

Review
of the
Caithness
Biodiversity Action Plan
2003 – 2013

A report to the
Caithness Biodiversity Group

by

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Ten Years of the Caithness Biodiversity Action Plan



*** Highlights ***

(in no particular order)

Water vole distribution mapped across the county

Biodiversity photo collection available for public use

Nine road verges protected from inappropriate mowing

Wildflower nursery and community garden established in Thurso

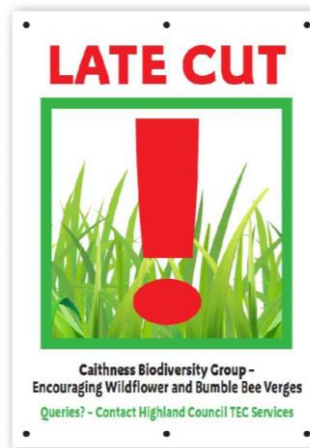
Schools biodiversity competition held

Five major juniper populations surveyed

Habitats improved for great yellow bumblebee and small blue butterfly

Invasive salmonberry populations targeted

Three 'know your patch' sessions held



1. Introduction

The Caithness Biodiversity Group was established in 2002. It was responsible, with assistance from Janet Bromham (Highland Biodiversity Officer), for drafting the first Caithness Biodiversity Action Plan in February 2003. This was one of seven Local Biodiversity Action Plans (LBAPs) produced for the Highland Council area, under the auspices of the Highland Biodiversity Project 2002-05.

During the subsequent ten-year period, three different funding regimes (the Highland Biodiversity Project 2002-05; Highland BAP Implementation Programme 2005-06; Communities Project for Highland Biodiversity 2006-09) have enabled the Group to undertake nearly 40 biodiversity projects in Caithness. At the end of its first ten-year period, it was considered timely to undertake this review of the achievements of the Caithness LBAP, in order to plan for future activities.

The contract brief included the following elements:

- a) **Briefly** summarise each of the projects carried out by Caithness Biodiversity Group and others since 2003 and their relevance to the Caithness Biodiversity Objectives in the Action Plan.
- b) Identify the main gaps where action has been inadequate for the broad balanced coverage of habitats and species.
- c) Suggest future projects or series of actions that could be undertaken to enhance the biodiversity of Caithness.
- d) Provide a table of biodiversity related legislative and policy changes since 2003.

2. Analysis of projects

A total of 39 projects have been completed, with another three (Beil Dam renovation, Thurso riverside enhancement and osprey poles) abandoned for various reasons. Projects have been analysed on the basis of: taxonomic group; habitat category; geographical area (by Community Council); and functional type of project. Results are summarised on p. 7 in the form of pie charts. This analysis has been done using the number of projects as the measure. The financial costs were not used because for some projects covering more than one LBAP area (e.g. the North Aspen Woods), it was not possible to allocate the money spent between Caithness and Sutherland. In other cases information on match-funding supplied by other organisations was not available. Where a project covers more than one category, but not all, within each subject area (e.g. taxonomic group, habitat or Community Council area) it has generally been included in each category that applies. Therefore the total number of projects in most categories adds up to more than 39. Only those projects covering potentially ALL categories within subject area concerned have been allocated to the 'multi' block.

2.1 Taxonomic group

The largest block of projects (13) covered multiple taxonomic groups. These included things like 'know your patch' sessions, the photographic collection and various events raising awareness about biodiversity generally. The next largest group in terms of spend (12) was projects involving higher plants. These included the two aspen projects, juniper survey, Dunnet Forest tree nursery, the two salmonberry projects and various projects involving wild flowers. Five projects on mammals included the two water vole projects (survey and monitoring), pine marten taxidermy, cetacean-watching facility and bat survey. The four invertebrate-related projects were the moth-trapping, two involving habitat enhancement for the small blue butterfly, and one for the great yellow bumblebee. There were three bird projects: water rail taxidermy, barn owl boxes and sand martin nest sites. The two lower plant projects both involved lichens (ID training and survey of Dunbeath Strath). A single project for fish involved habitat enhancement.

2.2 Habitat category

The habitat categories used are the six which form the chapter headings in the original Caithness BAP, namely: sea and coast; river, loch and wetland; farm and croft land; forest and woodland; bog, moor and hill; and town and village. The largest category was, once again, that covering multiple-habitats, with 11 projects. These included those which definitely covered all habitats, e.g. the photographic collection, general awareness-raising, website creation and important biodiversity areas, plus those where the exact habitats covered are not known (e.g. bat survey, moth-trapping). Next were river, loch and wetland, and forest and woodland, with 8 projects each, closely followed

by sea and coast with seven projects. There were two projects each in town and village (roadside verge mowing and plant for the future) and farm and croft land (barn owl boxes and great yellow bumblebee support), and bog, moor and hill (marsh saxifrage survey at Munsary and Juniper survey).

2.3 Community Council area

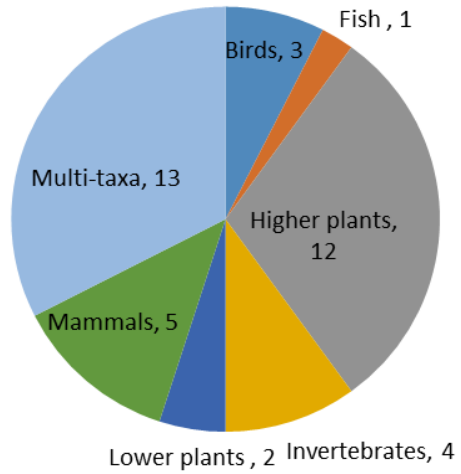
Community Council areas were chosen as the measure of geographical coverage of the LBAP because they each contain one or more human settlements, plus an area of less densely populated hinterland. The Caithness LBAP area includes 12 Community Councils. The Group has achieved good coverage, with some project activity having taken place in all of these areas, albeit more concentrated in some than others. If the county-wide projects (water vole survey, photo collection, important biodiversity areas) are assumed to have included ALL Community Council areas then the different Community Council areas have hosted between four and 19 projects each.

Excluding the county-wide projects, the highest numbers of projects were in: Dunnet and Canisbay, with 16; Caithness West with 9; and Berriedale and Dunbeath with 7. In contrast, Bower had only two projects and Sinclair's Bay one. The other CC areas were in between, with 3 - 6 projects each. The high number in Dunnet and Canisbay reflects the presence of Highland Council Rangers, with their base at the Seadrift Centre, and the Dunnet Forest Trust, each of which acts as a focus for activity. The distribution of project activity means that overall there is a good chance that people in all parts of Caithness will have heard about something happening for biodiversity in their area.

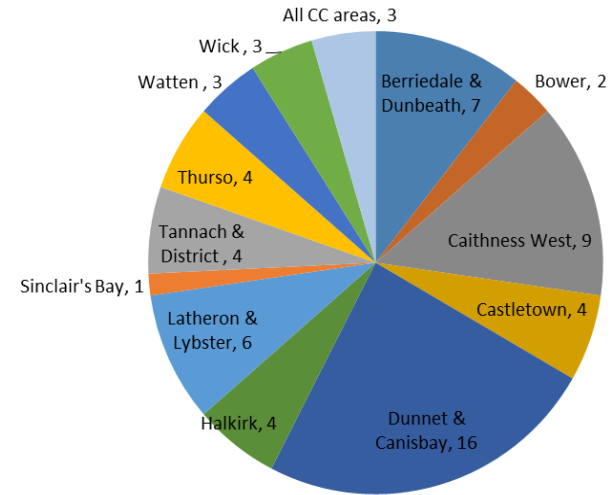
2.4 Functional type

In terms of functional type of projects, the majority of activity (88%) was fairly evenly distributed between three categories: education and awareness-raising (15 projects); habitat and species management (12 projects); and biodiversity audit (11 projects). The other 12% consisted of habitat creation (3 projects) and interpretation (2 projects).

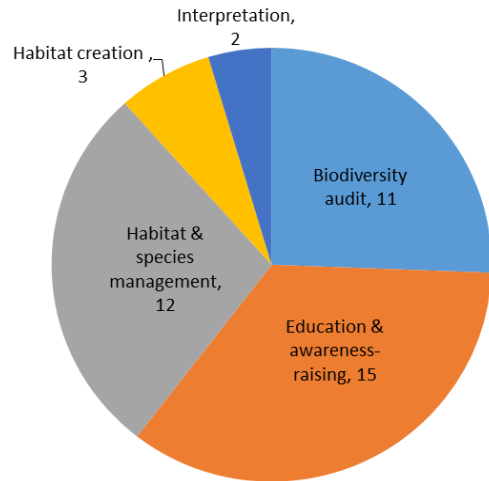
Number of projects by taxonomic group



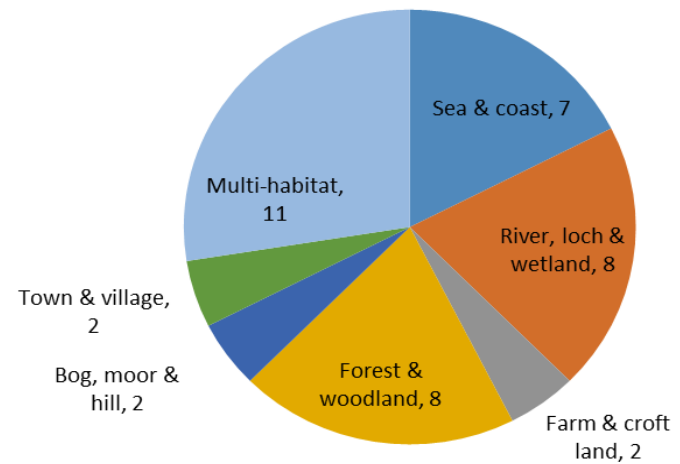
Number of projects by Community Council area



Number of projects by functional type



Number of projects by habitat category



3. Evaluation against original objectives

Appendix 1 (pp.25-49) tabulates the achievements made, by the Caithness Biodiversity Group and other organisations, against the original BAP's 'biodiversity objectives' and 'suggested opportunities for future action'. Information for the 'other organisations' was obtained from the knowledge of Group members and by online searching. It is unlikely to be comprehensive. The results are qualitative rather than quantitative, since statistics (e.g. on population sizes for species, or hectares for habitats) are not readily available.

