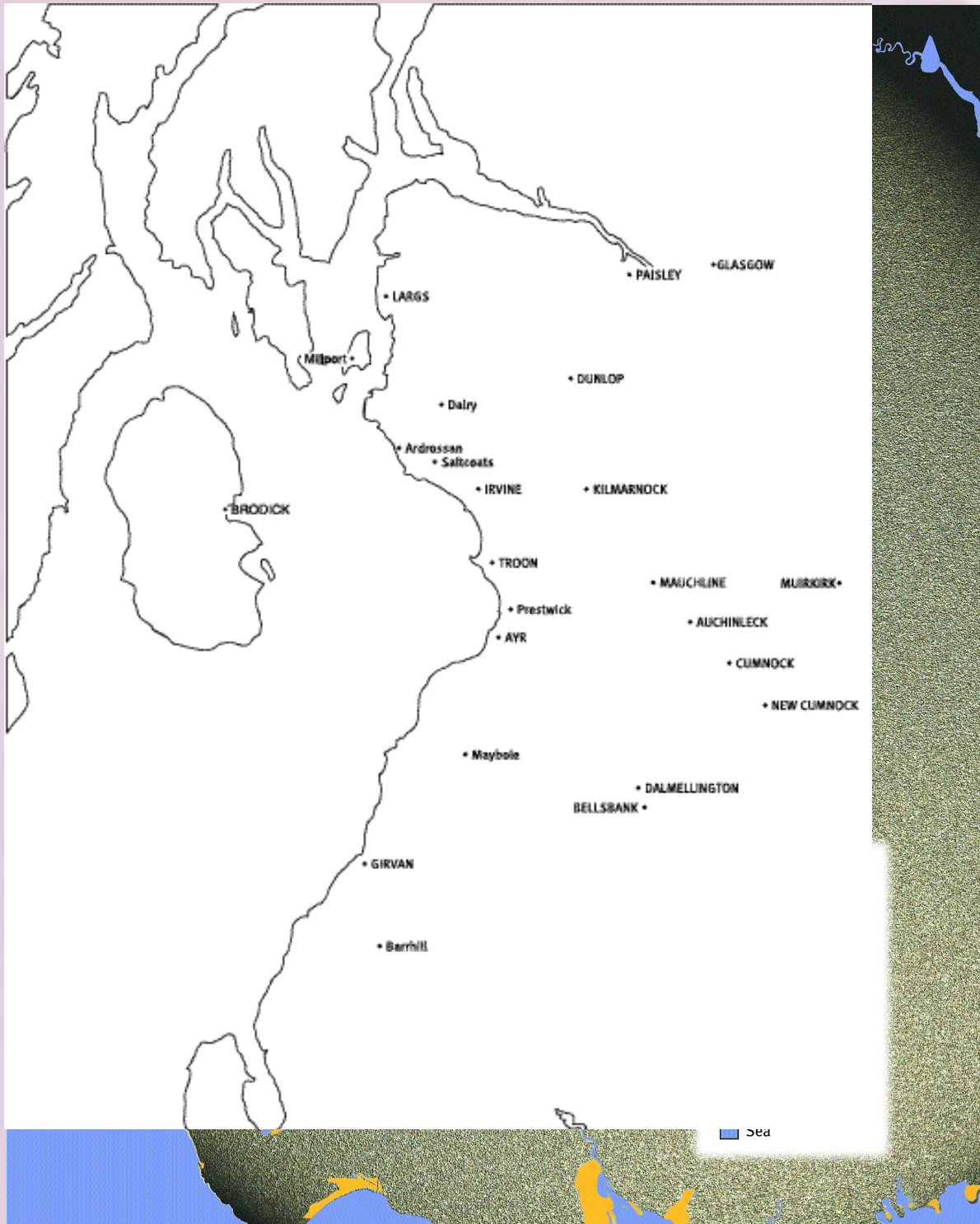


ACTIONS Urban Habitats	TO BE ACTIONED BY		YEAR (TO BE COMPLETED OR IN PLACE BY					
	lead	partners	2001	2002	2003	2004	2005	2010
Site Safeguard and Management								
Allow or facilitate the establishment of habitats, albeit temporary, on land awaiting development.	ALA EA	Bus.		•	•	•	•	•
Consider enhancing and creating habitats on public open space.	ALA	SWT	•	•	•	•	•	•
Encourage businesses, housebuilders and other private sector bodies to take positive measures to benefit biodiversity through the appropriate management and development of their open space.	ABG ALA	EA SWT RSPB		•	•	•	•	•
Encourage housebuilders to provide nesting sites for swifts, house martins or other species of conservation concern, within new properties.	ABG ALA	Dev.	•	•	•	•	•	•
Encourage the provision of nesting / roosting areas on new bridges and other structures e.g. bat boxes.	ABG ALA	Dev. Bus.	•	•	•	•	•	•
Promote sustainable drainage and sewerage treatment systems next to new developments e.g. buffer zones and reedbeds.	SEPA WosW	ALA Dev. Bus.	•	•	•	•	•	•
Promote the creation and study of nature areas in school grounds and other educational establishments.	ALA SNH AEEF EAW SWT	EA	•	•	•	•	•	•
Encourage individuals and local groups in the community to help establish and support local nature sites.	ALA SWT EAW	SNH SWT	•	•	•	•	•	•
Advisory								
Produce guidance for local authorities on biodiversity conservation and enhancement within urban areas.	ABG	ALA		•				
Produce guidance on biodiversity conservation within new housing and industrial developments.	ABG			•				
Organise training for relevant staff on biodiversity issues.	ALA and others	ABG SNH SWT EA	•	•	•	•	•	•
Promote wildlife gardening within local communities. Seek the support of local garden centres.	ABG BC	SNH SWT RSPB CMRP	•	•	•	•	•	•
Research and Monitoring								
Develop and maintain an up-to-date information base on habitats, species and green corridor networks within urban areas and ensure that the information is readily available to those concerned with urban land use and management.	ABRC SWT SNH ALA ABG	SOC	•	•	•	•	•	•
Monitor the implementation of this plan on a regular basis and review every 5 years.	ABG			•	•	•	•	•
Communications and Publicity								
Produce a newsletter focusing on urban biodiversity issues in Ayrshire.	ABG		•	•	•	•	•	•
Organise a series of talks, events and other activities on urban biodiversity for local groups and individuals.	SWT ALA AEEF SAC ABatG ABRG		•	•	•	•	•	•
Raise awareness of valuable urban habitats through the provision of interpretative materials.	ALA	SNH SWT	•	•	•	•	•	•
Organise a series of initiatives aimed at raising awareness of, and helping conserve, identified priority species for urban areas.	ABG		•	•	•	•	•	•
Introduce some form of accreditation scheme and appropriate publicity to promote examples of good biodiversity practice.	ABG			•				





Woodland

habitats

AYRSHIRE LOCAL BIODIVERSITY ACTION PLAN

Native woodland

Parkland and policy woodland

Planted coniferous woodland



Introduction

Ayrshire's landscape and ecology was historically dominated by broadleaved woodland, from west coast oakwoods, to mixed broadleaved woodlands associated with the

upland oak and birch woods and in the elevated areas of upper and the North Lowther Uplands.

