

SECOND QUINQUENNIAL REVIEW OF
SCHEDULES 5 AND 8 OF THE
WILDLIFE AND COUNTRYSIDE ACT, 1981.

SUBMISSION TO THE SECRETARY
OF STATE FOR THE ENVIRONMENT
FROM THE
JOINT NATURE CONSERVATION
COMMITTEE

October 1991

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1. BACKGROUND

This review recommends alterations to the species lists comprising Schedules 5 and 8 of the Wildlife & Countryside Act, 1981. Schedule 5 covers wild animals except birds and Schedule 8 covers plants.

1.1 Statutory basis of the quinquennial review

The Secretary of State may, by order and following a representation from the Joint Nature Conservation Committee, add any animal to Schedule 5 or any plant to Schedule 8 of the Act, where one of the following circumstances applies:

- if, in his opinion, the animal or plant is in danger of extinction in Great Britain or likely to become so endangered unless conservation measures are taken (Section 22(3)(a));
- for the purpose of complying with an international obligation (Section 22(4)).

Conversely, the Secretary of State may remove any animal from Schedule 5 or plant from Schedule 8, if, in his opinion, it is no longer endangered or likely to become so (Section 22(3)(b)).

The protection afforded by the Act to animals and plants listed on Schedules 5 and 8 extends throughout Great Britain, unless otherwise specified, and to adjacent territorial waters, which currently extend twelve miles out to sea. The Secretary of State may apply all or only some of the relevant provisions of the Act to animals and plants listed on the schedules and he may limit the protection afforded to certain times of the year or to particular areas of Great Britain. The provisions of Sections 9 and 13 relate to a range of different activities which might pose a threat to the species. They are:

Animals: Section 9 (1)
Killing, injuring or taking

Section 9 (2)
Possession

Section 9 (4)

- (a) Damaging or destroying any structure or place used for shelter or protection, or obstructing access to the above.
- (b) Disturbing animals while they are occupying structures or places used for shelter or protection.

Section 9 (5)

- (a) Selling, offering or exposing for sale, possessing for the purpose of sale, or transporting for the purpose of sale.
- (b) Publishing or causing to be published any advertisement offering to buy or sell.

Plants: Section 13 (1) (a)
Picking, uprooting or destroying.

Section 13 (2)

- (a) Selling, offering or exposing for sale, possessing for the purpose of sale or transporting for the purpose of sale.
- (b) Publishing or causing to be published any advertisement offering to buy or sell.

Activities under Section 9(2), 9(5) and 13(2) can be applied to live specimens, dead specimens or derivatives.

It should be noted that, although all wild plants are protected under Section 13(1)(b) of the Wildlife and Countryside Act against deliberate uprooting by unauthorised persons, considerable additional protection is afforded through scheduling. Extra benefits include protection against removal of any part of the plant, destruction and selling. Moreover, even landowners and occupiers - authorised persons under Section 13(1)(b) - could commit an offence by picking, uprooting or destroying any plant listed in Schedule 8.

The Nature Conservancy Council was required, five years after the passing of the Act and every five years thereafter, to review Schedules 5 and 8 and to advise the Secretary of State whether in its opinion any animal or plant should be added to or removed from the Schedules. The NCC was also empowered to make such recommendation at any time, outside the constraints of the five-yearly reviews. Advice given was to be accompanied by a statement of the reasons which led to that advice. JNCC is now responsible for co-ordinating the current and future reviews.

The Secretary of State may also add or remove species from the schedules in order to comply with international obligations. Officers have taken the opportunity during this review of drawing the attention of the Secretary of State to those species which may need protection for this purpose (see Section 4).

1.2 The first quinquennial review

The results of the first review by NCC were presented to the Secretary of State in October 1986. The proposals recommended further protection for 52 animals and 31 plants and reduced protection for 3 species.

The Government has now responded to all the recommendations. All except two were accepted and have been implemented. The proposed deletion from Schedule 5 of the sandbowl snail Catinella arenaria was effectively rejected and protection for the basking shark was referred back for reconsideration.

2. CONDUCT OF THE REVIEW

Responsibility for quinquennial reviews of Schedules 5 and 8 of the Wildlife and Countryside Act, 1981, now lies with the Joint Nature Conservation Committee, which was set up in April 1991 following the dissolution of the Nature Conservancy Council.

2.1 Responsibilities for undertaking the review

The preparatory work for the review was undertaken by a working group from the NCC Chief Scientist Directorate, under the Chairmanship of Dr M Pienkowski, then Assistant Chief Scientist (Terrestrial Sciences), with Mr D Morgan as secretary to the group. This group met four times between March 1990 and February 1991. It considered the criteria for species selection, also suggestions made by Regional and Country Headquarters staff, who were consulted in July 1990. The specialists amongst its members used these criteria to prepare species proposals. Responsibilities were divided as follows:

Mammals	:	Dr D Jefferies
Reptiles	:	Dr T Gent
Amphibians	:	Dr A Cooke
Freshwater Fish	:	Dr P Boon
Marine Fish	:	Dr R Mitchell
Terrestrial Invertebrates	:	Dr R Key
Freshwater Invertebrates	:	Dr P Boon
Marine Invertebrates	:	Dr R Mitchell
Higher Plants	:	Miss L Farrell
Lower Plants	:	Mr N Hodgetts
Marine Algae	:	Dr R Mitchell

In April 1991, responsibility for co-ordinating the review was taken over by Mrs M Palmer, Head of Species Conservation Branch, JNCC, although specialists in all the NCC successor bodies continued to have involvement. The draft review was presented to the Joint Committee in April, and between then and July 1991 consultation was carried out within the new statutory conservation bodies, with GB-wide governmental and non-governmental organisations and, informally, with officers in the Department of the Environment. A list of the organisations formally consulted is given as Annex A and a summary of extra proposals made by these organisations is given as Annex B. Following these consultations, the draft review was revised and was approved by the Joint Committee on 10 September 1991.

2.2 Shortlisting criteria

NCC had and its successor bodies have a duty to consider all species under the quinquennial reviews, but attention was in 1990/91 focused on species in certain broad categories. These are:

- species already scheduled
- species formally considered 'Endangered' or 'Vulnerable' in the relevant Great Britain Red Data Book (where such references are available)
- endemic species
- species whose GB population is perceived to have undergone a rapid decline in recent years
- species confined to particularly threatened habitats
- species threatened in a European context
- species known only from a single site

Use of these criteria produced a lengthy list of candidates from which the final selection was drawn.

2.3 Rationale for final recommendations

The working group agreed that the phrase "in danger of extinction in Great Britain or likely to become so endangered" in Section 22(3)(a) of the Wildlife & Countryside Act 1981 could broadly be equated to the Red Data Book terms 'Endangered' and 'Vulnerable'. These words are defined thus:

ENDANGERED

"Taxa in danger of extinction and whose survival is unlikely if the causal factors continue to operate.

Included are taxa whose numbers have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction".

VULNERABLE

"Taxa believed likely to move into the 'Endangered' category in the near future if the causal factors continue operating.

Included are taxa of which most of the populations are decreasing because of over-exploitation, extensive destruction of habitat or other environmental disturbance; taxa with populations that have been seriously depleted and whose ultimate security has not yet been assured; and taxa with populations that are still abundant but are under threat from severe adverse factors throughout their range."

The phrase "likely to so become endangered" is not defined, but the working group agreed that a timescale of 5-10 years would be appropriate in view of the periodicity of the formal reviews.

The number of endangered and vulnerable species is very large, particularly in the lower orders, so a qualification was added to the effect that direct legal protection must potentially bring tangible benefits to the species. In many cases, especially where insidious threats such as habitat loss and some forms of pollution are a problem, no significant benefits are likely to accrue by scheduling species. When this factor was taken into account, the lengthy candidate list of about 1,000 species was reduced to 91.

Once a species is scheduled, some side benefits become evident, such as raising the public profile of the species, encouragement of positive habitat management for the species and devotion of resources to study it. Under Sections 10 (3) (c) and 13 (3) of the Wildlife and Countryside Act, 1981, no offence is committed if an animal or plant listed in Schedule 5 or 8 is harmed as a result of an action which is the incidental result of a lawful operation and could not reasonably have been avoided. In exercising their duties, planning authorities need to consider whether reasonable precautions can be taken to prevent damage to species in Schedules 5 and 8. The presence of such species may be sufficient to persuade a planning authority to refuse permission for a development. If permission is granted, suitable precautions should form part of the planning consent. Failure by the planning authority to take conservation factors into account may give grounds for a judicial review of the decision. Indeed, planning authorities have made it clear that they find it helpful to have a clear statement of the importance of sensitive species as provided by listing in the schedules. These spin-offs, however, were not considered as reasons for affording protection in the first instance.

2.4 Complicating factors in the selection of species for protection

2.4.1 Introduced species

A number of introduced bird species receive full protection under the Wildlife & Countryside Act, but this factor has not previously been comprehensively addressed for other animals and plants. The working group identified a number of factors which would count in favour or against the protection of an introduced species. These were used in the consideration of species to be placed in the final recommendations:

+	-
Natural range reaches north coast of continental Europe.	Natural range far from GB.
May actually be a native species.	Definitely not native, site and date of introduction known.
Endangered or extinct in its native range.	Abundant and widespread in its native range.
Most unlikely to have any impact on native species and ecosystems.	Interaction with native species or ecosystems known to pose a serious threat to them.
No introduced species were included in the final recommendations.	

2.4.2 Subspecies

Subspecies were not routinely reviewed, but those that were clearly recognisable, geographically separated from other subspecies and under particular threat were considered for protection. In the event, no subspecies were selected for the final listing.

2.4.3 Hybrids

This is a very complex area, particularly amongst the plants. The working group agreed therefore, only to tackle it where a particular need had been or might reasonably be expected to be experienced. At present the wildcat Felis silvestris appears the only species with particular problems of this nature.

2.4.4 Extinctions

The question of when to delete an extinct or presumed extinct species from the schedules was considered. Hard and fast rules were seen as being unhelpful. So much depended on how easy it was to encounter the species concerned and how much effort had been put into searching for it. The final decision was left to the specialists covering each of the taxonomic groups. If there remains any reasonable doubt about the extinction of a species, it should remain protected.

2.4.5 Lower plants/Schedule 8

There is no definition in the Wildlife and Countryside Act, 1981, of a plant. Many taxonomists now regard the fungi as comprising a kingdom on their own, as separate from higher plants as they are from animals. Taxonomy is an evolving science and fairly recently algae, fungi, bacteria and protozoa were considered to make up a discrete kingdom, the Protista. There is no doubt that higher plants, mosses and liverworts belong to a single kingdom. Lichens are anomalous because they are

composite organisms, made up of symbiotic algae and fungi.

In common parlance seaweeds and toadstools are regarded as plants - they are elements of our flora. For the purpose of Schedule 8, and in order to avoid confusion and to comply with the spirit of the Act, the JNCC has chosen to consider the following groups of organisms to be 'plants':

Higher plants: seed plants (Spermatophyta)
- flowering plants (Angiospermae)
- cone-bearers (Gymnospermae)
ferns and their allies (Pteridophyta)

Lower plants: mosses and liverworts (Bryophyta)
lichens
fungi
algae (including Charophyta, the stoneworts)

Only three groups of lower plants - bryophytes, lichens and stoneworts - were considered during the second quinquennial review. This was because current knowledge about the status of fungi and most algae was not thought good enough to form a sound basis for selecting candidate species. There is a precedent for including algae in Schedule 8 because the stonewort Lamprothamnium papulosum was added as a result of the first quinquennial review. Of the 73 plant species finally recommended in the present review as additions to Schedule 8, 15 are flowering plants, 23 are mosses, 8 are liverworts, 26 are lichens and one is a stonewort. This indicates an attempt to address the imbalance between the present representation of higher and lower plants. Clearly, work will continue to investigate the status of the remaining groups of lower plants.

3. RECOMMENDATIONS

The final recommendations for additions to and deletions from Schedules 5 and 8 are attached as Annex C. For each of the 18 animal and 76 plant species there is a brief supporting statement, indicating distribution, status, habitat, threats, existing protection and the benefits which would accrue from scheduling.

4. INTERNATIONAL OBLIGATIONS

Annex D lists all the British plant and animal species, other than birds, which are included in the draft EC Habitat and Species Directive Annexes II, V and VI (as at 1.10.91) and in the Bern Convention Appendices I, II and III. In the EC Habitat and Species Directive, Annex II covers species for which designation of protected areas is required, Annex V is a list of plants and animals requiring special protection and Annex VI lists species whose exploitation should be subject to regulation. In the Bern Convention, Appendices I and II are lists of plants and animals requiring strict protection and Appendix III lists animals whose exploitation should be subject to

regulation. Listing on Schedules 5 and 8 of the Wildlife and Countryside Act is the mechanism (other than for birds) for implementing the requirements of Annex V of the EC Habitat and Species Directive and the recommendations of Appendices I and II of the Bern Convention. There is a range of other legislation whereby Great Britain can implement the regulatory mechanisms required or recommended under Annexes II and VI of the EC Directive or Appendix III of the Bern Convention.

It is obvious from Annex D that the great majority of species native to Great Britain and listed for special protection under the draft EC Habitat and Species Directive and the Bern Convention are already afforded adequate protection under the Wildlife and Countryside Act, or are proposed for protection in the present review. The few discrepancies are as follows:

- 4.1 Species too common in Great Britain to qualify for Schedules 5 or 8 of the Wildlife and Countryside Act, using criteria employed for the 1991 review:

	EC Ann. V	Bern App I	Bern App II
Coenagrion mercuriale (southern damselfly)			/*
Luronium natans (floating-leaved water-plantain)		/	
Najas flexilis (slender najad)		/	
Saxifraga hirculus (yellow marsh saxifrage)	/	/	
Drepanocladus vernicosus (moss)		/	
Petalophyllum ralfsii (liverwort)		/	

* UK reservation lodged.

N.B. Important sites for these species should receive protection because they are all included on EC Annex II.

4.2 Species included on Schedule 5 in respect of sale only:

	EC Ann V	Bern App II
Eurodryas aurinia (marsh fritillary butterfly)		/*
Lycaena dispar (large copper butterfly) (re-establishment)	/	/

* UK reservation lodged. Eurodryas aurinia is included on EC Annex IIa, allowing for site protection.

4.3 Species which are vagrants in Britain and are not listed in or proposed for Schedule 5:

	EC Ann V	Bern App II
Parnassius apollo (Apollo butterfly)	/	/
Prosperinus prosperina (Curzon's sphinx moth)	/	/

4.4 Extinct species

Some species included in the draft EC Habitat and Species Directive Annex V or in the Bern Convention Appendices I and II are thought to be extinct in Great Britain, and for this reason are not on the Wildlife and Countryside Act schedules. Should any such species be refound or become re-established in Great Britain, they should be considered for addition to the schedules.

4.5 Alien species

The draft EC Habitat and Species Directive specifies that protection is required only for species "dans les régions où elles sont indigènes". This means that species alien to Europe would not require protection, so non-European species (e.g. Muntjac deer) are not included in Annex C. The Bern Convention is silent on this matter, but calls for strict control on the introduction of non-native species. Assuming that 'region' can be taken as 'country', where Great Britain is concerned, non-native, and possibly also vagrant species, would not need to be specially protected by domestic legislation.

4.6 Responsibilities

The Secretary of State's attention is drawn especially to the species listed in 4.1 and 4.2, for two of which full protection under the Wildlife and Countryside Act will probably be needed when the EC Habitat and Species Directive is implemented. It should be noted that these species are mentioned in connection with international obligations, but not specifically in relation to conservation benefits within Great Britain, and that the draft EC listings may yet be modified. Great Britain holds relatively large populations of the higher plants and insects (except for the large copper butterfly) listed in 4.1 and 4.2 under the Bern Convention Appendices, so this country has a special responsibility for their conservation.