These proposed objectives and actions were intended to relate to the wider needs of biodiversity in Caithness, and not solely to those things which could be achieved by the Biodiversity Group. For Caithness generally, some contribution has been made by Group projects towards achieving objectives within all of the categories, which were: species protection; awareness-raising; information collection; and planning, monitoring and funding. Whilst some projects have not been directly in line with the objectives as worded at the time, they have contributed to the intended outcomes.

For the six habitats taken individually, Group projects have contributed more in some categories than others. Those where the most has been achieved are: 'Forest and woodland' where all of the projects undertaken contributed towards four of the six initial objectives; and 'Town and village' where projects contributed to two of the five objectives. For 'River, loch and wetland' and 'Sea and Coast' one of the proposed actions was fully completed in each case (county-wide water vole survey and cetacean watching facility at Lybster respectively) and other projects contributed towards one of the six objectives. 'Farm and croft land' and 'Bog, moor and hill' fared less well, with two projects each, which contributed to two of the original objectives.

However, this is not unreasonable given that, on a global scale, the peatlands (which fall within the 'Bog, moor and hill' habitat category) are probably the most important habitat in Caithness. As might be expected, most of the work here is nationally or internationally funded (by EU LIFE or HLF monies) and carried out by large national organisations such as RSPB, Plantlife and SNH. Farm and croft land is also important, particularly at the smaller, less intensive, end of the scale. But here project activity is constrained by the fact that funding is dependent on the prevailing agri-environment scheme, whether that be (over the timescale of this report) RSS or SRDP. EU rules dictate that projects of a type which COULD be funded by SRDP may not be funded by other Government money (e.g. SNH grants), even where an SRDP application has been unsuccessful.

Bearing in mind that the original objectives and actions were intended to relate to the wider needs of biodiversity in Caithness, and not solely to those things which could be achieved by the Biodiversity Group, progress achieved within each habitat category is summarised below:

3.1 Sea & coast

The original objectives were aimed at achieving sustainable management of marine and coastal resources, including the implementation of Coastal Zone Management Plans and addressing issues such as marine and coastal litter. The successful Biodiversity Group projects involved management to promote threatened species found on the Caithness coast (small blue butterfly, great yellow bumblebee, kidney vetch, Scottish primrose, oyster plant) and to raise awareness and increase knowledge of marine and coastal biodiversity.

3.2 River, Loch & Wetland

The original objectives related to maintaining good water quality and habitat condition, whilst promoting responsible management. The Biodiversity Group projects to restore a trout spawning burn, create a wetland in Dunnet Forest and provide sand martin nest sites involved habitat enhancement. Other projects (development of St. John's Pool, Wick River interpretation, water rail taxidermy) related to the provision of facilities and information on biodiversity to the public. The completion of a county-wide survey of water voles, involving every 10km square, is a notable achievement, and completes in full one of the proposed actions.

3.3 Croft & Farm Land

The original objectives involved securing a sustainable future for the farming and crofting industries, and for farmland biodiversity, based on better agri-environment schemes and premium marketing of local produce. In reality, agri-environment schemes are under the control of the EU and UK Governments, and under the previous incarnation of SRDP, exerting an influence on them at a local level was limited to suggesting a list of locally important habitats and species to be targeted. The two Biodiversity Group projects in this habitat category involved erecting nest boxes for barn owls, and promoting appropriate habitat management for the great yellow bumblebee. Twelve farmers were provided with a flower-rich seed mix and 20 people received 2 days' volunteer training for monitoring the great yellow bumblebee.

3.4 Forest & Woodland

Biodiversity Group projects in this category addressed four of the six original objectives, aiming to protect and expand existing semi-natural woodlands; strengthen the connectivity between them; create new native woodlands; and improve riparian woodlands. The two objectives which were not addressed concerned the control of

deer and rabbits as an inhibition to woodland improvement, and the control of pest species (foxes and crows) emanating from woodlands and having a detrimental effect on neighbouring habitats. Several projects in this habitat involved biodiversity audit, e.g. the surveys of juniper, aspen, lichens in Dunbeath Strath and the salmonberry leaflet. The salmonberry leaflet and elimination projects raised awareness of the problems caused by this invasive alien species. Others (Dunnet Forest tree nursery, salmonberry elimination, Tacher Wood development) concerned habitat management. All of these also had an educational and/or awareness-raising aspect.

3.5 Bog, Moor and Hill

Both of the Biodiversity Group projects in this category (Juniper survey and marsh saxifrage monitoring at Munsary) involved valuable work on two UK BAP Priority species. However, the majority of the stated objectives were not addressed by Group projects (although many of them were tackled by other organisations). The objectives were very large-scale, involving drain-blocking and removal of conifers on the peatlands, and control of fire and grazing.

3.6 Town & Village

Two of the four Biodiversity Group projects in this category contributed directly towards the stated objectives of improving roadside verge management and encouraging people to garden for wildlife ('planting for the future'). These also had an awareness-raising or educational aspect. The other three objectives of making school grounds attractive to wildlife, preventing fly-tipping and littering, and encouraging recycling were not addressed by Group projects.

4. Changes since 2003

4.1 General

Table 1 (pp. 14/15) summarises changes to biodiversity-related legislation and policy since 2003. It is not a comprehensive list, but illustrates the extent to which the background to biodiversity work is constantly changing.

In the ten years since the Caithness BAP was published, considerable progress has been made across the board, (from Directives of the European Community to the responsibilities of the Highland Council), in integrating consideration for biodiversity into mainstream policy and legislation. This means that many of the areas of work initially identified for action in the Caithness BAP are now being taken forward by organisations (some of which are members of the Biodiversity Group), such as SNH, SEPA, FCS and RSPB.

In more general terms there has been, over the past ten years, a growing appreciation of the value of the natural world to human society in terms of the services it provides, including its contribution to human health and wellbeing. Similarly, knowledge of the natural environment and biodiversity is increasing all the time. The National Biodiversity Network Gateway¹ now contains over 98 million species records. There are thousands of records for each 10km square in Caithness, but there is still plenty of scope for adding to our knowledge of the distribution of the more obscure groups of organisms here. The establishment of the Caithness Moths website is a notable achievement in this respect². The availability of high(er) speed broadband means that access to the huge online knowledge base is now much more easily available across the Highlands than it was ten years ago.

The northward movement of southern species such as speckled wood butterflies and jays (not yet in Caithness!) indicates that climate change is already exerting an impact on the Highland environment. The pressure to ameliorate the consequences of climate change by investing in renewable energy technologies has been an increasing source of conflict in the Highlands, with the establishment of numerous onshore wind farms, micro-hydro schemes and the prospect of offshore renewables developments (particularly in the Pentland Firth) in the near future. It is difficult to evaluate whether the long-term effect of these developments in mitigating climate change will offset their more immediate perceived impacts on biodiversity.

¹ <https://data.nbn.org.uk/>

² <http://www.caithnessmoths.org.uk/>

4.2 In Caithness

In the 2003 BAP the human population of Caithness was stated as being 25,470. The most recent (2011) census results indicate that this has fallen slightly to 25,160³.

Interestingly, the populations of Wick and Thurso have both decreased, whereas the population of the 'landward' area has grown by about 5% since 2005.

It is difficult to determine from employment statistics given on the Highland Council website⁴ whether the run-down in activity at Dounreay has been compensated for by jobs in renewable energy developments. As in 2003, the primary industries of farming, fishing and forestry account for only a small percentage (about 5.6% in 2011) of total employment in the county.

A great deal of what happens on the land is determined by its ownership. Land ownership in Caithness is split between large estates, predominantly in the west of the county, and smaller farm and croft units in the north and east. The major not-for-profit landowners are the RSPB at Forsinard (21,500 ha, not all of which is in Caithness) and Plantlife at Munsary with 1,238 ha. RSPB also took on the management of Dunnet Head and acquired Broubster Leans in 2008.

Caithness has a long history (and pre-history) of human occupation, of which the Caithness Archaeological Trust website⁵ gives a very good summary. Recent research into archaeology and environmental history is increasing our understanding of how the environment was used by humans in the past, and how the interactions between human activity and the environment over the ages have given rise to today's biodiversity. Some recent genetic work on small mammals, including samples of bank voles and house mice from Caithness, illustrates this⁶.

The rapid proliferation of wind farms, with the potential to adversely affect upland biodiversity, was not anticipated in 2003. According to the Highland council wind farm map⁷ there are currently (January 2014) six operational wind farms in Caithness, with a further eight approved or under construction, four submitted but not yet determined, 14 at the scoping stage and eight which have been refused. All of these applications will have been subject to Environmental Assessments involving gathering data on the flora

³ <http://community.caithness.org/article.php?id=3826>

⁴ <http://www.highland.gov.uk/yourcouncil/highlandfactsandfigures/census2011.htm>

⁵ <http://www.caithnessarchaeology.org.uk/index.html>

⁶ Searle, JB, Kotlik, P, Rambau, RV, Markova, S, Herman, JS & McDevitt, AD (2009) The Celtic fringe of Britain: insights from small mammal phylogeography. *Proceedings of the Royal Society B*, 276, 4287-4294.

Searle, JB, Jones, CS, Gündüz, I, Scascitelli, M, Jones, EP, Herman, JS, Rambau, V, Noble, LR, Berry, RJ, Giménez, MD and Jóhannesdóttir, F (2009) Of mice and (Viking?) men: phylogeography of British and Irish house mice. *Proceedings of the Royal Society B* 276, 201-207.

