



# **NORFOLK BIODIVERSITY ACTION PLAN SPECIES DATA AUDIT**

**Draft for Comment**



**June 2009**

**A paper copy of this document can be obtained from:**

Norfolk Biodiversity Information Service  
Union House  
Gressenhall  
Dereham  
Norwich  
NR20 4DR

Telephone: 01362-869292  
Fax: 01362-860951  
Website: [www.nbis.org.uk](http://www.nbis.org.uk)

**Cover Photo:** Silver-studded blue butterfly (Graeme Cresswell).



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## **Acknowledgements**

The origins of this document date back to an audit carried out in May 2003, with John Goldsmith (the Biological Records Officer at the time), Pat Lorber, and the then Biodiversity Co-ordinator, Paul Wilkinson. A table was produced charting the required elements for an audit, including the number of records and other possible sources of new information, which has been updated as new records were obtained and added into the database.

The task was continued by Pat Lorber, particularly once the new BAP list, adding hundreds of species, was published in June 2007. Chris Jones undertook the revision for the invertebrates, fish and marine mammals, and undertook some analysis work. Scott Perkin reviewed the draft extensively, added the Norfolk Action Plans, and as always contributed useful suggestions.

The County Recorders were consulted and many made substantial contributions, which are very much appreciated. Their specialist knowledge adds greatly to the usefulness of the document.

# NORFOLK BIODIVERSITY ACTION PLAN

## SPECIES DATA AUDIT

### 1. INTRODUCTION

The Norfolk Biodiversity Information Service (NBIS) has a crucial role to play in the development and implementation of the Norfolk Biodiversity Action Plan (BAP). The records and data provided by NBIS are not only important for the preparation of Species and Habitat Action Plans, but also, for the establishment of baselines, the assessment of trends, and the evaluation of progress. In recognition of this central role, this paper seeks to:

- Summarise the available records held by NBIS on BAP species and point towards other sources of information;
- Provide an assessment of which BAP species are currently present in the county, or have historically occurred here;
- Identify any particular gaps in our knowledge of BAP species occurrence;
- Suggest priorities for future research and survey.

It is our wish to make the document as comprehensive and useful to as many individuals and organisations as possible. In this regard, the paper is intended as a draft for further refinement through discussion with the members of the Biodiversity Partnership, County Recorders, and other interested parties. Any suggestions regarding omissions, errors or corrections will be welcomed.

### 2. BACKGROUND TO THE BIODIVERSITY ACTION PLAN PROCESS

#### 2.1 The UK Biodiversity Action Plan

In June 1992, 159 governments signed the Convention on Biological Diversity at the famous “Earth Summit” in Rio de Janeiro. The Convention came into force on 29 December 1993 and was the first international treaty to provide a legal framework for biodiversity conservation. Amongst other measures, it called for the development and implementation of national strategies and action plans to conserve and enhance biological diversity.

In 1993, the UK government consulted with over 300 organisations throughout the UK and also organised a two-day seminar to debate the key issues raised at the Earth Summit. From this was launched *Biodiversity: the UK Action Plan* in 1994. The report identified 59 broad activities for conservation work to take place over the next 20 years.

A steering group was created to take the work forward, which established the following principles for future biodiversity conservation in the UK:

**Partnership:** The Biodiversity Action Plan should be based on the mutual co-operation of statutory, voluntary, academic and business sectors at both national and local levels.

**Targets:** The BAP should establish measurable outcomes that address the needs of species and habitats of most concern to biodiversity conservation.

**Policy Integration:** The BAP should recognise that shifts in policy are needed to reverse the decline in the UK biodiversity resource and to support sustainable development in all sectors of society.

**Information:** While sound science and knowledge should underpin decisions, the BAP should recognise that new approaches are required to fill information gaps and to manage the information already available more efficiently.

**Public Awareness:** Public understanding and action are required to support the changes needed to maintain biodiversity.

In 1995, a report entitled *Biodiversity: The UK Steering Group Report* was published. This contained action plans to conserve 116 species and 14 habitats, together with recommendations for future biodiversity action plans (rising to 577 species).

## **2.2. The New List of UK Priority Species and Habitats**

In July 2007, the revised UK List of Priority Species and Habitats was released. The new list was developed on the basis of a detailed review process, involving over 500 experts and based on the following criteria:

- International threat
- International responsibility plus moderate decline in the UK
- Marked decline in the UK
- Other important factors – where quantitative data on decline were inadequate but there was convincing evidence of extreme threat.