Natural land cover has been dramatically affected by land management practices with the result that today less than 1% of the land supports native or semi-natural woodland. The remnants of ancient forest are amongst

as for biodiversity. Forest is a in Ayrshire. Over 20% of the land area is woodland compared to the Scottish average of 19%. 87% of this is conifer plantation.

The UK Biodiversity Group described two broad habitat types which account for the woodland habitats found in Ayrshire as follows:

Broadleaved, mixed, and yew woodland

This type includes all broadleaved and yew stands and mixed broadleaved and coniferous stands which have more than 20% of their cover made up of broadleaved and yew trees. It also includes scrub areas of more than 0.25 ha which form a relatively stable or managed habitat and areas of recently felled broadleaved woodland along with integral features of woodland such as glades and rides.

A range of forest or woodland types can be distinguished or described within this broad habitat type which are of importance in Ayrshire. These include Native Woodlands, Parkland and Policy Woodland and Scrub Woodland. More specific definitions are provided for each type within this woodland habitat plan.

Coniferous woodland

This type includes all coniferous stands where broadleaved trees make up less than 20% cover with the exception of yew woodlands. Areas of recently felled coniferous woodland are also included in this type, along with other integral features of woodland such as glades and rides.

Within Ayrshire, conifer plantations composed of species which are not native to the area is the only habitat which is considered in detail. There are no native pinewoods in Ayrshire.

Woodland

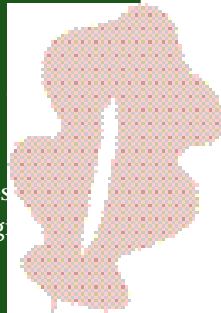
AYRSHIRE LOCAL BIODIVERSITY ACTION PLAN

Native Woodland

This habitat plan describes actions needed in Ayrshire to deliver the conservation and recovery of native woodlands. This plan addresses all broad-leaved woodlands within the region in a comprehensive way, whilst recognising the individual components and habitat types which contribute to this resource.

Definition

Native woodlands are largely made up of tree and species that are the descendants of the original natural forest that colonised the country after the end of the last Ice Age. The total resource includes native woodlands of both natural and planted origin. The term semi-natural is often used to describe natural origin woods since their character and composition have to a greater or lesser extent been modified by human activities.



The following specific native woodland habitats are further defined:

Upland Oak/Birch woodland

Occurring on reasonably free draining acid soils on west coast and upland sites. They are characterised by a predominance of sessile oak or downy birch. Locally pedunculate oak and silver birch can form important components. Rowan, hazel and holly are the main understorey species but on more fertile/flushed areas aspen, ash, alder, goat willow, gale, bird cherry, hawthorn and blackthorn can be present. Birch woodland becomes the dominant type at higher elevations.

Mixed Ash Wood

This is the dominant woodland type on base-rich soils. Ash and wych elm dominate the canopy but mosaics arising from variations in base status are a feature of this habitat. It is often found on steep gorge or valley slopes and grades into wetter types nearer to watercourses. The ground flora is diverse but is typified by such species as dog's mercury (*Mercurialis perennis*), sweet woodruff (*Galium odoratum*) and enchanter's nightshade (*Cicuta lutetiana*).

Wet Woodland

This habitat is associated with poorly drained or seasonally inundated soils on floodplains and flushed areas. It can also be a succession habitat on fens and mires. Alder, willows and downy birch are the predominant tree species but diversity increases where the water table drops. Mosaics with other woodland types or fens are typical. They can occur on relatively rich soils as well as impoverished ones.

Scrub Woodland

This can take a variety of forms, from the early successional stage of high canopy woodland types to more mature communities of bushes and trees maintained in an attenuated state by grazing or other pressures. It commonly consists of more or less mature hawthorn, blackthorn, elder and gorse scattered in clumps among open grassland. On old railway embankments birch and goat willow are common. In coastal areas, wind-pruned trees such as wych elm and non-native sycamore may also occur as part of the closed canopy scrub community.



Key Sites

	NATIVE WOODLAND TYPE				
	Oak/Birch		Mixed Ash	Wet	Scrub
Ayr Gorge SSSI	•		•	•	
Corsehillmuir Plantation	•				
Shewalton Moss Woods	•				
Sourlie Wood	•				
KirkPlantation	•				
Martnaham Loch Woods	•			•	
Cessnock Water Woods	•		•		
Penwhapple Burn	•				
Currarie Glen	•				
The Glen, Hunterston	•		•		
KellyGlen, Skelmorlie, Wildlife Site	•				
Arran N. Mountains SSSI			•*		
Benlister Glen SSSI			•		
Craig Wood SSSI			•		
Dundonald Wood SSSI			•		
Ness Glen SSSI			•		
Skelmorlie Glen SSSI			•		
Glen Tig			•		
River Doon (Dalrymple - Smithston)	•		•		
Water of Coyle and Broad Wood	•		•		
Lugar Water (Millerston - Barturk)	•		•		
Cleugh Glen, Sorn			•		
Brisbane Glen			•		
Whitehill High Woods				•	
Maidens - Doonfoot SSSI					•

* Unique gorge woodlands containing endemic whitebeam species (see Key Species, below)

Key Species

Mammals

Badger (<i>Meles meles</i>)			•		
Red squirrel (<i>Sciurus vulgaris</i>)	•		•		
Banded/Brown Pipistrelle bat (<i>Pipistrellus pipistrellus/P. pygmaeus</i>)	•		•	•	•
Brown long-eared bat (<i>Plecotus auritus</i>)	•		•		
Whiskered bat (<i>Myotis mystacinus</i>)	•		•	•	•
Noctule bat (<i>Nyctalus noctula</i>)	•		•		
Birds					
Bullfinch (<i>Pyrrhula pyrrhula</i>)	•		•	•	
Coaltit (<i>Parus ater</i>)	•		•		
Grasshopper warbler (<i>Locustella naevia</i>)					•
Great spotted woodpecker (<i>Dendrocopos major</i>)	•		•		
Green woodpecker (<i>Picus viridis</i>)	•				
Lesser whitethroat (<i>Sylvia curruca</i>)					•
Pied flycatcher (<i>Ficedula hypoleuca</i>)	•		•		
Redstart (<i>Phoenicurus phoenicurus</i>)	•		•		
Siskin (<i>Carduelis spinus</i>)	•				