ORGANISATIONS CONSULTED DURING THE SECOND QUINQUENNIAL REVIEW

Amateur Entomologists Society
Balfour Browne Club
Botanical Society of the British Isles
British Association of Nature Conservationists
British Butterfly Conservation Society
British Bryological Society
British Entomological and Natural History Society
British Lichen Society
British Museum (Natural History)
Conchological Society of Great Britain and Ireland
Dove Marine Laboratory
Fauna and Flora Preservation Society
Field Studies Council
Forestry Commission
Friends of the Earth
Greenpeace
Institute of Freshwater Ecology
Institute of Terrestrial Ecology
Joint Committee for the Conservation of British Insects
Mammal Society
Marine Biological Association
Marine Conservation Society
Peoples' Trust for Endangered Species
Plantlife
Research Group in Mammalian Ecology and Reproduction
Royal Entomological Society
Royal Society for the Prevention of Cruelty to Animals
Royal Society for Nature Conservation
Royal Society for the Protection of Birds
Sea Mammal Research Unit
Scottish Marine Biological Association
Scottish Society for the Prevention of Cruelty to Animals
Universities Federation for Animal Welfare
University College of North Wales, Marine Biology Department
University of Newcastle Marine Biological Station
University of Southampton Department of Oceanography
Vincent Wildlife Trust
World Conservation Union (formerly IUCN)
Worldwide Fund for Nature - UK (formerly World Wildlife Fund)
Wildlife Link

ADDITIONAL PROPOSALS BY CONSULTTEES

<u>Organisation</u>	<u>Additional proposals</u>	<u>JNCC response</u>
Botanical Society of British Isles	Bern Convention spp:- <u>Luronium natans</u> (floating water-plantain) <u>Najas flexilis</u> (slender maiad) <u>Saxifraga hirculus</u> (yellow marsh saxifrage)	Not endangered in Britain: included in section on 'International obligations'
British Bryological Society	Bern Convention sp: <u>Petalophyllum ralfsii</u> (liverwort)	Not endangered in Britain: included in section on 'International Obligations'
Conchological Society of GB and Ireland	Molluscs:- <u>Truncatella subcylindrica</u> <u>Pholadidea loscombiana</u>	To be considered at next QQR, after further survey.
Greenpeace	Basking Shark	Reconsidered and included in recommendations.
Institute of Freshwater Ecology	<u>Metacnephia amphora</u> (blackfly) and 12 caddisflies	}To be considered }at next QQR, }as Trichoptera }Review now }available.
Institute of Terrestrial Ecology	All listed butterflies should have full protection	15 butterfly spp. considered to be adequately protected under S9(5)
Mammal Society	Polecat	Strong population in Wales and spreading, so not endangered in Britain
Marine Conservation Society	Basking shark	Reconsidered and included in recommendations
	Common seal	Covered by Seals Act
	<u>Pentaphora foliacea</u> (Ross coral) <u>Echinus esculentus</u> (sea urchin)	}Not sufficiently }rare or threatened }in Britain to }qualify for Sch. 5

<u>Organisation</u>	<u>Additional proposals</u>	<u>JNCC response</u>
Plantlife	<u>Echium plantagineum</u> (purple viper's bugloss) <u>Eleocharis parvula</u> (estuarine spike-rush) <u>Juncus pygmeus</u> (dwarf rush) <u>Leersia oryzoides</u> (cut-grass) <u>Lobelia urens</u> (acrid lobelia)	Proposals received too late (Sept 1991); will be considered at next review
RSPB	Dragonflies: <u>Aeshna caerulea</u> <u>Somatochlora arctica</u> <u>Somatochlora metallica</u> <u>Libellula fulva</u> <u>Leucorrhinia dubia</u> <u>Lestes dryas</u> <u>Ischnura pumilio</u> <u>Coenagrion hastulatum</u> <u>Gomphus vulgatissimus</u> <u>Ceriagrion tenellum</u> <u>Coenagrion mercuriale</u>	} } } }Not sufficiently }threatened in Britain }to qualify for }selection } } } Included in section on 'International obligations'
	27 moth species (including 5 extinct species)	11 of these species are being monitored and are not rare enough to qualify; the others are under review. Extinct species cannot be put on Sch. 5
	All listed butterflies should have full protection	15 butterfly spp. considered to be adequately protected under S9(5)
	<u>Alopecurus alpinus</u> (alpine foxtail)	Not threatened in Britain
	Bern Convention spp:- <u>Luronium natans</u> (floating water-plantain) <u>Najas flexilis</u> (slender naiad) <u>Saxifraga hirculus</u> (yellow marsh saxifrage)	Not endangered in Britain; included in section on 'International obligations'
	Against deletion of <u>Euphorbia peplis</u> <u>Limonium paradoxum</u> <u>L. recurvum</u>	Extinct for 25 years }Taxonomy revised; }removed from Bern Appendix I

<u>Organisation</u>	<u>Additional proposals</u>	<u>JNCC response</u>
RSPCA	Vagrant seals (on EC Directive and Bern Convention)	Inclusion on EC Annex VI and Bern Appendix III covers only regulation of exploitation - not appropriate for Sch. 5 listing
Scottish Marine Biological Assoc.	Basking shark - policy of cautious management needed	Basking shark included in recommendations - precautionary principle applied
World Conservation Union (IUCN)	Basking shark	Reconsidered and included in recommendations
World Wide Fund for Nature (WWF)	Basking shark	Reconsidered and included in recommendations
	<u>Hydrometra gracilentia</u> (water measurer) Caddisflies:- <u>Cyrnus insolutus</u> <u>Hydropsyche saxonica</u> <u>Agrypnia crassicornis</u> <u>Hagenella clathrata</u> <u>Grammotaulius nitidus</u> <u>Leptocerus lusitanicus</u>	} }Proposals received too late (Sept 1991); will be considered at next QQR because }Trichoptera and }Hemiptera reviews now available }

2ND QUINQUENNIAL REVIEW: RECOMMENDATIONS

1. SPECIES LIST

ADDITIONS TO SCHEDULE 5 (18 taxa)

Chordata

- Felis silvestris x F. catus Wild cat hybrid
- Acipenser sturio Sturgeon
- Cetorhinus maximus Basking shark
- Gobius cobitis Giant goby

Uniramia

- | | |
|---|--|
| <u>Curimopsis nigrita</u> Mire pill beetle | Section 9(4)(a) only |
| <u>Graphoderus zonatus</u> 'Beetle' | |
| <u>Hydrochara caraboides</u> Lesser silver water beetle | |
| <u>Hypebaeus flavipes</u> 'Beetle' | |
| <u>Paracymus aeneus</u> 'Beetle' | |
| <u>Argynnis adippe</u> High brown fritillary butterfly | Full protection (at present Section 9(5) only) |
| <u>Thalera fimbrialis</u> Sussex emerald moth | |

Mollusca

- Atrina fragilis Fan mussel
- Caecum armoricum De Folin's lagoon snail
- Paludinella littorina 'Lagoon snail'
- Tenellia adspersa Lagoon sea slug
- Thyasira gouldi Northern hatchet-shell

Cnidaria

- | | |
|---|-----------------------------------|
| <u>Eunicella verrucosa</u> Pink sea fan | Sections 9(1), 9(2) and 9(5) only |
|---|-----------------------------------|

Annelida

- Alkmaria romijni Tentacled lagoon worm

DELETIONS FROM SCHEDULE 5

None.

ADDITIONS TO SCHEDULE 8 (73 species)

Angiospermae

Ajuga chamaepitys Ground pine
Centaureum tenuiflorum Slender centuary
Dactylorhiza lapponica Lapland marsh-orchid
Filago pyramidata Broad-leaved cudweed
Gentianella anglica Early gentian
Gentianella uliginosa Dune gentian
Halimione pedunculata Stalked orache
Hieracium attenuatifolium Weak-leaved hawkweed
Hieracium northroense Northroe hawkweed
Hieracium zetlandicum Shetland hawkweed
Limosella australis Welsh mudwort
Phyteuma spicatum Spiked rampion
Rumex rupestris Shore dock
Salvia pratensis Meadow clary
Thlaspi perfoliatum Perfoliate penny-cress

Bryophyta (Bryopsida and Sphagnopsida)

Acaulon triquetrum Triangular pygmy-moss
Barbula cordata Cordate beard-moss
Barbula glauca Glaucous beard-moss
Bartramia stricta Rigid apple-moss
Bryum mamillatum Dune thread-moss
Bryum schleicheri Schleicher's thread-moss
Buxbaumia viridis Green shield-moss
Cryphaea lamyana Multi-fruited river moss
Cyclodictyon laetevirens Bright green cave-moss
Ditrichum cornubicum Cornish path-moss
Grimmia unicolor Blunt-leaved grimmia
Hypnum vaucheri Vaucher's feather-moss
Micromitrium tenerum Millimetre moss
Mielichhoferia mielichhoferi Alpine copper-moss
Orthotrichum obtusifolium Blunt-leaved bristle-moss
Plagiothecium piliferum Hair silk-moss
Rhynchostegium rotundifolium Round-leaved feather-moss
Saelania glaucescens Blue dew-moss
Scorpidium turgescens Large yellow feather-moss
Sphagnum balticum Baltic bog-moss
Thamnobryum angustifolium Derbyshire feather-moss
Zygodon forsteri Knothole moss
Zygodon gracilis Nowell's limestone moss

Bryophyta (Hepaticae)

Adelanthus lindenbergianus Lindenberg's leafy liverwort
Geocalyx graveolens Turpswort
Gymnomitrium apiculatum Pointed frostwort
Jamesoniella undulifolia Marsh earwort
Leiocolea rutheana Norfolk flapwort
Marsupella profunda Western rustwort
Riccia bifurca Lizard crystalwort
Southbya nigrella Blackwort

Chlorophyceae

Chara canescens Bearded stonewort

Eumycota (Lichenes)

Bryoria furcellata Forked hair-lichen
Buellia asterella Stary breck-lichen
Caloplaca luteoalba Orange-fruited elm lichen
Caloplaca nivalis Snow caloplaca
Catapyrenium psoromoides Tree catapyrenium
Catillaria laureri Laurer's catillaria
Cladonia stricta Upright mountain cladonia
Collema dichotomum River jelly-lichen
Gyalecta ulmi Elm gyalecta
Heterodermia leucomelos Ciliate strap-lichen
Heterodermia propagulifera Coralloid rosette-lichen
Lecanactis hemisphaerica Churchyard lecanactis
Lecidea inops Copper lecidea
Lecanora achariana Tarn lecanora
Nephroma arcticum Arctic kidney lichen
Pannaria ignobilis Caledonia pannaria
Parmelia minarum New Forest parmelia
Parmentaria chilensis Oil-stain parmentaria
Peltigera lepidophora Ear-lobed dog-lichen
Pertusaria bryontha Alpine moss pertusaria
Physcia tribacioides Southern grey physcia
Pseudocyphellaria lacerata Ragged pseudocyphellaria
Psora rubiformis Rusty alpine psora
Solenopsora liparina Serpentine solenopsora
Squamarina lentigera Scaly breck-lichen
Teloschistes flavicans Golden hair-lichen

DELETIONS FROM SCHEDULE 8 (3 taxa)

Angiospermae

Euphorbia peplis Purple spurge
Limonium paradoxum St David's sea lavender
Limonium recurvum Recurved sea lavender

2. SUPPORTING STATEMENTS

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Chordata
Class: Mammalia
Order: Carnivora
Family: Felidae
Genus: Felis
Species: silvestris x catus

English name: Wildcat hybrid (of wildcat appearance)

History of the protected parent species, the wildcat *Felis silvestris*.

Distribution in Great Britain: Now occurs only in Scotland north of the Central Lowlands. The main population occurs in Perthshire, Strathsey, north Argyll, east Sutherland and Easter-Ross. Sporadic occurrence in mountainous areas of north and west Scotland. It used to occur in England and Wales in the 19th century. The Scottish population of the wildcat is important not only in a national context (since it is the only country in the British Isles with the species - it has never occurred in Ireland) but also in relation to the diminished population of western continental Europe.

Distribution elsewhere: Europe, Africa and the Middle East, east to China. Population in Europe has declined substantially and its range is now fragmented.

Status in Great Britain: A survey of the status and distribution of the wildcat was carried out by the Nature Conservancy Council over 1983-1987. This showed that the post 1914 spread and partial recovery of the wildcat may have slowed to a halt some 40 years ago and by the time of the mid 1980s more area "populations" were declining (30%) than increasing (8%). The density of wildcat populations were generally low even in areas of suitable habitat. Some areas showed local extinctions (e.g. NW Sutherland).

Habitat: Wildcats inhabit areas of woodland, scrub, moorland and farmland, showing a preference for areas supporting a variety of habitats. Although open moorland country is used, lack of shelter causes wildcats to move to lower, more sheltered areas during the winter. They have been recorded from land over 800m, but are usually found below 500m, and descend to sea level on the west coast. The usual prey is small rodents, rabbits, mountain hare and birds.

Threats: It is considered that persecution by gamekeeping interests was the main cause of the decrease in the status and distribution of the species in Britain to a relict population in north-west Scotland by 1914. Persecution was reduced then, with the reduced gamekeeping force allowing some recovery, but was still considerable in the 1980s (274 wildcats and 466 feral domestic cats were reported killed (i.e. minimum figures) in Grampian, Tayside, Central and Highland Regions in 1984-85 : Game conservancy data). Research carried out during the NCC Wildcat Survey indicated that, at least up to 1987, the species was being persecuted on the majority of estates, even where it was rare, and that wildcats were still shot in significant numbers. The fur has a potential value, as has

the body for taxidermy; but most shooting is by game preservation interests. Persecution is the most likely cause of local extinctions, but habitat modification may be another problem for wildcat survival.

A further threat to the species is the potential for interbreeding with domestic and feral cats. There are real fears that the genetic integrity of the species will decline as the "wild" gene pool becomes adulterated with the genes of domestic cats. Such interbreeding will occur most often in areas where there is a relatively dense human (and hence domestic and feral cat) population. Examination of skull parameters indicates that this has occurred to a considerable extent already. Protection of the more isolated wildcat populations is, therefore, particularly important in the conservation of this species. Interbreeding with feral domestic cats Felis catus, produces fertile hybrids. Hybrids which are close to the wildcat parent in morphology and coat colour can only be separated from it by destructive testing, i.e. by examination of skull parameters. The NCC and Edinburgh University have been examining the possibility of non-destructive testing by examination of the blood chemistry, but this is not yet at a practical stage.

Existing legal protection: The species Felis silvestris is listed in Appendix II of the Bern Convention and Appendix II of CITES. It has been listed in Schedule 6 of the Wildlife & Countryside Act since 1981 and in Schedule 5 since 1988.

Recommendation: The existing listing in Schedule 5 giving full protection to wildcat Felis silvestris should be amended to full protection for wildcat Felis silvestris and the hybrid of wildcat appearance Felis silvestris x catus.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Prevention of local extinction of the true wildcat and the consequent reduction of its already much reduced range.

NOTE:

It has been found necessary in the Deer (Scotland) Act, 1959 and the Deer (Close Seasons) (Scotland) Order 1984, to provide a legal close season for hybrids between Red Deer Cervus elaphus and Sika Deer C. nippon. Otherwise there is the problem that an offender under this section can claim to think he was shooting at a hybrid rather than either of the parent species.

The same problem has arisen for wildcats and makes prosecution of offenders very difficult if not impossible. In a recent prosecution a person shot what he considered to be wildcats but his defence called an expert witness who could not say at sight whether the body was that of a wildcat or a close hybrid which was not protected, and the case was lost. The most suitable way of closing this loophole is to provide legal protection to the hybrid animals of wildcat appearance, as well as the true species. Otherwise, the law officers will no longer take legal action against the killing of wildcats, making the intended protection for the species inoperable.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Chordata
Class: Osteichthyes
Order: Acipenseriformes
Family: Acipenseridae
Genus: Acipenser
Species: sturio

English name: Atlantic sturgeon

Distribution in Great Britain: Rare visitor only to British coastal waters and estuaries.

Distribution elsewhere: The atlantic coast of Europe, the Mediterranean and the Black Sea. Also present in the Baltic Sea and in Lake Ladoga and Lake Onega. Largest population in the Gironde, Guadalquivir and Rioni rivers (Gironde population maintained artificially by breeding and restocking). The species is threatened throughout its range and is listed as 'Endangered' worldwide in the 1990 IUCN Red Data Book.

Status in Great Britain: Isolated specimens found in UK waters and estuaries. About 90 records in the 1950s but gradual decline since then with only about 20 records in the 1980s.

Habitat: Coastal, in fully saline water and in sandy and muddy bottomed brackish waters.

Threats: Fishing, destruction of spawning sites in Europe, barrage construction, pollution of rivers. Specimens which have entered freshwaters in the past have been deliberately gaffed.

Existing legal protection: Listed under Appendix I of CITES, Appendix III of the Bern Convention and Annexes II and V of the draft EC Habitat and Species Directive. Status of *Fishe Royal* along most of the coast. Display to the public for commercial purposes and the sale, keeping for sale, offering for sale or transporting for sale is prohibited under EC Regulation 3626/82.

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prevent deliberate fishing for specimens which arrive in waters where the Act applies and encourage the release of sturgeon that are caught by accident and are still viable. International obligations would be complied with.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Chordata
Class: Chondrichthyes
Order: Lamniformes
Family: Cetorhinidea
Genus: Cetorhinus
Species: maximus

English name: Basking Shark

Distribution in Great Britain: This shark is a visitor to British waters in the summer months, when it is found feeding and pairing on the surface. Usually seen off the west coast, from Dorset to northern Scotland, although occasional sightings are also made in the North Sea.

Distribution elsewhere: Throughout temperate and boreal waters.

Status in Great Britain: Basking sharks are recorded annually off the west coast, mainly in a few favoured areas. The numbers of sightings are dependent upon weather conditions and population fluctuations are impossible to determine accurately, but the species appears to be much less common in Britain than formerly. The basking shark is a very large (up to 10m), long-lived, slowly-growing species, with low fecundity.

Habitat: Presumably oceanic and coastal, using coastal surface waters to feed and pair. May go offshore into deep water to overwinter, but virtually no records have been obtained of wintering sharks.

Threats: Commercial directed fisheries, concentrating on mature sharks, and bycatch in fishing gear, largely of juveniles. Oil from the liver is used for various products. There is concern that the growing international market for fins may increase fisheries effort. There is a 100 tonne basking shark liver quota, representing 200 to 350 sharks, in EC waters, despite the fact that no fisheries research has been undertaken to assess the stock.