Only species which met one or more of these criteria were included. The final list contains 1,149 species and 65 habitats, many of which are relevant to Norfolk. Further information about the national habitat and species review can be found on the UK Biodiversity Action Plan website, at: <http://www.ukbap.org.uk/bapgroupage.aspx?id=112>

## **2.3 The Norfolk Biodiversity Action Plan**

In order for national priorities and targets to be met, the UK BAP Partnership considers it essential that action be taken at a local level. To address this need, the Norfolk Biodiversity Partnership was created in 1996, composed of local authorities, statutory agencies and non-governmental groups. The Partnership has now prepared 50 Species Action Plans and 19 Habitat Action Plans, addressing some of the key priorities in Norfolk; additional plans will continue to be published in response to the new list of priority species, based on the results of the current audit. Further information can be found on the Norfolk biodiversity website: <http://www.norfolkbiodiversity.org/>

## **3. METHODOLOGY OF THE BAP SPECIES AUDIT**

As the first step in determining which of the species on the new and expanded BAP list currently occur (or historically occurred) in Norfolk, all the records currently held on the NBIS database (approximately 850,000) were queried, using the software programme Recorder 6. This led to an initial, draft list of the BAP species for which there are records in Norfolk.

As the next step, this draft list was refined by carrying out extensive literature reviews, drawing in particular upon the information contained in *The Birds of Norfolk*, *A Flora of Norfolk*, and reports

by the Norfolk and Norwich Naturalists' Society. Specialist input was also sought from the recording community.

#### **4. RESULTS**

The results of the audit to date are presented in the tables in Annexes 1-10. A brief analysis of the tables suggests that:

- The total number of BAP species occurring in Norfolk is 419, which represents 36 per cent of the national list;
- Eighty-eight per cent of the species on the national bird list have been recorded in Norfolk, highlighting the importance of the county for both resident and migrant species. In addition, 59 per cent of the moth species found on the national list have been recorded in Norfolk. Many of these are quite common, indicating the potential importance of the county for holding key source populations;
- The number of BAP species that are now considered extinct in the county, and in some cases nationally, is 72. This number consists primarily of beetle species (24) and vascular plants (30). Analysis of the data reveals that, of the BAP species, beetles have lost 63 per cent of the species formerly resident in Norfolk, and there has also been a 41 per cent loss in the number of vascular plant species. Freshwater fish have lost 50 per cent of formerly resident BAP species; however, this figure includes the burbot and sturgeon, both of which have been nationally extinct for some years;
- There are 43 BAP species for which the current status is unknown. This is primarily a function of the lack of recent records for species that were known to occur in Norfolk in the past. To address this issue, it may be necessary to target surveys for these species, in former locations and likely habitat areas.

On the basis of these results, it is evident that Norfolk is a particularly important county for the conservation of BAP species and the achievement of BAP targets.

#### **5. CONCLUSIONS AND PRIORITIES FOR THE FUTURE**

This audit of BAP species has provided a wealth of information which should be of help not only to the BAP process in the county, but also to planners, naturalists, researchers and environmental managers. However, the audit has also highlighted the fact that many records are old or historic. Whilst these are always interesting for comparative or historical investigation purposes, modern records (<10 years old) are urgently needed for the Species Action Plans, forward planning and development control, as has been highlighted in the recently-published NBRC Business Plan. Another concern is that data for some taxonomic groups (e.g. nearly all marine taxa) are virtually absent.

It is critically important that efforts be made to address these gaps, if NBIS is to fulfil its functions effectively. There is a particular need to enhance records of the following:

- Molluscs;
- Dragonflies (the sharing of data held by the dragonfly recorder has been agreed in principle);
- Other invertebrates (with the exception of beetles);
- Lower plants (with the possible exception of the fungi);
- Marine species (the Centre holds almost no fish records since Patterson's list of 1933);

- “Common” species that have not to date been deemed worthy of recording, such as house sparrow and starling.

As NBIS’s staff complement is strengthened in the future, it is hoped that an increasing amount of time can be spent in addressing these information requirements, by working with local recorders, initiating surveys of poorly covered species and conducting extensive literature searches.

**Pat Lorber  
Biological Records Officer  
Norfolk Biodiversity Information Service  
Gressenhall**

**January 2009**



# ANNEXES

## Key

P = Present

A = Absent

Species new to the BAP list are highlighted in yellow, and for printed versions “New to national list of BAP Priority Species” is included in the Comments column.