Sparrowhawk (<i>Accipiter nisus</i>)	•		•				•
Spotted flycatcher (<i>Muscicapa striata</i>)	•						
Tawny owl (<i>Strix aluco</i>)	•		•				
NATIVE WOODLAND TYPE							
	Oak/Birch		Mixed Ash		Wet		Scrub
Tree pipit (<i>Anthus trivialis</i>)	•		•				
Tree sparrow (<i>Passer montanus</i>)			•				
Whitethroat (<i>Sylvia communis</i>)							•
Wood warbler (<i>Phylloscopus sibilatrix</i>)	•						•
Butterflies							
Pearl bordered fritillary (<i>Boloria euphrosyne</i>)	•						
Flies and Beetles							
a beetle (<i>Scaphosoma boleti</i>)			•				
a cranefly (<i>Molophilus pusillus</i>)					•		
a hemipteran (<i>Centrotus cornutus</i>)			•				
Common cockchafer (<i>Melolontha melolontha</i>)	•						
a longhorn beetle (<i>Pogonochaerus hispidulus</i>)	•						
a rove beetle (<i>Xylostiba monilicornis</i>)			•				
Other Invertebrates							
Orb web spider (<i>Araneus gibbosus</i>)			•				
Pill millipede (<i>Glomeris marginata</i>)			•				
Fungi (<i>Mycena polyadelpha</i>)	•						
Vascular Plants							
Hard fern (<i>Blechnum spicant</i>)	•						
Bottle sedge (<i>Carex rostrata</i>)					•		
Alternate leaved golden saxifrage (<i>Chrysosplenium alternifolium</i>)			•				
Broad buckler fern (<i>Dryopteris dilatata</i>)	•						
Wilson's filmy fern (<i>Hymenophyllum wilsonii</i>)			•				
Juniper (<i>Juniperis communis</i>)	•						
Toothwort (<i>Lathraea squamaria</i>)			•				
Early purple orchid (<i>Orchis mascula</i>)	•						
Herb Paris (<i>Paris quadrifolia</i>)			•				
Aspen (<i>Populus tremula</i>)			•				
Meadow saxifrage (<i>Saxifraga granulata</i>)		•					
Arran whitebeams (<i>Sorbus pseudofennica</i> & <i>S. arranensis</i>)		•					

Habitat Objectives

Main Objective

Maintain and enhance the quality of native woodland habitat in Ayrshire.

Work Objectives

Objective 1

Establish a definitive baseline for the extent and quality of native woodland habitats in Ayrshire.

Target

Undertake a comprehensive survey of all remnant woodland down to 0.25 ha in size in line with the national inventory criteria by 2002.

Objective 2

Seek to expand the area of the habitat within Ayrshire by 25%.

Target

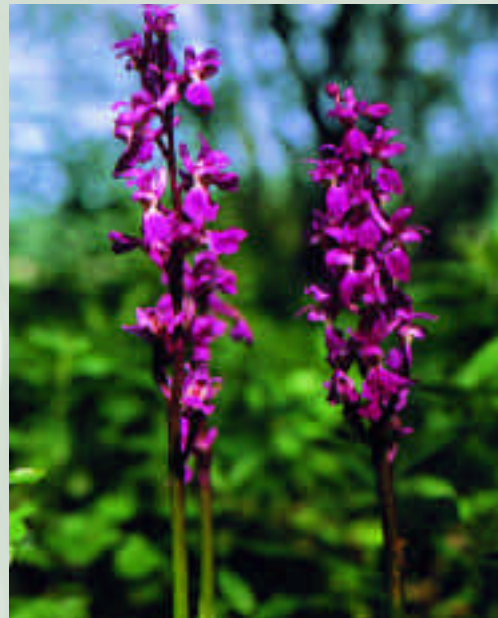
Increase the area of native woodland whilst maintaining genetic integrity from the core resource by 25% within the period of this plan.

Objective 3

Enhance the quality of this habitat within Ayrshire.

Target

Prepare management plans to guide the restoration of all degraded upland oak and birch woodland within Ayrshire within the period of this plan (2005) and restore all examples of the habitat with more than 50% species characteristic of the habitat within two plan periods (2010).



Current Status

Forestry Commission Technical Paper 17 "The Native Woodland Resource in the Scottish Lowlands" - MacKenzie, N.A. and Callander, R.F. (1996) has been used as the most comprehensive reference available for the extent, distribution composition and condition of native woodlands in Ayrshire. Whilst this has been reviewed in Technical Paper 30, no new survey information had been collected for Ayrshire. It is generally accepted that since the minimum mapped woodland area was 2 ha, the extent of the resource will be underestimated. Surveys have generally attempted to distinguish between plantation and semi-natural origin, but no comprehensive information is available to differentiate the different types of native woodland.

	Land Area ha	Woodland Area ha	% age of Land Area	Total Native Species ha	Total Semi-Natural ha
Ayrshire	342 200	72 560	21.2	4 331	2 720
Scotland	7 321 500	1 376 313	18.8	320 938	152 194
Great Britain	22 441 829	2 542 772	11.3	797 425	628 681

Upland Oak/Birch woodland

Ayrshire has few large examples of upland oak and birch woodlands. There are a number of significant areas of 5-10 ha extent but most are <2 ha. Most are found in the southern part of Ayrshire.

This type is probably the best represented within Ayrshire. There are few large areas but a significant proportion of woodland SSSI's are of this type. Their inaccessibility largely accounts for their survival.

Wet Woods

Alder and willow carr is a limited resource within Ayrshire. Most commonly associated with large waterbodies.

Scrub Woodland

There are only a few examples of note since scrub gorse and thorns will be considered within other habitat action plans (Farmland and coastal). Remnant railway line routes within the Ayr, Doon and Irvine river valleys which have not been fully incorporated into agricultural grazing units give rise to linear examples.

Nature Conservation Importance

Native woodlands are generally considered to be amongst our richest habitats, supporting a diverse range of vascular plants, invertebrates, birds and mammals. Some 17 distinct NVC woodland communities and many more sub-communities have been identified in the UK. Ten of these NVC communities could be expected to be found in Ayrshire to some extent but the most commonly found are the upland types.

Upland Oak/Birch

Whilst related woodland does occur in continental Europe, the British and Irish examples are recognised as internationally important because of their extent and distinctive plant and animal communities. Upland woodlands of this type, and particularly the western examples are particularly important habitats for ferns, mosses, liverworts, lichens and fungi. The open areas within the woods particularly those containing mires and heath are as important as the tree covered area and often contribute more to the total species list for this habitat. These woods support a vast range of insects, many of which specifically favour this habitat and these in turn support the bird and mammal populations.

Mixed Ash Woodland

These are amongst the richest habitats for wildlife in the uplands. They contain a diverse range of vascular plants. Remnants are often virtually unaffected by human activity due to their inaccessibility. Older ash and elm trees support specialised lichen communities on their bark. More



accessible areas often exhibit evidence of coppice management. Rare *Sorbus spp.* and less common trees such as aspen are associated with the range of sub-communities within this habitat type.

