



B I O D I V E R S I T Y

Summary

Biodiversity, the variety of life, includes everything from algae to elephants, bacteria to blue whales. It is the basic ingredient for our quality of life – our food and our clothing, our health and our relaxation.

The first Dumfries & Galloway Local Biodiversity Action Plan (LBAP) was published in June 1999. This booklet contains a summary of the second edition, published in April 2009.



Scottish Natural Heritage
All of nature for all of Scotland



*Dumfries
& Galloway*
COUNCIL





Dumfries & Galloway Biodiversity Partnership

Whether we are aware of it or not, biodiversity plays an essential role in all our lives. Action for biodiversity is not the sole responsibility of any single person or organisation - we all have a part to play.

The Biodiversity Partnership responsible for co-ordinating implementation of the LBAP includes statutory agencies, voluntary environmental organisations, local naturalists, community groups, businesses and land managers. The strength of this partnership is its diverse range of knowledge and skills. Through the publication of the plan, the partnership has set out the actions required to ensure that biodiversity in Dumfries & Galloway is conserved and enhanced.



Given that resources are scarce, the partnership has identified aims and objectives across the whole region and prioritised the actions that will achieve them. The LBAP is divided into the following sections:

Aims The desired state of biodiversity in Dumfries and Galloway following completion of the LBAP.

Central Objectives The major steps through which the aims will be achieved.

Central Actions The most important things that can be done for biodiversity as a whole to achieve the aims and objectives.

Priority Actions The most important things that can be done in particular biodiversity habitats that will achieve the aims and objectives.

Local Priority Habitats 41 habitats in Dumfries and Galloway considered as being of greatest importance for conservation.

Other actions are recommended for a wider range of other habitats. Though these are considered of lesser importance, all actions, however small, will contribute to regional, national and international targets.

Local Priority Species More than 300 species have been identified as of high local importance. Several have their own Species Action Plans from the first edition of the LBAP and these remain relevant for the second edition. However, conservation and enhancement of such a large number of important species is usually achieved through conservation of their habitat. New species-specific action plans will only be prepared where habitat actions are unlikely to be sufficient.





Key Biodiversity Issues



Glentroot Landscape

Global biodiversity continues to decline. At a local level, we need to continue to address the reasons behind this decline, but since publication of the first Dumfries & Galloway LBAP we also have to consider several issues that have recently increased in importance. Most notably, human induced climate change will impact on virtually all that we do in the future. Biodiversity conservation can assist in reducing our impact on the climate, but we

need to ensure our activities allow biodiversity to adapt to the changes that are already inevitable. This will involve modifications to the way we manage land. In Dumfries & Galloway this particularly applies to farmland and forestry that dominate local land cover. Land management, through acidification and nutrient enrichment, also affects freshwater and marine environments, often neglected habitats in previous conservation programmes. We must also not lose sight of the fact that whilst biodiversity provides numerous benefits for people, these benefits have not always been shared as equally as they might have been.

In short, biodiversity conservation cannot be restricted to a few sites and species – it requires a holistic approach. We all have a part to play and we all have much to gain.

Aims

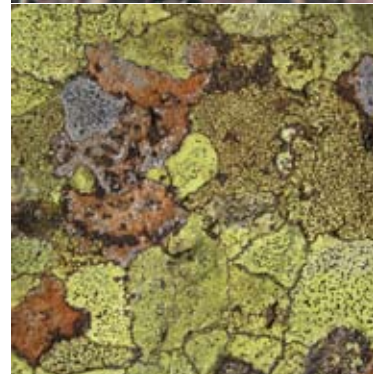
The overall aims of the LBAP are:

1. Biodiversity conserved, enhanced and re-created at the landscape and seascape scale.
2. Genetic diversity conserved.
3. Biodiversity incorporated into all relevant decision-making.
4. Biodiversity awareness, understanding and engagement improved.
5. Natural processes allowed to operate wherever practicable.
6. Local distinctiveness enhanced.

Central Objectives

LBAP Central Objectives are those that will result in significant benefits for all biodiversity across the whole of Dumfries & Galloway. They will be achieved through a combination of central actions and priority actions from Local Habitat Action Plans (see complete listing at back of this booklet).