Species thought to be extinct in Norfolk are highlighted in grey and so annotated in the Comments column.

## ANNEX 1: BIRDS

BIRDS	Spp. New to National BAP List					
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Aquatic Warbler <i>Acrocephalus paludicola</i>	P	-	-	RSPB, BTO	Norfolk Bird Atlas Project (Dr Moss Taylor). A data sharing strategy has been agreed.	Rare autumn vagrant.
Marsh Warbler <i>Acrocephalus palustris</i>	P	15	11	RSPB, BTO	Norfolk Bird Atlas Project	Rare visitor in spring and autumn. 1 pair bred in East Norfolk in 1999. Birds seen in subsequent years but no breeding took place.
Skylark <i>Alauda arvensis</i>	P	2225	256	RSPB, BTO	Norfolk Bird Atlas Project	<i>Birds of Norfolk: A very common resident and common passage migrant and winter visitor...nationally has undergone population decline of about 50% over the last 25". Norfolk Action Plan published December 1998, revised January 2006.</i>
White-fronted Goose <i>Anser albifrons</i>	P	566	85	RSPB	Norfolk Bird Atlas Project	<i>Birds of Norfolk:</i> Fairly common but localised winter visitor and passage migrant. 3 main wintering areas – Holkham Buckenham.Cantley and Horsey/Heigham areas (D&JB) Increase in NW Europe, decline in Britain <b>New to national list of BAP priority species 2007</b>
Tree Pipit <i>Anthus trivialis</i>	P	416	86	RSPB, BTO	Norfolk Bird Atlas Project	<i>Birds of Norfolk:</i> Scarce summer visitor and fairly common passage migrant. Declining in recent years (D&JB) <b>New to national list of BAP priority species 2007</b>
Scaup <i>Aythya marila</i>	-	479	79	RSPB, BTO	Norfolk Bird Atlas Project	<b>New to national list of BAP priority species 2007</b> Winter visitor in varying numbers, scarce inland, occasional in summer (D&JB)
Bittern <i>Botaurus stellaris</i>	P	1054	165	RSPB, BTO	Limited data swap agreed with RSPB	RSPB Red List <i>The Birds of Norfolk:</i> "a very scarce resident and winter visitor" Bred at Titchwell and Norfolk Broads 2006, 4 records 2007, booming at Holkham first time in 11 years. Norfolk Action Plan published December 1998, revised February 2008.