Wet Woodlands

Seven distinct NVC habitats are encompassed within this type. A large proportion of wet woodlands are relatively new, as opposed to ancient since they can be part of the succession to drier types and have arisen following cessation of particular management practices on fens. Alder woodlands can be ancient since coppice management arrests the succession. The high humidity favours bryophytes and specialised invertebrates. They also provide important breeding sites for otters.

Scrub Woodland

A very important habitat for small birds such as warblers, tits and finches. Ground vegetation is usually characteristic of grassland or disturbed ground rather than woodlands.

Biodiversity Context

Upland oak wood, upland mixed ashwoods and wet woodlands are priority habitats within the broad habitat classification 'Broadleaved, mixed and yew woodland'. The national habitat action plans identify the following objectives:

Upland Mixed Oakwoods

- Maintain and enhance the quality of existing remnant upland oakwood;
- Promote a 10% expansion of the existing resource by encouraging natural regeneration on currently open ground by 2005;
- Identify and encourage restoration of a similar area (approx. 10%) of former oak woodland that has been degraded by conifer planting or rhododendron invasion.

Upland Mixed Ashwoods

- Maintain the current extent and distribution of upland mixed ashwood;
- Initiate restoration to upland mixed ashwood cover of at least 2,400 ha;
- Initiate colonisation or planting of 6,000 ha of upland mixed ashwood on unwooded or ex-plantation sites.

Wet Woodlands

- Maintain current area of ancient semi-natural wet woodlands and total area of this type;
- Initiate restoration of 3,200 ha to native wet woodland;

- Initiate colonisation and/or planting of 6,750 ha of wet woodland on unwooded or ex-plantation sites.

No specific action plan or targets have been proposed for upland birchwood or scrub woodland at this time.

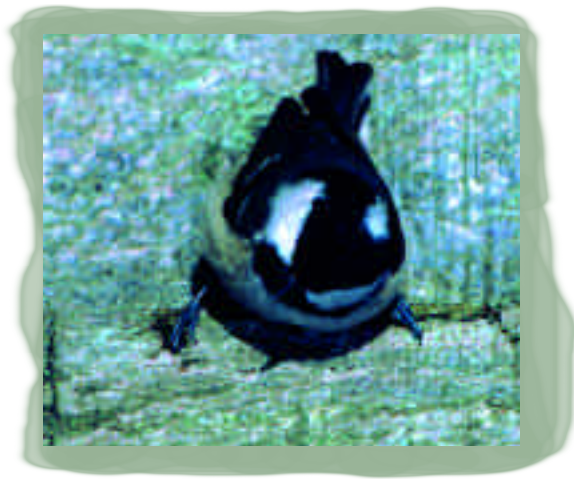
Current factors affecting the habitat

Upland semi-natural woodlands have declined by about 30-40% in area over the last 60 years or so by the planting of these woods with conifers and conversion to grassland. Even prior to this, oakwood declined specifically as a result of targeting of oak trees for timber and bark which were valued in the production of charcoal for smelting iron and for the tanning of leather.

Currently, a variety of factors are impacting on this resource within Ayrshire:

Upland Oak/Birch Woods

- Overgrazing by livestock (particularly sheep) and deer (roe deer in particular) within woodlands is preventing regeneration;
- Invasion of introduced species, notably *rhododendron spp.*, which cast too much shade to allow natural regeneration to occur;
- Development pressure such as new roads and open cast mining for coal. These may actually remove woodland as part of the operational activity or change groundwater conditions to such an extent that the habitat changes;
- People pressure. Where woodlands are close to centres of population there is often activity which impacts on the habitat, fly tipping, uncontrolled felling, fire raising etc;
- Abandonment of economic activity. The cessation of deep



mining within the Ayrshire coalfield has left a legacy of bings and mineral railway lines. These are increasingly being colonised by birch and other pioneer tree species creating new semi-natural birch woodland habitats.

Upland Mixed Ashwoods

- Overgrazing by livestock (particularly sheep) and deer (roe deer in particular) within woodlands is preventing regeneration;
- Invasion of introduced species, notably sycamore, beech and others;
- Dutch elm disease has changed the structure and composition of many woods since the 1970's and is still spreading to previously unaffected woods.

Wet Woodlands

- Lowering of water-tables through drainage or water abstraction, resulting in succession to drier woodland types;
- Overgrazing and poaching by livestock (particularly cattle) and deer within woodlands is preventing regeneration;
- Flood prevention and river control measures, leading to a loss of dynamic disturbance-succession systems.

Opportunities and Current Action

In 1985 the emphasis of national forestry policies changed. In particular, there is currently a presumption against clearance of broadleaved woodland for conversion to other land uses and an incentive to conserve native woodlands for nature conservation and public enjoyment. Management of ancient woodland sites and semi-natural woodland areas, including upland oak and birch woods, must be in line with the guidelines published by the Forestry Commission.

A range of grants has been developed within the Woodland Grant Scheme to encourage private landowners and public authorities to be more positive in their management

approaches to woodland within their control. Agricultural grant support from the European Community is increasingly being targeted at environmental aspects of land management eg.



reduced stocking densities, short/long-term removal of land from agricultural production, controlled grazing practices etc.

Forest Practice Guides issued to native woodland owners and managers by the Forestry Commission recognise biodiversity as a primary objective in Management Plans.

In April 2001, Clyde Muirshiel Regional Park started a Juniper propagation programme in conjunction with a local volunteer group.



Tourism in rural areas is becoming an increasingly significant constituent of local economies. Upland oak and birch woodlands contribute significantly to the landscape character of parts of Ayrshire and are an attraction to tourists with an interest in the environment. Ayrshire local authorities and economic development agencies are seeking to expand tourism away from the traditional coastal resorts.

Open cast coal mining is a major land use in the southeastern part of Ayrshire. Mining companies are increasingly considering alternatives to traditional restoration practices relating to an agricultural after-use. Woodland creation is becoming a much more attractive alternative as pressure to reduce agricultural production increases.

Funding Sources

Under the Woodland Grant Scheme funding is available to assist with the establishment of new native woodlands and the regeneration of existing remnants.

Farm Woodland Premium Scheme payments can be made to farmers to compensate for the loss of grazing revenue directly attributable to the management or creation of woodlands. This is applied for through the WGS but is funded through the Scottish Executive's Rural Affairs Department.

Scottish Natural Heritage can partly fund both Research & Monitoring work related to woodland habitats, and in particular cases site works which safeguard or enhance the biodiversity of woodlands.

European Regional Development funds have, in the past, been made available to works relating to woodlands. The Caledonian Partnership secured funds through the LIFE programme to compile the Scottish Woodland Inventory. Objective 2 funds have been used to safeguard native woodlands in priority economic regeneration areas.

