecio jacobaea*). Gorse (*Ulex europaeus*) dominates mid slopes, with bracken (*Pteridium aquilinum*) along lower margins, above escarpment. A giant puffball (*Langermannia gigantea*), ca. 30 by 45 cms. across was noted. Swallows were nesting in some buildings. Rabbits were numerous.

NH824690 Map sheet: NH86NW

View of coastline very limited over large areas. Some habitat mapping was achieved from Cromarty Point opposite using binoculars. The remainder relied upon occasional views from the cliff tops. This was often hampered by dense gorse (*Ulex europaeus*) and/or bracken (*Pteridium aquilinum*). In addition Th. the gorse and bracken mapped, grassy areas appeared abundant in places. However, the richness of such areas was often difficult to ascertain. They have therefore not been fully mapped, although grassland of some form is probably present in many parts.

NH827699 Map sheet: NH86NW

Small, highly polluted stream leading from arable fields to the sea. Runoff appears to be from a nearby pig farm at NH821689, but must be connected by an underground route beneath the fields.

NH87NW (Produced 2000)

NH801790 Map sheet: NH87NW

Complex mosaic of Scots pine (*Pinus sylvestris*) woodland, broadleaved woodland with birch (*Betula* sp.), alder (*Alnus glutinosa*) and others, wet heath and modified bog. Too complex to map in detail at this scale. Scots pine appears more plantation-like to the west, but ground flora remains semi-natural. Only the denser stands have been mapped as planted. To the north and east the area becomes increasingly modified - a mosaic of modified bog and wet heath. Heavily poached by cattle in the wettest parts, but still species rich in places. *Sphagnum* spp. abundant in parts, but poaching has exposed peat and altered drainage, therefore mapped as dry modified bog. Round-leaved sundew (*Drosera rotundifolia*) and bog asphodel (*Narthecium ossifragum*) abundant in places. Also supports a wide range of common sedges and rushes typical of wet heath/bog. Scots pine regeneration is abundant in places and, although bushy growths indicates past browsing, few signs of damage from this season were noted. The area beyond the fence to the north-east is much more heavily grazed, with heather (*Calluna vulgaris*) no more than 10cm tall. However, common cotton sedge (*Eriophorum angustifolium*) and round-leaved sundew are still abundant in damper hollows.

NH804759 Map sheet: NH87NW

Approximately four acres of grassland with cock's-foot (*Dactylis glomerata*) and false oat-grass (*Arrhenatherum elatius*) dominant. Signs of management with stubble indicating cutting.

NH812782 Map sheet: NH87NW

Fern Wood - Mature broadleaved woodland dominated by birch (*Betula* sp.), beech (*Fagus sylvatica*) and oak (*Quercus* sp.), but also alder (*Alnus glutinosa*) and others in places. Trees are of varied age and regeneration is abundant in places. Ground flora is mainly grassy, but with mosses including *Rhytidiadelphus triquetrus*, *Thuidium tamariscinum* and *Polytrichum* sp. in more shaded parts. Ferns, including broad buckler fern (*Dryopteris dilatata*) and male fern (*Dryopteris filix-mas*), become more abundant to the west. Some wetter patches also occur, with soft rush (*Juncus effusus*), tufted hair-grass (*Deschampsia cespitosa*), horsetail (*Equisetum* sp.) and some common sedges, including common sedge (*Carex nigra*). Fairly natural except for an abundance of beech in places.

The woodland approximately 1 km to the west is dominated by beech in parts and is less species rich than "Fern Wood". However, tree age and density varies and a range of other species occur. This in turn makes the ground flora more variable.

NH814752 Map sheet: NH87NW

The Canal, approximately a 2-3 metre wide drainage channel, containing abundant common reed (*Phragmites australis*) along its entire length. Also, within this area and along other drains to the north, abundant meadowsweet (*Filipendula ulmaria*).

NH815797 Map sheet: NH87NW

Marshy grassland, dominated by soft rush (*Juncus effusus*) over a large area, but richer with less soft rush in the south-east corner. The latter supports a range of common herbs including cuckoo flower (*Cardamine pratensis*), marsh thistle (*Cirsium palustre*) and grasses including bent (*Agrostis* sp.) and sweet vernal-grass (*Anthoxanthum odoratum*).