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Dark-bellied Brent Goose <i>Branta bernicla</i>	P	1539	11	RSPB, BTO	Norfolk Bird Atlas Project – Dr Moss Taylor. Agreed sharing strategy	<i>The Birds of Norfolk: very common passage migrant and winter visitor, scarce inland</i> <b>New to national list of BAP priority species 2007</b>
Stone-curlew <i>Burhinus oedicnemus</i>	P	353	99	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk: "a scarce summer visitor, mainly to Breckland, and very scarce passage migrant".</i> Evidence of small groups over-wintering 07/08/09. Norfolk Action Plan published December 1998, revised January 2006.
Nightjar <i>Caprimulgus europaeus</i>	P	338	94	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List. 2004- 313 churring males in Norfolk. 2006 – 68 churring males <i>The Birds of Norfolk: "a fairly common but localised summer visitor and rare passage migrant...a reduction in range and numbers has been recorded through much of Europe.. decline in Britain more pronounced since 1950 believed linked to habitat change. Main concentrations for the species confined to south/south-eastern England and East Anglia."</i> Norfolk Action Plan published June 2006.
Lesser Redpoll <i>Carduelis cabaret</i>	P	694	166	RSPB, BTO		Once abundant in lowland Britain, now largely absent as breeding bird. RSPB Amber List <b>New to national list of BAP priority species 2007</b>
Linnet <i>Carduelis cannabina</i>	P	2604	267	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List. <i>The Birds of Norfolk: "a very common resident and partial migrant, and common passage migrant...despite national decline in numbers has remained widespread throughout the county during the summer months"</i> There is some evidence of increasing winter numbers 2006 Norfolk action plan in preparation.
Twite <i>Carduelis flavirostris</i>	P	371	62	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk: "A fairly common but localised winter visitor and scarce passage migrant; has declined in recent years"</i>
Hawfinch <i>Coccothraustes coccothraustes</i>	P	216	66	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Amber List <i>The Birds of Norfolk: "scarce resident and rare passage migrant"</i> 2006 noted more widely than in recent years with a pair breeding at Narborough <b>New to national list of BAP priority species 2007</b>
Corncrake <i>Crex crex</i>	P	15	10	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk: "rare passage vagrant and winter visitor; formerly bred, breeding range in Europe rapidly declining"</i>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Cuckoo <i>Cuculus canorus</i>	P	637	242	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Amber List <i>The Birds of Norfolk: A fairly common, but declining, summer visitor</i> <b>New to national list of BAP priority species 2007</b>
Bewick's Swan <i>Cygnus columbianus bewickii</i>	P	650	179	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Amber List. Numbers down on 2004 and 2005. <b>New to national list of BAP priority species 2007</b>
Lesser Spotted Woodpecker <i>Dendrocopos minor</i>	P	592	228	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk: "Scarce and declining resident"</i> borne out by NBA results. Recorded at 23 sites in 2006. 24 sites in 2007. <b>New to national list of BAP priority species 2007</b>
Corn Bunting <i>Emberiza calandra</i>	P	779	149	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List. Concentrations in the Fens and North Norfolk Coast <i>The Birds of Norfolk: "a scarce and declining resident and very scarce passage migrant. Lowest point only 7% of tetrads in 97, none recorded 96, but a flock of 309 at Welney in 97 may indicate a reversal of the downward trend".</i> Norfolk Action Plan published January 2006.
Cirl Bunting <i>Emberiza cirius</i>	P	-	-	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk: "A rare vagrant".</i> Last recorded in 1969 (D&JB). Agricultural changes
Yellowhammer <i>Emberiza citrinella</i>	P	573	231	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List. Once common but currently in decline. <i>The Birds of Norfolk: "A common but declining resident and scarce passage migrant".</i> Agricultural changes <b>New to national list of BAP priority species 2007</b>
Reed Bunting <i>Emberiza schoeniclus</i>	P	1264	217	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk: a common resident and fairly common passage migrant. BTO census showed a decline of 60% between 69-94"</i> Agricultural changes Norfolk action plan in preparation.
Black-throated Diver <i>Gavia arctica</i>	P	375	50	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Amber List <i>The Birds of Norfolk: "Scarce winter visitor and passage migrant, very scarce inland"</i> <b>New to national list of BAP priority species 2007</b>
Eurasian Wryneck <i>Jynx torquilla</i>	P	189	72	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List Scarce passage migrant, mostly autumn, last bred in 1955. The days of the wryneck as a British breeding bird are numbered – loss of habitat, and an increase in pesticides have been suggested as causes of the population crash. ~ 50-70 records 2005, 25 records 2006, 34 records 2007.
Red-backed Shrike <i>Lanius collurio</i>	P	431	111	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk: "a scarce passage migrant; formerly a scarce summer visitor, which last bred in 1988".</i> Single bird

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
						<i>failed to find mate in 1989. Recent birds probably Fennoscandian displaced by north-east winds.</i> Extinct as a breeding bird in the county since 1988. 3 sight records in 2006, an exceptionally poor year, but in 2007 12 spring and 17 autumn (D&JB) Continued decline in European populations
Herring Gull <i>Larus argentatus</i>	P	335	43	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Amber List <i>The Birds of Norfolk: "fairly common, but localised resident, and common passage migrant and winter visitor"</i> <b>New to national list of BAP priority species 2007</b>
Black-tailed Godwit <i>Limosa limosa</i>	P	1078	76	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk: "very scarce and declining breeder, increasingly common passage migrant and winter visitor"</i> <b>New to national list of BAP priority species 2007</b>
Savi's Warbler <i>Locustella luscinioides</i>	P	12	7	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk: "very scarce summer visitor, almost annual since 1967, formerly bred regularly until mid 19<sup>th</sup> C"</i> <b>New to national list of BAP priority species 2007</b>
Grasshopper Warbler <i>Locustella naevia</i>	P	1157	273	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk: "Fairly common summer visitor and very scarce passage migrant"</i> <b>New to national list of BAP priority species 2007</b>
Woodlark <i>Lullula arborea</i>	P	641	176	Ron Hoblin has complete census work	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk: "a fairly common but localised breeder and scarce passage migrant". In 1998, 309 singing males in Norfolk, in 1997 232 (16% of the British population). Norfolk Action Plan published June 2006.</i>
Common Scoter <i>Melanitta nigra</i>	P	754	62	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk: "common winter visitor and passage migrant, varying numbers of non-breeders over-summer; rare inland"</i>
Yellow Wagtail <i>Motacilla flava flavissima</i>	P	846	120	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Amber List <i>The Birds of Norfolk: "fairly common but declining summer visitor and passage migrant, very rare in winter. In decline as a breeding species since the 1930s"</i> <b>New to national list of BAP priority species 2007</b>
Spotted Flycatcher <i>Muscicapa striata</i>	P	1773	362	RSPB, BTO	Norfolk survey in 2003	RSPB Red List <i>The Birds of Norfolk: "A common summer visitor and fairly common passage migrant. The species has been in long-term decline since the 1960s with the British breeding population dropping by about 75% by the late 1980s..."</i> <i>Update D&amp;JB 2009 – 'declining summer visitor and declining passage migrant'</i> Norfolk Action Plan published April 2007.