- 1: Ensure no net loss of priority habitats and species during the lifetime of this plan.
- 2: Ensure that more data is collected, collated and made available, to assist in the promotion, enjoyment, understanding and enhancement of biodiversity.
- 3: Maintain and enhance a network of designated biodiversity sites.
- 4: Recognise the value of ancient habitats.
- 5: Minimise the impact of non-native species on biodiversity.
- 6: Reintroduce or translocate species where appropriate.
- 7: Increase wildlife tourism.
- 8: Highlight geological diversity and its close relationship to biodiversity.
- 9: Incorporate biodiversity into relevant strategies.





Sea, Seashore & Coastal Habitats

Biodiversity in the seas around Dumfries & Galloway is just as important as that on land. **Subtidal rock** is restricted to a shallow fringe around the coast, with a few areas in deeper waters to the west. It is dominated by animals such as sponges, starfish and sea anemones with fishes such as Conger Eels and Tompot Blennies in the crevices.

Subtidal sands and gravels are much more extensive. Mobile sand banks have few species, but in other areas there are large numbers of brittlestars, crabs and molluscs, including Scallops and Cuttlefish. **Scar Grounds** are composed of coarse pebbles and boulders and are found in just a few places. They can be permanently submerged or exposed at low tide. Often dominated by Mussels, they also have an abundance of other marine creatures.



Tompot Blenny



Sunstar

The Solway is famous for its extensive areas of **intertidal sand and mud flats**, attracting over 140,000 birds to feed on the teeming life buried within them. Less well known, but also of high biodiversity value are **seagrass beds** in the sheltered estuaries of Rough Firth, Auchencairn Bay, Fleet Bay, Wigtown Bay and Loch Ryan. **Honeycomb worm reefs**, made of tightly packed tubes of thousands of marine worms, are not uncommon in the Solway but

rarely found further north. They are a particularly important and fragile part of **intertidal rocky shores**.



Dumfries & Galloway's **shingle beaches** include, at Luce Bay, highly specialised plants such as Yellow-horned Poppy and Oysterplant.

Coastal sand dunes are not widespread, but include one of the most important dune systems in Europe at Torrs Warren. In contrast, the Solway, especially Dumfriesshire, has almost a third of Scotland's **coastal saltmarshes** (known locally



Killantringan Bay

as merse) and extensive **coastal cliffs and slopes** in Galloway. Together, these two habitats support some of our best known species: Barnacle Geese, Natterjack Toads and Peregrines. They also provide a home for lesser known species such as Speckled Bush Crickets, Sticky Catchfly and the mysterious and very rare Tadpole Shrimp.





Wetland & Peatland Habitats

Water is the lifeblood of biodiversity. In the Southern Uplands, our plentiful rainfall finds its way, often by **upland springs and flushes**, into **river headwaters**. Here, Salmon and trout spawn and Dippers feed on abundant mayflies, caddisflies and other freshwater invertebrates, themselves dependent on the profusion of mosses, liverworts and algae. Downstream, **lowland rivers and backwaters** are often under greater human pressure, but local water quality is generally good, with Otters, Kingfishers and lampreys on all our rivers. In places, beds of **river shingle** are exposed above normal river levels. Rarely considered of high wildlife value, these beds are in fact the sole habitat of a highly specialised range of insects, as well as being important for birds and fish.



Common Darter Dragonfly

There are at least 300 named lochs in Dumfries & Galloway. They are classified according to their nutrient levels. In the hills, **oligotrophic lochs** such as Loch Grannoch are nutrient poor. Although they have low species diversity, those that occur are highly specialised, such as Water Lobelia and Black-throated Diver. In contrast, **eutrophic lochs** such as Carlingwark Loch have high nutrient levels and many species, such as Little Grebes, Pike and damselflies. **Mesotrophic lochs** such as Loch Kindar have moderate levels of nutrient and the highest diversity of species, including many plants, birds and dragonflies, but

are increasingly rare. Many of these lochs have fringing **reedbeds** and **marshes**, and these habitats, along with their Snipe and Water Voles, also occur in isolation elsewhere.

Peat is formed through the partial slow decay of mosses and other water-saturated vegetation. **Fens** are peatlands that are influenced by water flowing from adjacent land. Where this water is rich in nutrients, they develop into dense beds of mosses, sedges and reeds, with Water Rails, Sedge Warblers and many aquatic beetles. **Raised bogs** are found mostly in the lowlands. They are fed only by rainwater and are dominated by Sphagnum mosses, along with specialised plants such as insect-eating Sundews. **Blanket bogs** are also moss-dominated, but are found blanketing extensive upland landscapes. Adders, Emperor Moths and Cloudberry are typical species.