Most heavily modified to north and west with some small patches of poor semi-improved grassland between soft rush clumps. The area beyond the fence to the west is also quite modified, although very small patches are slightly richer and a little acid grassland occurs.

NH842798 Map sheet: NH87NW

Marshy grassland dominated by soft rush (*Juncus effusus*), but species rich in places. Species include cuckoo flower (*Cardamine pratensis*) and northern marsh orchid (*Dactylorhiza purpurella*). Grades into very wet willow (*Salix* sp.) woodland to the north. The area is grazed but some parts are sufficiently wet to discourage this. There is a new pond to the south which is not yet well established and supports few species. It is surrounded by dense gorse (*Ulex europaeus*) with patches of soft rush in wetter areas.

NH843759 Map sheet: NH87NW

Runways have not been surveyed in detail. Large areas remain bare, but parts have been colonised by moss, grasses and some common herbs of waste ground and are no doubt still undergoing very slow succession.

NH843769 Map sheet: NH87NW

Embankments of drainage channels in this area are species rich in places, including abundant meadowsweet (*Filipendula ulmaria*), silverweed (*Potentilla anserina*), poppies (*Papaver* sp.), yarrow (*Achillea millefolium*) and tall herbs including rosebay willowherb (*Chamaenerion angustifolium*), hogweed (*Heracleum sphondylium*) and grasses, including false oat-grass (*Arrhenatherum elatius*) and Yorkshire fog (*Holcus lanatus*).

NH87NE (Produced 2000)

NH852787 Map sheet: NH87NE

TALICH ALDER WOOD (SWT nature reserve) - The central section, between the two drainage channels, appears to be the most botanically important area. It supports an area of calcareous flush/marshy grassland. Black bog rush (*Schoenus nigricans*) is abundant and other species include early marsh orchid (*Dactylorhiza incarnata*) and northern marsh orchid (*Dactylorhiza purpurella*). Other species include common butterwort (*Pinguicula vulgaris*), cuckoo flower (*Cardamine pratensis*), marsh lousewort (*Pedicularis palustris*) and star sedge (*Carex echinata*). Unfortunately this area is quite small and, although the whole woodland is designated a nature reserve, calcareous areas are probably quite discreet.

The south-west section (south-west of path and separated by fence and drainage ditch from rest of site) is most heavily grazed and, in places, poached by cattle. However, this area retains some species richness in parts.

The north-east section is mostly dense alder (*Alnus glutinosa*), with increasing abundance of ash (*Fraxinus excelsior*) with large numbers of seedlings towards the north-east boundary. Ground flora is dominated by large ferns (including broad buckler fern (*Dryopteris dilatata*) and scaly male fern (*Dryopteris affinis*) and tufted hair-grass (*Deschampsia cespitosa*). However, some wetter hollows occur, supporting species such as horsetail (*Equisetum* sp.), yellow iris (*Iris pseudacorus*) and marsh marigold (*Caltha palustris*).

Areas along south-east boundary dominated by gorse (*Ulex europaeus*) also support raspberry (*Rubus idaeus*), dog rose (*Rosa canina*) and other species, but represent quite different plant communities from the alder woodland.

Clearly the habitat covered a much larger area in the past. However, it is now quite isolated.

Further information on the site is available through SWT.

NH866758 Map sheet: NH87NE

This area is scheduled for housing development, with a service road and street lighting already present. It is currently relatively species rich, ranging from semi-improved grassland to disturbed ground, bordered with gorse (*Ulex europaeus*). Herb Robert (*Geranium robertianum*), sea campion (*Silene maritima*) and poppies (*Papaver* sp.) all abundant.

NH875789 Map sheet: NH87NE

The area surrounding the pond is species rich with common herbs and grasses. Meadowsweet (*Filipendula ulmaria*) is particularly abundant in places. Marginal vegetation is sparse due to the steep banks but includes a little reedmace (*Typha* sp.) and yellow iris (*Iris pseudacorus*). Adjacent drainage channels support abundant pondweed (*Potamogeton* sp.), with bank vegetation similar to that around the pond. Heron sighted.