The Millennium Forest for Scotland Trust secured lottery funding through the Millennium Commission for native woodland projects. East Ayrshire Woodlands and The National Trust for Scotland were successful in accessing funds for Ayrshire. Potential exists through the Heritage Lottery fund to attempt to secure site specific funds.

The New Opportunities Fund has created the 'Green Spaces and Sustainable Communities' initiative. This aims to help urban and rural communities understand, improve or care for their natural and living environment, with a particular focus on disadvantage.

ACTIONS Native Woodland	TO BE ACTIONED BY		YEAR (TO BE COMPLETED OR IN PLACE BY)					
	lead	partners	2001	2002	2003	2004	2005	2010
Policy and legislation								
Ensure that the Indicative Forest Strategy for Ayrshire highlights the importance of native woodland.	AJSP	ALA		•				
Within the planning context, ensure that full consideration is given to the value of the habitat when considering proposed developments which threaten loss or damage to the habitat. Where development is liable to proceed, endeavour to minimise any adverse effects through the use of planning condition and agreements.	FC ALA RSPB	SNH SWT	•	•	•	•	•	•
Site Safeguard management								
Seek opportunities for a 25% expansion of Ayrshire's native woodland resource during the period of this plan. Highest priority to be given to existing degraded sites and areas adjacent to remnant woodlands.	PWO	FC FWAG NWI RSPB					•	
Remove non-native species which threaten the survival and integrity of native woodland sites. eg Rhododendron, beech, conifers, sycamore etc.	FE	PWO SWT RSPB						•
Promote natural regeneration as the preferred method of re-establishing native woodlands and promote local seed collection for native trees to facilitate planting of local provenance stock where natural regeneration is not feasible.	FC	SNH CTN	•	•	•	•	•	•
Advisory								
Assess the roles of existing sources of advice and information on native woodland management and develop a co-ordinated approach within Ayrshire.	FC	NWI FWAG RSPB		•				
Research and Monitoring								
Survey the native woodland resource of Ayrshire down to 0.25 ha using accepted methods. Include an assessment of the landowner's attitude toward their native woodlands.	FC	ABRC NWI SWT			•			
Research the extent of use of native timber from within Ayrshire. Assess the potential for developing locally based enterprises utilising the resource.	EA	FC		•				
Monitor the delivery of this plan against annual targets and carry out a comprehensive review after 5 years.	ABG	FC					•	
Communications and Publicity								
Actively promote biodiversity in native woodlands at Agricultural Shows and through the Forestry Education Initiative within Schools.	AEEF	FWAG NWI	•	•	•	•	•	•
Develop demonstration woodlands to be utilised in the illustration of management practices and impacts to landowners, forestry practitioners and the general public.	FC	PWO NWI FWAG SWT			•			
Demonstrations of sustainably managed woodland through green woodworking.	CMRP				•			

Key to partners - page 5

Parkland and Policy Woodland

This habitat plan describes actions needed in Ayrshire to conserve and enhance the parkland and policy woodland resource. The historic and landscape value of this woodland type is of great importance alongside its biodiversity interest.

Definition

This category includes those woodlands of a predominantly broadleaved nature which are of plantation origin, and whose setting, design and composition therefore reflect human management. In Ayrshire, such woodlands are typically a component of former or existing estates and policies, and form the basis of historic designed landscapes associated with manor houses. These typically date back to two or three hundred years ago, at which time the original woodlands were planted to provide a pleasing landscape setting for the principal residence. Remnants of such designed landscapes - more or less modified from their original design and composition - are common and widespread throughout Ayrshire, but may be threatened by adverse development or neglect.

The trees planted usually consist of a mix of broadleaved and coniferous species, and generally comprise a high proportion of native species such as beech, sycamore and sometimes other exotic species. The planted woodland may merge with semi-natural woodland in places, particularly along watercourses. In many cases the original planted woodland has been removed or replaced with more recent conifer plantation. Such changes may alter the shape and landscape character of the woodland.

Although parkland and policy woodlands may have relatively little semi-natural character in strict terms of species composition, the areas of mature, especially broad-leaved trees have a diversity of species and structure that enables them to support a variety of interesting flora and fauna.

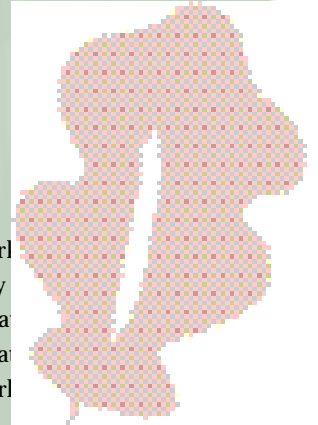
Current Status

A total of 97 historic designed landscapes have been identified within Ayrshire, virtually all of which contain a woodland element. Of these, fourteen sites have been included in "An Inventory of Gardens and Designed Landscapes in Scotland, Volume 2", which provides detail on the woodland design and species composition.

The majority of such woods are under private ownership. Some good examples are important as areas for countryside recreation, having been opened to the public by the owners, be they private individuals, charitable bodies (the National Trust for Scotland) or local authorities.

Key Sites

- Auchincruive Estate
- Auchinleck Estate
- Bargany Estate
- Belleisle Estate
- Blairquhan Estate
- Brodick Country Park National Trust for Scotland
- Cambusdoon
- Caprington Estate
- Castlehill Woods
- Cleugh Glen
- Coodham Estate
- Craufurdland Estate
- Culzean Country Park
- Dean Castle Country Park
- Dumfries House Estate
- Glen App Castle Estate
- Kelburn Country Park
- Kilkerran Estate
- Lanfine Estate
- Loudoun Castle Estate
- River Doon (Nether Auchendrane to Doonside)
- Rozelle Estate



Key Species

Mammals

- Badger (*Meles meles*)
- Red squirrel (*Sciurus vulgaris*)
- Noctule bat (*Nyctalus noctula*)
- Pipistrelle bat (*Pipistrellus pipistrellus*)
- Brown long-eared bat (*Plecotus auritus*)
- Whiskered bat (*Myotis mystacinus*)

Birds

- Bullfinch (*Pyrrhula pyrrhula*)
- Great spotted woodpecker (*Dendrocopos major*)
- Great tit (*Parus major*)
- Green woodpecker (*Picus viridis*)
- Nightjar (*Caprimulgus europaeus*)
- Pied flycatcher (*Ficedula hypoleuca*)
- Redstart (*Phoenicurus phoenicurus*)
- Sparrowhawk (*Accipiter nisus*)
- Spotted flycatcher (*Muscicapa striata*)
- Tawny owl (*Strix aluco*)

Higher Plants

- Broad-leaved helleborine (*Epipactis helleborine*)
- Bird's nest orchid (*Neottia nidus-avis*)
- Common wintergreen (*Pyrola minor*)

Habitat Objectives

Main Objective

Maintain and enhance the quality of the habitat within Ayrshire.