⁷ <http://www.highland.gov.uk/NR/rdonlyres/B42BDCE5-69E9-42EA-8756-669FB57D651B/0/THCCumulativeMapweb.jpg>

and fauna of the areas affected. It is regrettable that because of 'commercial confidentiality' this information is not routinely submitted to national and local recording schemes. In some cases, habitat management plans are required as a condition of planning permission. These can require habitat enhancement measures to be implemented for particular species of concern.

RSPB have produced a birds sensitivity map for the location of wind farms. This was used by Highland Council in formulating their strategic guidance⁸. RSPB has also carried out research on the impact of wind farms on upland birds⁹.

⁸ <http://www.rspb.org.uk/ourwork/projects/details/197790-bird-sensitivity-map-to-provide-locational-guidance-for-onshore-wind-farms-in-scotland>

⁹ <http://www.rspb.org.uk/ourwork/projects/details/205403-the-effects-of-wind-farms-on-upland-birds>

Table 1: Biodiversity-related legislative and policy changes since 2003

Date	Item	Main implications for biodiversity
2003	EU Water Framework Directive implemented via UK legislation	SEPA given statutory responsibility to produce River Basin Management Plans, setting environmental quality objectives for all water bodies.
2004	Nature Conservation (Scotland) Act	Imposition of 'biodiversity duty' on public bodies. Enhanced protection and management of SSSIs. Inception of Scottish Biodiversity List.
2004	Scottish Outdoor Access Code approved by Scottish Parliament	Clarification of rights and responsibilities in relation to outdoor access.
2004	Publication of 'Scotland's Biodiversity: it's in your hands'	Post-devolution strategy for the conservation of biodiversity in Scotland.
2005	Publication of Millennium Ecosystem Assessment	Global assessment of the state of the world's ecosystems and their capacity to continue to sustain human life.
2005	Water Environment (Controlled Activities) Regulations (CAR)	Greater statutory control of activities impacting upon the water environment.
2005	Formal designation of Candidate SACs	Scottish sites added to European list, ceasing to be 'candidate' SACs.
2005	Publication of Management Strategy for the Caithness and Sutherland Peatlands 2005-15	Strategy for the management of the Caithness and Sutherland Peatlands SAC, designated under the European Habitats Directive.
2006	Highland Forest and Woodland Strategy published by THC	Strategic guidance on the location of forestry and woodlands in Highland.
2006	Scottish Forestry Strategy published by FCS	Including target to increase Scotland's woodland cover from 17.1% to about 25% of land area.
2006	Publication of 'Planning to Halt the Loss of Biodiversity' by British Standards Institution	Publicly Available Specification (PAS) 2010 for land use and spatial planning in terrestrial, coastal and freshwater environments.
2007	Review of UK BAP	Number of priority species increased from <600 to 1150, and number of priority habitats increased from 49 to 65
2007	SRDP supersedes Rural Stewardship Scheme (RSS)	Specific 'packages' of measures made available, targeted at biodiversity priorities for particular habitats and species.
2007	Start of SNH Species Action Framework (until 2012)	Targeted management for 32 species (including UKBAP priorities red squirrel, wildcat, freshwater pearl mussel etc.)
2007	Flows National Nature Reserve (NNR) declared	11,373.36ha of peatland, straddling the Caithness/Sutherland border, becomes NNR.
2007	Publication of 'Conserving Biodiversity – the UK Approach'	Sets framework for post-devolution biodiversity work.
2007	Move to Local Authority Single Outcome Agreements	Funding for Local Authorities' statutory responsibility for biodiversity routed directly from Scottish Government, rather than via SNH grants.
2008	First report on 'The Economics of Ecosystems & Biodiversity' (TEEB).	Recognition of the hidden economic values of biodiversity worldwide.
2008	Publication of 'Scotland's Wild Deer - a National Approach'	A national strategy for deer management in Scotland.
2009	Environmental Liability Directive implemented in Scotland	Enforces 'polluter pays' principle for damage to European habitats and species, and water quality under WFD. SNH, SEPA and Marine Scotland are the 'competent authorities'.

2010	Deer Commission for Scotland combined with SNH	Potential for better integration of deer and natural heritage management.
2010	Marine Scotland Act	Marine Scotland set up as a Scottish Government agency. Extension of statutory Planning process to the marine environment; responsibility for designating Marine Protected Areas (MPAs). Increased protection for seals.
2010	Inshore Fisheries Groups set up	Caithness covered by the Moray Firth and North Coast IFG.
2010	Review of Highland-wide BAP	Reviewed for the period 2010-13.
2011	Fisheries Management and Conservation Group replaces Scottish Fisheries Council	Management of scallop, crab and lobster stocks separated from marketing.
2011	Wildlife & Natural Environment (WANE) Act	Changes to species protection and licensing. More rigorous approach to invasive non-native species. Licensing for out-of-season muirburn.
2011	UK National Ecosystem Assessment published	Assessment of the state of the UK's ecosystems and their capacity to continue to sustain human life.
2011	Scotland's Land-use Strategy	Strategic approach to sustainable land-use in Scotland.
2011	Revised Muirburn Code issued	Advice on regulation of muirburn under WANE Act.
2011	Scottish Government issues '2020 Renewables Routemap'	Commitment to generate 100% of electricity demand equivalent from renewables by 2020.
2011	Environmental Impact Assessment (Scotland) Regulations	Rationalising the approach to EIA embodied in previous EU Directives and Regulations.
2011	Online 'Biodiversity Planning Toolkit' introduced	Easy-access guidance to biodiversity advice for Planners http://www.biodiversityplanningtoolkit.com/
2011	Highland Council issues 'Highland's Statutorily Protected Species – supplementary guidance'	Guidance for developers on how to deal with protected species on site.
2011	Publication of Scottish Government Information Note on 'Applying an ecosystems approach to land use'	A step towards delivery of the Land Use Strategy http://www.scotland.gov.uk/Publications/2011/03/16083740/1
2011	Publication of report by IUCN UK Peatland Commission of Inquiry	Recognising the importance of (particularly) Scotland's peatlands in carbon sequestration (amongst other things).
2012	Publication of the 'UK Post-2010 Biodiversity Framework'	Supersedes 'Conserving Biodiversity – the UK Approach' (2007); UKBAP website archived.
2012	Report of Woodland Expansion Advisory Group published	Advice on how target for 25% woodland cover in Scotland may be achieved.
2012	Implementation of 2010 Crofting Reform Act	Regulation of crofting passes from Crofters' Commission to new Crofting Commission.
2013	Highland Seashore Project begins	3-year Highland-wide project to raise awareness of coastal and marine biodiversity.
2013	Publication of 'The 2020 Challenge for Scotland's Biodiversity'	Revised biodiversity strategy for Scotland. Emphasis on 'joined-up thinking' re ecosystem services, health etc.
2013	Publication of 'State of Nature' report	Report on the state of UK habitats and species by 25 conservation and research organisations.
2015	Start of new SRDP	UK proposals currently awaiting EC approval. http://www.scotland.gov.uk/Topics/farmingrural/SRDP/SRD/P20142012

5. Opportunities for the future

This section examines opportunities for achieving biodiversity gains for Caithness in the future, taking account of achievements to date and the changes in legislation and policy which have occurred since 2003. Project ideas suggested by the contractor (shown in boxes in each section below) were circulated in a consultation draft of this report in March 2014. Following discussion by the Group at a project meeting on 8th April, a further list of project proposals was circulated for the Group's AGM on 24th April. These are listed below each box (verbatim and in italics).

5.1 Sea and coast

The creation of Marine Scotland as a Scottish Government agency in 2010 means that there is now a single agency with responsibility for achieving the sustainable management of the marine environment, and the designation of Marine Protected Areas. The SAC/SPAs of East Caithness Cliffs and Noss Head are currently under consideration as MPAs, following a period of public consultation. A number of initiatives, such as the Scottish Coastal Forum and Inshore Fisheries Groups have also been set up. According to <http://aquaculture.scotland.gov.uk/> there are no fish or shellfish farms in Caithness.

Opportunities for action by the Caithness Biodiversity Group are more likely to include awareness-raising, biodiversity audit and perhaps small-scale habitat or species management projects.

The 2007 review of the UKBAP added the species European eel, river lamprey, sea lamprey, sea trout, salmon and the common toad (which breeds in brackish pools on the coast) to the UK priority list, thus raising their profile for action.

As of 2013, a HLF-funded Highland-wide seashore biodiversity project is now underway. <http://www.highlandbiodiversity.com/seashore.asp> There will definitely be opportunities to link with this to host events in Caithness.

The popularity of the north coast as a destination for surfers means that there may be opportunities to link with that community, perhaps through the organisation 'Surfers Against Sewage' <http://www.sas.org.uk/region/scotland-hebrides/> to highlight marine and coastal pollution issues.

Potential project ideas:

- a) More biodiversity audit in the marine and coastal environments, and awareness-raising of the biodiversity of these habitats.
- b) Further survey and awareness-raising work on any of the priority species.
- c) Further habitat management projects for the great yellow bumblebee and moss carder bee, in conjunction with the Bumblebee Conservation Trust.
- d) Awareness-raising of the problems caused to wildlife by marine litter.
- e) Collaboration with 'Surfers Against Sewage' on pollution issues.
- f) Collaboration with Highland Seashore Project on local events.
- g) Work with Northlink Ferries/Pentland Ferries on marine wildlife to be seen from their ships.