Existing legal protection: None, other than the fisheries quotas imposed through the EC Common Fisheries Policy. (Scheduled by the Isle of Man Government in their Wildlife Act, 1989).

Recommendation: Full protection.

Comments: This species should be treated in the same manner as the cetaceans, all of which are fully protected in British waters, despite lack of adequate data on their population status and their vulnerability to existing threats. Such large animals are very vulnerable to over-exploitation. In the absence of data on stocks, a similar precautionary principle should apply for the basking shark.

There are no reliable data for UK waters on the impact on basking shark populations of commercial fisheries. However, recent data from the United States of America indicate that elasmobranch fisheries can have a devastating effect on the resource. Examples are recent declines in the total west coast shark catch (Cailliet, Holts and Bedford, in press), the

marked decrease in thresher shark landings off southern California since the late 1970s (Holts and Sunada, in press) and a recent downward trend in catch per unit effort in sport fishing tournaments for sharks in Florida (Hueter, in press). Declines can happen very rapidly. Soupfin shark landings in California declined from 2,172 tonnes in 1941 to a mere 287 tonnes in 1944, with catch per unit effort in the Eureka region dropping from 55.4 fish per 1,000 fathoms of gill net fished for 20 hours in 1942 to only 1.4 fish in 1944 (Anderson, 1990). Analysis of shark catches for the Chesapeake Bight region of the mid-Atlantic coast (Musick, Branstetter and Colvocoresses, in press) indicates that catch per unit effort since 1974 of common species has declined as much as five-fold and suggests that continued unregulated exploitation will cause a total stock collapse, from which recovery would take decades.

Anderson, E.D. 1990. Fishery models as applied to elasmobranch fisheries. NOAA Technical Report NMFS 90.

Caillet, G.M., Holts, D.B. and Bedford, D. In press. Review of the commercial fisheries for sharks on the west coast of the United States. Proceedings of the American Elasmobranch Society Annual Meeting, New York, 1991.

Holts, D.B. and Sunada, J. In press. California's pelagic shark fisheries. Proceedings of the American Elasmobranch Society Annual Meeting, New York, 1991.

Hueter, R.E. In press. Sportfishing tournaments for sharks in Florida, 1975-1990. Proceedings of the American Elasmobranch Society Annual Meeting, New York, 1991.

Musick, J.A., Branstetter, S. and Colvocoresses, J.A. In press. Analysis of shark catches for 1974-1990 for the Chesapeake Bight Region of the U.S. Mid-Atlantic coast. Proceedings of the American Elasmobranch Society Annual Meeting, New York, 1991.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Chordata
Class: Osteichthyes
Order: Perciformes
Family: Gobiidae
Genus: Gobius
Species: cobitis

English name: Giant goby .

Distribution in Great Britain: Western mouth of the English Channel and south Cornish coast from Isles of Scilly to Wembury (South Devon).

Distribution elsewhere: Mediterranean, Black Sea, Eastern Atlantic Gulf of Suez.

Status in Great Britain: Northern limit of range.

Habitat: Rocky, weedy high level shore pools, particularly in low salinity where there are bare rock bottoms. Spawns under stones.

Threats: Damage to restricted rock pool habitats by tipping and pollution. Because it is found at a high level on the shore, it is particularly vulnerable to this type of activity.

Existing legal protection: None.

Recommendation: Full protection.

Conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit the taking of this species and would protect it by helping to prevent damage and destruction to the rock pools used for shelter and protection.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Uniramia
Class: Insecta
Order: Coleoptera
Family: Byrrhidae
Genus: Curimopsis
Species: nigrita

English name: Mire pill beetle or bog hog

Distribution in Great Britain: It has been recorded only from Thorne Moors and Hatfield Moors in the Humberhead Levels of South Yorkshire. It appears to have a number of colonies on each site, but it is unknown whether these form meta-populations. Some of these are now separated by considerable stretches of unsuitable habitat. A recent survey found only a small number of compartments on either site where the beetle was found. The species is known from peat cores from Thorne Moors from 3000 years ago.

Distribution elsewhere: Although cryptic, the species seems genuinely rare in Europe, apparently restricted to the area around the Baltic sea in N Germany, N Poland, S Sweden and Denmark. It appears to be unknown whether the species occurs elsewhere in Palaearctic. Presumably this disjunct distribution is a relic of a formerly more widespread distribution, but its immediately post-glacial distribution appears to be unknown.

Status: Categorized RDB1 - endangered - in Shirt (1987) The British Red Data Books: 2 - Insects. The population size at either site is unknown. At Hatfield, most compartments where the beetle has been recorded have been subsequently destroyed. Both sites are SSSIs but are being destroyed by the peat industry. There is an NNR on Thorne Moors, but the habitat there is under threat from drying out because of the drainage carried out for peat extraction.

Habitat and Ecology: Adults and larvae live among the underneath loose plant litter on the surface of Sphagnum peat bogs, usually in areas of open peat at the edge of dense vegetation. Adults and larvae feed mainly on the leaves of fine leaved mosses characteristic of acid wetlands, most frequently Dicranella curviculata, D. heteromalla and Campylopus pryiformis and occasionally also on single celled algae and soredia of loose textured ground living lichens. The beetle sometimes creates subterranean tubes of moss scales.

Threats: Both sites are threatened by peat extraction. Almost all of Hatfield Moors has already been destroyed, and only a small compartment remains with the natural vegetation. This compartment still maintains a population of the species, but has planning permission for the extraction of peat. The operator has given notice to the Minerals Planning Department of Doncaster Metropolitan Borough that it intends to carry out the extraction. It is likely that this would exterminate the species from the site. Large areas of Thorne Moors have similarly been destroyed by peat cutting and even larger areas have recently been drained for peat extraction, such that other bog species appear to have been eliminated. Much of the vegetation of the drained areas was severely damaged by fire in 1989. Curimopsis nigrita is not threatened by collectors.

Existing legal protection: None.

Recommendation: Collecting does not pose a threat to this species, and it is not proposed that species be included on the schedule with respect to the killing or taking of specimens, but only with respect to the damage to or destruction of its habitat (Section 9(4)(a) only). There is a need for entomologists to continue to work freely with this and other species in order to find more out about the beetle's ecology and life history. Full protection would therefore be counterproductive.

Conservation benefits which would accrue from acceptance of the recommendation:

Further strength would be given to the argument to conserve remaining bogland vegetation at the species' sites and to modify peat extraction techniques to enable it to survive.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Uniramia
Class: Insecta
Order: Coleoptera
Family: Dytiscidae
Genus: Graphoderus
Species: zonatus

English name: None

Distribution in Great Britain: Found exclusively in several ponds on Woolmer Bog, north Hampshire.

Distribution elsewhere: There are two distinct races of this species. A northern race is found in northern Scandinavia. The British population is a representative of the southern race, now found only as scattered relict populations in western and central Europe.

Status in Great Britain: Listed in the British Insect Red Data Book as Endangered. First reported from the site incorrectly as Graphoderus cinereus in 1953. It has been recorded fairly consistently since then.

Habitat: Inhabits open water in peat bogs. Although little is known about its ecology, it does seem remarkably tolerant of a wide range of acidity, being found in pools from pH 3 - pH 7.

Threats: Agricultural pollution is a major problem, illustrated by a recent incident in which pig slurry entered one of the pools on the site. There is some threat to the species from collecting, and from the trampling of pool margins, especially at times when larvae might be pupating.

Existing legal protection: None.

Recommendation: Full protection.

Conservation benefits which would accrue from acceptance of the recommendation:

Listing G. zonatus on Schedule 5 would help protect it from deliberate incidents of agricultural pollution and the threat of collection.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Uniramia
Class: Insecta
Order: Coleoptera
Family: Hydrophilidae
Genus: Hydrochara
Species: caraboides

English name: Lesser silver water beetle

Distribution in Great Britain: Now known only from the North Somerset Levels NCR site. A recent record has been obtained for a site in Cheshire, but it is thought that this does not represent a breeding population.

Distribution elsewhere: There is evidence that the range of this species has contracted. However, it is still relatively common in southern Scandinavia and southern France.

Status in Great Britain: Listed in the British Insect Red Data Book as Endangered. Evidence suggests that over the past 10 years there has been no expansion of its range within the Somerset Levels; on the contrary, it is now absent from some ditches where it was previously found, and population densities appear to be declining. The last report of numbers sufficient to indicate breeding outside Somerset was in 1938 at Woodwalton Fen (Cambridgeshire), the major centre having been the London Marshes in the 19th century.

Habitat: Inhabits well vegetated ditches on peat, especially where the water itself is calcareous. It is especially abundant in ditches which have been recently cleared by means of a relatively light weed-cut, and where water levels are constantly high in both summer and winter. Larvae feed on juvenile molluscs, and are thus common in ditches with high densities of young molluscs.

Threats: Intensive ditch management and drying of ditches in the winter appear to be the most likely causes of the decline of this species. On the Somerset Levels peat excavation is a continuing threat. A lowering of water quality may also be a problem. Recently, large-scale commercial collecting of large aquatic invertebrates has occurred in ditches known to hold good populations of Hydrochara caraboides.

Existing legal protection: None.

Recommendation: Full protection.

Conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would protect the beetle from collecting.

At present the Internal Drainage Board (IDB) in the North Somerset Levels is responsible for manipulating water levels in the ditches and determining management regimes. Maintaining high water levels and planning appropriate

weed cutting strategies are both essential for the conservation of H. caraboides. Adding this species to Schedule 5 would help to prevent deliberate acts, such as water level adjustments and removal of plant material, which would damage the places it uses for shelter and protection.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Uniramia
Class: Insecta
Order: Coleoptera
Family: Melyridae
Genus: Hypebaeus
Species: flavipes

English name: Beetle

Distribution in Great Britain: It has been found in Britain only at Moccas Park in Herefordshire. The species is likely once to have been more widely distributed in Britain, although there appear to be no reference to subfossil specimens (the relatively soft exoskeleton makes fossilization less likely in this species).

Distribution elsewhere: It is somewhat less uncommon in southern Europe where it is also less stenotypic, also occurring on Hornbeam.

Status in Great Britain: The species is categorized Endangered in The Insect British Red Data Books. Found only at one site in Great Britain. It has been found there on less than half a dozen individual trees in over 50 years. The exact population size of the beetle is unknown but is likely to be small.

Habitat: It is associated with very large, living but ancient, red-heart rotted oaks in Britain, almost certainly being predatory as a larva and living within dead wood on the tree. The diet of the adults is unknown but they are found, during June and July, on the foliage of ancient, heart-rotted oaks and on the grass and other herbage beneath such trees. The adults of other members of the family feed on nectar and pollen but may also be carnivorous.

Threats: Like many obligate saproxylic (dependent on dead wood) species it is threatened by loss of habitat. The tree generation structure in the park is poor, with few younger/intermediate aged trees to replace post-mature trees as they die. Fallen wood has been removed from the site and burnt, and herbicides and fertilizers have been used in the vicinity of the ancient trees. All these activities are detrimental to the conservation of the species.

The species is highly "collectable", being relatively easily found on its known trees during the adult period of the year and it is known that unauthorised collecting has occurred in recent years. Collecting methods attempting to find the species at other times of year, either as larvae, pupae or pre-emergence adults, are extremely damaging to the ancient tree habitat and should not be permitted.

Existing legal protection: None

Recommendation: Full protection.

Conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would protect the beetle from collectors and help to prevent damage to places used for shelter and protection. Extra weight would be added to efforts to prevent habitat changes detrimental to the species.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
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Scientific name:

Division/Phylum: Uniramia
Class: Insecta
Order: Coleoptera
Family: Hydrophilidae
Genus: Paracymus
Species: aeneus

English name: None

Distribution in Great Britain: The only known site is now the mud flats at Bembridge (Isle of Wight).

Distribution elsewhere: Found in coastal lagoons in the circum-Mediterranean region. The British population represents an isolated northern outpost of a previously more extensive distribution.

Status in Great Britain: Listed in the British Insect Red Data Book as Endangered. This species had previously been recorded from Essex in addition to the Isle of Wight, but more recent surveys in Essex have failed to locate it.

Habitat: Inhabits saltmarshes.

Threats: Loss of saltmarsh habitat through rubbish disposal is the main threat to the last known site at Bembridge. Development pressures have also increased recently, particularly for housing schemes and marinas.

Existing legal protection: None.

Recommendation: Full protection.

Conservation benefits which would accrue from acceptance of the recommendation:

The addition of this species to Schedule 5 would prohibit collection. It would also aid in protecting the species from development proposals, by highlighting its importance to local planning authorities.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Uniramia
Class: Insecta
Order: Lepidoptera
Family: Nymphalidae
Genus: Argynnis
Species: adippe

English name: High brown fritillary butterfly

Distribution in Great Britain: Formerly very widespread throughout England and Wales, it has declined severely such that there are now only a small number of colonies left in S Cumbria, the Marches and the SW Peninsula. There is evidence that the decline is continuing in all areas.

Distribution elsewhere: Widespread across the Palaearctic east to Japan and south to North Africa. The British population forms a separate subspecies vulgoadippe Verity.

Status in Great Britain: Categorized as Vulnerable in the British Insect Red Data Books. If the current rate of decline continues then it will soon be justified for revision of its status to Endangered. The species occurs on two NNRS in Cumbria and a number of SSSIs throughout its current range, although it appears to be declining on most of these.

Habitat: The larvae feed on various species of violet in open woodland, notably coppice, and in lightly scrubbed calcareous grassland. It also breeds in some southern areas on violets growing under advancing bracken invasion of grassland. The adults frequent flowers of bramble and various composites, notably thistle and ragwort. NCC is currently funding a study into the species' ecology and habitat needs.

Threats: The cause of the species' decline has largely been neglect of its habitat, the reversion of coppice-woodland to high forest and the complete scrubbing over of its grassland habitat. Bracken management may also be a threat to the species where it is dependent on violets under bracken. Its rapid decline has led to an increase in its desirability to collectors and there was an incident in 1990 of mass collecting from its Cumbrian stronghold. Declining populations have been sufficiently weakened for such collecting to be a significant threat to the individual colony's survival.

Existing legal protection: The species is included on Schedule 5 with respect to Section 9(5) only, thus allowing monitoring of commercial sales.

Recommendation: The protection should be extended to full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Vulnerable populations will be protected from the depredation of collectors. Additionally, the species' plight and ecological needs will be highlighted, given its status as a fully protected species.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Uniramia
Class: Insecta
Order: Lepidoptera
Family: Geometridae
Genus: Thalera
Species: fimbrialis

English name: Sussex emerald moth

Distribution in Great Britain: It has been recorded as resident in Britain only from Dungeness in Kent and possibly formerly from the Crumbles in Sussex from where it is now extinct. It has also been recorded in the past as a vagrant in Dorset, Hampshire and elsewhere in Sussex. Recently it has been found as larvae only on a very small area of shingle, mainly within and immediately adjacent to the compound of the Nuclear Power Station on Dungeness. Adults have been seen in significant numbers only in the same area. It is not known why the species is so restricted within the larger area of Dungeness.

Distribution elsewhere: Very widely distributed throughout the Palaearctic, including nearly all the European mainland.

Status in Great Britain: This species is categorised as Endangered in the British Insect Red Data Book. Work in 1991 in association with Nuclear Electric, to assess the population size, has shown Sussex Emerald caterpillars to be present only in small numbers over a very restricted area.

Habitat: The larvae feed upon a variety of low growing vegetation, including yarrow Achillea millefolium, wild carrot Daucus carota and ragwort Senecio jacobaea. Adults fly at night in July and August and come readily to light. They are sometimes found at rest on the stems of false oat grass.

Threats: The species is highly "collectable" as adults and larvae. There is evidence that approximately 50 larvae were taken from the single population at Dungeness in 1990. Given the small area that the moth is utilizing, the removal of further individuals from the population could pose a threat to the continued existence of the species in Britain.

Existing legal protection: None.

Recommendation: Full protection.

Conservation benefits which would accrue from acceptance of the recommendation:

The species would be protected from collecting. When the ecology of the species is better understood, any deleterious changes to the places it uses for shelter and protection could also be resisted.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Mollusca
Class: Pelecypoda
Order: Mytiloida
Family: Pinnidae
Genus: Atrina
Species: fragilis

English name: Fan mussel

Distribution in Great Britain: West and south coasts of British Isles, Shetland, Orkney (Seaward 1990); also east Scotland, more common in south (Woodward 1985).

Distribution elsewhere: South to the Iberian Peninsula (Tebble 1966).

Status in Great Britain: Widely distributed around the British Isles, but rarely encountered by surveyors.

Habitat: In mud, sandy mud or gravel, attached to small stones or shells. Offshore and mainly deep water (>50 m).

Threats: This is the largest European bivalve mollusc and is rare in GB. Its large size makes it attractive to collectors, both by 'professional' and incidental collectors. Little is known of its growth rates, reproduction cycles or longevity, and hence sustainability of collection, even at an incidental level. Dredging and bottom trawling are also threats.

Existing legal protection: None.

Recommendation: Full protection.