Target

Prepare management plans to guide the restoration and maintenance of the biodiversity and landscape attributes of those sites identified under objective 1 that are considered under threat, by 2005.

Work Objectives

Objective 1

Identify the extent and distribution of parkland and policy woodland in Ayrshire.

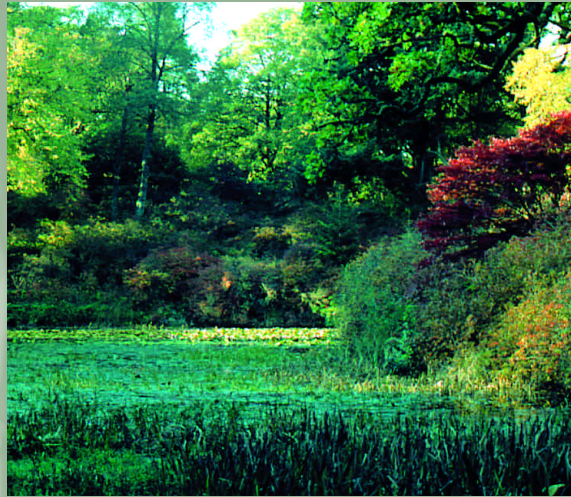
Target

Undertake a survey of woodlands within all identified historic designed landscapes not listed in "An Inventory of Gardens and Designed Landscapes in Scotland" by 2002.



Context within the UK Biodiversity Action Plan

A national action plan has been published for lowland wood-pasture and parkland and those landscapes in Ayrshire which were created in the 19th century or earlier and contain older trees from an earlier landscape could be considered to be included. The objectives set cover habitat conservation, restoration and expansion. Key sites to be secured in a favourable condition and targeting areas to restore management or expand the habitat.



Nature conservation importance

Parkland and policy woodlands often resemble or even rival native woodlands in the quality and richness of their habitat. This is especially so where native or near-native (e.g. pedunculate oak) species are important in the species composition. A similar range of wildlife, particularly vertebrates, can be supported, although the floristic interest is rarely so well developed.

Where they form part of a recognisable designed landscape, these woodlands represent a very important historical and landscape resource, whose integrity must be considered in conjunction with the sites biodiversity.



Current factors affecting the habitat

The factors now affecting this habitat are broadly similar to those affecting the native woodland types discussed earlier. Inevitably, introduced species are intrinsic to these sites and perhaps therefore of minor concern, although the spread of certain species such as rhododendron may be of concern where the ground flora is of value.

Neglect is likely to be the greatest threat. Many of the woodlands consist solely of mature trees and a lack of regeneration or replanting may result in their long term decline. Overgrazing may be a contributory factor where the woodland is not fenced off from surrounding pasture.

Development is a very significant threat. Many of the estates in which these woodlands occur are of marginal viability, particularly where there is an associated historic building to maintain, at considerable cost. Enabling development, whether for residential housing or tourism, can encroach upon and remove areas of woodland as well as compromising the intrinsic landscape quality.



management. With the emphasis of Ayrshire tourism shifting away from the coast, such sites are likely to increase in importance.

Efforts to enhance or maintain these woodlands through replacement planting will need to take their landscape importance into consideration, such that replanting with similar non-native species as are already present may often be more appropriate than wholesale replacement with native species.

Funding Sources

Under the Woodland Grant Scheme funding is available to assist with the regeneration of existing remnant woodlands.

Farm Woodland Premium Scheme payments can be made to farmers to compensate for the loss of grazing revenue directly attributable to the management or creation of woodlands. This is applied for through the WGS but is funded through the Scottish Executive Rural Affairs Department.

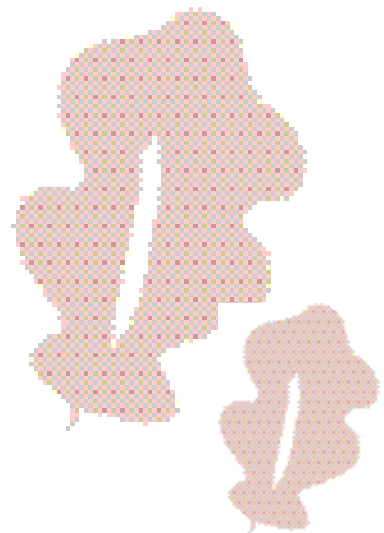
Scottish Natural Heritage can fund research and monitoring work related to woodland habitats. In the case of parkland and policy woodlands, SNH will seek to incorporate the landscape value of the woodland and may be able to fund small tree planting proposals which maintain or enhance the historic attributes of the site and which do not qualify for assistance under the WGS.

Funding through the Heritage Lottery Fund could be attracted, particularly where public access is freely available and the parkland is demonstrably recognisable as a high quality example of landscape design.

Opportunities and Current Action

As with other woodland types, the positive management of these woodlands is encouraged through Forestry Commission guidelines and the Woodland Grant Scheme.

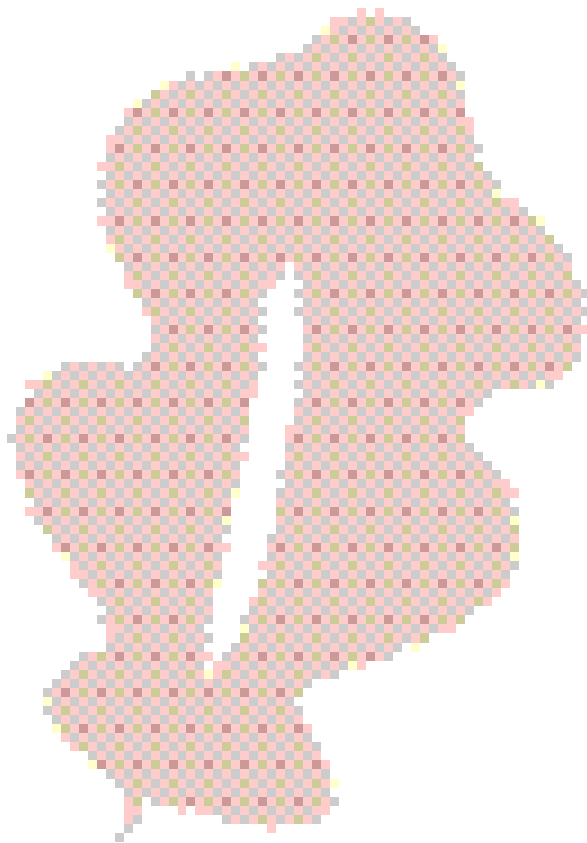
Many of the historic designed landscapes have been identified and described in detail through the cooperation of a number of bodies, including The Garden History Society, Scottish Natural Heritage and local authorities. In some cases, this has led to the production of individual site management plans, in which provision for the conservation and enhancement of the woodland feature is included.