Proposals by the Group:

1. *Sea Caves. A habitat unaltered by man and one we know little about except that caves contain starling roosts and rock pigeon colonies. Perhaps a joint project with Kayak clubs.*
2. *Cliff-top grassland. The clifftops are important habitats. Some need heavy grazing, others need very delicate treatment. There are social issues with people wanting to walk the coast. There are safety and animal-care issues. Rare plants and nesting birds are involved. Much of it is SSSI or should be!*
3. *The management of links grassland such as Dunnet/Greenland, Keiss, Reay is a rather tricky grazing management issue.*
4. *Small Blue Butterfly Project - to enhance the habitat in areas where this butterfly is resident in Caithness.*

5.2 River, loch and wetland

SEPA now has statutory responsibility for water quality and for ground-water dependent terrestrial ecosystems under the Water Framework Directive. This includes giving regulatory advice for planning applications. SEPA also undertakes monitoring of freshwater plants and macro-invertebrates, studies of fish ecology and distribution, and has established a methodology for identifying ground-water dependent ecosystems (mires, bogs, fens etc.). Alien species surveys are carried out at routine sample sites, although the waterside invasives Himalayan balsam and Japanese knotweed are not (yet) widespread in Caithness, and the American mink is not present at all.

A review by the Highland BAP Scientific and Technical Advisory Group (STAG) in 2007 recommended a targeted range of species for action within each Highland LBAP area. Those suggested for Caithness which occur in freshwater habitats were water vole and freshwater pearl mussel.

The 2007 review of the UKBAP added 'oligotrophic and dystrophic lochs' to the list of priority habitats, with Arctic charr, salmon, sea trout, common toad and black-throated diver being added to the list of priority species.

Likely projects for CBG could involve more awareness-raising and biodiversity audit in freshwater habitats.

Potential project ideas:

- a. Further biodiversity audit in the freshwater environment, particularly to map the distributions of priority (and other) species, of fish and invertebrates.
- b. More freshwater management work with fisheries interests (CDSFB?).
- c. Survey of invasive non-natives (Himalayan balsam and Japanese knotweed) with a view to tackling them before they become more widespread.
- d. Continue water vole monitoring, and maintain vigilance for mink arrival.
- e. Further awareness-raising of the threat to pearl mussels from illegal fishing.
- f. The original suggestion of undertaking a study of the biodiversity value of flooded quarries in the county could be done as a 'citizen science' volunteer project, possibly in collaboration with the National Amphibian and Reptile Recording Scheme (NARRS).
- g. The original idea to map the distribution of fens across the county could be followed up.

Proposals by the Group:

- 1. Native Woodland - feasibility study for a project to link up the fragmentary riparian woodland fragments in the Thurso River catchment. This would be a very ambitious long term project.*
- 2. Calcareous marshes are on a lot of farms and are of national importance for rare plants and wetland birds. They are generally not understood or appreciated. The fact that RSPB has taken over Broubster Leans is a help. A lot of Caithness farms have some.*
- 3. There are lots of shallow slow flowing water areas such as ditches, ponds, streams and the management of them would be a good topic.*
- 4. A subgroup to hire a contractor to eradicate giant hogweed along the Wick River after the SNH 3 year contract with Coille Alba is complete.*
- 5. Invasive plant species - create and keep up to date a database showing current status and distribution.*

5.3 Farm and croft land

The management of agricultural land is largely dictated by, and dependent upon, the structuring of the agricultural support schemes which implement the Common Agricultural Policy in Scotland. These are reviewed approximately every 5 years. The Rural Stewardship Scheme (RSS), which operated from 2001 to 2006, was replaced from 2007 onwards by the Scotland Rural Development Programme (SRDP). This ended in 2013. The UK Government's proposals for the new SRDP to operate from 2015-20 are currently awaiting approval by the European Commission¹⁰. There is some uncertainty as to whether the Crofting Counties Agricultural Grants scheme will be retained as an element within SRDP. A difficulty with the previous SRDP was that it was a competitive scheme, and larger farmers were more likely to be successful than smaller farmers or crofters.

A review by the Highland BAP Scientific and Technical Advisory Group (STAG) in 2007 recommended a targeted range of species for action within each Highland LBAP area. Those suggested for Caithness which occur in croft and farmland habitats were great yellow bumblebee and moss carder bee.

At the 2007 review of the UKBAP the farmland bird species twite, yellowhammer and starling were added to the priority list, as was the hedgehog.

There appears to be limited scope for the Caithness Biodiversity Group to influence the management of agricultural land. There may be scope for smaller-scale projects targeted at particular species or locally-occurring habitats.

¹⁰ <http://www.scotland.gov.uk/Topics/farmingrural/SRDP/SRDP20142012>

Potential project ideas:

- a. Potential to work with the Bumblebee Conservation Trust on the great yellow bumblebee and moss carder bee (also included under Sea & Coast).
- b. A project raising awareness and recording the distribution of the New Zealand flatworm (which has been found in Thurso and Wick) because of its potential adverse impact on earthworms and consequently populations of insectivores such as hedgehogs and moles.
- c. Hedgehog survey and awareness-raising of hazards such as bonfires and strimmers (could also be included in Town & Village).

Proposals by the Group:

1. *Corncrake - incentives for suitable habitat. This would be support for the ongoing RSPB scheme - e.g. RSPB Durness project was for corncrake + GYBumblebee.*
2. *Fields bearing winter crops or not yet ploughed till spring are important, mainly for birds as food and cover but also for other fauna and flora. Useful to discuss how they might be managed.*
3. *Hedgerows, waysides and margins is a complicated topic. Very important for wildlife. Migration corridors. Bees and butterflies. Traffic visibility.*
4. *The management of links grassland such as Dunnet/Greenland , Keiss, Reay is a rather tricky grazing management issue.*
5. *Calcareous marshes are on a lot of farms and are of national importance for rare plants and wetland birds. They are generally not understood or appreciated. The fact that RSPB has taken over Broubster Leans is a help. A lot of Caithness farms have some.*
6. *Peatland marginal ground. Many farms are adjacent to areas of peat moor and often the peat moor is abused or neglected and often seen as useless ground. It would be good to explore the difficulties and benefits of different uses such as encouraging birch scrub or converting to biomass harvesting.*
7. *Re-appraisal of the merits of White Clover in grazed pasture. It could possibly be as interesting from the strictly economic farming point of view as well as its possible biodiversity merits.*
8. *Small Blue Butterfly Project - to enhance the habitat in areas where this butterfly is resident in Caithness.*
9. *A study of the biodiversity value of farm quarries in the county (good for butterflies and wildflowers e.g. small blue in Castletown Quarry).*

5.4 Forest and woodland

Mainstream forestry and woodland activities are again influenced by the SRDP, which now subsumes grants previously administered by the Forestry Commission.

<http://www.forestry.gov.uk/forestry/infd-8j9h8a>

A review by the Highland BAP Scientific and Technical Advisory Group (STAG) in 2007 recommended a targeted range of species for action within each Highland LBAP area. One of those suggested for Caithness was the red squirrel, which was a bit optimistic, because there have been no recent records in the county. Earlier records (pre-1979) were from the Dunbeath Strath/Latheronwheel/Langwell area. Large-scale projects to increase woodland connectivity across the Highland landscape might assist the northward spread of the red squirrel, but action for it in Caithness would probably be premature. The other suggested species for action was juniper – on which a lot of work has already been done by the Group.

At the 2007 review of the UKBAP, the woodland species wildcat and pine marten were added to the priority list.

Potential project ideas:

- a. More on aspen - implementing management recommendations from the report. The Scottish Aspen website has a downloadable guide to 'Building Aspen habitat networks' <http://scottishaspen.org.uk/> which may be useful. Could include cross-border collaboration with Sutherland?
- b. An awareness-raising project stressing the importance of locally-appropriate species in planting schemes and encouraging the use of local seed sources in propagating trees for planting.
- c. Management for aspen and juniper on Dunnet Head in conjunction with RSPB.

Proposals by the Group:

1. *Native plants and trees nursery (Planting the Future - ongoing).*
2. *Wildcat - possible project to collate historical records and more recent sightings. Possible student project? [RS: will need to link with ongoing Wildcat Conservation Action Plan <http://www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=2050>]*
3. *Native Woodland - create a list of the fragments of native woodland and their current condition. Identify sites where improvement might be possible.*
4. *Native Woodland - feasibility study for a project to link up the fragmentary riparian woodland fragments in the Thurso River catchment. This would be a very ambitious long term project.*

5. *A project focused on salmonberry control.*
6. *A survey of Caithness Policy woodlands.*
7. *Invasive plant species - create and keep up to date a database showing current status and distribution.*

5.5 Bog, moor and hill

Most of the positive management work carried out on bog and moorland habitats has been done within the designated peatland sites of the Flow Country, including land owned by the RSPB at Forsinard and by the Forestry Commission elsewhere. Additional work has been done outwith designated sites using SRDP funding for e.g. drain-blocking on peatlands.

Successive EU LIFE Peatlands Projects between 1994-2000 and 2001-11 have begun the restoration of extensive areas of blanket bog by removing planted conifers from 2,200ha and blocking drains over 15,600ha. In 2007, a large area (11,373.36ha) of peatland centred on Forsinard (but straddling the border between Sutherland and Caithness) was declared as a National Nature Reserve. Work to restore the peatlands, thus improving their carbon capture capability, will be continued by the recently-announced HLF-funded 'Flow to the Future' Peatland Partnership project.

A review by the Highland BAP Scientific and Technical Advisory Group (STAG) in 2007 recommended a targeted range of species for action within each Highland LBAP area. The only one suggested for Caithness and occurring in mountain and moorland habitats was juniper.

At the 2007 review of the UKBAP, the upland species cuckoo, ring ouzel, mountain hare, pine marten, slow worm, adder and common lizard were added to the priority list, as were the habitats 'upland flushes, fens and swamps', and 'mountain heaths and willow scrub'.

Because the management of upland and peatland sites is largely controlled by agri-environment schemes (including forestry grants), and management for field sports or wind farm development, the scope for the CBG to influence it is limited. Therefore projects could concentrate on collaboration with the larger conservation organisations, plus survey work on priority species, and education and awareness-raising.