Conservation benefits which would accrue from acceptance of the recommendation:

Protection from collectors of a species which is highly attractive as a curio. Scheduling would strengthen arguments in debates over the establishment of mobile fishing gear exclusion areas under the Scottish Inshore Fishing Act.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Mollusca
Class: Gastropoda
Order: Mesogastropoda
Family: Caecidae
Genus: Caecum
Species: armoricum

English name: De Folin's lagoon snail

Distribution in Great Britain: The Fleet, Dorset. This is the only confirmed population in the world.

Distribution elsewhere: Live individuals have only been recorded from the Fleet. Empty shells have been recovered from the Atlantic coast from Portugal to the Bay of St Malo.

Status in Great Britain: The species was originally described from shells. The only recorded occurrence of the live animal is from the Fleet in Dorset, where it is locally abundant. The small adults are easily overlooked and it is possible other colonies may exist within the species range where empty shells have been found.

Habitat: Saline lagoons. There is little information as this species was only known from empty shells until 1987, when live individuals were discovered in the Fleet. It occurs in a very specialised and restricted microhabitat in the spaces between the small pebbles of Chesil Beach, around 5 cm or more deep, along parts of the Fleet shore where seawater issues from the Beach, keeping the interstices clear of clay.

Threats: It is obviously highly vulnerable to disturbance and pollution of the Fleet and its specialised habitat. The marine life of the Fleet depends on a free flow of good quality seawater from Portland Harbour, which is under considerable recreational and developmental pressures and suffers occasional pollution.

Existing legal protection: None.

Recommendation: Full protection.

Conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit collection and would protect the species by helping to prevent damage to or destruction of the places it uses for shelter and protection.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Mollusca
Class: Gastropoda
Order: Mesogastropoda
Family: Assimineidae
Genus: Paludinella
Species: littorina

English name: 'Lagoon snail'

Distribution in Great Britain: There are records from nine sites in southern England and two in south Wales, but most of these were recorded between 70 and 130 years ago.

Distribution elsewhere: This is primarily a Mediterranean species (absent from the Black Sea) which extends along Eastern Atlantic coasts from Madeira north to a limit on the south coast of England.

Status in Great Britain: Of the eleven recorded occurrences, only two are clearly of living specimens rather than empty shells. These are from rock crevices at high water mark at Whitecliffe Bay, Isle of Wight (in 1852 but not subsequently) and from the Fleet, Dorset (in the 1850s, in 1888 and since 1985). Thus the only currently known colony is from the Fleet, where it is occasional in suitable high water mark deposits at several points along the Chesil shore.

Habitat: Saline lagoons. At high water mark, among moist rotting seagrass or saltmarsh vegetation or under stones, or in crevices high on the shore.

Threats: The specialised habitat and small numbers of colonies render it vulnerable. There are potential threats to the Fleet. Plans for a power station are now in abeyance, but Portland Harbour, from which the Fleet receives its sea water, is under increasing recreational and development pressure and suffers occasional pollution.

Existing legal protection: None.

Recommendation: Full protection.

Conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit collection and would protect the species by helping to prevent damage to or destruction of the places it uses for shelter and protection.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Mollusca
Class: Gastropoda
Order: Nudibranchia
Family: Tergipedidae
Genus: Tenellia
Species: adspersa

English name: Lagoon sea slug

Distribution in Great Britain: British records are from Aberlady Bay, East Lothian, in the Firth of Forth; Northumberland; north Norfolk; southeast and south coasts; the Bristol Channel; and Liverpool Bay.

Distribution elsewhere: 'Worldwide', more precise information not available.

Status in Great Britain: Five of the eleven British records date from before 1900. In the present century it has been reported from saltmarsh pools in the Firth of Forth; New England Creek, a saline lagoon in South Essex, where it was "fairly common"; a creek in north Norfolk (five animals); a lagoon near Dersingham, West Norfolk (a single individual); the beach at Portishead, North Somerset (a single individual); and the Fleet, Dorset, where it was frequent from 1975 to 1982, then not found again until 1987 when it was present in small numbers. The decline at the last site may be related to a reduction in the abundance of the hydroids on which it feeds. Although easily overlooked, it is certainly rare and there is at present only one definite British site.

Habitat: Saline lagoons (but has been recorded in the past from the lower shore or canals with little contact with the sea). It can live in waters subject to wide variations in temperature and salinity.

Threats: The species is vulnerable in Britain due to its highly restricted distribution. The brackish lagoon habitat is also very vulnerable, many lagoons having been lost through saltmarsh reclamation, isolation from the sea during construction of sea defences, infilling or pollution through being used for rubbish disposal, or natural hydrosereal succession. The considerable recreational and developmental pressure on Portland Harbour and occasional pollution pose a threat to the Fleet, as Portland Harbour is the source of sea water to the Fleet.

Existing legal protection: None.

Recommendation: Full protection.

Conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit collection and would protect the species by helping to prevent damage to or destruction of the places it uses for shelter and protection.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
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Scientific name:

Division/Phylum: Mollusca
Class: Pelecypoda
Order: Veneroida
Family: Thyasiridae
Genus: Thyasira
Species: gouldi

English name: Northern hatchet-shell

Distribution in Great Britain: Populations are known from upper Loch Etive and Loch Carron, Western Scotland and from Sullom Voe, Shetland.

Distribution elsewhere: Boreal-arctic.

Status in Great Britain: The population in Loch Etive is believed to have declined considerably in recent years.

Habitat: In mud in upper basin of brackish sea loch.

Threats: Populations would be vulnerable to physical disturbance from trawling or dredging (including suction dredging) activities. The population in Loch Etive was the subject of a scientific study by the Scottish Marine Biological Association (Blacknell & Ansell 1975).

Existing legal protection: None.

Recommendation: Full protection.

Conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit collection. It would also protect the species by strengthening the argument for the establishment of mobile fishing gear exclusion areas under the Scottish Inshore Fishing Act.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Cnidaria
Class: Octocorallia
Order: Gorgonacea
Family: Plexeuridae
Genus: Eunicella
Species: verrucosa

English name: Pink sea fan .

Distribution in Great Britain: Southern and western GB, north to south-west Wales (Strumble Head).

Distribution elsewhere: Western Ireland to Co Donegal, south to south-west Europe, Mediterranean, north-west Africa.

Status in Great Britain: Occurs in suitable habitats in southern and western British Isles.

Habitat: Sublittoral bedrock in moderate wave exposures (10-100 m).

Threats: Long-lived and slow growing species, attractive as a curio. Collected on an opportunistic scale by divers in southern Britain.

Existing legal protection: None.

Recommendation: Protection from killing, injuring, taking, possession and sale (Sections 9(1), 9(2) and 9(5)).

Conservation benefits which would accrue from acceptance of the recommendation:

Prevention of over exploitation for trade. The species is long-lived and slow to recruit, which makes it particularly vulnerable to such activities.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Annelida
Class: Polychaeta
Order: Terebellidae
Family: Ampharetidae
Genus: Alkmaria
Species: ramijni

English name: Tentacled lagoon worm

Distribution in Great Britain: Rare. Currently known from four sites. The species is very small and could be overlooked so the distribution could be more extensive.

Distribution elsewhere: Limited distribution on the eastern North Sea coast and recorded from one site in Morocco. Insufficient information to describe the significance of the British population.

Status in Great Britain: Rare but locally abundant where found.

Habitat: Saline lagoons. Builds tubes in the mud.

Threats: The species is vulnerable in Britain due to its highly restricted distribution. The brackish lagoon habitat is also very vulnerable, many lagoons having been lost through saltmarsh reclamation, isolation from the sea during construction of sea defences, infilling or pollution through being used for rubbish disposal, or natural hydrosereal succession. Management of water levels at the species' site at Killingholme to provide expanses of exposed mud for birds to feed on has been considered to be detrimental to this species.

Existing legal protection: None known

Recommendation: Full protection

Conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit collection and would protect the species by helping to prevent damage to or destruction of the places it uses for shelter and protection.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Tubiflorae
Family: Labiatae
Genus: Ajuga
Species: chamaepitys

English name: Ground pine

Distribution in Great Britain: Native in 11 10km² in SE England.

Distribution elsewhere: Most of Europe, but declining in European countries with intensive agriculture.

Status in Great Britain: Rapidly declining in GB 24 10km² pre 1930. Now considered vulnerable.

Habitat: Chalky arable fields and open habitats in chalk grassland.

Threats: Intensive agricultural methods involving ploughing right up to edge of field, leaving no margin and use of herbicides. Also loss of open ground, caused mostly by decreases in the rabbit population.

Existing legal protection: All species of wild plant are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act 1981.

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit picking and reduce the risk of destruction of plants by ploughing and other agricultural activities.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Contortae
Family: Gentianaceae
Genus: Centaurium
Species: tenuiflorum

English name: Slender centaury

Distribution in Great Britain: Presently found at 2 sites in Dorset. Formerly on the Isle of Wight but not seen there since 1953.

Distribution elsewhere: S & W Europe. Edge of range in Britain. Morphologically distinct from European conspecifics.

Status in Great Britain: Vulnerable. Fluctuating.

Habitat: Damp grassy places and sandy soils on the coast.

Threats: Coastal development, coastal defence schemes and recreational pressures.

Existing legal protection: All species of wild plant are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act 1981.

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit picking and reduce the risk of destruction of plants as a result of coastal development. Scheduling would also emphasize the importance of the species and its vulnerable state, and deter inappropriate management at its remaining sites.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Monocotyledones
Order: Orchidales
Family: Orchidaceae
Genus: Dactylorhiza
Species: lapponica

English name: Lapland Marsh Orchid

Distribution in Great Britain: Kintyre, Ardnamurchan and possibly Rum.
Only discovered in GB in 1986.

Distribution elsewhere: N Fennoscandia.

Status in Great Britain: Vulnerable. Populations in discreet flushes,
probably only in small numbers. No trends recorded yet as the species is
only recently discovered in this country.

Habitat: Hill flushes.

Threats: These hill flushes in which it is found are imminently
threatened by extension of blanket afforestation and probably also by
inappropriate moorland management.

Existing legal protection: All species of wild plant are protected against
unauthorised uprooting or removal by Section 13 of the Wildlife and
Countryside Act 1981.

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the
recommendation:

Scheduling would prohibit picking and reduce the risk of destruction of
plants by forestry operations.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Asterales
Family: Compositae
Genus: Filago
Species: pyramidata

English name: Broad-leaved cudweed

Distribution in Great Britain: 5 10km² in GB.

Distribution elsewhere: S & W Europe, declining in western Europe.

Status in Great Britain: Endangered. Has declined from 96 to 5 10km² since 1930.

Habitat: Sandy fields and other open, disturbed habitats.

Threats: This species is a close relative of F. lutescens, already scheduled, and it grows in similar habitats although not at the same sites. Both species have suffered a dramatic decline and are constantly threatened because they grow in marginal places and often on waste ground. This habitat is particularly under pressure in S England at present. The largest GB population of 10,000 plants is currently threatened by quarrying.

Existing legal protection: All species of wild plant are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act 1981.

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit picking and reduce the risk of destruction by developments such as quarrying.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Contortae
Family: Gentianaceae
Genus: Gentianella
Species: anglica

English name: Early gentian

Distribution in Great Britain: Southern England. 36 10km².

Distribution elsewhere: Endemic.

Status in Great Britain: Highly vulnerable. Declined from 66 to 36 10km².

Habitat: Cliffs, dunes and grassland on chalk and limestone.

Threats: Coastal development and increased trampling from recreational pressure. Conversion of old grassland to arable land.

Existing legal protection: All species of wild plant are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act 1981. Listed in Appendix I of the Bern Convention and in Annex II of the draft EC Habitat and Species Directive, implying a duty on the UK to protect this species. As it occurs nowhere else this is a considerable responsibility.

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit picking and reduce the risk of destruction by coastal development and land use change. International obligations would be fulfilled.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Contortae
Family: Gentianaceae
Genus: Gentianella
Species: uliginosa

English name: Dune gentian

Distribution in Great Britain: 5 10km² in S Wales.

Distribution elsewhere: N & N Central Europe. Endangered in France and Germany and threatened throughout its range.

Status in Great Britain: Vulnerable. 8 sites with small populations.

Habitat: Dune slacks.

Threats: Increased recreational pressure, also, obversely, over-stabilisation of some dune areas.

Existing legal protection: All species of wild plant are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act 1981.

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit picking. It would also increase public awareness of the rarity and presence of this species and thus help to prevent destruction of plants by visitors to its remaining sites.

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SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
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Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Centrospermae
Family: Chenopodiaceae
Genus: Halimione
Species: pendunculata

English name: Stalked orache.

Distribution in Great Britain: One site only in Essex.

Distribution elsewhere: N W Europe, eastwards to the Crimea. Rare and possibly extinct in many localities in N W Europe.

Status in Great Britain: Endangered in GB. Endangered in Europe. Considered extinct in GB in 1935 but rediscovered in 1987.

Habitat: Upper saltmarsh

Threats: Loss of single locality from unsympathetic management, especially ploughing.

Existing legal protection: All species of wild plant are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act 1981.

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit picking and protect the species from activities such as ploughing, which could cause its extinction in this country.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Asterales
Family: Compositae
Genus: Hieracium
Species: attenuatifolium

English name: Weak-leaved hawkweed

Distribution in Great Britain: One locality only, in Shetland.

Distribution elsewhere: Endemic.

Status in Great Britain: Confined to its type locality, first described in 1925, when it was abundant. In 1965 it was still abundant, but in 1987 the colony had been reduced to 12 flowering plants and in 1991 19 plants were recorded.

Habitat: Coastal grassland.

Threats: Inappropriate grazing at the only site.

Existing legal protection: All species of wild plant are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act 1981.

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit picking and emphasise the importance of the only locality for this species, thus giving impetus to the negotiation of a suitable grazing regime.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Asterales
Family: Compositae
Genus: Hieracium
Species: northroense

English name: Northroe hawkweed

Distribution in Great Britain: One site in Shetland

Distribution elsewhere: Endemic.

Status in Great Britain: Believed to have been at 2 sites in 1948 but now found at only one where the 1987 population was estimated at 300 plants.

Habitat: Coastal grassland

Threats: Inappropriate grazing at the only remaining site and ploughing and cultivation of remaining site.

Existing legal protection: All species of wild plant are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act 1981.

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit picking and help to prevent destruction by cultivation.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Asterales
Family: Compositae
Genus: Hieracium
Species: zetlandicum

English name: Shetland hawkweed

Distribution in Great Britain: One 10km² only in Shetland.

Distribution elsewhere: Endemic.

Status in Great Britain: Discovered in 1889. 1908 - plentiful in many places in Northmarine. 3 localities known in 1965. Now thought to be at only 2 sites.

Habitat: Coastal grassland

Threats: Changes in land use from grazing to cultivation. Concern was expressed as far back as 1965 when it became clear that much of the area (Northmarine) was now cultivated and the distribution of the species was very restricted. The situation has slowly deteriorated since then.

Existing legal protection: All species of wild plant are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act 1981.

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit picking and help to prevent destruction by changes in agricultural practice.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Campanales
Family: Campanulaceae
Genus: Limosella
Species: australis

English name: Welsh mudwort .

Distribution in Great Britain: 2 10km² in Caernaroonshire, Wales.

Distribution elsewhere: A disjunct distribution - America, Africa and Australia. The GB populations represent the only European sites.

Status in Great Britain: Vulnerable. Declined from 3 to 2 10km².

Habitat: Estuarine mud.

Threats: Road development at present at one of its 2 remaining sites.

Existing legal protection: All species of wild plant are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act 1981.

Recommendation: Full protection

Additional Conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit picking and strengthen the case for preventing the uprooting and destruction by developments such as road construction.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Campanales
Family: Campanulaceae
Genus: Phyteuma
Species: spicatum

English name: Spiked rampion.

Distribution in Great Britain: 3 10km² in Sussex.

Distribution elsewhere: S Norway to Estonia, southwards to N Spain.

Status in Great Britain: Declined from 6 to 3 10km². Vulnerable. About 400 plants present in 7 localities in 1987. Has shown a marked decline since 1980, and many populations reduced to a few individuals.

Habitat: Woods, roadside verges and steep banks.

Threats: Verge mowing, cessation of coppicing. This is a rapidly declining species which needs both protection and active management within the next 5 years, if it is not to become extinct in GB.

Existing legal protection: All species of wild plant are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act 1981.

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit picking and help to prevent destruction of plants by verge mowing.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Polygonales
Family: Polygonaceae
Genus: Rumex
Species: rupestris

English name: Shore Dock

Distribution in Great Britain: Isles of Scilly, Cornwall, Devon and Gwynedd.

Distribution elsewhere: France and Spain, where it is vulnerable. This is one of the world's rarest docks; nowhere is it common and Britain has the majority of the populations.

Status in Great Britain: Vulnerable. Widespread at the beginning of the century, but now restricted to 12 sites, with a total population of only 293 plants in 1989.

Habitat: Upper part of rocky and sandy shores, and dune slacks.

Threats: Seaside building development, afforestation of sand dunes, and increased recreational pressure. It occurs exactly where people like to sit in the shelter at the top of the beach.