NH894786 Map sheet: NH87NE

This stretch of coast, with cliffs of old red sandstone, some 25 to 30 metres high, has fulmars nesting. Other birds seen included cormorants and stonechats. Wild cabbage (*Brassica oleracea*), hogweed (*Heracleum sphondylium*), gorse (*Ulex europaeus*) and false oat-grass (*Arrhenatherum odoratum*) were dominant at the base of the cliffs, with creeping soft grass (*Holcus mollis*) and Timothy (*Phleum pratense*) abundant.

NH87SW (Produced 2000)

NH801737 Map sheet: NH87SW

This area of saltmarsh is only lightly grazed, particularly to the north. It supports a healthy range of common saltmarsh plants and herbs, including sea aster (*Aster tripolium*), sea-purslane (*Halimione portulacoides*), sea plantain (*Plantago maritima*), common scurvy grass (*Cochlearia officinalis*) and sea milkwort (*Glaux maritima*). Patches of coastal grassland occur not only along the margins, but as small areas within the saltmarsh wherever the ground is slightly raised. Species include red fescue (*Festuca rubra*) and also stands of sea couch (*Elymus pycnanthus*). Several discreet patches of reed canary-grass (*Phalaris arundinacea*) were noted adjacent to the drainage channel which extends to the north, but were too small to map. The highest parts of the embankments were dominated by false oat-grass (*Arrhenatherum elatius*), tufted hair-grass (*Deschampsia cespitosa*) and cock's foot (*Dactylis glomerata*).

N.B. small patches of heather (*Calluna vulgaris*) occur adjacent to the drainage channel immediately to the north of this target note.

NH827745 Map sheet: NH87SW

The farmer based at Cullise has constructed a pond here, on what was previously marshy grassland. It now has a stand of willow (*Salix* sp.) to the north. Other species include reedmace (*Typha* sp.), yellow iris (*Iris pseudacorus*) and soft rush (*Juncus effusus*).

NH829712 Map sheet: NH87SW

This former lochan, now with little open water remaining, is relatively species rich, particularly in a local context. Bottle sedge (*Carex rostrata*) dominates large areas and *Sphagnum* is abundant in places, particularly along the southern edge where bog has begun to form. Black bog-rush (*Schoenus nigricans*) occurs to the east indicating more calcareous conditions. Other species include bogbean (*Menyanthes trifoliata*), marsh cinquefoil (*Potentilla palustris*), bog asphodel (*Narthecium ossifragum*), hare's tail cotton sedge

(*Eriophorum vaginatum*) and star sedge (*Carex echinata*). Scots pine (*Pinus sylvestris*) is beginning to dominate higher ground and the area is fringed by Scots pine plantation to the south.

NH829717 Map sheet: NH87SW

Scots pine (*Pinus sylvestris*) woodland. Ground flora largely intact, though grassy in places due to former grazing. Scots pine regeneration abundant in places, particularly towards the northern end. Much of the ground flora is wet with deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]), some *Sphagnum* and occasionally star sedge (*Carex echinata*) - i.e. tending towards M15 *Scirpus cespitosus*-*Erica tetralix* wet heath, with M6 *Carex echinata*-*Sphagnum recurvum/auriculatum* mire (flushes) (NVC). The area becomes drier to the south and east with occasional hairy wood-rush (*Luzula pilosa*) and patches favourable for creeping ladies tresses (*Goodyera repens*), though not found during this brief visit.

NH829724 Map sheet: NH87SW

Scots pine (*Pinus sylvestris*) woodland. Trees of medium to mature age with a little regeneration in places. Scrub occurs in parts, mainly gorse (*Ulex europaeus*). The ground flora is mainly grassy, the result of past grazing (now fenced). Yorkshire fog (*Holcus lanatus*) dominates large areas, sometimes with a little cock's foot (*Dactylis glomerata*) and elsewhere mat-grass (*Nardus stricta*), bent grass (*Agrostis* sp.) and sweet vernal-grass (*Anthoxanthum odoratum*). Heather (*Calluna vulgaris*), bell heather (*Erica cinerea*) and deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]) occur in places, mostly as a mosaic with the grassland. The area immediately west of this target note also supports soft rush (*Juncus effusus*) and purple moor-grass (*Molinia caerulea*) in places. The habitat has potential but will require some time to recover from past management. It is also fairly isolated from other nearby stands of Scots pine. Scots pine stands to the east and north-east are mostly heavily grazed beneath and therefore the ground flora is improved grassland. However some patches around NH836727 still support a few heath species, including jointed rush (*Juncus articulatus*), devil's bit scabious (*Succisa pratensis*) and purple moor-grass.