Potential future projects:

- a. Further survey of the newly-added priority species of reptiles, possibly combining with NARRS (the National Amphibian and Reptile Recording Scheme).
- b. Potential to collaborate with 'Flow to the Future' on biodiversity-related projects.
- c. Awareness-raising on the damaging impacts of irresponsible muirburn on vulnerable species and habitats (such as juniper).
- d. Attempt to address the impact of motor bikes on juniper at Ravenshill identified by the juniper survey.

Proposals by the Group:

1. *Peatland marginal ground. Many farms are adjacent to areas of peat moor and often the peat moor is abused or neglected and often seen as useless ground. It would be good to explore the difficulties and benefits of different uses such as encouraging birch scrub or converting to biomass harvesting.*
2. *Juniper - design a new project to start early 2015.*

5.6 Town and village

In addition to the two major settlements of Thurso and Wick, a high proportion of the Caithness population lives in smaller villages. These can provide an important focus for awareness-raising, education and interpretation work, as already shown by the work of the Highland Council Ranger Service.

At the 2007 review of the UKBAP, the urban species common toad, slow worm and hedgehog were added to the priority list.

The New Zealand flatworm is present in Caithness, especially in Thurso and Wick.

Potential project ideas:

- a. More 'know your patch' projects in other villages of Caithness, if suitable local leaders can be found.
- b. Support the 'Wild North' project, particularly its annual festival.
- c. Promote uptake of the Eco Schools and John Muir Award schemes by local schools.
- d. Work with Bumblebee Conservation Trust to promote bee-friendly gardening.
- e. Raise awareness of the New Zealand flatworm and its potential to adversely affect hedgehogs and moles, as well as farms and gardens, by destroying earthworm populations.
- f. Undertake a 'Hedgehog Street' project in one of the large towns
<http://www.hedgehogstreet.org/>.

Proposals by the Group:

1. *Invasive plant species - create and keep up to date a database showing current status and distribution.*
2. *Hedgerows, waysides and margins. Very important for wildlife. Migration corridors. Bees and butterflies. Traffic visibility.*
3. *Verges Project – is ongoing.*

5.7 Infrastructure support

The Group also suggested additional projects to strengthen their information management capability:

1. *Training for Group members to manage the CBG website.*
2. *Funding to put the Caithness Collection (of photographs) onto an external hard drive.*

Appendix 1: Summary of achievement against original BAP objectives

Key:	Orange = some contribution made	Green = objective achieved
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Overall Caithness objectives:

Species Protection	Relevant CBG projects	Activities outwith CBG
Ensure future developers are made aware of the biodiversity interest of the area, and any likely impacts caused by e.g. wind farm proposals.	Water vole survey & monitoring Juniper survey Two Aspen survey projects Bat survey Lichen survey Important biodiversity areas Moth Trapping & Monitoring Great yellow bumblebee support Tacher wood development	Statutory duties of SNH, SEPA, FC in relation to biodiversity. Legislative requirements for EIA as part of Planning controls. Highland Council's guidance on Protected Species and development.
Eradicate invasive species such as whins, ragwort or salmonberry in areas where they are threatening other important species.	Salmonberry leaflet Salmonberry elimination	Salmonberry mapping project by Neil MacLeod. Japanese knotweed eradication by Friends of Newtonhill Community Woodland in partnership with the Rangers. Leaflet 'Ragwort friend or foe' produced by Plantlife, Butterfly Conservation, British Horse Society and SNH in 2008. http://butterfly-conservation.org/files/ragwort-leaflet-june-20082.pdf
Awareness Raising	Relevant CBG projects	Activities outwith CBG
Encourage wildlife tourism activities, and continue training in issues related to wildlife tourism for Tourist Information Centre staff and tourist operators.	Awareness-raising event at ERI Cetacean watch facility Support for St. John's Pool development Biodiversity/Landscape photo collection Important biodiversity areas	The Seadrift Visitor Centre (Dunnet) and Caithness Horizons (Thurso) provide natural history information to locals and visitors alike. 'Wild Scotland' is an umbrella body for the wildlife tourism industry. http://www.wild-scotland.org.uk/ The Wild North initiative, including its annual festival, aims to increase wildlife tourism across Caithness and Sutherland http://northhighlandsscotland.com/wildnorth/wild-north-festival/

		The Caithness Sea Watching website run by Colin Bird www.caithness-sea-watching.co.uk provides information on local cetacean sightings and feeds records to the Seawatch Foundation national recording scheme.
Produce web-based biodiversity materials	Important Biodiversity Areas online http://www.caithnessbiodiversity.org.uk/ Website creation Biodiversity/Landscape photo collection	The Scottish Biodiversity Forum website http://www.biodiversityscotland.gov.uk/ Provides general information on Scotland's biodiversity.
Continue to raise awareness of biodiversity and the natural environment through ranger-led walks and events.	Moth trapping and monitoring Lichen training and survey Community wildlife boxes 'Harmonies of Dunbeath' and 'Dunbeath Dwellers' events 'Know your patch' sessions Awareness-raising event at ERI Biodiversity/Landscape photo collection Important Biodiversity Areas online http://www.caithnessbiodiversity.org.uk/ Schools biodiversity competition Schools marine project Bat survey postcards Planting for the future Pine marten and water rail taxidermy	Highland Council Ranger Service provides an annual programme of walks and activities, and oversees the work of the Caithness Countryside Volunteers. Other organisations such as Friends of Newtonhill Community Woodland, Health and Happiness, local schools, Community councils etc. also contribute to this aim.
Encourage schools to undertake more site visits and field trips, using the soon to be re-launched 'Schools Out' pack, which will contain up-to-date information on sites.	Schools biodiversity competition Schools marine project Wick High School input to Lybster Cetacean watch facility	School groups undertake activities at Newtonhill Community Woodland.

Promote the financial benefits associated with biodiversity, e.g. clean beaches are better for wildlife and attract more tourists.		
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Information Collection	Relevant CBG projects	Activities outwith CBG
Produce a biodiversity audit of Caithness, summarising the status and distribution of both national and local priority habitats and species.	Water vole survey & monitoring Juniper survey Two Aspen survey projects Bat survey Lichen survey Important biodiversity areas Moth Trapping & Monitoring Great Yellow Bumblebee support Tacher wood development	Caithness Field Club publishes an annual online summary of new discoveries in its Bulletin: http://www.caithness.org/caithnessfieldclub/bulletins/ SNH surveyed <i>Calamagrostis scotica</i> at the Loch of Durran in 2013. The British Bryological Society conducted a general survey of bryophytes in Caithness in 2004 and a survey of stubble fields in 2011(?) Plantlife conducted a baseline survey of Munsary in 2005 and a follow-up in 2010, covering vascular plants and bryophytes. A BSBI field meeting in 2008 recorded vascular plants at Dunnet Head, Dunnet links, Knockinnan and Lybster Gorge. Sandy Payne surveyed bog orchid (<i>Hammarbya paludosa</i>) sites in 2009, and discovered 6 sites for <i>Saxifraga hirculus</i> in 2009/10, bringing the Caithness total to 7 major sites. SNH and BTO have carried out surveys of Greenland white-fronted geese in Caithness. Neil Money conducts moth-trapping work and created the Caithness Moths website. http://www.caithnessmoths.org.uk/ Philip Wright monitors butterflies in Dunnet Forest.
Expand the Highland Biological Recording Centre, and encourage more people to get involved in recording habitats and species.	“Know your patch” sessions Cetacean watch facility at Lybster Pine marten and water rail taxidermy Awareness –raising event at ERI Lichen training event	Highland Biological Recording Group http://www.hbrg.org.uk/ continues to encourage involvement in biological recording, as do many other national species- and habitat-focused societies and schemes, including i-Spot http://www.ispotnature.org/ and i-Record

	Biodiversity/Landscape photo collection Schools Biodiversity Competition Schools Marine Project “Harmonies of Dunbeath” event Website creation Salmonberry leaflet Dunbeath dwellers Bat survey postcards Moth trapping and monitoring Lichen training and survey Water vole survey & monitoring Juniper survey Two aspen survey projects Bat survey Lichen survey Important biodiversity areas Moth Trapping & Monitoring Great yellow bumblebee support Tacher wood development	http://www.brc.ac.uk/irecord/ . The existence of Caithness Seawatching and Caithness moths websites (see above) encourages local recording of these groups.
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Planning, Monitoring and Funding	Relevant CBG projects	Activities outwith CBG
Encourage more volunteers to get involved in surveys, beach clean-ups and other biodiversity projects by providing childcare facilities and reimbursing travel and subsistence costs.	Many projects encouraged volunteers – but not by providing child care.	Various community groups, including the Caithness Countryside Volunteers, promote public involvement in such activities.
Employ an independent officer to co-ordinate partner actions aimed at delivering the Caithness Biodiversity Action Plan, and help volunteer and community groups target funding and resources to raise awareness and deliver practical biodiversity projects.		The Highland Biodiversity Officer post provides this service across Highland.

Sea and coast:

Overall Biodiversity objectives:	Relevant CBG projects	Activities outwith CBG
Ensure that marine and coastal habitats are managed in a way that takes account of all their natural interests (wildlife and plants).		Now largely within the remits of Marine Scotland and SNH. Marine Scotland published a 'Marine Nature Conservation Strategy' in 2011.
Ensure that future marine developments take account of biodiversity.		Now within the remit of Marine Scotland.
Tackle the issue of marine and coastal litter and pollution.		Now within the remit of Marine Scotland. Rangers and various community groups organise beach cleans in some areas.
Establish safe, non-destructive and unobtrusive access to beaches and other robust coastal areas.		Partially addressed by the designation of Core Paths - see http://www.highland.gov.uk/downloads/download/199/core_paths_in_caithness but this does not include establishing new paths.
Raise general awareness about marine life and coastal habitats.	Cetacean watch facility Lybster Schools marine project Dunbeath Dwellers	Highland Council published 'Wild Coastal Trail' booklet, with accompanying interpretive panels at Dunnet Bay, John O Groats, Robbie's Haven, Duncansby Head and Reiss. RSPB interpretive bird panels located at Dunnet Head by reserve car park. The Caithness Sea Watching website run by Colin Bird www.caithness-sea-watching.co.uk provides information on local cetacean sightings. Marine Scotland published 'Scotland's Marine Atlas: Information for The National Marine Plan' in 2011. This summarises the current state of knowledge of Scotland's marine environment.
Encourage the formation of and adherence to coastal zone management plans.		<i>The Advisory Group on Marine and Coastal Strategy</i> Reported in 2007. Now within the remit of Marine Scotland.