Existing legal protection: All species of wild plant are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act 1981. This plant is listed in Appendix I of the Bern Convention and on Annexes II and V of the draft EC Habitat and Species Directive, thus the UK has a duty to protect the population of the species.

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit picking and help to prevent the destruction of plants by building development and afforestation. In addition, attention would be drawn to the fact that even 'weedy' species like docks are under severe threat, and that Britain holds the world's best populations of the world's rarest dock. International obligations would be fulfilled.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Tubiflorae
Family: Labiatae
Genus: Salvia
Species: pratensis

English name: Meadow clary

Distribution in Great Britain: 10 10km² in S England and Monmouthshire.

Distribution elsewhere: Scattered throughout Europe. Declining in N W Europe. Reaches the edge of its range in GB.

Status in Great Britain: Marked decline from 28 to 10 10km². Only a few strong populations; many sites now having only a few individuals.

Habitat: Calcareous grassland. Occasionally found in waste places as a casual, usually from a garden escape.

Threats: Ploughing up of ancient grassland (90% loss of this habitat in GB) application of herbicides and fertilizers on remaining areas of old grassland.

Existing legal protection: All species of wild plant are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act 1981.

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit picking and help to prevent destruction by ploughing of the grasslands in which the species grows.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Rhoeadales
Family: Cruciferae
Genus: Thlaspi
Species: perfoliatum

English name: Perfoliate penny-cress

Distribution in Great Britain: 5 10km² in Oxfordshire and Gloucestershire

Distribution elsewhere: Endemic to Europe, occurring northwards from N E France, N Austria and N Ukraine.

Status in Great Britain: Vulnerable

Habitat: Open ground, spoils and walls on limestone

Threats: Loss of habitat through back filling of quarries for agricultural reclamation and use as a dumping areas.

Existing legal protection: All species of wild plant are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act 1981.

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit picking and help to prevent the destruction of plants by in-filling of the quarries that are its main habitat.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Pottiales
Family: Pottiaceae
Genus: Acaulon C. Muell.
Species: triquetrum (Spruce) C. Muell.

English name: Triangular pygmy-moss

Distribution in Great Britain: A strongly southern species which has been recorded from scattered sites along the south coast of England from Devon to East Sussex.

Distribution elsewhere: Widely distributed in West and Central Europe, particularly in the Mediterranean region, N. Africa, N. America, Australasia. Reaches its northern limit in GB.

Status in Great Britain: Endangered. Never common, this species has declined, and is now known from only three sites in Dorset, the Isle of Wight and East Sussex. All populations small.

Habitat: Bare, usually calcareous soil close to the sea. Most frequently it is found on cliff tops, particularly in the zone of open vegetation maintained by soil slippage near the edge of the cliff, but also near to tracks or in turf-cutting scars. At one former site it was reported from mud banks.

Threats: Loss of bare ground through competition with other vegetation, such as through the prevention of erosion by coastal protection works. Spread of housing and holiday developments have probably caused its disappearance from several sites, and is still a threat at least at the East Sussex site. Particularly vulnerable to collecting by botanists because of small size of populations.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Adding this species to Schedule 8 would prohibit unauthorised collection. It would also help to prevent destruction of plants during coastal building developments.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Pottiales
Family: Pottiaceae
Genus: Barbula Hedw.
Species: cordata (Jur.) Braithw.

English name: Cordate beard-moss

Distribution in Great Britain: Known only from a single site in Devon.

Distribution elsewhere: Widespread in central and southern Europe, extending east to Russia and Turkey. Britain is at the northern limit of its distribution. The British population is therefore important on phytogeographical grounds.

Status in Great Britain: Endangered. Only female plants recorded in Britain, which reproduce vegetatively, so dispersal is likely to be over a short distance only.

Habitat: On an earthy rocky bank and on cliffs by the sea.

Threats: Road improvement schemes, encroachment by other vegetation, sheep dislodging parts of the cliff-face. Coastal defence construction. Collecting is a serious threat, as this plant is known from only one site.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Adding the species to Schedule 8 would help to prevent destruction of plants by road improvements and repairs and by coastal defences. It would also prohibit unauthorised collecting.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Pottiales
Family: Pottiaceae
Genus: Barbula Hedw.
Species: glauca (Ryan) Moell.

English name: Glaucous beard-moss

Distribution in Great Britain: Now known from only one site in Wiltshire. It also occurred in sites in West Sussex and North Yorkshire, but it has not been seen in either of these since the First World War.

Distribution elsewhere: Widely scattered through Europe from Britain to Romania, and Scandinavia to Italy, and also on the Canary Islands. Most frequent in Central Europe.

Status in Great Britain: Endangered. Population fluctuates, decreasing when becoming shaded, but increasing through vegetative propagules when light is restored.

Habitat: Dry chalk crevices, or on thin immature soils beneath these, sheltered, in an old chalk quarry.

Threats: Increased shading from trees and scrub, rubbish dumping. Collecting is a serious threat, as this plant is known from only one site.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Adding this species to Schedule 8 would prohibit unauthorised collecting and help to protect it from rubbish dumping.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Bryales
Family: Bartramiaceae
Genus: Bartramia Hedw.
Species: stricta Hedw.

English name: Rigid apple-moss

Distribution in Great Britain: Now known only from two sites in Powys and one in Perth, but in the 19th century it was also known from two sites in East Sussex.

Distribution elsewhere: Widespread around the Mediterranean, and in Europe reaching as far north as Britain and the Baltic states. Also known in central Africa, Macaronesia, N. America and Australia.

Status in Great Britain: Vulnerable. Populations small and decreasing.

Habitat: On soil in ledges and rock crevices of calcareous rocks, and on thin soil overlying such rocks on banks, usually in sheltered sunny situations on south-facing slopes.

Threats: Quarrying, rock-climbing, collecting. Collecting is a particularly serious threat, as this moss is quite conspicuous, and attractive to botanists.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Adding this species to Schedule 8 would prohibit unauthorised collecting and would help to prevent the destruction of plants by quarrying.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Bryales
Family: Bryaceae
Genus: Bryum Hedw.
Species: mamillatum Lindb.

English name: Dune thread-moss

Distribution in Great Britain: Has been recorded from five sites in Merseyside, Lincolnshire, Humberside and Norfolk, but has almost certainly disappeared from some of them.

Distribution elsewhere: Scattered around the Baltic and North Sea coasts, north to Spitzbergen and Greenland. Also reported from Italy.

Status in Great Britain: Endangered. All populations declined or disappeared.

Habitat: Moist calcareous sandy soils near the coast, particularly in dune slacks.

Threats: Urban and holiday developments, encroachment of agricultural land, dune stabilization, recreational pressures, water extraction. Collecting may be a problem if any one site for the moss becomes well-known.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

There is a suite of bryophytes associated with dune slacks, many of which are rare or endangered. This moss is probably the rarest representative of the community, and adding it to Schedule 8 would draw the attention of conservation bodies and others to this little-known and highly-threatened group of plants and so would help to protect them from destruction by urban development or agricultural change. In addition, unauthorised collecting would be prohibited.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Bryales
Family: Bryaceae
Genus: Bryum Hedw.
Species: schleicheri DC.

English name: Schleicher's thread-moss

Distribution in Great Britain: Single site near Stirling. There are also some 19th century records from other sites in Central Scotland, but the plant has disappeared from these.

Distribution elsewhere: Widespread throughout Europe, Western Asia and N. Africa.

Status in Great Britain: Endangered. Possibly declining.

Habitat: Spongy mossy flush at an altitude of c. 300 m by a hillside stream.

Threats: Forestry, pollution. Collecting is a serious threat, as this moss is large, attractive, and known recently from only one site.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Adding the species to Schedule 8 would help to prevent destruction caused by afforestation. Unauthorised collecting would also be prohibited.

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COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Buxbaumiales
Family: Buxbaumiaceae
Genus: Buxbaumia Hedw.
Species: viridis (Moug. ex DC.) Brid. ex Moug.
& Nestl.

English name: Green shield-moss

Distribution in Great Britain: Known only from two sites in Inverness and Strathspey. There are 19th century records from other sites in the central Scottish Highlands.

Distribution elsewhere: Widely distributed through most of Europe. Also recorded from S.W. Asia, China and N. America.

Status in Great Britain: Vulnerable. Populations tend to be short-lived and ephemeral.

Habitat: Decaying conifer wood in sheltered and shaded situations.

Threats: Collecting. This is a highly conspicuous plant, of very unusual appearance, very vulnerable to collecting by botanists.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Listed on Appendix I of Bern Convention and on Annex II of the draft EC Habitat and Species Directive, thus the UK has an obligation to protect its populations of this species.

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited. Scheduling would be in compliance with international obligations.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Isobryales
Family: Cryphaeaceae
Genus: Cryphaea Mohr
Species: lamyana (Mont.) C. Muell.

English name: Multi-fruited river moss

Distribution in Great Britain: A south-western species, only known from stretches of the River Tamar (Devon & Cornwall) and the Afon Teifi (Dyfed).

Distribution elsewhere: Restricted to the Atlantic fringe of Europe from Wales to Portugal and both sides of the western Mediterranean, extending east to Switzerland. GB population therefore important internationally and as the NW limit of the species.

Status in Great Britain: Vulnerable. Probably declining.

Habitat: Exposed roots and overhanging branches of trees, and occasionally on stones, in the flood zone at the edges of rivers. Apparently restricted to the middle reaches of rivers.

Threats: Pollution, tree felling, riverbank management, collecting by botanists.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited. Adding the species to Schedule 8 would help to prevent destruction during riverbank management.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Hookeriales
Family: Hookeriaceae
Genus: Cyclodictyon Mitt.
Species: laetevirens (Hook. & Tayl.) Mitt.

English name: Bright green cave-moss

Distribution in Great Britain: Jura and Islay. Formerly found also in Cornwall.

Distribution elsewhere: Scattered along the Atlantic fringe from Scotland and Ireland to Macaronesia, and central Africa. British populations therefore of international importance.

Status in Great Britain: Vulnerable. Existing populations probably stable, but very sparse.

Habitat: Well-shaded rocks in caves, ravines and by waterfalls, near the sea.

Threats: The plant became extinct in Cornwall because of collecting by botanists and this is also a threat at its remaining sites.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised removal of even small parts of a colony would be prohibited.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Dicranales
Family: Ditrichaceae
Genus: Ditrichum Hampe
Species: cornubicum Paton

English name: Cornish path-moss

Distribution in Great Britain: Known from two sites in Cornwall, but thought to have disappeared from one of these.

Distribution elsewhere: Endemic to Cornwall.

Status in Great Britain: Endangered. At its remaining sites it is scattered over an area of about three square metres. Only male plants known, which reproduce vegetatively.

Habitat: Compacted, moist but well-drained soil, in areas of old mine spoil enriched with copper minerals, where other vegetation is sparse, by path.

Threats: Encroachment of coarse vegetation, collecting, tourist development. Collecting by botanists is a considerable threat, given the small size of the remaining known population.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit unauthorised collecting and would help to protect the plant from developments connected with tourism.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Grimmeriales
Family: Grimmeriaceae
Genus: Grimmia Hedw.
Species: unicolor Hook.

English name: Blunt-leaved grimmia

Distribution in Great Britain: Restricted to a single site in Angus.

Distribution elsewhere: An arctic-alpine species occurring in Scandinavia and some of the mountain ranges running across central Europe. Also recorded from Asia and N. America.

Status in Great Britain: Vulnerable. Population probably stable.

Habitat: Wet, sloping schists at c. 450m altitude.

Threats: Collecting is probably the main threat to this moss, plants being easy to detach from the substrate, and quite conspicuous. Dislodging of plants by rock climbers and walkers is also a potential threat.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Adding it to Schedule 8 would prohibit unauthorised collection of even small parts of a colony.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Hypnobryales
Family: Hypnaceae
Genus: Hypnum Hedw.
Species: vaucheri Lesq.

English name: Vaucher's feather-moss

Distribution in Great Britain: Restricted to a single site in the
Breadalbane Range, Perthshire.

Distribution elsewhere: Widely distributed and fairly frequent in the
northern and mountainous parts of the northern hemisphere.

Status in Great Britain: Vulnerable.

Habitat: Calcareous mica-schist rocks at about 750 metres altitude.

Threats: Collecting is probably the main threat to this moss. May also be
threatened by walkers scrambling over it.

Existing legal protection: All species of wild plants are protected
against unauthorised uprooting or removal by Section 13 of the Wildlife and
Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the
recommendation:

Adding the species to Schedule 8 would prohibit unauthorised collection of
even small portions of a colony.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Funariales
Family: Ephemeraceae
Genus: Micromitrium Aust.
Species: tenerum (Bruch) Crosby

English name: Millimetre moss

Distribution in Great Britain: Recorded from nine sites in Surrey, Sussex, Kent and Anglesey during the last 140 years.

Distribution elsewhere: In Europe it is known only from a few countries between Czechoslovakia, Sweden and Britain, and is rare everywhere. Also reported from S.E. Asia and N. America.

Status in Great Britain: Endangered. Populations are ephemeral and extremely sporadic in appearance. Only seen recently in Sussex and Anglesey. May be declining.

Habitat: Drying non-calcareous mud at the margins of lowland ponds, lakes and reservoirs, usually appearing after dry summers.

Threats: It requires water bodies whose water level drops enough to expose mud at least in the dryer summers, and it is unable to compete with other vegetation. Lack of fluctuation in water levels is probably a threat at least at its Sussex sites, at some of which the level is kept artificially high for fishing. Pollution is probably also a threat. Collecting by botanists may be a threat, because the plant relies heavily on production of spores on the rare occasions that it appears, so anything that prevents that process may endanger its survival.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Adding the species to Schedule 8 would prohibit unauthorised collection and encourage suitable management of water levels.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Bryales
Family: Bryaceae
Genus: Mielichhoferia Hornsch.
Species: mielichhoferi (Hook.) Wijk & Marg.

English name: Alpine copper-moss

Distribution in Great Britain: Restricted to two sites, one in Argyll and one in Deeside.

Distribution elsewhere: An arctic-alpine species occurring through northern Europe and in the mountains from the Pyrenees to the Caucasus. Also recorded from Asia and N. America.

Status in Great Britain: Vulnerable. Populations small.

Habitat: Damp, shaded rocks which are rich in heavy metal sulphides, particularly of iron and copper, and yield very acid water (about pH 3.2). Altitude c. 650-700m.

Threats: Collecting by botanists, mining activities.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

The two sites for this moss are well-known to botanists, and the populations of the moss are small; adding it to Schedule 8 would prohibit unauthorised collection. It would also help to prevent destruction of plants by mining activities.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Orthotrichales
Family: Orthotrichaceae
Genus: Orthotrichum Hedw.
Species: obtusifolium Brid.

English name: Blunt-leaved bristle-moss

Distribution in Great Britain: Angus, Moray, Norfolk. Old records from the southern Midlands, but it has now disappeared from this region. Native.

Distribution elsewhere: Widespread in Europe and Asia. Also present in the Canary Islands and N. America.

Status in Great Britain: Endangered. Has declined dramatically since last century, probably because of pollution and Dutch elm disease.

Habitat: On trunks and twigs of elm, ash, elder, and occasionally oak and willow and rotting wood. Often in open situations. Has a preference for base-rich bark.

Threats: Air pollution, tree felling, agricultural spray drift. Collecting by botanists is a particular threat, as colonies of this moss are all-too-easy to remove in their entirety, and are always very small in extent.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Protection would make illegal the unauthorised collection of specimens. It would also help to prevent destruction of plants during tree-felling operations.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Hypnobryales
Family: Plagiotheciaceae
Genus: Plagiothecium Br. Eur.
Species: piliferum (Sw. ex Hartm.) Br.Eur.

English name: Hair silk-moss.

Distribution in Great Britain: Two mountains in Perth and Angus. Native.

Distribution elsewhere: Scattered in the northern and more mountainous parts of Europe. Also recorded from Asia and western North America.

Status in Great Britain: Vulnerable. Populations very small.

Habitat: On and among rocks at high altitudes.

Threats: Collecting by botanists probably the main threat. Rock climbing activities may also be a threat.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Adding this species to Schedule 8 would prohibit unauthorised collection of even small portions of a colony.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Hypnobryales
Family: Brachytheciaceae
Genus: Rhynchostegium Br.Eur.
Species: rotundifolium (Brid.) Br.Eur.

English name: Round-leaved feather-moss

Distribution in Great Britain: Recent records are restricted to two sites in East Sussex and Gloucestershire. Formerly also in Somerset.

Distribution elsewhere: Scattered across central Europe from Britain and France to the Caucasus. Also recorded from Asia.

Status in Great Britain: Endangered. East Sussex population apparently stable while the tree remains suitable, but small in extent. Gloucestershire population consists of 3 small colonies, all apparently stable, but highly vulnerable to any change.

Habitat: In East Sussex, on the bole of an old coppiced ash in a hedgerow by a path on chalk downland. Shaded. In Gloucestershire, on the base of a field maple and on damp, shaded limestone in a steep bank and on a wall.