N.B. The area near the southern boundary of this woodland supports black bog-rush (*Schoenus nigricans*) suggesting calcareous conditions

NH835706 Map sheet: NH87SW

Due to inaccessibility and scarcity of suitable vantage points this stretch of coastline has not been surveyed in detail. Bracken (*Pteridium aquilinum*) dominates in places, particularly on gentler slopes. Gorse (*Ulex europaeus*) is also abundant in places. Large areas, particularly on steeper slopes and ledges, appear to be grassy and false oat-grass (*Arrhenatherum elatius*) is very abundant. Trees are scattered in places. Overall, probably constitutes interesting habitat.

NH88SW (Produced 2000)

NH800810 Map sheet: NH88SW

Marshy grassland, more or less level, with abundant rushes (*Juncus* sp.) with patches of neutral grassland mainly along the embankment to the south-west. Meadowsweet (*Filipendula ulmaria*) is present.

NH810834 Map sheet: NH88SW

Although dominated by Scots pine (*Pinus sylvestris*), trees are closely spaced and of a uniform age. The area does not appear particularly rich at this stage. Formerly the area was almost certainly dunes, possibly with a range of other coastal habitats.

NH811825 Map sheet: NH88SW

Very complex area of heath/grassland mosaic with abundant moss, particularly *Hylocomium splendens*. Pools and patches of marshy grassland are scattered throughout. The habitat is quite unusual, clearly coastal in character, and more like dune slacks than coastal heath. Although the area is very wet, and *Sphagnum* occurs in places, the habitat is more like wet heath with pools and marshy grassland than bog. Sedges (*Carex* spp.) are abundant in the pools, but none as large as bottle sedge (*Carex rostrata*) which would make the habitat swamp. Due to complexity on a small scale, mapping is only approximate. Gorse (*Ulex europaeus*) is scattered throughout, but also an occasional juniper (*Juniperus communis*).

NH815828 Map sheet: NH88SW

General area - Although large areas are improved and heavily grazed, the area is quite complex and supports some unusual habitats. Clearly coastal in character, the area shows a wide range of levels of modification from what was probably formerly dune slack and coastal heath vegetation. Marshy grassland areas are not always dominated by soft rush (*Juncus effusus*), and often have a slightly heath-like character. Mat grass (*Nardus stricta*) is abundant in places as is the moss *Hylocomium splendens*.

NH816841 Map sheet: NH88SW

General area note - This is the edge of an extensive Ministry of Defence bombing range. Mapped only from the perimeter (edge of conifer plantation). Appears to be a very large scale mosaic of dunes dominated by marram grass (*Ammophila arenaria*), coastal heath dominated by heather (*Calluna vulgaris*) and crowberry (*Empetrum nigrum*), dune grassland with marram mixed with other grasses, or a smaller scale mosaic of the above.

NH817802 Map sheet: NH88SW

This is an area of heath and modified bog, quite complex in places. While some areas of dry heath occur in places, much of what at first appears dry is actually wet, however, the area was not mapped in detail and some drier patches were probably over-looked. The whole area has been modified by drainage channels (those mapped being particularly deep), grazing, and probably burning in the past. The poorest areas around NH814804 and NH819800 show bare substrate and may have been excessively burnt in the past. However, a range of species are scattered over the area as a whole, suggesting potential for recovery. Round-leaved sundew (*Drosera rotundifolia*) is particularly abundant in some wetter parts. Other species include heath milkwort (*Polygala serpyllifolia*), tormentil (*Potentilla erecta*) and lousewort (*Pedicularis sylvatica*). The area of bottle sedge (*Carex rostrata*) to the east is undergoing

succession to bog. However, this has been interfered with due to drainage and burning of adjacent areas. The area to the north of the track is more mature, less modified heath with abundant Scots pine (*Pinus sylvestris*) and birch (*Betula* sp.) in places. Tawny owl sighted within Scots pine plantation at NH814807.