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Curlew <i>Numenius arquata</i>	P	854	102	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Amber List <i>The Birds of Norfolk</i> : "a scarce and localised breeder, and common winter visitor and passage migrant" <b>New to national list of BAP priority species 2007</b>
House Sparrow <i>Passer domesticus</i>	P	167	83	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk</i> : "an abundant, but declining, resident". Agricultural practices, pesticides, herbicides, domestic cats <b>New to national list of BAP priority species 2007</b>
Tree Sparrow <i>Passer montanus</i>	P	1494	274	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List Scarce resident, passage migrant and winter visitor. Norfolk Action Plan published January 2006.
Grey Partridge <i>Perdix perdix</i>	P	1118	249	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk</i> : "a common resident..declined nationally by 80%" Norfolk has always been an important area for Grey partridge. Herbicides remove weeds which are food for insects on which chicks feed. Norfolk Action Plan published December 1998, revised January 2006.
Red-necked Phalarope <i>Phalaropus lobatus</i>	P	40	13	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List 'Scarce passage migrant in both spring and autumn' (D&JB 2009)
Wood Warbler <i>Phylloscopus sibilatrix</i>	P	103	44	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Amber List <i>The Birds of Norfolk</i> : "a very scarce summer visitor and passage migrant; last bred in 1995" <b>New to national list of BAP priority species 2007</b>
Willow Tit <i>Poecile montana</i>	P	335	127	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk</i> : "a fairly common but localised and declining resident" National severe decline for reasons not fully understood, verging on extinction in Norfolk <b>New to national list of BAP priority species 2007</b>
Marsh Tit <i>Poecile palustris</i>	P	371	171	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk</i> : "a fairly common resident" <b>New to national list of BAP priority species 2007</b>
Duncock Hedge Accentor <i>Prunella modularis</i>	P	76	32	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Amber List <i>The Birds of Norfolk</i> : "abundant resident and fairly common passage migrant..slow population decline in the British Isles since the mid-1970s" <b>New to national list of BAP priority species 2007</b>
Balearic Shearwater <i>Puffinus mauretanicus</i>	P	108	21	RSPB, BTO	Norfolk Bird Atlas Project	<i>The Birds of Norfolk</i> : "a very scarce autumn passage migrant"
Bullfinch <i>Pyrrhula pyrrhula</i>	P	1591	326	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk</i> : "A common resident.. marked decline in the 1980s.." Status difficult to assess, but apparently continues in

shallow decline (BTO).  
 Update D&JB 2009: 'obvious increase in sightings over last two years'.  
 Norfolk action plan in preparation.

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Roseate Tern <i>Sterna dougallii</i>	P	55	20	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk</i> : "very scarce summer visitor and passage migrant..numbers fluctuated widely..one of the rarest breeding sea birds in Britain"
Turtle Dove <i>Streptopelia turtur</i>	P	2433	381	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk</i> : "A common but declining summer visitor and fairly common passage migrant; very rare in winter. Marked decline since the 1980s due to drought in the winter quarters, large-scale shooting on migration and modern farming methods on the breeding grounds". D&JB 2009 – 'decline continuing.' Norfolk Action Plan published January 2006.
Common Starling <i>Sternus vulgaris</i>	P	379	89	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk</i> : "abundant resident, winter visitor and passage migrant..Britain's resident starlings have suffered as a direct result of...(agricultural practices) <b>New to national list of BAP priority species 2007</b>
Song Thrush <i>Turdus philomelos</i>	P	1825	148	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List <i>The Birds of Norfolk</i> : "a common resident and passage migrant... – declined (nationally) 54% between 1969 and 1994 ... declined similarly in Norfolk but a recovery appears to be taking place in the late 1990s". Norfolk Action Plan published December 1998, revised October 2007.
Ring Ouzel <i>Turdus torquatus</i>	P	695	154	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Red List. <i>The Birds of Norfolk</i> : "a fairly common passage migrant, rare in midsummer and in winter..marked population decline between the two BTO Breeding Atlases. <b>New to national list of BAP priority species 2007</b>
Lapwing <i>Vanellus vanellus</i>	P	991	179	RSPB, BTO	Norfolk Bird Atlas Project	RSPB Amber List <i>The Birds of Norfolk</i> : "common, but declining breeder and passage migrant, common winter visitor". Agricultural intensification and degradation. <b>New to national list of BAP priority species 2007</b>