Threats: Shade removal through branch-trimming, etc; agricultural spray drift, felling, or damage to trees; road and wall maintenance. Collection is a very serious threat to this plant, as it is restricted to one small colony.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit unauthorised collection and damage to the trees on which it depends.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Dicranales
Family: Dicranaceae
Genus: Saelania Lindb.
Species: glaucescens (Hedw.) Broth.

English name: Blue dew-moss

Distribution in Great Britain: Restricted to three glens in the eastern Scottish Highlands, in Angus and Strathspey.

Distribution elsewhere: Widespread in Europe but becoming more montane southwards. Also reported from Asia, S. Africa, N. America, Oceania and New Zealand.

Status in Great Britain: Vulnerable. Populations small and decreasing.

Habitat: On damp rock or skeletal soils on calcareous mica-schist at altitudes between 600 and 800 metres. Prefers shaded situations.

Threats: Collecting by botanists is a serious threat, because this moss is very attractive. Climbers and walkers may inadvertently damage the colonies.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting of even small portions of a colony would be prohibited.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Hypnobryales
Family: Amblystegiaceae
Genus: Scorpidium (Schimp.) Limpr.
Species: turgescens (T. Jens.) Loeske

English name: Large yellow feather-moss

Distribution in Great Britain: A glacial relict species restricted to one mountain in the Breadalbanes (Perthshire). A record from Gwynedd in 1922 is regarded as doubtful, and has never been confirmed.

Distribution elsewhere: An arctic-alpine species of northern Europe and of mountain areas further south. Also one lowland site in Poland. Also recorded in Asia, N. America and S. America.

Status in Great Britain: Vulnerable. Abundant over an area of about 25 square metres.

Habitat: High altitude base-rich flush, near a late snow-patch.

Threats: Collecting by botanists, trampling by walkers. Although it would take a lot of collecting or trampling to eradicate this moss outright, a relatively small amount may damage the integrity of the flush, thus contributing to its ultimate disappearance.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Adding this species to Schedule 8 would prohibit unauthorised collection and help to prevent damage due to recreational activities.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Sphagnopsida
Order: Sphagnales
Family: Sphagnaceae
Genus: Sphagnum L.
Species: balticum (Russ.) C.Jens.

English name: Baltic bog-moss.

Distribution in Great Britain: Recorded from six widely scattered sites in Dyfed, Cheshire, Yorkshire, Northumberland, Dumfries and Deeside.

Distribution elsewhere: Widespread in northern Europe, extending south to the Alps and Yugoslavia. Also present in N Asia and N America, including Greenland.

Status in Great Britain: Vulnerable. This moss has declined because of drainage.

Habitat: Oligotrophic to slightly mesotrophic raised bogs, or more rarely blanket bogs, where it forms carpets in the wetter areas, such as bog pools and channels, and in the hollows of hummock-hollow complexes.

Threats: Drainage, afforestation, lowering of the water table. Collecting by botanists probably only a minor threat, but indiscriminate collecting of Sphagnum for horticultural purposes may be more of a threat.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling will help to prevent the destruction of Sphagnum balticum by afforestation. Its inclusion also serves to highlight the ecological importance of Sphagnum in bog communities, and as a peat-former, and the threatened nature of bog habitats generally due to afforestation and drainage. Addition to Schedule 8 would give the moss protection from collecting of Sphagnum for horticultural purposes.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Isobryales
Family: Thamniaceae
Genus: Thamnobryum Nieuwl.
Species: angustifolium (Holt) Crundw.

English name: Derbyshire feather-moss

Distribution in Great Britain: Restricted to a single site in Derbyshire.

Distribution elsewhere: Endemic. Therefore the Derbyshire population is unique.

Status in Great Britain: Endangered. Apparently stable, but may have decreased due to collecting.

Habitat: On a single shady limestone rock face by a calcareous spring, so that it is inundated by a torrent of water for much of the year. However, it dries out completely in the summer.

Threats: Public pressure, pollution. Collecting is a particularly serious threat, as the site is well-known to botanists, and the plant very attractive to collectors.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit unauthorised collecting of even small samples of plant material.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Orthotrichales
Family: Orthotrichaceae
Genus: Zygodon Hook. & Tayl.
Species: forsteri (With.) Mitt.

English name: Knothole Moss

Distribution in Great Britain: Three sites in Essex, Buckinghamshire and Hampshire.

Distribution elsewhere: Reported from a few scattered countries, mainly in western Europe, but extending to Madeira, Algeria and Bulgaria. Rare everywhere. Therefore, GB population internationally important.

Status in Great Britain: Endangered. Populations fluctuate according to management changes, but are always fairly small.

Habitat: On ancient woodland beeches, around knot-holes and in rain tracks where water runs down the bark, and on exposed roots. Populations tend to be ephemeral, moving from tree to tree, so groves of beech trees where management is minimal are required.

Threats: Storm damage, felling, inappropriate woodland management (e.g. pollarding). Collection by botanists is a particular threat to this moss, the sites being well known and the populations small.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit unauthorised collecting and damage to the trees on which it depends.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Bryopsida
Order: Orthotrichales
Family: Orthotrichaceae
Genus: Zygodon Hook. & Tayl.
Species: gracilis Wils. ex Berk.

English name: Nowell's limestone moss

Distribution in Great Britain: Known from about eight sites in the limestone area of Craven in Yorkshire, though it has been recorded recently from only three of these sites.

Distribution elsewhere: Restricted to the Alps and Carpathian mountains. Therefore GB population highly significant as a northern outlier of the main population.

Status in Great Britain: Vulnerable. Has apparently decreased and populations are small.

Habitat: The natural habitat of this species is on dry carboniferous limestone outcrops, or on loose stones, in open situations. However, it is more usually found on old dry stone limestone walls.

Threats: Repair or destruction of dry stone walls. Being overgrown by other vegetation. The sites are mostly accessible, so vulnerable to collecting by botanists.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Adding this species to Schedule 8 would prohibit unauthorised collection, and help to prevent destruction by dry stone walling.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Hepaticae
Order: Jungermanniales
Family: Adelanthaceae
Genus: Adelanthus Mitt.
Species: lindenbergianus (Lehm.) Mitt.

English name: Lindenberg's leafy liverwort

Distribution in Great Britain: Islay.

Distribution elsewhere: W Ireland. Has a wide and disjunct distribution in the tropics and the southern hemisphere. The GB population is its northern world limit.

Status in Great Britain: Vulnerable. Recently discovered, the Islay population is probably a fairly stable glacial relict. May be undergoing a long-term decline.

Habitat: NE facing rocky slope with Calluna and other liverworts of the N Atlantic Hepatic Mat community.

Threats: Afforestation, change in agricultural practice, overgrazing, muirburn. Collecting could be a problem if the site becomes widely known. Global warming a possible threat.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit unauthorised collecting and help to protect the species from destruction by burning and afforestation.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Bryophyta
Class: Hepaticae
Order: Jungermanniales
Family: Geocalycaceae
Genus: Geocalyx Nees
Species: graveolens (Schrad.) Nees

English name: Turpswort

Distribution in Great Britain: Restricted to the west coast of Scotland in Lochaber, Ross and Skye, where it has been found in five sites.

Distribution elsewhere: Widely distributed in Europe north to Scandinavia and extending eastwards to Siberia, as well as southwards to the Azores and Madeira. Also found in N America. Its apparently strongly Atlantic British distribution is not reflected in its distribution elsewhere in Europe, and it is possible that British plants differ genetically and physiologically.

Status in Great Britain: Vulnerable. Populations probably stable but always small. Regarded as vulnerable in the EC.

Habitat: On peat or humus on north facing banks in usually shaded, sheltered areas near the sea, where it is constantly humid.

Threats: Burning, reduction in humidity through tree-felling. Collecting a threat at its better-known sites.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited. Scheduling would help to prevent destruction through burning and tree felling.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Hepaticae
Order: Jungermanniales
Family: Gymnomitriaceae
Genus: Gymnomitrium Corda
Species: apiculatum (Schiffn.) K. Muell.

English name: Pointed frostwort

Distribution in Great Britain: Restricted to the Cairngorms and Ben Nevis.

Distribution elsewhere: An arctic-alpine species occurring throughout arctic Europe and in the central European mountains. Also reported from Greenland, Alaska and Japan.

Status in Great Britain: Vulnerable. Populations usually very small. Only female plants known in Britain, and as the species is not known to reproduce vegetatively, its dispersal is presumably very inefficient.

Habitat: On NE facing slopes above 1100 metres in areas of very late snow lie, usually on gravelly peat subject to periodic wetting from snow-melt.

Threats: Erosion through hill-walking activities, snow-holing, collecting by botanists and possibly global warming.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting of even small portions of a colony would be prohibited.

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Scientific name:

Divison/Phylum: Bryophyta
Class: Hepaticae
Order: Jungermanniales
Family: Jungermanniaceae
Genus: Jamesoniella (Spruce) Carringt.
Species: undulifolia (Nees) K. Muell.

English name: Marsh earwort

Distribution in Great Britain: This species has a western distribution, with 4 sites in Cornwall and Argyll. Formerly also found in Gloucs and Cumbria.

Distribution elsewhere: Widely distributed in Europe, but absent from the Mediterranean region, and rare everywhere. Also recorded from E Asia and N America.

Status in Great Britain: Endangered. Has declined drastically because of habitat destruction.

Habitat: Creeping over Sphagnum in mineral-rich bogs, where it seems to prefer more-or-less level ground. Most sites are in valley bogs.

Threats: Drainage, afforestation, burning, reservoir construction, eutrophication, poaching by livestock. Collecting a threat at its more accessible sites.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting by botanists would be prohibited. Scheduling would help to prevent destruction by afforestation, burning and reservoir construction.

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SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Bryophyta
Class: Hepaticae
Order: Jungermanniales
Family: Lophoziaceae
Genus: Leiocolea (K Muell.) Buch
Species: rutheana (Limpr.) K Muell.

English name: Norfolk flapwort

Distribution in Great Britain: Almost restricted to Norfolk, where it has been found in five sites, but only remains for certain at one. There is also a single site in Berkshire.

Distribution elsewhere: Scattered across northern Europe, reaching south to northern Germany, and east to Eurasia. Also occurs sporadically in N America.

Status in Great Britain: Endangered. Has declined dramatically.

Habitat: Wet, highly calcareous fens, in tall reed and rush swamp, or among short mixed herb-sedge-moss vegetation. Typically, it occurs on the sides of mossy hummocks or among mosses at the base of reeds.

Threats: Drainage, lowering of water table, eutrophication, becoming overgrown with coarse weeds. Collecting may be a slight threat. The plants at the remaining site in Norfolk may be under threat of uprooting and destruction from a road-widening scheme.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited. Scheduling would strengthen the case for protection against developments such as the road widening scheme.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Bryophyta
Class: Hepaticae
Order: Jungermanniales
Family: Gymnomitriaceae
Genus: Marsupella Dum.
Species: profunda Lindb.

English name: Western rustwort

Distribution in Great Britain: Known only from two sites in Cornwall.

Distribution elsewhere: Otherwise known only from Portugal and Madeira. The British populations are therefore of international importance.

Status in Great Britain: Endangered. This liverwort has not been seen for several years, and a survey is urgently needed to establish its true status.

Habitat: On moist crumbling clay and mica-rich granite in disused china-clay works.

Threats: Collecting by botanists, being overgrown by coarse vegetation.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Listed on Appendix I of Bern Convention and on Annex II of the draft EC Habitat and Species Directive, thus the UK has an international obligation to protect its populations of this species.

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited and correct management of the habitat would be encouraged. Scheduling would be in compliance with international obligations.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Bryophyta
Class: Hepaticae
Order: Marchantiales
Family: Ricciaceae
Genus: Riccia L.
Species: bifurca Hoffm.

English name: Lizard crystalwort

Distribution in Great Britain: A strongly south-western species restricted to about four sites on the Lizard Peninsula, Cornwall.

Distribution elsewhere: Widespread through most of Europe, extending to Macaronesia, N Africa and Turkey. Also present in N America and Australasia. Reaches the northern limit of its distribution in Britain.

Status in Great Britain: Vulnerable

Habitat: Muddy, gravelly or peaty soils on moist slopes, damp or wet hollows, or tracks, on cliff tops and in heaths.

Threats: Excessive trampling by people, hard-coring of paths. Collecting probably only a slight threat.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would help to prevent the destruction of plants by hard-coring of paths. Unauthorised collecting would be prohibited.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Bryophyta
Class: Hepaticae
Order: Jungermanniales
Family: Arnelliaceae
Genus: Southbya Spruce
Species: nigrella (DeNot.) Henr.

English name: Blackwort

Distribution in Great Britain: A very southern species, restricted to about five sites in Dorset and the Isle of Wight.

Distribution elsewhere: Scattered throughout the Mediterranean east to Israel and along the Atlantic coast between Britain and the Canary Islands.

Status in Great Britain: Vulnerable. Not seen recently in Dorset.

Habitat: Thin, peaty or sandy limestone soils or on rock faces, often shaded in crevices, but also in more open situations. It favours places which are moist in winter but which dry up in summer. All sites are near the sea, and are on Portland or Purbeck limestone.

Threats: Dumping, quarrying (e.g. re-opening of old Purbeck limestone quarries), recreational pressure, change in land-use, encroachment of coarse vegetation. Collecting a threat at some sites.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited. Destruction of plants in quarrying operations might be avoided.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Chlorophyta
Class: Charophyceae
Order: Charales
Family: Characeae
Genus: Chara L.
Species: canescens Desv. & Lois

English name: Bearded stonewort

Distribution in Great Britain: Restricted to a single site in Cambridgeshire. Previously known from coastal sites in Cornwall, Dorset, Suffolk, Norfolk and Orkney.

Distribution elsewhere: Recorded from most of the coastal countries of Europe, as well as in Asia, Africa and N America.

Status in Great Britain: Endangered. Cambridgeshire population only discovered recently, so fluctuations have not been observed. Other populations have vanished, though the Orkney population may still be extant.

Habitat: Usually in brackish water, but the water at its Cambs. site has not been analysed as yet. In large or small water bodies, on sandy or muddy substrates.

Threats: Water pollution, salinity change, infilling of pits. The Cambridgeshire site is threatened by leisure developments.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling work would help to prevent destruction of the plant during leisure developments.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Alecatoriaceae
Genus: Bryoria Brodo & D Hawksw.
Species: furcellata (Fr.) Brodo & D Hawksw.

English name: Forked hair-lichen

Distribution in Great Britain: Glen Affric, Glen Guisachan, Glen Srathfarrar and Abernethy Forest, Invernessshire. Probably only present on 4 or 5 trees at each of these sites. Native.

Distribution elsewhere: Scattered through the Northern hemisphere.

Status in Great Britain: Vulnerable in Britain and in the EC.

Habitat: On birch twigs and standing decorticate pine trees in relict Caledonian pine woodlands.

Threats: Removal of dead trees. Collecting by botanists probably only a slight threat.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit unauthorised collecting and would help to prevent destruction of plants by tree felling.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanidiales
Family: Buelliaceae
Genus: Buellia De Not.
Species: asterella Poelt & Sulzer

English name: Starry breck-lichen

Distribution in Great Britain: Restricted to three areas in the Suffolk Brecklands.

Distribution elsewhere: A central European species known from Norway, Germany, Switzerland and France.

Status in Great Britain: Vulnerable. Declining.

Habitat: A terricolous species of dry calcareous sandy soil, where it occurs in a lichen dominated community on rabbit-grazed turf.

Threats: Scrub encroachment due to reduction in rabbit grazing. Collecting by botanists. Acidification due to coniferization. Build-up of humus.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited and suitable habitat management would be encouraged.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Teloschistaceae
Genus: Caloplaca Th. Fr. nom. cons.
Species: luteoalba (Turner) Th. Fr.

English name: Orange-fruited elm lichen

Distribution in Great Britain: Formerly fairly frequent in lowland Britain, but has declined catastrophically. There is only a handful of recent records, widely distributed over lowland Britain.

Distribution elsewhere: Widespread in, but confined to, western Europe. Has also declined in Continental Europe.

Status in Great Britain: Vulnerable. Has declined catastrophically, mainly because of Dutch Elm Disease.

Habitat: Largely confined to mature English elms (Ulmus procera), though it can occur on other elms and, rarely, on ash, sycamore, maple and horse chestnut, in areas with less than 100 cm annual rainfall. Usually low down on the trunks, in eutrophicated situations. Also occasionally on calcareous rocks.

Threats: It has declined to such an extent that felling of particular old trees is now a significant threat. Fertilizer drift, SO₂ pollution and Dutch Elm disease are probably also threats.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit unauthorised collecting and help to prevent destruction of plants by tree-felling.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Teloschistaceae
Genus: Caloplaca Th. Fr. nom. cons.
Species: nivalis (Korb.) Th. Fr.

English name: Snow caloplaca.

Distribution in Great Britain: Recorded from two mountains in Perth and Argyll, though not seen in the latter this century.

Distribution elsewhere: Scandinavia. British population therefore highly significant.

Status in Great Britain: Endangered. Apparently "not rare" at its Perth site in Victorian times, but only two individuals have been seen in recent years.

Habitat: On mosses, especially Andreaea species, on acid rocks above 1000 metres altitude.