NH823807 Map sheet: NH88SW

General area note - embankment sheepfold at Balnagall cottages. Habitat varies considerably, but is moderately species rich in places, except for where gorse (*Ulex europaeus*) is dense. Chickweed wintergreen (*Trientalis europaea*) is very abundant in places and other herbs such as tormentil (*Potentilla erecta*) are common. The dry modified bog to the west of Lochslin Cottage was quite heavily grazed, but still supported hare's tail cotton-sedge (*Eriophorum vaginatum*), *Sphagnum*, deer sedge (*Trichophorum cespitosum* [*Scirpus cespitosus*]) and other species associated with wet heath and bog. The habitats are clearly closely associated with heath, bog and birch (*Betula* sp.) and Scots pine (*Pinus sylvestris*) woodland, but have been modified to varying degrees through grazing and other management.

NH843802 Map sheet: NH88SW

Very wet woodland. Canopy is dominated by willow (*Salix* sp.) except for slightly dryer parts where alder (*Alnus glutinosa*) occurs. Ground flora diverse and relatively rich. Some parts are closer to swamps with bottle sedge (*Carex rostrata*), horsetail (*Equisetum* sp.), reed canary-grass (*Phalaris arundinacea*) and others. Other areas are closer to herb rich marshy grassland with species including cuckoo flower (*Cardamine pratensis*), marsh cinquefoil (*Potentilla palustris*) and marsh lousewort (*Pedicularis palustris*). Some patches are more bog (mire) like with hare's tail cotton-sedge (*Eriophorum vaginatum*) and bog myrtle (*Myrica gale*) in places. The habitat is sufficiently rich to justify a phase 2 survey, but access is difficult in places.

NH843825 Map sheet: NH88SW

Area surveyed from a distance, including a vantage point by the road to the south, near Newton. The area is part of the Ministry of defence bombing range and also relatively inaccessible due to channels and dense scrub. Appears to be dominated by gorse (*Ulex europaeus*), with patches of coastal grassland scattered throughout. This changes fairly abruptly into saltmarsh towards the channel. A railway line has been constructed to the east and west (running roughly east-west over the saltmarsh). This is bordered on the seaward side by large, linear, concrete blocks, roughly 15 metres apart and lying perpendicular to the line. At first this looks like some form of coastal defence (against erosion). However, the positioning of the blocks suggests that they may once have supported something (such as a railway or pipeline). As the eastern section could not be reached, it was not mapped. The western section was mapped with reasonable accuracy from the point where it crosses the channel. However, even though the railway does not appear on the Ordnance Survey map, it is now rusted and has not been used for some time. It only begins at the north-eastern end of the old runway, and lacks any form of buffers as though it may have been dismantled up to this point.

The upper saltmarsh to the west and north-west, although probably experiencing inundation from time to time, is so heavily grazed by sheep that it is essentially improved grassland and therefore has been mapped as such. However, the transition from less "improved" saltmarsh to grassland is very gradual and covers a broad zone between the two habitats.

The saltmarsh continues eastwards towards Inver and is more extensive on the north side of the channel. The whole area is probably very important for birds. During this brief survey visit, several heron, shelduck, lapwing and skylark were noted. The area is probably also important for migratory wildfowl.

NH847810 Map sheet: NH88SW

Large areas overgrown with gorse (*Ulex europaeus*) and broom (*Sarothamnus* [*Cytisus*] *scoparius*), with clumps of birch (*Betula* sp.) and willow (*Salix* sp.) in places. Ground flora varies from gravel in advanced stage of colonisation by short herbs such as bird's-foot trefoil (*Lotus corniculatus*), daisy (*Bellis perennis*), speedwell (*Veronica* sp.) and a few common grasses ranging from sweet vernal grass (*Anthoxanthum odoratum*) to areas of cock's foot (*Dactylis glomerata*), common nettle (*Urtica dioica*) and patches of soft rush (*Juncus effusus*). The lochan to the east, shown on the Ordnance Survey map, has been filled in, in an attempt to turn it into arable land. However, the area remains damp and is largely uncultivated. A small patch of northern marsh orchid (*Dactylorhiza purpurella*) was found to the south-east of this target symbol.