Kingfisher





Woodland & Forest Habitats

Everyone has a favourite wood. Native trees are those that found their own way here, rather than being planted by man, and ancient woods of native trees are the most important for wildlife. **Wet woods**, with their Alders and Willows, line many riverbanks and frequently encircle lochs. Species include Royal Fern, Daubenton's Bats and the increasingly scarce Willow Tit.



Bitter Beech Bolete

Native ash woods, such as those of upper Nithsdale, are renowned for their diverse flora including Dog's Mercury, Dog Violets and special lichens. **Native oak woods**, such as Carstramon, Wood of Cree and Glentool, are the best known of our woodland types. Carpets of spring Bluebells, a dawn chorus of Pied Flycatchers and Wood Warblers, the drumming woodpeckers and weird and wonderful autumnal fungi are just a few of their sensory delights. **Native birch woods**, most common in the hills, are one of our richest insect habitats. Caterpillars of Yellow-horned, Scarce Prominent and Orange Underwing moths feed on little else.

Virtually all commercial forests are plantations of non-native trees and have lower biodiversity value than native woods, but given that they cover around a quarter of the region, their biodiversity potential for Red Squirrels and many other species is considerable. **Forest ponds** are particularly valuable, some supporting Great Crested Newts and more than 10 dragonfly species.

Built Habitats

Wildlife can turn up in some unexpected places. Although many species of such habitats are common and widespread, several notable species live in close company with ourselves. For example, **industrial and post-industrial sites** may not rival our coast and woods for their beauty, but are surprisingly important habitats for insects and lichens. Likewise, **urban watercourses and wetlands** often have clean water and support Otters, Kingfishers and Brown Trout just like their rural counterparts. Positive action in churchyards, gardens, school grounds and holiday parks can all make a difference for biodiversity.



Waxwing





Grassland, Heathland & Farmland Habitats



Kidney Vetch

Wildflower meadows and pastures are real gems amongst the uniform green fields planted for modern farming. Species composition is dependent on the chemical properties of the underlying soils and rocks.

Calcareous grassland, with its abundant insect life and orchids, is usually on limestone; it has therefore never been common. The once widespread flowery hay meadows of **neutral grasslands** are now almost as rare. In a few parts of Galloway **purple moor-grass and rush pastures** provide a home for Scotch Argus and Small Pearl-bordered

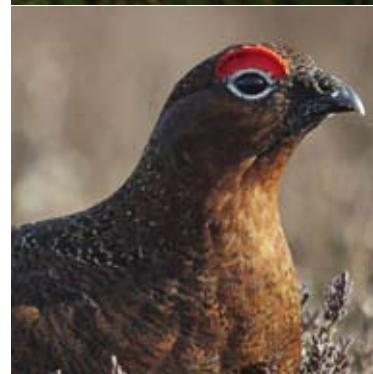
Fritillary butterflies. **Acid grassland** is the dominant habitat of the Southern Uplands. Though less colourful than its lowland counterparts, its abundant vole population is the staple food of many birds of prey. Waxcap fungi are little-known species of all kinds of short turf.

Upland Heaths echo with springtime calls of Red Grouse and turn into moors of glorious purple in late summer, whilst the winter white of Mountain Hares stands out in our increasingly snowless winters. **Montane moss-heaths**, restricted to the very tops of our highest hills, are even more threatened by climate change. Interspersed with our grasslands and heaths, are numerous **rock outcrops**, providing a safe haven for nesting birds and some of our rarest plants.



Upland Heath

Down in the valleys where mixed farms are no longer common, the relatively few **arable fields** now found in Dumfries and Galloway have increased in biodiversity importance. Brown Hares and Grey Partridges depend on them. **Traditional field boundaries**, both drystone dykes and hedgerows, also have their associated species. Nesting Wheatears and Tree Sparrows make use of abundant insect life. **Wood pastures and parklands** contain both grassland and trees, often ancient, gnarled and covered in lichens. In a handful of places they take the form of **traditional orchards**. **Farm ponds** are on the increase – good news for frogs and dragonflies.





Local Priority Species

Action for species will be delivered primarily through habitat management, but the LBAP identifies Local Priority Species that are of particular importance in Dumfries & Galloway.

Fungi are poorly studied, but the region is known to be one of only a handful of British locations for Oak Polypore and Dung Bird's-nest. A little more is known about our **lichen** flora, including a few of the 'Atlantic' species that are typical of the west coast of Scotland, but found virtually nowhere else on the planet.