Opportunities for action: the sea	Relevant CBG projects	Activities outwith CBG
Collect and recycle marine and land-based litter, monitor types of litter and worst affected areas to determine how to improve management practice.		Many volunteer and Ranger-led beach cleaning activities carried out.
Initiate recycling and correct disposal of old or damaged fishing nets correctly by e.g. installing skips at local harbours and identifying markets for recycled materials.		Highland Council responsible for provision of recycling facilities.
Support the Seal Rescue Centre proposal at John O’Groats to help conserve and raise awareness of marine mammal populations.	Cetacean watch facility Lybster	A seal rescue centre was established at Scarfskerry, but closed in 2012. SSPCA, Scottish Marine Animal Stranding Scheme and British Divers Marine Life Rescue all assist with stranded marine mammals, alive or dead. http://www.bdmlr.org.uk/index.php http://www.strandings.org/
Raise awareness of marine life and issues through wildlife tourism projects, including boat trips and interpretation on the shore and Orkney ferries.	Cetacean watch facility Lybster Schools marine project Dunbeath Dwellers	The ‘Wild North’ initiative promotes wildlife tourism, including marine life. http://northhighlandsscotland.com/wildnorth/about-the-wild-north-campaign/ Highland Council published ‘Wild Coastal Trail’ booklet, with accompanying interpretive panels at Dunnet Bay, John O Groats, Robbie’s Haven, Duncansby Head and Reiss. RSPB interpretive bird panels located at Dunnet Head by reserve car park. Plantlife has produced a general awareness-raising leaflet on ‘The wild and wonderful world of Scotland’s seaweeds’. http://www.plantlife.org.uk/publications/the_wild_and_wonderful_world_of_scotland The Caithness Sea Watching website run by Colin Bird www.caithness-sea-watching.co.uk provides information on local cetacean sightings.

Reinstate the old Lybster Lookout site as a shelter for sea watching.	Cetacean watch facility Lybster	The Caithness Sea Watching website run by Colin Bird www.caithness-sea-watching.co.uk provides information on local cetacean sightings.
Raise awareness of the white fish debate by encouraging evening talks and events.		
Encourage local diving clubs to take part in seabed surveys and awareness-raising projects such as Seasearch.		The link which previously existed with Caithness Diving Club could be re-established? http://www.caithnessdivingclub.co.uk/
Ensure biodiversity issues are incorporated into considerations on future offshore proposals, such as wind and tidal power developments.		Now enshrined in legal requirements for EIAs etc.

Opportunities for action: beaches, dunes and machair	Relevant CBG projects	Activities outwith CBG
Reduce the coastal litter problem by working with fishermen and other boat users, installing bins and skips at harbours and helping beach cleans.		Highland Council responsible for provision of bins and skips.
Raise awareness of machair plants and problems associated with dune and machair erosion, specifically targeting user groups such as quad bikes.		Greenland Links has been designated a 'Coronation Meadow' by Plantlife, and is open to the public. http://coronationmeadows.org.uk/meadow/urn-of-midsands-greenland-links-thurso
Manage access to reduce potential conflicts with wildlife, e.g. encourage people to keep dogs on leads in areas where terns are breeding.		SOAC specifies what constitutes responsible access.
Raise public awareness by encouraging responsible wildlife tourism and displaying interpretative boards at key areas.		'Wild Coastal Trail' booklet and interpretive boards as above.
Investigate why some coastal plants are not seeding as successfully, and	Kidney vetch enhancement Wildflower habitat enhancement:	Dounreay has recently taken on a student at ERI to research these topics and regenerate the coast as part

undertake trial seeding from local sources of plants such as Scottish primrose, oyster plant and kidney vetch.	Scottish primrose, oyster plant and kidney vetch	of site closure.
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Opportunities for action: coastal grasslands and heaths	Relevant CBG projects	Activities outwith CBG
Establish appropriate grazing of coastal grasslands and heathlands.		Possibly addressed by RSS/SRDP, but details not available. Designation of Greenland Links as a Coronation Meadow may involve devising/ continuing an appropriate management regime.
Disseminate best practice in methods of clearing bracken, and encourage coastal managers to control invasive species such as bracken where it threatens rare plants.		Possibly addressed by RSS/SRDP, but details not available.
Encourage more farmers to apply for coastal heath management under agri-environment schemes so that greater areas remain actively managed. Prescriptions may need to be adapted locally to ensure that management is effective.		Possibly addressed by RSS/SRDP, but details not available.
Encourage bush and tree cover in coastal locations, to provide a rest and refuelling site for migrating birds.		
Create safe access routes to viewing points that don't disturb birds, such as at Duncansby.		Partially addressed by establishment of Core Paths network?
Promote additional viewing points and a coastal interpretative trail for North Scotland's distinctive cliff-top vegetation and nesting seabirds.		'Wild Coastal Trail' booklet and interpretive boards as above.

River, loch and wetland:

Biodiversity Objectives	Relevant CBG projects	Activities outwith CBG
Maintain favourable water quality status in all water bodies.		Statutory responsibility of SEPA.
Retain and enhance all existing areas of wetland and keep lochs and rivers in as natural a state as possible, with no barriers to fish migration.		Responsibility of SEPA and Caithness Fisheries Trust.
Promote the use of practical guidance notes and professional advice from government agencies.		
Encourage responsible recreation (including angling, shooting, water sports) wherever possible.		Responsible access to water now covered by Scottish Outdoor Access Code (SOAC). Caithness Access Forum has been involved with canoe access.
Raise awareness of the importance of wetland and open water habitats, and encourage local pride in the value of the pristine freshwater environment of Caithness.	Regeneration of the spawning area of a trout burn Sand martin nest sites Support for St. John's Pool development Wick River interpretation	Friends of Newtonhill, in partnership with the Rangers, have created ponds and dipping platforms and access to the waterside. The British Dragonfly Society has recently published an updated national (GB) dragonfly atlas.
Promote a holistic approach to freshwater conservation by encouraging co-operation between land and water users.		Partially covered by SEPA's responsibility under WFD for River Basin Management Plans.

Opportunities for action: rivers & lochs	Relevant CBG projects	Activities outwith CBG
Demonstrate the importance of freshwater habitats and best practice with regard to instream and bank management through practical projects, e.g. restoration of spawning burns for wild trout and salmon, use of fenced buffer strips and planting of broadleaved trees to prevent bank	Regeneration of the spawning area of a trout burn Sand martin nest sites (possibly not within natural loch bank)?	

erosion.		
Undertake a demonstration 'nutrient budgeting and waste management' project on a farm in the Loch Watten catchment, building on the results of the survey mentioned above.		
Source funding for the upkeep of bird nesting rafts on St. John's Pool.	Support for St. John's Pool development	
Map sites with freshwater pearl mussels, and ensure riparian management is appropriate to the needs of this species.		Freshwater pearl mussel was covered by SNH's Species Action Framework 2005-12.
Raise awareness of the biodiversity value of our rivers and lochs through e.g. a salmon life cycle car trail along the Thurso River or a self-guided wildlife walk along the Wick River.	Wick River interpretation	
Disseminate best practice amongst all water users, e.g. on field ditch management and pollution for farmers and crofters, or on the non-use of livebait for anglers.		Some of this covered by SRDP options.
Investigate the impact of seals on the salmon and trout populations at the mouth of the River Thurso, the species interactions between ferox trout and Arctic char in Loch Calder, and the viability of the sea trout population in the Loch of Wester.		Each of these issues would require a research project by UHI/SRUC/ James Hutton Institute etc.
Determine reasons for the decline in breeding waders and Arctic terns at the Loch of Mey, and the effects of nutrient enrichment on species living in and around watercourses.		Each of these issues would require a research project by UHI/SRUC/ James Hutton Institute etc.
Monitor the impacts of the removal of plantation forestry on the hydrology of		RSPB is carrying out research on ecosystem responses to peatland restoration:

lochs and watercourses associated with the LIFE Peatlands Project.		http://www.rspb.org.uk/ourwork/projects/details/313910-biodiversity-and-ecosystem-service-reponses-to-peatland-restoration
Conduct a county-wide survey on water voles and develop a strategy for controlling mink (not present in the county yet).	Water vole survey Water vole monitoring	Scottish Mink Initiative established (but no need yet to extend to Caithness, as mink still not present).
Undertake a study to investigate the biodiversity value of flooded quarries in the county.		
Use the results of any surveys to feed into management of these areas.		