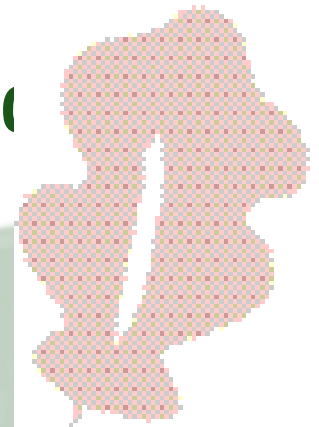
A number of such sites are currently managed as Country Parks, where the value of the woodland as a recreational, aesthetic and wildlife resource forms the basis for its positive

ACTIONS Parkland and Policy Woodland	TO BE ACTIONED BY		YEAR (TO BE COMPLETED OR IN PLACE BY)					
	lead	partners	2001	2002	2003	2004	2005	2010
Policy and legislation								
Seek where appropriate, to encourage the addition of further sites with parkland and policy woodlands to "An Inventory of Gardens and Designed Landscapes in Scotland", thereby strengthening their protection in Development plans.	GHS	SNH ALA					•	
Site Safeguard management								
Ensure that management plans are prepared for all such woodland sites identified as being under threat from damage or neglect.	GHS	SNH FC ALA SWT					•	
Advisory								
Seek to integrate historical, landscape and ecological understanding in the management of these woodlands.	GHS	SNH FWAG FC	•	•	•	•	•	•
Research and Monitoring								
Survey the nature and condition of parkland and policy woodlands in Ayrshire within identified historic designed landscapes. Include an assessment of the landowners attitude towards their management of the woodland or estate.	GHS	SNH		•				
Communications and Publicity								
Encourage the further development of woodlands within historical landscapes as a recreational and educational resource.	AEEF ATB		•	•	•	•	•	•

Key to partners - page 5



Planted Coniferous Woodland



This plan describes the action needed to optimise the delivery of biodiversity objectives within planted coniferous woodland. Whilst far from being natural habitats in themselves, plantations are an extensive landuse and normally incorporate a range of semi-natural habitats within their boundaries. The management of the whole forest area, and not simply the timber crop, is considered central to modern forestry standards.

Definition

These are extensive woodland areas, normally on upland, acidic sites. Most have been established within the last 40 - 50 years. Over 80% of the trees are coniferous and Sitka Spruce is by far the most commonly planted. They tend to be fairly uniform in age and cultivation in the form of ploughing is usually evident. The areas of highest conservation value within the forest are the open spaces associated with watercourses, peat bogs and where bedrock is close to the surface.

Current Status

There are 64 400 ha of planted coniferous woodland in Ayrshire, which is approximately 89% of all woodland in Ayrshire. This is approximately 19.8% of the land area of Ayrshire. Roughly 55% is managed by Forest Enterprise on behalf of the State, the remainder is privately owned and managed. Timber production from these plantations is estimated to triple over the next 10-15 years and this affords an excellent opportunity to diversify and redesign the plantations for the next rotation.

Key Sites

- Whitelees Forest
- Carrick Forest
- Carsphairn Forest
- Dungavel
- Troon South Wood Wildlife Site

Key Species

Mammals

- Badger (*Meles meles*)
- Red squirrel (*Sciurus vulgaris*)

Birds

- Black Grouse (*Tetrao tetrix*)
- Crossbill (*Loxia curvirostra*)
- Goshawk (*Accipiter gentilis*)
- Long-eared Owl (*Asio otus*)
- Merlin (*Falco columbarius*)
- Nightjar (*Caprimulgus europaeus*)
- Short-eared Owl (*Asio flammeus*)
- Sparrowhawk (*Accipiter nisus*)

Higher Plants

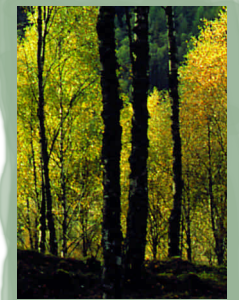
- Broad-leaved helleborine (*Epipactis helleborine*)
- Bird's nest orchid (*Neottia nidus-avis*)
- Common wintergreen (*Pyrola minor*)

Invertebrates

- Scottish wood ant (*Formica aquilonia*)

Higher Plants

- Creeping Lady's Tresses (*Goodyera repens*)
- Common wintergreen (*Pyrola minor*)



Location	Woodland Categories (ha)					
	Broadleaf	Conifer	Felled/Prepared	Mixed/Shrubs	Young Trees	Total
North Ayrshire (Mainland)	290	325	180	930	605	2 330
Arran	600	6 355	1 295	525	1 805	10 580
Great Cumbrae	15	20	0	45	5	85
East Ayrshire	935	14 365	1 990	1 335	6 960	25 885
South Ayrshire	1 570	14 770	6 115	1 915	9 610	33 980
Total	3 410	35 835	9 580	4 750	18 985	72 560

Habitat Objectives

Main Objective

Maintain and enhance the habitat diversity of coniferous woodland in Ayrshire.

Target

Incorporate objectives and prescriptions for increasing habitat diversity in all new forest design plans and all those under review by 2002.

Work Objectives

Objective 1

Increase the tree species diversity of coniferous woodlands.

Target

Incorporate objectives and prescriptions for increasing tree species variation in all new forest design plans and all those under review by 2002.

Objective 2

Increase the diversity of the forest structure by retaining stands to biological maturity, introducing age class diversity, and establishing areas of long term forest structure managed by continuous cover systems where possible.

Target

Incorporate objectives and prescriptions for increasing diversity of forest structure in all new forest design plans and all those under review by 2002.

Objective 3

Identify habitats and species which are of importance within and around coniferous woodlands, develop action plans for these and ensure these actions are taken into account in forest planning at all levels.

Targets

Undertake an audit of the biodiversity of at least 50% of the coniferous woodlands in Ayrshire by 2005.

Incorporate prescriptions for important habitats and species identified by this audit in all forest design plans by 2006.



Nature Conservation Importance

The existing and the potential importance of large UK plantations is often underestimated and should not be overlooked. This recognition has prompted many second rotation forests to be planned to take account of nature conservation needs through creating internal forest diversity in tree and stand age. Woodland rides and glades can be important for vascular plants, and invertebrates. Old stands with dead and dying trees, understorey vegetation and open canopies are also important for a variety of species. In some instances, it may be possible to recreate former habitats to some extent, although this is heavily dependent on productive ground being available elsewhere. There is also increasing evidence of the adaptation of important species to new forest habitats, for example barn owl, short-eared owl, goshawk and merlin using forest edge nest sites. Conifer forest also provides some unique habitats for important and threatened species such as nightjar and red squirrel, in addition to a range of woodland birds and special habitats for lichens, mosses, ferns and fungi.