Webcap Fungus

Non-flowering plants are often ignored but are a critical part of our habitats. Most of Britain's *Sphagnum* mosses are found on our bogs, whilst the nationally rare Oblong Woodsia fern has been the subject of recent conservation enhancement in the Moffat Hills.

Flowering plants include the only Scottish colony of Perennial Flax, the rare Sticky Catchfly on coastal slopes and, on our shingle beaches, some of the largest Oysterplant populations outside of the Northern Isles. Whorled Caraway is a particular local speciality – non uncommon in our damp grasslands, but very rare over much of the rest of Britain.

Thanks to our mild winters and south-facing sunny coasts, **invertebrates** occur in profusion. There are more species of dragonfly, butterfly, moth and grasshopper than elsewhere in Scotland. At sea, the largest UK population of wild Native Oysters is sustainably harvested in Loch Ryan.

Fish diversity is high and includes Salmon in every river, the very rare Vendace and Sparling, and all three species of eel-like lampreys. Basking Sharks cruise our coastal waters in summer - the second biggest fish in the world but harmless to people.

All three Scottish land **reptiles** occur, including good numbers of Adders. The Solway is rapidly becoming a hotspot for Leatherback Turtle sightings. All Scottish **amphibian** species are also present, with particularly large numbers of Great Crested Newts and the most northerly Natterjack Toads in Europe.

The region's special **birds** include the 140,000 wildfowl and waders that winter on the Solway, especially the entire world population of Svalbard Barnacle Geese. Other notable species include virtually all of Scotland's Nightjars, a high density of nesting Barn Owls, many kinds of bird of prey and a small, but important, Black Grouse population.

Amongst the **mammals**, Red Squirrels and Otters are widespread, whilst the Red Deer of our forests are particularly large in comparison to those of the open hills of northern Scotland. All species of Scottish bat hunt in our night skies, including the rare Leisler's Bat.



Azure Hawker Dragonfly



Biodiversity: What's it ever done for us?



Bumblebee

The traditional approach to nature conservation has been that we need to conserve species and habitats because they are scarce or threatened and may become extinct in the future. Whilst the moral case for conservation remains - every species has as much right to exist as we do; it is becoming increasingly clear that biodiversity supports the very life systems upon which we depend. In other words, we need to conserve it for what it does, as much as for what it is.

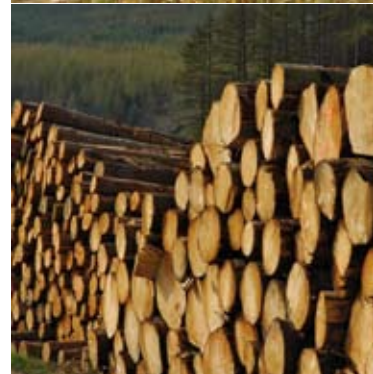


For example...

- Marine habitats around our coast are the nursery grounds for virtually all our commercially exploited fish.
- Sand & mud flats and saltmarshes provide the only protection from erosion along virtually the entire Dumfriesshire coastline. Shingle beaches and sand dunes fulfil a similar role in parts of Galloway.
- Without natural strandlines, all our sandy beaches are more liable to be washed away.
- Coastal footpaths are extremely popular with locals and tourists alike.
- Angling for Salmon and other fish in rivers and lochs and on the coast is a major economic and recreational resource.
- Reedbeds are increasingly being used to treat polluted water and sewerage.
- Most of Scotland's drinking water is filtered through upland bogs.
- Without healthy soil biodiversity it would be impossible to grow any of our food supplies.
- Virtually all of our trees and most of our crops would not survive without an association with a fungus.
- Upland woods, bogs and heaths, as well as floodplain marshes and wet woods, substantially reduce flood risk in our towns and villages.
- Native woodlands, trees and hedgerows are a principal component of all our most valued cultural landscapes.
- Most of our wildflowers and many of our crops are pollinated by wild bees and other insects.
- More than three and a half times the quantity of carbon is locked up in peat than in tropical rainforests. Release would threaten the very survival of the human race.