## ANNEX 2: FRESHWATER FISH

FRESHWATER FISH	Spp. Considered Extinct	Spp. New to National BAP List				
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Common Sturgeon <i>Acipenser sturio</i>	A	-	-	EA, CEFAS, County Recorder		Recorded on the Norfolk fish list (Patterson, 1933) but no modern records. Internationally threatened. Large decline in stocks due to over-exploitation and declining water quality. Previously recorded in the Great and Little Ouse during the 18 <sup>th</sup> and 19 <sup>th</sup> Century. Considered extinct in Norfolk. <b>New to national list of BAP priority species 2007</b>
Allis Shad <i>Alosa alosa</i>	A	-	-	EA, CEFAS, County Recorder		Recorded on the Norfolk fish list (Patterson, 1933) but no modern records. Declining – Pollution, over-exploitation, habitat loss and artificial river obstructions. Considered extinct in Norfolk.
Twaite Shad <i>Alosa fallax</i>	A	-	-	EA, CEFAS, County Recorder		Recorded on the Norfolk fish list (Patterson, 1933) but no modern records. Declining – Pollution, over-exploitation, habitat loss and artificial river obstructions. Considered extinct in Norfolk.
European Eel <i>Anguilla anguilla</i>	P	12	7	EA, CEFAS, angling organisations, County Recorder		Greatly under recorded. Significantly declining across Europe – Over exploitation and increased incidence of parasitism/infection. <b>New to national list of BAP priority species 2007</b>
Spined Loach <i>Cobitis taenia</i>	P	?	?	EA, NE, UEA, County Recorder	EA, UEA	Present in small populations, predominantly in tributaries of the Ouse system. Species is genetically unique to Britain. <b>New to national list of BAP priority species 2007</b>
Burbot <i>Lota lota</i>	A	-	-	EA, NE, County Recorder		NE Species Recovery Plan: Declared extinct in 1972. The species was still being consistently caught up to the 1920s.
Smelt <i>Osmerus eperlanus</i>	A	-	-			Recorded on the Norfolk fish list (Patterson, 1933) but no modern records. Marked decline in UK – Over-exploitation. Considered extinct in Norfolk.



Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Sea Lamprey <i>Petromyzon marinus</i>	P	1	1	EA, NE, County Recorder		Declining – Pollution and artificial river obstructions. <b>New to national list of BAP priority species 2007</b>
Atlantic Salmon <i>Salmo salar</i>	P	1	1	EA, NE, County Recorder, angling organisations		Declining – Pollution and artificial river obstructions. <b>New to national list of BAP priority species 2007</b>
Brown/Sea Trout <i>Salmo trutta</i>	P	12	7	County Recorder, angling organisations		Greatly under recorded. Declining – Pollution, over-exploitation, habitat loss and artificial river obstructions. <b>New to national list of BAP priority species 2007</b>