Opportunities for action: wetlands	Relevant CBG projects	Activities outwith CBG
Build on the current positive wetland management undertaken on farms and crofts around Caithness, and enhance local input through increasing the uptake of the Rural Stewardship Scheme.		Possibly addressed by RSS/SRDP, through uptake of the 'management of rush pasture' option but details not available. Future activity will depend on what's included in the new SRDP.
Undertake a series of farmland wader demonstration sites on a number of farms and crofts across the county.		The Caithness Wetlands and Waders Initiative (CWWI) is a partnership between RSPB, SAC Consulting, Bumblebee Conservation Trust and NFU Scotland: http://www.rspb.org.uk/ourwork/projects/details/311978-caithness-wetlands-and-waders-initiative
Encourage the creation of new wetlands through the blocking of drains or old mill lades.	Dunnet Forest wetland creation	
Trial waste management techniques such as reed beds that are new to the county.		Reed beds for waste water treatment are included in Highland Council Planning Department's 'Sustainable Design Guide' adopted January 2013.
Raise awareness of the link between current management practices and the importance of Caithness sites for breeding waders through e.g. erecting	Water rail taxidermy	RSPB management at Broubster Leans Reserve (but no hide there). Hides established at Loch of Mey and St. John's Pool. Activities of CWWI.

a bird hide at Broubster.		
Undertake a Caithness-wide survey of breeding waders, linking breeding success to available habitat.		Some basic breeding data will have been gathered by BTO for Bird Atlas 2007-11. Activities of CWWI.
Map the distribution of fens across the county.		SEPA work on identifying ground-water dependent ecosystems may cover this.
Raise awareness of the legislation surrounding wildfowling, and the shooting of geese in Caithness.	Concern expressed to SSE and SNH by CBG and Caithness SOC re the powerline upgrade and its potential adverse impact on geese where it crosses Bridge of Westfield marshes.	A Greenland white fronted goose leaflet was produced (probably pre Caithness BAP) and distributed to farmers, wildfowlers etc. BASC provides a list of accredited goose guides, including one in Caithness, and a guide to good shooting practice. http://basc.org.uk/cop/

Farm and croft land:

Biodiversity Objectives	Relevant CBG projects	Activities outwith CBG
Secure a future for upland farming and crofting that allows land managers to use their skills and affinity with the land to the best advantage of the environment.		The Scottish Nature of Farming Award 2012 was won by David and Morag Miller of Geise Farm, Thurso. They have promoted their work to the community, especially schools and colleges, by providing information leaflets and interpretation boards.
Implement whole farm plans that combine business and environmental objectives.		CWWI is working with farmers on this.
Reward good environmental management (best practice) through better funded and more flexible agri-environment schemes, and through the market place by securing a premium for locally produced goods.		The North Highland Initiative (NHI) aims to promote the economic development and sustainability of the North Highlands of Scotland by fostering closer connections between farmers, food producers, and consumers. 'Mey Selections' is part of this http://mey-selections.com/
Maintain and enhance existing areas of wildlife habitat and encourage the creation and maintenance of wildlife corridors such as hedges.	Barn owl boxes Nesting boxes installed as part of Tacher wood development	
Increase public understanding of the very real link between agricultural activity and environmental protection.		The Royal Highland Education Trust may contribute to this http://www.rhet.org.uk/ As did FWAG Scotland before its demise in 2009.

Opportunities for action: grassland	Relevant CBG projects	Activities outwith CBG
Improve the biodiversity of more intensive grassland by taking up options under the Rural Stewardship Scheme.	Great yellow bumblebee support	Not able to find out how many did apply under former RSS/SRDP.
Retain damp areas to help wader chicks, and areas of longer vegetation dominated by iris or nettles to provide cover for birds, in association with the demonstration sites suggested in the Wetland section above.		RSPB's management at Broubster Leans and Plantlife's at Munsary. CWWI has funded wader scrapes and a leaflet about waders on farms.

Where corncrakes are present, delay cutting of hay until 1 August and use corncrake friendly cutting patterns in association with RSPB's Corncrake Initiative.		RSPB's Corncrake Initiative. Corncrake present in 3 x 10km squares in New Bird Atlas ND06, ND26, ND27.
Participate in projects such as the Royal Society for the Protection of Birds' Farmer Alliance project or Linking Environment and Farming demonstration projects.		RSPB's Volunteer and Farmer Alliance operated in Caithness for three years until 2012, involving at least 15 farms.
Encourage the spread of good practice through the Caithness and Sutherland Environmental Group.		The Group still has a website, but no evidence of current activity: http://www.caithness.org/community/environment/environmentalcaithnesssutherland.htm
Raise awareness of land management through school links, leaflets about farm biodiversity in Caithness and greater community involvement in agriculture.	Barn owl boxes	The Scottish Nature of Farming Award 2012 was won by David and Morag Miller of Geise Farm, Thurso. They have promoted their work to the community, especially schools and colleges, by providing information leaflets and interpretation boards.
Encourage every Primary School to develop a link with a local farm or croft.		
Improve training in land management skills through college courses in agri-environmental issues and skills such as species-rich grassland and wetland management, woodland and hedge creation, etc.		North Highland College, Thurso, runs Gamekeeping courses, but does not seem to provide training in other aspects of countryside management.
Encourage the British Mycological Society to hold a field visit in Caithness.		No evidence of such a field meeting on BMS website.
Improve links with hotels and local outlets, and promote the links between biodiversity and locally produced beef and lamb through labelling and positive media coverage.		The North Highland Initiative (NHI) aims to promote the economic development and sustainability of the North Highlands of Scotland by fostering closer connections between farmers, food producers, and consumers. 'Mey Selections' is part of this. http://mey-selections.com/

<p>Set up recycling trials to encourage farmers to compost green / recyclable materials from towns and villages onto agricultural land to reduce landfill needs and fertiliser dependence.</p>		<p>Highland Council is responsible for recycling /composting garden waste, which is collected from Ackergill, Castletown, Glengolly, Halkirk, Haster, Keiss, Milton, Papigoe, Reiss, Scrabster, Saxigoe, Thrumster, Thurso and Wick. 'Planting the Future' garden has taken compost from recycling facilities at Golspie and Seater.</p> <p>http://www.highland.gov.uk/yourenvironment/wastemanagement/recycling/kerbsiderecyclingcollection/calendar/caithness-awc.htm</p>
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Opportunities for action: Arable crops & field margins	Relevant CBG projects	Activities outwith CBG
<p>Create 'conservation headlands' and wider grass margins around arable fields.</p>		
<p>Plant game cover or seed-bearing crops such as linseed on set-aside land, to provide a source of food and cover for wintering birds.</p>		<p>Set-aside scheme came to an end in 2008. RSPB has a leaflet on wild bird cover.</p>
<p>Encourage traditional cropping methods (e.g. Spring crops, late ploughing) to provide valuable winter stubble. After establishment, allow weedy plants to remain in root crops as their seeds are a very valuable source of food for birds in winter.</p>		<p>RSPB has a leaflet on Arable crops on livestock farms.</p>
<p>Increase funding towards the establishment and upkeep of hedges and other countryside features, which provide shelter and wildlife corridors for many species, perhaps on a pilot, demonstration basis.</p>		
<p>Encourage the retention of small farm quarries and ponds, and the repair and construction of vernacular buildings</p>		

and flagstone and drystone dykes, both as landscape features and as valuable habitats for wildlife.		
Encourage best practice for land managers allowing wildfowling on their land through the production of leaflets and site visits, and raise awareness of the protection of Greenland whitefronted geese.		GWGs featured at RSPB Broubster Leans Reserve. GWGs recorded in ND05, ND06, ND25, ND26, ND27 (New Atlas data).
Produce Caithness-specific advice on habitat management for locally important species, e.g. twite.		RSPB produces a leaflet on management for twite (but not Caithness-specific) http://www.rspb.org.uk/Images/Twite_tcm9-207641.pdf CWWI has produced a leaflet on twite and on GYBB.
Investigate the relationship between biodiversity and bio-fuel crops through local trials.		
Facilitate nutrient budgeting plans, to help farmers utilise manure and reduce dependence on fertilisers, encourage the return to clover rich pastures requiring less fertilisers.		
Encourage sparrow counts around schools, villages and neighbouring farms.		

Forest & Woodland:

Biodiversity Objectives:	Relevant CBG projects	Activities outwith CBG
Ensure all semi-natural woodland is protected, and encourage the expansion and improved management of existing woodlands.	Tacher wood development North Aspen Woods Aspen survey Juniper survey	FCS has now completed the Native Woodland Survey of Scotland (NWSS) which involved mapping the occurrence of all native woodlands over 0.5ha. Highland Birchwoods has published 'Managing Small Woodlands in the Highlands and Islands - a guide for crofters, communities and small woodland owners'. http://www.managehighlandwoods.org.uk/
Create new native woodlands, including species such as birch, willow, rowan, alder, hazel and aspen.	Dunnet forest tree nursery 'Planting the Future'	Friends of Newtonhill, in partnership with the Rangers have carried out habitat creation (tree planting, pond-digging) and access (pond-dipping platforms). CBG did a baseline biodiversity survey and contributed to the forest design of new FCS woodland at Sibster.
Encourage the sympathetic planting and expansion of native trees and shrubs along the banks of rivers, streams and lochs.	Tacher Wood development	
Develop links and corridors between existing areas of semi-natural woodland to strengthen the forest habitat network for a number of woodland species.	North Aspen project Juniper survey	Caithness Field Club has fenced an area at Badryrie ND204434 and continues to monitor its development.
Control deer and rabbits to encourage the natural regeneration of semi-natural woodland from existing seed sources.		
Control pest species including foxes and crows at woodland edges, particularly when close to wetland and peatland sites, to benefit ground nesting bird species.		RSPB has carried out research on such edge effects: http://www.rspb.org.uk/ourwork/projects/details/36257/8-edge-effects-of-forestry-on-flow-country-breeding-waders

Opportunities for action: Semi-natural woodland	Relevant CBG projects	Activities outwith CBG
Encourage some heather moorland to develop into birch-dominated woodland by reducing grazing pressure and fencing in some areas.		RSPB has a leaflet on Moorland grazing.
Develop links between existing areas of semi-natural woodland, particularly along watercourses, by fencing and reducing grazing pressure.	Northern Aspen Woods Juniper survey Tacher Wood development	Plantlife has produced a guide to 'Managing Scotland's uplands for Juniper'. Caithness Field Club has fenced an area at Badryrie ND204434 and continues to monitor its development.
Initiate local small-scale tree nurseries to grow local provenance trees that could be sourced by woodland managers.	Dunnet Forest tree nursery	
Undertake a countywide survey of trees and associated wildlife.	Aspen survey Lichen training and survey Juniper survey	FCS has now completed the Native Woodland Survey of Scotland (NWSS) which involved mapping the occurrence of all native woodlands over 0.5ha.
Identify and promote local use and possible local markets for timber in the future.		