Waves



Summary of Priority Actions for Habitats

Improve knowledge of the biodiversity importance of subtidal rock habitats.
Assess the distribution and biodiversity importance of subtidal sand and gravel habitats in selected areas by collating and making available existing information.
Ensure that the biodiversity importance of subtidal and intertidal scar grounds is taken into account in decision-making by ensuring that they are included in all relevant coastal strategies.
Assess the distribution and biodiversity importance of intertidal sand and mud flats in selected areas by collating existing information and increasing its availability.
Increase knowledge of the biodiversity intertidal sand and mud flats by encouraging universities to carry out research in the Solway.
Assess changes in the extent and species composition of Seagrass beds.
Encourage identification and recording of Honeycomb Worm reefs through the production of public information.
Examine the current extent and future potential for the sustainable collection and co-ordinated local marketing of shellfish from intertidal rocky shores.
Raise awareness of the importance of coastal strandlines and the potential impacts that may result from physical damage/removal of strandlines.
Assess the importance for invertebrates of coastal shingle.
Encourage people to visit and enjoy coastal sandy beaches and their associated habitats and learn about their biodiversity and sustainable management.
Improve habitat quality of coastal sand dunes.
Demonstrate integrated management for farming, biodiversity, recreation, and cultural heritage on coastal slopes through establishment of a coastal heath/grassland restoration pilot project.
Encourage semi-natural habitats on the banks of river headwaters by fencing (and planting if necessary) along the banks to encourage regeneration of semi-natural habitats.
Assess the feasibility of restoring or reinstating a river backwater system, and encourage this where appropriate.
Raise awareness of the importance of small burns and ditches through publications, demonstration days & farm visits.
Raise awareness of the biodiversity of waterfalls, by producing a guide to the waterfalls of Dumfries & Galloway.
Identify areas of exposed river shingle with important invertebrate interest.
Maintain good ecological status of eutrophic lochs by implementing measures included in River Basin Management Plan as part of EU Water Framework Directive.
Maintain good ecological status of mesotrophic lochs by implementing measures included in River Basin Management Plan as part of EU Water Framework Directive.
Maintain good ecological status of oligotrophic lochs by implementing measures included in River Basin Management Plan as part of EU Water Framework Directive.
Create new reedbeds.
Identify areas where new floodplain grazing marsh could be created that will contribute to biodiversity enhancement and flood alleviation, taking into account current land-uses, landscapes & cultural heritage.
Determine the extent, distribution, composition and status of Purple Moor-grass and rush pastures.
Restore Purple Moor-grass and rush pastures.
Monitor the quality of springs and flushes in the uplands.
Examine the potential for the enhancement and restoration of fens on a catchment scale, as part of a mosaic of wetland habitats.
Investigate funding for restoration of Racks and Ironist Mosses as part of a Lochar Mosses complex.
Raise awareness of the damage caused by extraction and use of horticultural peat, concentrating on selected high-profile events such as National Bog Week.
Restore degraded blanket bogs through the blocking of moorland 'grips' and drains, especially on designated sites, or those adjacent to designated sites.
Designate calcareous grasslands as Local Wildlife Sites and provide management advice.
Restore lowland neutral grasslands.
Highlight the importance of lowland meadows to land managers and the public by including them in leaflets/panels and/or guided walks/talks.
Restore lowland dry acid grasslands.
Raise awareness of the importance of extensive areas of upland acid grassland, especially for birds, by including information on interpretation leaflets/panels and/or guided walks/talks.
Expand populations of rare and scarce species on inland rock outcrops.
Reduce grazing pressure on montane moss-heaths where this is considered necessary.
Restore an extensive area of upland heath for biodiversity.
Restore native wet woods on forested sites, giving priority to sites that connect wetland or woodland habitats of high biodiversity value.
Expand native wet woods.