### ANNEX 3: MARINE FISH

MARINE FISH	Spp. Considered Extinct	Spp. New to National BAP List				
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Lesser Sandeel <i>Ammodytes marinus</i>	P	-	-	CEFAS		Declining – Over-exploitation. Probably does occur in Norfolk coastal waters but is under recorded. <b>New to national list of BAP priority species 2007</b>
Basking Shark <i>Cetorhinus maximus</i>	P	1	1	Marine Conservation Society	Marine Conservation Society	Declining – By-catch, changes in oceanic currents and resultant decline in plankton stocks.
Herring <i>Clupea harengus</i>	P	-	-	CEFAS		Grouped plan for commercial marine fish. Occurs in Norfolk coastal waters but is under-recorded.
<i>Dipturus batis</i> Common Skate	P	-	-	CEFAS		Declining – Over-exploitation. Once a common species in shallow, inshore waters.
Cod <i>Gadus morhua</i>	P	-	-	CEFAS, angling organisations		Grouped plan for commercial marine fish. Occurs in Norfolk coastal waters but is under recorded. Under recorded. Group plan for deep-water fish.
Tope <i>Galeorhinus galeus</i>	P	-	-	CEFAS, angling organisations		Primarily found in the Wash area. Internationally threatened – By-catch and over-exploitation. Occurs in Norfolk coastal waters but is under recorded. <b>New to national list of BAP priority species 2007</b>
Porbeagle Shark <i>Lamna nasus</i>	P?	-	-	Angling organisations		Recorded on Norfolk Fish List (Patterson 1933) but no modern records. Possibly occurs in Norfolk's coastal waters but is under recorded. Internationally threatened. <b>New to national list of BAP priority species 2007</b>
Sea Monkfish <i>Lophius piscatorius</i>	P?	-	-	CEFAS, angling organisations		Recorded on Norfolk Fish List (Patterson 1933) but no modern records. Occurs in Norfolk coastal waters but is under recorded. Grouped plan for commercial marine fish. Declining – Over-exploitation.
Whiting <i>Merlangius merlangus</i>	P	-	-	CEFAS, angling organisations		Occurs in Norfolk coastal waters but is under-recorded. Grouped plan for commercial marine fish. Marked decline in UK waters – Over-exploitation.

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
European Hake <i>Merluccius merluccius</i>	A	-	-	CEFAS, angling organisations		Recorded on Norfolk Fish List (Patterson 1933) but no modern records. Considered extinct in Norfolk. Grouped plan for commercial marine fish. Declining – Over-exploitation.
Blue Whiting <i>Micromesistius poutassiu</i>	P	-	-	CEFAS		Declining – Over-exploitation and by-catch. Recorded on Norfolk Fish List (Patterson 1933) but no modern records. May still occur in Norfolk coastal waters.
Ling <i>Molva molva</i>	P	-	-			Recorded on Norfolk Fish List (Patterson 1933) but no modern records. Probably under recorded in Norfolk coastal waters. Grouped plan for commercial marine fish. Marked decline in UK waters.
Native Oyster <i>Ostrea edulis</i>	P	-	-	CEFAS		Current SAP Declining – Over-exploitation, introduced species and pollution. No modern Norfolk records.
Plaice <i>Pleuronectes platessa</i>	P	-	-	CEFAS, angling organisations		Grouped plan for commercial marine fish. The Wash is an important nursery area. Marked decline in UK waters – Over-exploitation. Occurs in Norfolk coastal waters but is under recorded.
Undulate Ray <i>Raja undulata</i>	P?	-	-	Angling organisations		Recorded on Norfolk Fish List (Patterson 1933) but no modern records. Internationally threatened – Over-exploitation. Now unlikely to occur in Norfolk coastal waters. <b>New to national list of BAP priority species 2007</b>
Mackerel <i>Scomber scombrus</i>	P	-	-	CEFAS, angling organisations.		Occurs in Norfolk coastal waters but is under recorded. Grouped plan for commercial marine fish. Internationally threatened, marked decline in British waters – Over-exploitation.
Sole <i>Solea vulgaris</i>	P	-	-	CEFAS, angling organisations.		Occurs in Norfolk coastal waters but is under recorded. Grouped plan for commercial marine fish. Marked decline in British waters – Over-exploitation.
Spiny Dogfish <i>Squalus acanthias</i>	P	-	-	CEFAS, angling organisations		Occurs in Norfolk coastal waters but is under recorded. Internationally threatened – Over-exploitation. <b>New to national list of BAP priority species 2007</b>
Angel Shark <i>Squatina squatina</i>	A	-	-			Recorded on Norfolk Fish List (Patterson 1933) but no modern records. ICUN Red List species. Internationally threatened – Over-exploitation and by-catch. Extinct in the North Sea. <b>New to national list of BAP priority species 2007</b>
Horse Mackerel <i>Trachurus trachurus</i>	P	-	-	CEFAS, angling organisations		Occurs in Norfolk coastal waters but is under recorded. Grouped plan for commercial marine fish. Declining – Over-exploitation.