Threats: Collecting by botanists. Global warming and mountain climbing are also potential threats.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited. Scheduling would help to protect the plant against recreational activities.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Verrucariales
Family: Verrucariaceae
Genus: Catapyrenium Flotow
Species: psoromoides (Borrer) R. Sant.

English name: Tree catapyrenium

Distribution in Great Britain: Known only at a single site in Perth & Kinross District of Tayside. Recorded last century at two sites in W Sussex, but not seen there recently.

Distribution elsewhere: Scattered localities in western central Europe, north to Sweden, and southwards to E Africa.

Status in Great Britain: Endangered. Confined to a single tree, where it forms a hand-sized patch. Probably declined, though always very rare. Threatened in Europe.

Habitat: On rough bark of old deciduous trees in open situations. In Britain it has been recorded on ash and elm, but is known from a variety of trees elsewhere, including oak and lime.

Threats: Collecting by botanists is a major threat to this plant. Also damage to or destruction of host tree, agricultural spray drift.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Listed on Appendix I of Berne Convention.

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited. Scheduling would help to prevent felling of the tree on which this species survives.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Lecideaceae
Genus: Catillaria Massal.
Species: laureri Hepp. ex Th. Fr.

English name: Laurer's catillaria

Distribution in Great Britain: Restricted to two sites in the New Forest, Hampshire.

Distribution elsewhere: An oceanic species in Europe, known from Portugal to S Scandinavia. Also found in eastern N America.

Status in Great Britain: Vulnerable. Locally frequent at one site, but restricted to 6 trees. Probably stable.

Habitat: On trunks of old beech trees and sometimes oak trees in more or less sheltered, shaded situations.

Threats: Collecting by botanists, tree felling. Atmospheric pollution is also probably a threat.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited. Scheduling would protect the trees on which this species depends.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Cladoniaceae
Genus: Cladonia Hill ex Wigg. nom. cons.
Species: stricta (Nyl.) Nyl.

English name: Upright mountain cladonia

Distribution in Great Britain: Restricted to one area in the Cairngorms.

Distribution elsewhere: Scattered throughout Europe.

Status in Great Britain: Endangered. Restricted to three populations.

Habitat: In Nardus-Carex bigelowii grassland among boulders at the margins of late snow patches, at about 1300 metres altitude.

Threats: Trampling by walkers, snow-holing, and possibly global warming. Cladonia species are particularly susceptible to collecting by botanists, and the general public, being large and attractive.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Adding this species to Schedule 8 would prohibit unauthorised collection of even small samples of the plant.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Collemataceae
Genus: Collema Wigg. nom. cons.
Species: dichotomum (With.) Coppins & Laundon

English name: River jelly-lichen

Distribution in Great Britain: Powys, Cumbria, Northumberland, Berwickshire, Perth and Angus. Formerly widespread from Cornwall to Angus.

Distribution elsewhere: Scattered across central Europe to Romania and the USSR. Also found in N America.

Status in Great Britain: Vulnerable. This species has declined considerably because of pollution, and is considered threatened in Europe.

Habitat: On siliceous rocks, particularly Old Red Sandstone, that are submerged at least for much of the year in unpolluted rivers and (rarely) lakes. Usually in the middle reaches of rivers.

Threats: Water pollution, siltation. Collecting is increasingly a problem as the species declines.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Adding this species to Schedule 8 would prohibit unauthorised collection and encourage water authorities to control pollution in the lakes and rivers where it occurs.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Gyalectales
Family: Gyalectaceae
Genus: Gyalecta Ach.
Species: ulmi (Swartz) Zahlbr.

English name: Elm gyalecta .

Distribution in Great Britain: A mainly eastern species now confined to a few localities in N Yorks, Northumberland, Perth, Angus and Deeside. Formerly also in Shropshire, Hereford and W Sussex.

Distribution elsewhere: Widely distributed but scattered over much of Europe, including Iceland and Caucasia.

Status in Great Britain: Vulnerable. This species has declined markedly.

Habitat: On soil and mosses on calcareous rocks, and on the bases of elm trees, in sheltered and often somewhat shaded situations.

Threats: Pollution, spray drift and eutrophication. Dutch elm disease. This is an attractive species, susceptible to collecting by botanists.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited. Scheduling would also help to protect the species against pollution, especially by pesticides.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Physciaceae
Genus: Heterodermia Trevisan
Species: leucomelos (L.) Poelt

English name: Ciliate strap-lichen

Distribution in Great Britain: A south-western species now restricted to Cornwall and the Scilly Isles, with an outlying colony on Anglesey. Previously much more widespread, with old records from Devon, Dorset, Wiltshire and W Sussex.

Distribution elsewhere: Widely distributed throughout the temperate and tropical parts of the world. Oceanic in Europe, reaching its northern limit in Britain.

Status in Great Britain: Vulnerable. This species has declined markedly.

Habitat: Exposed, sunny, maritime cliffs, among mosses, grasses, thrift, etc. In the past it has been recorded from tree trunks, but it has not been seen in this habitat recently in Britain.

Threats: Burning, trampling by walkers. A large and attractive species, it is particularly susceptible to collecting.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited. Scheduling would help to protect the plant against burning.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Physciaceae
Genus: Heterodermia Trevisan
Species: propagulifera (Vainio) Dey

English name: Coralloid rosette-lichen

Distribution in Great Britain: Known only from a single site on the Isles of Scilly.

Distribution elsewhere: Widely distributed through most continents. Scilly populations important as the northern limit of the species.

Status in Great Britain: Vulnerable.

Habitat: On peaty soil and exposed coastal cliffs.

Threats: Burning, trampling by walkers. This species is large and attractive, and so particularly vulnerable to collecting.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited. Scheduling would help to protect the plant against burning.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Opegraphales
Family: Opegraphaceae
Genus: Lecanactis Eschw.
Species: hemisphaerica Laundon

English name: Churchyard lecanactis

Distribution in Great Britain: Known only from six churches in Suffolk, Kent and Dorset.

Distribution elsewhere: Unknown outside GB. Therefore GB populations must be regarded as important and unique.

Status in Great Britain: Vulnerable. Usually extensively developed in a confined area at each site.

Habitat: On shaded, sheltered walls, usually on the north or east sides of churches. It is calcicolous and occurs chiefly on plaster, but also sometimes on mortar.

Threats: Decline of external plaster walls. The threat of collecting is probably minimal.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would reduce the risk of destruction of plants during church repair work.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Lecideaceae
Genus: Lecidea Ach.
Species: inops Th. Fr.

English name: Copper lecidea.

Distribution in Great Britain: Confined to an old copper mine in Cumbria.

Distribution elsewhere: Restricted to a few sites in N and central Europe.

Status in Great Britain: Vulnerable. Grows on about 100 stones in a scree.

Habitat: Confined to copper-rich rocks of neutral to slightly basic pH, where the main copper minerals are carbonates, e.g. azurite, malachite.

Threats: Collecting by botanists is a threat, because of the very interesting ecology of this lichen. The activities of geologists and possible mining activities may also be threats.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited and scheduling would help to protect the species against potential damage by mining activities.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Lecanoraceae
Genus: Lecanora Ach.
Species: achariana A. L. Sm.

English name: Tarn lecanora

Distribution in Great Britain: This species has been recorded from two sites, in Cumbria and Gwynedd, but may have disappeared from the latter, where it has not been seen for over a century.

Distribution elsewhere: Scandinavia. Possibly also elsewhere.

Status in Great Britain: Vulnerable. Locally abundant at its Cumbrian site. It disappeared from Gwynedd following the water level being raised, in a hydro-electric scheme.

Habitat: On rocks on the shore of mountain tarns, where it is periodically inundated by water.

Threats: Acid rain is probably a threat. Also hydro-electric schemes. As this plant is apparently now confined to a single site, collecting is a considerable threat.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited. Scheduling would help to protect the species from hydro-electric schemes.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Peltigerales
Family: Peltigeraceae
Genus: Nephroma Ach.
Species: arcticum (L.) Torss.

English name: Arctic kidney lichen

Distribution in Great Britain: Only known from three colonies on two mountains in Ross and Inverness.

Distribution elsewhere: Circumpolar: widespread in low subarctic and middle boreal-alpine regions. In Europe it is restricted to the high Arctic islands, Iceland, Scandinavia and the Tatra Mountains.

Status in Great Britain: Endangered. May be declining. All populations small.

Habitat: Species-rich Racomitrium heath over shale or mica-schist soils at altitudes over 900 metres. Outside GB it is more characteristic of mossy wet meadows and rocks at the tree line and in tundra.

Threats: Collecting is a threat, as the species is conspicuous, and the number of individuals small. Global warming's probably a threat. Fell walkers may also unintentionally damage the colonies, as they occur on summit ridges.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Adding this species to Schedule 8 would prohibit unauthorised collection of even small samples from the colonies.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Pannariaceae
Genus: Pannaria Delise
Species: ignobilis Anzi

English name: Caledonian pannaria

Distribution in Great Britain: Scottish Highlands, mainly in the glens of Inverness-shire, but also in Perth, Lochaber, Lochalsh and Ross.

Distribution elsewhere: Europe and NW Africa.

Status in Great Britain: Vulnerable. Occurs at about 14 sites, but at most of these it is restricted to a single tree. Total British population probably confined to less than 30 trees.

Habitat: Base-rich bark, mainly ash, often in fairly open situations, in drier habitats than most Pannarias.

Threats: Collecting by botanists is a threat, considering the small number of individual plants. Tree felling.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Adding this species to Schedule 8 would prohibit unauthorised collection and protect the trees on which it depends.

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SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
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Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Parmeliaceae
Genus: Parmelia Ach. nom. cons.
Species: minarum Vainio

English name: New Forest parmelia

Distribution in Great Britain: Five sites in the New Forest, Hampshire.
Formerly occurred in Devon, Gloucs and Gwynedd.

Distribution elsewhere: SW Europe. British populations important as the
northerly limit of the species.

Status in Great Britain: Vulnerable. Confined to less than 30 trees.

Habitat: Well-lit trunks of beech trees, and also occasionally on oak or
chestnut in areas of ancient woodland. It has also been found (at its
Devon site) in the crevices of a stone wall.

Threats: Ancient woodland destruction, felling of, or damage to host
trees, air pollution. Collecting is a threat, in view of the small number
of individual plants.

Existing legal protection: All species of wild plants are protected
against unauthorised uprooting or removal by Section 13 of the Wildlife and
Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the
recommendation:

Unauthorised collecting would be prohibited. Host trees would be
protected.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Pyrenulales
Family: Pyrenulaceae
Genus: Parmentaria Fee
Species: chilensis Fee

English name: Oil-stain parmentaria

Distribution in Great Britain: Only known from a single site in Lochaber.

Distribution elsewhere: Widely scattered around the Atlantic and E Pacific, being known from SW Ireland, Macaronesia, Florida, the West Indies, Colombia and Juan Fernandez (Chile).

Status in Great Britain: Vulnerable. Locally frequent at its only site, where it is found in about half a dozen hazel clumps.

Habitat: Hazel bark in very sheltered and humid ravines in areas with a highly oceanic climate.

Threats: Collecting by botanists is a threat, considering the small size of the population. Coppicing. Deer damage.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited. The risk of deliberate damage to hazel clumps on which this species depends would be reduced.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Peltigerales
Family: Peltigeraceae
Genus: Peltigera Willd. nom. cons.
Species: lepidophora (Nyl. ex Vainio) Bitter

English name: Ear-lobed dog-lichen

Distribution in Great Britain: Known only from a single site in Perthshire.

Distribution elsewhere: Europe and Greenland.

Status in Great Britain: Endangered. Population very small.

Habitat: On slightly calcareous soil on flat mossy rocks beside a river in a wooded gorge.

Threats: Water pollution. Collecting by botanists is a great threat, given the small amount of this species known to occur.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited. Scheduling would encourage the water authority to control pollution of its river habitat.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Pertusariales
Family: Pertusariaceae
Genus: Pertusaria DC. nom. cons.
Species: bryontha (Ach.) Nyl.

English name: Alpine moss pertusaria

Distribution in Great Britain: Only known from a single mountain in
Lochaber.

Distribution elsewhere: Arctic-alpine areas in Europe.

Status in Great Britain: Vulnerable. Colony apparently healthy at
present.

Habitat: Encrusting mosses and dwarf shrubs growing on more or less
calcareous substrates in exposed summit heath vegetation.

Threats: Collecting is the main threat to this species, as there is only
one known population in Britain. Global warming may be a threat. Fell
walkers may inadvertently damage the colonies.

Existing legal protection: All species of wild plants are protected
against unauthorised uprooting or removal by Section 13 of the Wildlife and
Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the
recommendation:

Unauthorised collecting of even small quantities of the colonies would be
prohibited.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Phyciaceae
Genus: Physcia (Schreber) Michaux
Species: tribacioides Nyl.

English name: Southern grey.physcia

Distribution in Great Britain: SW Britain; recorded since 1960 in Dyfed, Cornwall, Devon, Hampshire and the Isle of Wight.

Distribution elsewhere: Scattered across the Atlantic fringe of Europe from the British Isles to Macaronesia. Also reported from Australasia.

Status in Great Britain: Vulnerable. This species has declined markedly, and may now only occur on the Lizard Peninsula and in Dyfed.

Habitat: Well-lit trunks of mature deciduous trees in parkland, orchards, roadsides, etc, usually in maritime areas. Rarely on boulders enriched by bird droppings.

Threats: Tree felling, orchard clearance, spray drift, shortage of suitable new host trees, scrub burning. Collecting a slight threat.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Scheduling would prohibit unauthorised collecting and would reduce the risk of destruction of plants by tree felling and orchard clearance.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Peltigerales
Family: Lobariaceae
Genus: Pseudocyphellaria Vainio
Species: lacerata Degel.

English name: Ragged pseudocyphellaria

Distribution in Great Britain: Western Britain. Known from small populations at 6 sites in western Scotland and Wales.

Distribution elsewhere: SW Ireland, Azores. Highly Atlantic distribution in Europe. Thought to be widely distributed in the tropics.

Status in Great Britain: Vulnerable.

Habitat: On trees and rocks in moist, shaded situations in highly Atlantic woodland.

Threats: Tree felling, and any management leading to reduction of the tree canopy, collecting by botanists. All Pseudocyphellaria species are attractive, and vulnerable to collection.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited. The risk of destruction of host trees would be reduced.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Lecideaceae
Genus: Psora Hoffm.
Species: rubiformis (Ach.) Hook.

English name: Rusty alpine psora

Distribution in Great Britain: Restricted to a single mountain in the Breadalbanes, Perthshire.

Distribution elsewhere: Greenland, N Europe and the Alps, arctic-alpine.

Status in Great Britain: Vulnerable. Three populations occur, all small.

Habitat: On mica-schist cliffs and boulders above 750m altitude, usually in areas occasionally flushed by seepages. Fell walkers and climbers pose a potential threat.

Threats: Collecting by botanists is the main threat to this species, in view of its very restricted occurrence.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional Conservation benefits which would accrue from acceptance of the recommendation:

Adding this species to Schedule 8 would prohibit unauthorised collection of even small portions of a colony.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Lecanoraceae
Genus: Solenopsora Massal.
Species: liparina (Nyl.) Zahlbr.

English name: Serpentine solenopsora

Distribution in Great Britain: Two sites on the Lizard Peninsula,
Cornwall.

Distribution elsewhere: Mediterranean. This species reaches its northern
limit in Britain so the Lizard populations are highly significant
biogeographically.

Status in Great Britain: Vulnerable.

Habitat: On outcrops of serpentine in sunny situations near the sea.

Threats: Collecting by botanists is the major threat to this species,
given its very limited occurrence.

Existing legal protection: All species of wild plants are protected
against unauthorised uprooting or removal by Section 13 of the Wildlife and
Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the
recommendation:

Unauthorised collecting of even a small portion of a colony would be
prohibited.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Lecanoraceae
Genus: Squamarina Poelt
Species: lentigera (Weber) Poelt

English name: Scaly Breck-lichen

Distribution in Great Britain: Five sites in SW England and Breckland, but now restricted to 3 sites in the Suffolk Brecks.

Distribution elsewhere: A continental species widely distributed in south and central Europe, extending north to northern Scandinavia.

Status in Great Britain: Vulnerable. Declining.

Habitat: On chalky earth and calcareous sand. Rarely on mosses and rocks.

Threats: Collecting by botanists, reduction in rabbit-grazing, encroachment of other vegetation, afforestation, acidification due to coniferization, build-up of humus.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited and risks from afforestation would be reduced.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981

Scientific name:

Divison/Phylum: Eumycota ("Lichenes")
Class: Ascomycetes
Order: Lecanorales
Family: Teloschistaceae
Genus: Teloschistes Norman
Species: flavicans (Swartz) Norman

English name: Golden hair-lichen

Distribution in Great Britain: South-western. Now restricted to England west of Dorset and Somerset and the coasts of Dyfed and Gwynedd. Formerly much more widespread in the south.

Distribution elsewhere: Has a Mediterranean-Atlantic distribution in Europe, Britain is its northern limit. Now threatened everywhere and more-or-less restricted to coastal areas. Also widely distributed in the tropics.