NH88SE (Produced 2000)

NH850820 Map sheet: NH88SE

In this area, the marshy grassland dominated by soft rush (*Juncus effusus*) grades into saltmarsh in a seepage zone with a number of channels. This area (an ecotone) supports a richer flora, with species such as marsh marigold (*Caltha palustris*), cuckoo flower (*Cardamine pratensis*), horsetail (*Equisetum* sp.) meadowsweet (*Filipendula ulmaria*), sedges (*Carex* spp.) and others. The adjacent saltmarsh is probably the richest part of the Inver Bay system (although the northern shoreline was not visited). Although grazed and not very species rich, it is less modified than areas to the west, parts of which are indistinguishable from improved grassland.

NH851802 Map sheet: NH88SE

This drainage channel is much broader and deeper than others in the area. As such, it represents the largest wildlife corridor. At this point it turns roughly north-west and then resumes its south-westerly course for several hundred metres. It then appears to join a much broader area of wooded habitat (which was not yet mapped at the time of producing this target note). To the east, the corridor narrows as it enters the new conifer plantation at NH857806 and becomes similar to other channels in the area. Species include willow (*Salix* sp.), ash (*Fraxinus excelsior*), elder (*Sambucus nigra*) and gorse (*Ulex europaeus*). Raspberry (*Rubus idaeus*) is abundant. Although cock's foot (*Dactylis glomerata*) is the dominant grass, a range of common herbs occur in a few places including selfheal (*Prunella vulgaris*), bugloss (*Anchusa* [*Lycopsis*] *arvensis*) and wild pansy (*Viola tricolor*), as well as taller, more invasive species such as rosebay willowherb (*Chamaenerion angustifolium*), dock (*Rumex* sp.) and stinging nettle (*Urtica dioica*). The channel supports abundant marsh marigold and horsetail (*Equisetum* sp.). Water flow is sluggish and the direction is unclear. However it is probably moving westwards towards Loch Eye.

NH863813 Map sheet: NH88SE

Bog, bog pools and wet heath within a Scots pine (*Pinus sylvestris*) plantation. The habitat is surprisingly intact despite the close proximity of trees and its limited extent. Although little more than a hectare in extent, this habitat is isolated and the only one of its kind for several kilometres (the only other patches of bog in the area being to the north-west of Loch Eye, around NH820802). Planting of conifers, even though Scots pine, was particularly insensitive as the site has been disrupted by deep ploughing and the effects of evapotranspiration (which lowers the water table). The habitat is not very species rich due to its limited extent, disturbance and relative isolation. However, being far removed from similar habitats it is important, not least as a clue to the possible former state of the area prior to agricultural development. (Some areas in adjacent fields, although grazed, remain very wet.) A few broadleaved trees have been planted in tubes in dryer parts between bog pools. However, these will only exacerbate the problem of lowering the water table.

NH881811 Map sheet: NH88SE

At first glance the field appears to be completely improved, with clumps of gorse (*Ulex europaeus*) and patches of marshy grassland dominated by soft rush (*Juncus effusus*). However, scattered patches are a little richer, with species such as heath milkwort (*Polygala serpyllifolia*), tormentil (*Potentilla erecta*) and black sedge (*Carex nigra*). These species suggest that the habitat may have been more heath like in the past. With reduced grazing the habitat would probably become more floristically interesting. The northern section is more improved and if grazing were concentrated in this area for a period, some habitat recovery in the southern section might be possible.

The conifer plantation to the east, although dominated by Scots pine (*Pinus sylvestris*) over large areas, is dense and uniform, with a relatively poor ground flora. However, wavy hair-grass (*Deschampsia flexuosa*) dominates in places and the moss *Rhytidiadelphus triquetrus* is abundant. Both are indicators of W18a *Pinus sylvestris*-*Hylocomium splendens* woodland, *Erica cinerea*-*Goodyera repens* sub-community (NVC), although this would be unlikely to fully develop due to the isolated nature of the site.

A fox was sighted.