Opportunities for action: Policy woodlands and plantations	Relevant CBG projects	Activities outwith CBG
Establish and expand new native or mixed multi-benefit woodlands throughout the county, where site conditions allow.	Dunnet Forest tree nursery	
Restructure existing plantations and policy woodlands to improve biodiversity, both on the woodland edge and internally.	Dunnet Forest tree nursery Salmonberry elimination Salmonberry leaflet	The management of Dunnet Forest as a community woodland by Dunnet Forestry Trust is aimed <i>inter alia</i> at improving biodiversity.
Erect nest boxes for long-eared owls and barn owls.	Barn owl nest boxes (one installed on edge of Dunnet Forest)	
Identify potential osprey sites following		Highland Foundation for Wildlife have recently put up

recent successes and 'groom' trees for potential breeding pairs.		two osprey poles.
Raise awareness of the biodiversity of policy and community woodlands through community events, walks and interpretative materials.	Pine marten taxidermy	
Establish new habitat and species trails through plantation woodland, to improve access and raise awareness of biodiversity within forests.		Trails have been created and maintained at Dunnet Forest, Heathfield Wood (near Brough), Achvarasdale Wood and several FC plantations.
Investigate and trial the options for biomass technology locally, to use some of the less economic forestry products in energy generation and improve the biodiversity of plantation woodland sites.		FC has a biomass trial underway at Georgemas.
Investigate the biodiversity benefits of planting and coppicing fast growing species such as willow.		
Establish a pilot project on adjacent farmland to control hooded crow species associated with woodlands, particularly to protect ground nesting birds.		

Bog, moor and hill:

Biodiversity Objectives	Relevant CBG projects	Activities outwith CBG
Avoid any further drainage of blanket bog habitats, and encourage projects that block existing peatland drains.		Formation of the Peatlands Partnership and subsequent restoration work done with LIFE funding. Plantlife recognises the Caithness & Sutherland Peatlands as an Important Plant Area (IPA).
Remove and restructure plantations where they are damaging the peatland interest, and avoid any expansion of non-native woodland onto blanket bog.		Formation of the Peatlands Partnership and subsequent restoration work done with LIFE funding. Work done by FCS on their own land. Plantlife recognises the Caithness & Sutherland Peatlands as an Important Plant Area (IPA).
Ensure that fires are well managed and kept under control, adhering to the agreed muirburning code of practice.		Revised Muirburn Code issued 2011 http://www.scotland.gov.uk/Resource/Doc/355582/0120117.pdf
Ensure deer and sheep grazing is kept to an appropriate level by the retention of stalkers to manage the deer population and through effective shepherding.		Caithness is covered by the Northern Deer Management Group.

Opportunities for action: Blanket bog	Relevant CBG projects	Activities outwith CBG
Block peatland drains and remove conifers in important blanket bog areas through initiatives such as the LIFE Peatlands Project.		Formation of the Peatlands Partnership and subsequent restoration work done with LIFE funding. RSPB is carrying out research on ecosystem response to peatland restoration: http://www.rspb.org.uk/ourwork/projects/details/313910-biodiversity-and-ecosystem-service-reponses-to-peatland-restoration Plantlife recognises the Caithness & Sutherland Peatlands as an Important Plant Area (IPA).
Control foxes and crows in key		Is the responsibility of the landowner.

breeding bird sites.		
Raise awareness of this habitat through controlled appropriate access to sites and good quality interpretation at sites such as Loch More.	Munsary marsh saxifrage survey	
Install a moorland nature trail and viewing platform in Caithness, looking out over a pool system.		Will be done as part of 'Flow to the Future' project (but possibly in Sutherland rather than Caithness).
Provide a network of interpretation and visitor facilities at a range of peatland sites.		
Continue to raise awareness of the importance of this habitat through the production of leaflets, posters, media coverage, events, etc.	Biodiversity/landscape photo collection.	

Opportunities for action: Heather moor		
Encourage moorland managers to work towards an agreed Deer Management Plan.		Caithness is covered by the Northern Deer Management Group.
Support active management of heather moorland and encourage land management skills through the Gamekeeping Course at North Highland College.		RSPB Advisory leaflet on heather moorland management. North Highland College, Thurso, runs Gamekeeping courses, but the extent of coverage of moorland management skills is not clear.
Encourage some heather moorland to revert to birch-dominated woodland.	Juniper survey	
Retain flocks of regularly dipped sheep on some moors to help control the tick population.		
Raise awareness of the importance of raptor species in heather moorland.		
Encourage moorland managers to agree management plans, incorporating a burning plan, such as	Juniper survey	

those agreed through the Peatland Management Scheme.		
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Opportunities for action: Hills		
Monitor the breeding success of golden eagle populations.		Done by Raptor Study Groups.
Raise awareness of the plantlife and birdlife on Caithness' hills amongst locals and visitors to the area.	Juniper survey	

Town and village:

Biodiversity Objectives	Relevant CBG projects	Activities outwith CBG
Provide greater funding to make parks and school grounds more attractive to wildlife.		SNH grants for School Ground improvements. 290 Highland schools registered for Eco-schools initiative (but figures not broken down by county). Many projects undertaken over the years by Rangers and schools through Eco-schools programme ranging from willow bowers/fences tree planting to garden/planting areas and vegetable growing. Not many (if any) primary schools now without developed school grounds with wildlife focus. Biodiversity work, including removal of rank vegetation, installation of bat and bird boxes and native wildflower planting by Rangers and Caithness Countryside Volunteers in Thurso Cemetery.
Encourage the later cutting of grass verges and hedges to encourage wild flowers and wildlife.	Roadside verge mowing	Plantlife runs an online reporting system for inappropriate road verge management. http://www.plantlife.org.uk/roadvergecampaign
Invest in resources to deal with litter, including old vehicles, to prevent fly tipping.		Highland Council responsibility.
Provide greater resources to recycling schemes to encourage local people to re-use and recycle waste.		Highland Council recycling services.
Encourage more people to garden for wildlife.	'Planting the future'	Plantlife 'Grow Wild' campaign: http://www.plantlife.org.uk/things_to_do/grow_wild/

Opportunities for action: Parks and gardens	Relevant CBG projects	Activities outwith CBG
Plant native species in town parks and gardens, and seek funding for the establishment, long term maintenance and development of wildlife gardens in Caithness, particularly in schools.	Planting the future https://www.facebook.com/pages/Thurso-Planting-the-Future-Garden-The-Bee-Bubble/236076069890059 http://plantingthefuturethurso.wo	Many projects undertaken over the years by Rangers and schools through Eco-schools programme ranging from willow bowers/ fences tree planting to garden/planting areas and vegetable growing. Not many (if any) primary schools now without developed school grounds with wildlife focus.

	rdpress.com/ http://plantingthefuturethurso.wo rdpress.com/about/	Biodiversity work, including removal of rank vegetation, installation of bat and bird boxes and native wildflower planting by Rangers and Caithness Countryside Volunteers in Thurso Cemetery. Plantlife 'Grow Wild' campaign: http://www.plantlife.org.uk/things_to_do/grow_wild/
Encourage building of communal nest boxes for sparrows in towns and gardens as most bird boxes are for tits and robins etc. Use recycled wood from local businesses.	Community wildlife boxes	
Encourage people to leave out buildings, garages etc. open to allow swallows to nest in summer, use sheets to stop droppings damaging cars.		
Produce a wildlife gardening publication specific to Caithness gardens, as many presently available publications are not suitable for the Caithness climate.		
Produce an advice pack for businesses to seek funding and appropriate planting to improve biodiversity on and around their premises, and encourage businesses to work towards local and national award schemes for the most environmentally friendly business.		Business & Biodiversity Resource Centre provides information http://www.businessandbiodiversity.org/scotland.html
Conduct a survey of town trees in areas such as Wick and Thurso, and involve local people in new planting and management through e.g. a tree warden scheme. The survey could be used to decide policies for any new plantings.	Salmonberry elimination Salmonberry leaflet 'Know your patch' sessions	

Conduct a Rookery Survey over the breeding season with a town school, possibly involving a video camera link to a nest. Many mature trees are being cut because of rookeries being established and the subsequent problems of droppings.		BTO/SOC survey work for New Atlas 2007-11 may have recorded rookeries.
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Opportunities for action: Roadside verges	Relevant CBG projects	Activities outwith CBG
Develop a strategy for the cutting of roadside verges that does not reduce the biodiversity of this habitat, and implement it through verge maintenance contracts.	Roadside verge mowing	Plantlife runs an online reporting system for inappropriate road verge management. http://www.plantlife.org.uk/roadvergecampaign
Reduce the depth to which roadside ditches are cleaned, to maintain ditch vegetation.		
Control ragwort and other invasive plants, targeting areas worst affected.		THC remove ragwort along the A9. Leaflet 'Ragwort friend or foe' produced by Plantlife, Butterfly Conservation, British Horse Society and SNH in 2008. http://butterfly-conservation.org/files/ragwort-leaflet-june-20082.pdf
Undertake an education project for road maintenance workers and contractors on the correct use of machinery and practices to most benefit biodiversity.	Roadside verge mowing	Plantlife has online advice on good road verge management. http://www.plantlife.org.uk/roadvergecampaign/3_steps_to_good_road_verge_management
Undertake a survey of the roadside verges, hedges, trees and ditches in Caithness.	Roadside verge mowing	