Restore plantations on ancient Ash woodland sites.
Expand native Ash woods in areas currently of low biodiversity and archaeological importance, but that have the potential to link existing woods, especially ancient woods.
Restore plantations on ancient oak woodland sites.
Expand upland native oak woods in areas currently of low biodiversity and archaeological importance, but that have the potential to link existing woods, especially ancient woods.
Restore plantations on ancient birch woodland sites.
Expand upland native birch woods in areas currently of low biodiversity and archaeological importance.
Promote the value of scrub woodland for biodiversity.
Establish areas of montane scrub.
Establish a veteran tree project to recruit and train volunteers, in order to identify, survey and publicise veteran trees.
Raise awareness of the importance and management of veteran trees amongst countryside staff.
Identify conifer plantations that could be converted to broadleaves as part of a forest habitat network.
Expand areas of long-term retention within conifer plantations.
Identify suitable locations for new broadleaved plantations as part of a forest habitat network.
Raise awareness of forest managers of the importance of forest roads and rides for biodiversity, and how best to manage them.
Assess the distribution and ecological importance of forest ponds, by mapping their location and sample surveys.
Ensure that all grant-aided short-rotation coppice is not located on or adjacent to sites important for Local Priority Habitats or Species, where there is likely to be a significant detrimental impact on biodiversity.
Increase biodiversity around the perimeter of improved grassland fields by providing and publicising a range of sites to demonstrate best practice.
Provide advice for farmers and their advisors on improving arable fields for biodiversity, through training courses and establishment of a demonstration site.
Increase the quality of hedgerows, including hedgerow trees.
Carry out research into the biodiversity of dry stone dykes and their management.
Complete Sulwath Connections Wood Pasture project and extend this work throughout the region.
Create new farm woods and shelterbelts on land currently of low biodiversity and archaeological interest.
Improve the biodiversity management of existing farm woods and shelterbelts through provision of site-specific advice.
Create new pond landscapes in farmland areas known to support important pond species.
Provide training in the management of farm ponds.
Work with local communities to increase management & interpretation of biodiversity in public open spaces.
Complete a survey of all street trees in public ownership, including location, species, approximate age and condition.
Compile a database of traditional orchards, including any known historical and biodiversity information, to determine their extent, distribution, composition and status.
Encourage public gardens and garden centres to promote wildlife gardening by installing garden wildlife interpretation.
Promote a garden that demonstrates good practice for wildlife management.
Encourage schools to establish and maintain school wildlife areas and use these areas as part of the curriculum-based teaching programme.
Prepare or update environmental statements for golf courses.
Improve knowledge and training for golf course staff by holding a golf & biodiversity training day.
Raise awareness of biodiversity for visitors to holiday parks and caravan sites by organising wildlife interpretation and/or events.
Encourage greater public awareness of the value of walls and buildings for biodiversity by publishing a guide to the species and management.
Encourage greater awareness of biodiversity and environmental issues amongst users and managers of ports, harbours and marinas by providing wildlife information/interpretation.
Provide special management of roads and verges at sites known to be important for biodiversity through designation of new Conservation Verges.
Assess the biodiversity of the rail network by providing safety training to enable access for volunteer surveyors.
Assess bridges in need of remedial work to allow unimpeded passage of fish by compiling an inventory.
Install integral bird and/or bat boxes into bridges during any scheduled maintenance or upgrading work.
Encourage industrial businesses to manage their landholdings for biodiversity through preparation of a site Biodiversity Action Plan.
Ensure that any new restoration plans for quarries and mineral workings contribute to LBAP habitat objectives.
Incorporate biodiversity into Sustainable Urban Drainage Systems in new developments.
Increase the availability of biodiversity information relating to reservoirs, in order that it can be used in maintenance and management programmes.



Summary of Central Actions

Ensure that all objectives in the Dumfries & Galloway LBAP are consistent with international and national targets for biodiversity from the UN Convention on Biological Diversity, the UK Biodiversity Action Plan and the Scottish Biodiversity Strategy and Implementation Plans.
Secure funding to enable the Dumfries and Galloway Environmental Resources Centre to continue to provide a high quality data service to both providers and users of that data.
Collect and make available additional biodiversity records.
Survey and assess additional potential Local Wildlife Sites.
Develop a set of indicator species that can be used, in conjunction with documentary evidence, to identify local ancient habitats, in order that these habitats should be given special protection and high conservation priority.
Identify the non-native invasive species in Dumfries & Galloway that pose the greatest threat to biodiversity.
Raise awareness of the risks posed by non-native invasive species through production of a guide for the public.
Assess the feasibility and social, economic and environmental benefits of reintroducing key species to Dumfries & Galloway, in line with IUCN guidelines.
Encourage all interested parties work together to promote wildlife tourism through the establishment of a partnership of local businesses, tourism and biodiversity organisations to assist in the development of wildlife tourism.
Organise and promote an annual Wildlife Festival, in association with partner organisations, VisitScotland and tourism businesses.
Identify the extent and location of geodiversity resources in Dumfries & Galloway, including the selection of key regional sites for protection.
Raise awareness and promote understanding of geodiversity among identified audiences.
Incorporate biodiversity objectives into all other relevant plans and strategies within the lifetime of this plan.

For Further information on the Dumfries and Galloway LBAP contact:

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