Status in Great Britain: Vulnerable. Has declined catastrophically due to habitat loss, SO₂ pollution and agricultural spray drift.

Habitat: On rocks, heather and stony ground in maritime situations, and inland (where it is very rare) on nutrient-enriched bark on old trees, mainly ash, elm and sycamore. Needs clean air.

Threats: Atmospheric pollution, loss of orchards and roadside trees, Dutch Elm disease, spray drift, trampling by people, fires. Collecting is a severe threat, because of the very attractive and conspicuous appearance of this lichen.

Existing legal protection: All species of wild plants are protected against unauthorised uprooting or removal by Section 13 of the Wildlife and Countryside Act (1981).

Recommendation: Full protection.

Additional conservation benefits which would accrue from acceptance of the recommendation:

Unauthorised collecting would be prohibited and host trees would be protected.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Euphorbiales
Family: Euphorbiaceae
Genus: Euphorbia
Species: peplis

English name: Purple Spurge

Distribution in Great Britain: Extinct. Last record in 1965 from Lundy Island, Devon.

Distribution elsewhere: Widespread throughout the Mediterranean and S. Europe.

Status in Great Britain: Extinct in GB. Rare in parts of Europe.

Habitat: An annual species of sandy and shingly beaches.

Existing legal protection: Full protection by virtue of its listing on Schedule 8.

Recommendation: Removal from Schedule.

Reason for recommendation:

This is a species affected by natural fluctuations of tides and seasonal storms in GB. There is little that can be done to control these elements. The previous population on Lundy was on one of the small accessible beaches, and was also adversely affected by trampling.

As this species has not been seen for 25 years, and it is well distributed in Europe, its remaining on the Schedule serves no positive purpose.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Plumbaginales
Family: Plumbaginaceae
Genus: Limonium
Species: paradoxum

English name: St David's Sea Lavender

Distribution in Great Britain: Found at one site only in Pembrokeshire.

Distribution elsewhere: Endemic to the British Isles. One other site in Donegal, Ireland.

Status in Great Britain: Endangered in RDB. Stable population counts 1985, 1990.

Habitat: Basic igneous rocks.

Threats: Natural rock falls.

Existing legal protection: Listed on Schedule 8. Formerly listed in Appendix I of the Bern Convention, but removed in 1990. Previously protected in the Irish Republic but no longer considered to merit this as doubt about its taxonomy.

Recommendation: Removal from Schedule 8.

Reason for recommendation:

The taxonomy of this whole group has been revised recently, and the endemic status of L. paradoxum is now doubtful. The Irish have removed it from their schedule, and it has been removed from Bern Appendix I.

The additional problem lies in the fact that many of the Limonium spp. are closely related and look very similar.

SECOND QUINQUENNIAL REVIEW OF SCHEDULES 5 & 8 OF THE WILDLIFE AND
COUNTRYSIDE ACT 1981

Scientific name:

Division/Phylum: Angiospermae
Class: Dicotyledones
Order: Plumbaginales
Family: Plumbaginaceae
Genus: Limonium
Species: recurvum

English name: Recurved Sea Lavender

Distribution in Great Britain: 1 10km² in Dorset.

Distribution elsewhere: Possible sub-species in Cumbria and Ireland.

Status in Great Britain: Endemic. Endangered in RDB. Stable population counts 1985, 1990.

Habitat: Limestone rocks on coast.

Threats: Rock falls.

Existing legal protection: Listed on Schedule 8. Formerly in Appendix I of the Bern Convention, but removed in 1990.

Recommendation: Removal from Schedule 8.

Reason for recommendation:

The taxonomy of the whole group has been revised recently, and the true status of the species is uncertain. Removed from Bern Appendix I in 1990.

The additional problem lies in the fact that many Limonium spp. are closely related and look very similar.

INTERNATIONAL OBLIGATIONS

ANNEX D

Draft EC Habitat and Species Directive (as at 1.10.91)

- Annex II - designation of protected areas for species
(* = priority species)
Annex V - special protection of plant and animal species
Annex VI - exploitation subject to regulation

Bern Convention

- Appendix I - strict protection for plant species
Appendix II - strict protection for animal species and habitats
Appendix III - exploitation of animal species subject to regulation

Wildlife and Countryside Act, 1981

- Schedule 5 - special protection for animal species
Schedule 8 - special protection for plant species
Schedule 9 - established animal and plant species for which release to the wild is prohibited without a licence

ANIMAL SPECIES (OTHER THAN BIRDS) OCCURRING IN GB AND LISTED IN THE DRAFT EC HABITAT AND SPECIES DIRECTIVE AND THE BERN CONVENTION

	EC DIRECTIVE			BERN		W&C
	Annex IIa	Annex Va	Annex VIa	App II	App III	ACT
MAMMALS						
<u>Natural range GB</u>						
Erinaceus europaeus (hedgehog)				/		-
Sorex araneus (common shrew)				/		-
S. minutes (pygmy shrew)				/		-
Neomys fodiens (water shrew)				/		-
Crocidura suaveolens (lesser white-toothed shrew) (Isles of Scilly only)				/		-
Rhinolophus ferrumequinum (greater horseshoe bat)	/	/		/		Sch. 5
R. hipposideros (lesser horseshoe bat)	/	/		/		Sch. 5

	EC DIRECTIVE			BERN		W&C ACT
	Annex IIa	Annex Va	Annex VIa	App II	App III	
Myotis mystacinus (whiskered bat)		/		/		Sch. 5
M. brandtii (Brandt's bat)		/		/		Sch. 5
M. nattereri (Natterer's bat)		/		/		Sch. 5
M. bechsteinii (Bechstein's bat)	/	/		/		Sch. 5
M. myotis (mouse-eared bat) (?extinct)	/	/		/		Sch. 5
M. daubentonii (Daubenton's bat)		/		/		Sch. 5
Eptesicus serotinus (serotine)		/		/		Sch. 5
Nyctalus noctula (noctule)		/		/		Sch. 5
N. leisleri (Leisler's bat)		/		/		Sch. 5
Pipistrellus pipistrellus (pipistrelle)		/			/	Sch. 5
Barbastella barbastellus (barbastelle)	/	/		/		Sch. 5
Plecotus auritus (brown long-eared bat)		/		/		Sch. 5
P. austriacus (grey long-eared bat)		/		/		Sch. 5
Muscardinus avellanarius (dormouse)		/			/	Sch. 5
Sciurus vulgaris (red squirrel)					/	Sch. 5
Lepus timidus (mountain hare)			/		/	-
Balaenoptera physalus (fin whale)		/			/	Sch. 5

	EC DIRECTIVE			BERN		W&C ACT
	Annex IIa	Annex Va	Annex VIa	App II	App III	
Balaenoptera acutorostrata (Minke whale)		/			/	Sch. 5
Orcinus orca (killer whale)		/		/		Sch. 5
Grampus griseus (Risso's dolphin)		/		/		Sch. 5
Globicephala melaena (long-finned pilot whale)		/		/		Sch. 5
Delphinus delphis (common dolphin)		/		/		Sch. 5
Tursiops truncatus (tursio) / (bottle-nosed dolphin)		/		/		Sch. 5
Lagenorhynchus acutus (Atlantic white-sided dolphin)		/		/		Sch. 5
L. albirostris (white-beaked dolphin)		/		/		Sch. 5
Stenella coeruleoalba (striped dolphin)		/		/		Sch. 5
Phocaena phocaena / (harbour porpoise)	/	/		/		Sch. 5
Mesoplodon bidens (Sowerby's beaked whale)		/		/		Sch. 5
Lutra lutra (otter) /	/	/		/		Sch. 5
Meles meles (badger)					/	(Badgers Act)
Mustela erminea (stoat)					/	-
M. nivalis (weasel)					/	-
M. (Putorius) putorius (polecat)			/		/	-
Martes martes (pine marten)			/		/	Sch. 5
Felis silvestris (cat) (wildcat)		/		/		Sch. 5
Phoca vitulina / (common seal)	/				/	(Seals Act)

Halichoerus grypus (grey seal)	/			/	(Seals Act)
Cervus elaphus (red deer)				/	(Deer Act)
Capreolus capreolus (roe deer)				/	(Deer Act)

Probably vagrant

Vespertilio murinus (parti-coloured bat)	/		/		Sch. 5
Eptesicus nilssonii (northern bat)	/		/		Sch. 5
Pipistrellus nathusii (Nathusius' pipistrelle)	/		/		Sch. 5
Pseudorhoa crassidens (false killer whale)	/		/		Sch. 5
Hyperoodon ampullatus (Northern bottlenose whale)	/			/	Sch. 5
Mesoplodon mirus (True's beaked whale)	/		/		Sch. 5
M. europaeus (Gervais' beaked whale)	/			/	Sch. 5
Ziphius cavirostris (Cuvier's beaked whale)	/		/		Sch. 5
Kogia (Physeter) breviceps (pygmy sperm whale)	/			/	Sch. 5
Physeter macrocephalus (sperm whale)	/			/	Sch. 5
Balaenoptera (Sibbaldus) musculus (blue whale)	/		/		Sch. 5
B. borealis (Sei whale)	/			/	Sch. 5
Megaptera novaengliae (humpback whale)	/		/		Sch. 5
Delphinapterus leucas (white whale)	/			/	Sch. 5
Monodon monoceros (narwhal)	/			/	Sch. 5

EC DIRECTIVE			BERN		W&C
Annex IIa	Annex Va	Annex VIa	App II	App III	ACT
Eubalaena glacilis (northern right whale)	/		/		Sch. 5
Phoca (Pusa) hispida (ringed seal)		/		/	-
Phoca groenlandica (Pagophilus groenlandicus) (harp seal)		/		/	-
Erignathus barbatus (bearded seal)		/		/	-
Cystophora cristata (hooded seal)		/		/	-
Odobenus rosmarus (walrus)			/		Sch. 5
<u>Established aliens</u>					
Glis glis (fat dormouse)				/	Sch. 9
Histrix cristata (European porcupine)	/		/		Sch. 9
Dama dama (fallow deer) (ancient introduction)				/	(Deer Act)
Rangifer tarandus (reindeer)				/	-
Other Cervidae				/	(Sika in- cluded in Deer Act)
Capra aegragus (wild goat)	/	(natural populations only)	/		-
<u>REPTILES</u>					
<u>Natural range GB</u>					
Lacerta agilis (sand lizard)	/		/		Sch. 5
L. vivipara (viviparous lizard)				/	Sch. 5 (killing, injuring, sale)

EC DIRECTIVE			BERN		W&C
Annex IIa	Annex Va	Annex VIa	App II	App III	ACT

Anguis fragilis (slow-worm)				/	Sch. 5 (killing, injuring, sale)
Natrix natrix (grass snake)				/	Sch. 5 (killing, injuring, sale)
Coronella austriaca (smooth snake)	/		/		Sch. 5
Vipera berus (adder)				/	Sch. 5 (killing, injuring, sale)

Vagrants

Dermochelys coriacea (leatherhead turtle)	/		/		Sch. 5
Caretta caretta (loggerhead turtle)	/	/	/		Sch. 5
Lepidochelys kempii (Kemp's ridley turtle)	/		/		Sch. 5
Chelonia mydas (green turtle)	/		/		Sch. 5
Eretmochelys imbricata (hawk's-bill turtle)	/		/		Sch. 5

Recently established aliens

Emys orbicularis (European pond terrapin)	/	/	/		Sch. 9
Podarcis muralis (common wall lizard)	/		/		Sch. 9
Elaphe longissima (Aesculapean snake)	/		/		Proposed Sch. 9

AMPHIBIANS

Natural range GB

Triturus cristatus (great crested newt)	/	/	/		Sch. 5
T. vulgaris (smooth newt)				/	Sch. 5 (sale)
T. helveticus (palmate newt)				/	Sch. 5 (sale)
Rana temporaria (common frog)		/			Sch. 5 (sale)
Bufo bufo (common toad)				/	Sch. 5 (sale)
B. calamita (natterjack toad)		/	/		Sch. 5

Recently established aliens

Triturus alpestris (alpine newt)				/	Sch. 9
T. carnifex (Italian crested newt)	/		/		Proposed Sch. 9
Bombina variegata (yellow-bellied toad)	/		/		Sch. 9
Alytes obstetricans (midwife toad)	/		/		Sch. 9
Rana esculenta (edible frog)		/		/	Sch. 9
R. ridibunda (marsh frog)		/		/	Sch. 9
R. lessonae (pool frog) (some populations possibly native)	/			/	-
Hyla arborea (European tree frog) (some populations possibly native)	/		/		Sch. 9

FISH

Natural range GB

Lampetra fluviatilis (river lamprey)	/	/	/	-
L. planeri (brook lamprey)	/		/	-
Petromyzon marinus (sea lamprey)	/		/	-
Alosa alosa (Allis shad)	/	/	/	Sch. 5 (killing, injuring, taking)
A. fallax (Twaite shad)	/	/	/	-
Coregonus albula (vendace)		/	/	Sch. 5
C. lavaretus (whitefish)		/	/	Sch. 5
Thymallus thymallus (grayling)		/	/	-
Salmo salar (Atlantic salmon) (in freshwater only)	/	/	/	-
Barbus barbus (barbel)		/		-
Cobitis taenia (spined loach)	/		/	-
Potamoschistus microps (common goby)			/	-
P. minutus (sand goby)			/	-
Cottus gobio (bullhead)	/			-

Vagrant

Acipenser sturio (sturgeon)	*/	/	/	Proposed Sch. 5
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Believed extinct

Coregonus oxyrinchus (houting) (anadromous populations only)	* /	/	/	-
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Introduced aliens

Rhodeus sericeus (bitterling)	/		/	Sch. 9
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Siluris glanis (wels)			/	Sch. 9
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INVERTEBRATES

Natural range GB

Austropotamobius pallipes (Atlantic stream crayfish)	/	/	/	Sch. 5 (taking & sale)
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Lucanus cervus (stag beetle)	/		/	-
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Limoniscus violaceus (violet click beetle)	/			Sch. 5
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Eurodryas (Euphydryas) aurinia (marsh fritillary)	/		/	Sch. 5 (sale)
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Coenagrion mercuriale (southern damselfly)	/		/	-
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Margaritifera margar- itifera (pearl mussel)	/	/	/	Sch. 5 (killing & injuring)
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Vertigo angustior (snail)	/			-
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V. genesii (snail)	/			-
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V. geyeri (snail)	/			-
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V. moulinsiana (snail)	/			-
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Hirudo medicinalis (medicinal leech)		/	/	Sch. 5
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Extinct

Oxygastra curtisii (orange-spotted emerald dragonfly)	/	/	/	-
Graphoderus bilineatus (water beetle)		/	/	-
Cerambyx cerdo (beetle)	/	/	/	-

Extinct but re-established

Lycaena dispar (large copper butterfly)	/	/	/	Sch. 5 (sale)
Maculinea arion (large blue butterfly)		/	/	Sch. 5

Vagrant

Parnassius apollo (Apollo butterfly)		/		-
Prosperinus prosperina (Curson's sphinx moth)		/	/	-

Established aliens

Helix pomatia (Roman snail) (probably ancient introduction)		/	/	-
Astacus astacus (noble crayfish) (recently established)		/	/	Proposed Sch. 9

PLANT SPECIES OCCURRING IN GB AND LISTED IN DRAFT EC DIRECTIVE AND BERN CONVENTION

	EC DIRECTIVE			BERN	W&C
	Annex IIb	Annex Vb	Annex VIb	App I	ACT
HIGHER PLANTS					
<u>Natural range GB</u>					
Lycopodium - all species (clubmosses)			/		-
Trichomanes speciosum (Killarney fern)	/	/		/	Sch. 8
Apium repens (creeping marshwort)	/	/		/	Sch. 8
Cypripedium calceolus (lady's-slipper)	/	/		/	Sch. 8
Gentianella anglica (early gentian)	/	/		/	Proposed Sch. 8
Liparis loeselii (fen orchid)	*/	/		/	Sch. 8
Luronium natans (floating-leaved water-plantain)	/			/	-
Najas flexilis (slender naiad)	/			/	-
Rumex rupestris (shore dock)	/	/		/	Proposed Sch. 8
Saxifraga hirculus (yellow marsh saxifrage)	/	/		/	-
Ruscus aculeatus (butcher's broom)			/		-
<u>Believed extinct</u>					
Bromus interruptus (interrupted brome grass)				/	-
Spiranthes aestivalis (summer lady's tresses)		/			-
<u>Established aliens</u>					
Armeria pseudarmeria	/	/			-
Galanthus nivalis (snowdrop) (probably introduced in GB)			/		-

LOWER PLANTS

Natural range GB

Lithothamnium coralloides (maerl)		/		-
Phymatholithon calcareum (maerl)		/		-
Marsupella profunda (liverwort)	*/		/	Proposed Sch. 8
Petallophyllum ralfsii (liverwort)	/		/	-
Buxbaumia viridis (moss)	/		/	Proposed Sch. 8
Drepanocladus vernicosus (moss)	/		/	-
Leucobryum glaucum (moss)		/		-
Sphagnum - all species (bog mosses)		/		Only S. balticum proposed Sch. 8
Cladina - all species (lichens)		/		-