NH886829 Map sheet: NH88SE

Arboll Links - A long (over 2 kilometres), narrow strip of dunes bordered by farmland to the south. Herb rich in places. with dune slacks to the east. *Sphagnum* sp. is present in the latter. Marram grass (*Ammophila arenaria*) occurs along the tops of the dunes.

NH90 >

NH98NW
NH98SW

NH98NW (Produced 2000)

NH920856 Map sheet: NH98NW

Wet, grazed area of species rich semi-improved/improved grassland. Improvement possibly from runoff from above arable/improved fields to the east. Poaching from livestock evident. In the wetter areas marsh marigold (*Caltha palustris*) and cuckoo flower (*Cardamine pratensis*) are abundant. Likelihood of area becoming permanent pasture.

NH940874 Map sheet: NH98NW

This area is used as a refuse tip for the farm. Below, a new pond has been created.

NH945864 Map sheet: NH98NW

Although quite heavily grazed by sheep, this stretch of coastline supports small but interesting areas of relatively herb rich grassland. Species include primrose (*Primula vulgaris*), bluebell (*Endymion non-scriptus*), violet (*Viola* sp.), lesser celandine (*Ranunculus ficaria*), and in areas of water seepage, marsh marigold (*Caltha palustris*). Areas marked as dune grassland are, for the most part, fairly species poor. However, marram grass (*Ammophila arenaria*), although conspicuous, is rarely dominant and, with less grazing the area would become more natural. To the south, beyond the cave, there is a waterfall. Beyond this point the grassland is much less heavily grazed and therefore richer in species. However, herb rich areas remain as fairly small, discreet patches along the base of the cliffs/slope. The area supports a number of seabird species including fulmar, cormorant, and herring gull.

NH948876 Map sheet: NH98NW

Tarbat Ness. The heathland is a SSSI, important for maritime heath, salt spray communities and as a resting point for migrating seabirds. The heath is dominated by heather (*Calluna vulgaris*) and crowberry (*Empetrum nigrum*) with abundant lichens (*Cladonia* spp.). Some parts, particularly near the coastal edges, form a mosaic with coastal grassland.

NH98SW (Produced 2000)

NH910809 Map sheet: NH98SW

This section of coast between Rockfield and due south of Meikle Tarrel (NH902800) was mapped from above the cliffs. However, habitats appear generally poor - the area is grazed and large areas by the cliffs are covered with gorse (*Ulex europaeus*). Only the cliff ledges support any less improved vegetation and, although inaccessible, even these did not appear particularly rich from a distance. The rocky shore supports rock pools in places with seaweed

(brown, green and red algae), sea anemone, shells and the occasional small fish. The marine environment is rich in brown algae and may well support many interesting species. This needs to be looked at more closely.

NH913825 Map sheet: NH98SW

In an area with little good wildlife habitat this track (the old Rockfield road) represents a narrow corridor of slightly greater interest. While the northern side is fenced, the southern side has an old, dilapidated wall. This supports abundant polypody fern (*Polypodium vulgare*), moss (*Rhytidiadelphus triquetrus*), and a few common herbs. Beyond this is a line of beech (*Fagus sylvatica*). The clumps of woodland in the area, including that by Rockfield house, add further to the diversity (the latter supports a rookery). The woodland immediately to the west of this target note is dominated by beech and sycamore (*Acer pseudoplatanus*). The ground flora is moderately rich (although well above average for this area) with common herbs including red campion (*Silene dioica*), primrose (*Primula vulgaris*), bluebell (*Endymion non-scriptus*), wood avens (*Geum rivale*), cleavers (*Galium aparine*) and others. However, a number of larger species also occur including hogweed (*Heracleum sphondylium*), stinging nettle (*Urtica dioica*) and raspberry (*Rubus idaeus*). Several hares were seen in this area and the farmer at Seafeld reported foxes. However, he believed that in recent years foxes, farmland birds (including lapwings), and seabirds along the coast, were all fewer in number than in previous years.

NH918844 Map sheet: NH98SW

Area for housing development. Disturbed ground underlain by sand. At the time of survey only the road into the site had been constructed. Relatively herb rich with species including crane's bill (*Geranium* sp.), poppy (*Papaver* sp.) and orache (*Atriplex* sp.).