Many planted forests have displaced other habitats which had significant biodiversity value as open ground, such as raised bogs or native woodland habitats. There is potential for restoration of these habitats in some cases. In addition, Ayrshire's forests were in the main planted over a relatively short period and lack age class diversity, which in place would encourage biodiversity associated with old trees. This initial planting was dominated by Sitka spruce, because our climate and soils provide excellent growing conditions for this tree and it provides the quality of wood that industry demands. Both age structure and species composition of stands is considered in new plantings.

Biodiversity Context

There is a UK Habitat Statement for Planted Coniferous Woodland, which gives the following conservation direction:

"Maintain and enhance the wildlife potential of the existing conifer resource through continued restructuring and diversification."

Measures to be considered further include:

- Implementation of the UK Forest Standards which embrace the Resolution for the Conservation of Biodiversity of European Forests as agreed in Helsinki (1993);
- Continue to direct the expansion of conifers to land of low conservation value (such as derelict industrial, low grade arable and improved pasture habitats) ensuring habitats of a high nature conservation value are not displaced;

- Promote forestry management which enhances conservation value through restructuring and diversification;
- Develop systems of monitoring the biodiversity conservation value of planted coniferous woodland, for example by assessing critical habitat features and selected key or indicator species.

Current factors affecting the habitat

There is no particular threat to the conifer resource as a whole although some factors could either reduce the existing wildlife interest of plantation or mean that potential improvements are not realised. These include:

- Catastrophic wind damage and fires (particularly started through vandalism);
- Insect damage from imported pests can devastate forests;
- Prospect of shorter rotations as timber processing becomes more efficient and timber markets change;
- Uniform age and species composition of forests has not benefited biodiversity in the past.

Opportunities and Current Action

The existing or potential importance for biodiversity of large plantations should not be overlooked, especially since rotation forests can be planned to take account of nature conservation needs through creating forest diversity in tree and stand age.

Age Class Diversity

The UK Forest Standards give guidance on increasing age class diversity by restructuring age classes, retaining forest cover in some areas (continuous cover silvicultural systems) and the identification of long term retentions to produce old trees and all their associated biodiversity benefits.

Tree Species Diversity

UK policy now addresses issues of uniform species cover, i.e. of Sitka spruce. Now a minimum proportion of minor conifer species is included together with open space and broadleaves. These elements are likely to comprise 20 to 30% of new and second rotation forests which gives good potential to achieve biodiversity aims and to improve environmental aspects of conifer forests in general. The following important local species should be considered and plans developed to inform forest management.

Key Species Management

Conifer woodlands support species which are of importance both nationally and locally. The development of Local Species Action Plans is required to focus attention on these. Species to consider for action include:

Species	Comments
Red squirrel	Ayrshire has a high proportion of coniferous woodland which offer significant opportunity in terms of the conservation of this species.
Crossbill	Ayrshire has the potential, through its extensive plantation resource, to sustain significant populations of this species.
Black grouse	There is considerable scope for enhancing habitat for this species through appropriate forest management (and deer control, as noted below). This can build on work already being carried out in Dumfries and Galloway.
Red and Roe Deer	Co-ordinated culling programmes and enhanced internal forest design will assist in maintaining healthy populations.
Badger	Detailed knowledge of badger setts is required to minimise the impact of harvesting operations.
Bat	All species of bat in Ayrshire use coniferous woodland. Provision of additional roost sites (boxes) and feeding habitats could greatly increase populations.

Key Contact

Bruce Davidson, East Ayrshire Woodlands, Underwood Depot, Auchinleck Road, Cumnock KA18 1RS. Tel: 01290 426973.
E-mail: Bruce.Davidson@east-ayrshire.gov.uk

Further Information

Forestry Commission
(South-west Conservancy Office) 01387 256111
Clyde Muirshiel Regional Park 01505 614791

Further reading

Creating New Native Woodlands - Forestry Commission Bulletin 112.

Inventory of Gardens and Designed Landscapes (Dumfries and Galloway and Strathclyde) - Scottish Natural Heritage.

Restoring and Managing Riparian Woodlands - Scottish Native Woods.

The Birch Woodland Management Handbook - Highland Birchwoods.

Flowers of the Forest - Plantlife.

Wind and fire damage can open up clearings in forests and encourage biodiversity associated with the catastrophic events that occur in natural ecosystems.

Appropriately placed productive woodlands can generate income to support important conservation projects, for example, the barn owl project undertaken by Forest Enterprise in Galloway.

Funding Sources

Under the Woodland Grant Scheme assistance is available for implementing management practices which will enhance the biodiversity potential of existing plantations - Annual Management Grant and Woodland Improvement Grant.

Shorter rotations result in earlier realisation of income from timber. As a result forest owners may be persuaded to reinvest some of their income in works which promote biodiversity and to allow parts of stands to be retained to biological maturity.



ACTIONS Planted Coniferous Woodland	TO BE ACTIONED BY		YEAR (TO BE COMPLETED OR IN PLACE BY)					
	lead	partners	2001	2002	2003	2004	2005	2010
Policy and legislation								
Ensure that UK Forestry Standards are applied to all proposals for restructuring of plantations and that particular emphasis is given to increasing habitat, tree species and age class diversity.	FC	FE PWO RSPB	•	•	•	•	•	•
Ensure that biodiversity objectives from native woodland and other habitat action plans are fully incorporated in the design of new and second rotation forests.	FC	FE PWO SWT RSPB	•	•	•	•	•	•
Complete the development of an Indicative Forestry Strategy for Ayrshire which includes a clear relationship with the Ayrshire Biodiversity Action Plan.	AJSP	ALA FC		•				
Site Safeguard management								
Retain old conifer stands to biological maturity on appropriate sites and where opportunities exist.	FE PWO		•	•	•	•	•	
Agree appropriate management for non-plantation habitats within the forest area, in line with the objectives of the relevant habitat and species action plans.	SNH	FC SWT RSPB					•	
Develop Action Plans for key species associated with coniferous plantations.	ABG	CMRP		•				
Advisory								
Ensure that all forest managers and consultants receive advice about biodiversity within plantations and the potential for enhancing this.	FC	ICF RSPB	•	•	•	•	•	•
Research and Monitoring								
Undertake a full biodiversity audit of large conifer plantations within Ayrshire.	ABRC	ABG					•	
Establish Demonstration sites to illustrate the techniques that can be employed to deliver biodiversity objectives within plantations. Using the audit information as a baseline monitor the impact of these management practices on species and habitat diversity.	FE	FC		•				
Monitor the delivery of this plan on an annual basis and carry out a full review in 10 years.	ABG		•	•	•	•	•	•
Communications and Publicity								
Promote the existence of demonstration sites to forestry practitioners in Ayrshire.	FC			•				