## ANNEX 4: AMPHIBIANS AND REPTILES

AMPHIBIANS & REPTILES	Spp. Considered Extinct	Spp. New to National BAP List				
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Slow-worm <i>Anguis fragilis</i>	P	129	62			<b>New to national list of BAP priority species 2007</b> Numbers in serious decline – habitat and land use
Common Toad <i>Bufo bufo</i>	P	1282	435		Small group monitoring known sites	<b>New to national list of BAP priority species 2007</b> Numbers in decline - habitat destruction and road use
Natterjack toad <i>Bufo calamita</i>	P	110	21		Situation updated yearly by John Buckley of HCT	European Protected Species. Numbers in decline. A fine example of mapping and data accumulation for the whole of Britain published in 2001
Common Lizard <i>Lacerta vivipara</i>	P	253	125			<b>New to national list of BAP priority species 2007</b> Numbers in decline
Grass Snake <i>Natrix natrix</i>	P	287	142			<b>New to national list of BAP priority species 2007</b> Numbers in decline
Pool Frog <i>Rana lessonae</i>		3	2			Extinct. Re-introduced, success still to be assessed
Great Crested Newt <i>Triturus cristatus</i>	P	359	150	NE ought to have further records from species protection advice	NARG survey work promised. NWT survey 2007, records promised	European Protected species. Major decline in Broads. North Norfolk and Brecks under-recorded. Norfolk Action Plan published December 1998, revised June 2002.
Adder <i>Vipera berus</i>	P	224	88		Herp.Cons. Trust National Adder Project	<b>New to national list of BAP priority species 2007.</b> Numbers in decline. National survey currently underway.
MARINE						
Leatherback Turtle <i>Dermodochelys coriacea</i>	P	-	-	MarLIN		Grouped Action Plan for Marine Turtles Internationally Threatened – Over exploitation, disturbance of breeding sites, pollution and by-catch. Occasionally found off the Norfolk coast, primarily during August and September.

## ANNEX 5: FUNGI AND LOWER PLANTS

FUNGI AND LOWER PLANTS	Extinct or Probably Extinct in Norfolk	Spp. New to National BAP List				
BRYOPHYTES						
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Knowlton`s Thread-moss <i>Bryum knowltonii</i>	P	-	-		Robin Stevenson	Classified <i>Vulnerable</i> Recorded from the coast, at Holkham, and also in the sandpits at Bawsey, outside King's Lynn <b>New to national list of BAP priority species 2007</b>
Rusty Fork-moss <i>Dicranum spurium</i>	P?	-	-		Robin Stevenson	Classified <i>Vulnerable</i> Has not been seen for many years, but may still exist <b>New to national list of BAP priority species 2007</b>
Pitted Frillwort <i>Fossombronina foveolata</i>	P	1	1		Robin Stevenson	Classified Nationally Scarce Only one record, from Sugar Fen, Pott Row, Natural England SSSI. <b>New to national list of BAP priority species 2007</b>
Fen Notchwort (Norfolk Flapwort) <i>Leiocolea rutheana</i>	P	6	1		Robin Stevenson	<i>Critically Endangered</i> in UK. Originally at six sites, but now only at Scarning NWT reserve. Norfolk Action Plan published December 1998, revised March 2005.
Thatch Moss <i>Leptodontium gemmascens</i>	P?	-	-		Robin Stevenson	Classified <i>Vulnerable</i> . Not yet found in Norfolk, but occurs on Thetford Heath, and there is suitable habitat in Norfolk
Large-celled Flapwort <i>Lophozia capitata</i>	P	2	2		Robin Stevenson	Classified <i>Vulnerable</i> . Formerly known from several sites at Bawsey and Blackborough End, near Lynn. Bawsey is now the only known site. <b>New to national list of BAP priority species 2007</b>
Blunt-leaved Bristle-moss <i>Orthotrichum obtusifolium</i>	P?	1			Robin Stevenson	Classified <i>Endangered</i> Only one record, now several years old. Probably only a casual.
Petalwort <i>Petalophyllum ralfsii</i>	P	-	-		Robin Stevenson	Classified <i>Endangered</i> Only known site is on Holme Reserve.
Norfolk Bladder-moss <i>Physcomitrium eurystomum</i>	P	-	-		Robin Stevenson	Classified <i>Endangered</i> Sites in Breckland, associated with the Meres, also a pond at Syderstone <b>New to national list of BAP priority species 2007</b>
Texas Balloonwort <i>Sphaerocarpos texanus</i>	P	1	1		Robin Stevenson	Classified <i>Vulnerable</i> Possibly widespread in NE Norfolk, in arable fields, but impossible to identify unless fertile <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Chalk Screw-moss <i>Tortula vahliana</i>	P?	-	-		Robin Stevenson	Classified <i>Near Threatened</i> Not yet found in Norfolk, but suitable habitat exists <b>New to national list of BAP priority species 2007</b>

FUNGI AND LOWER PLANTS LICHENS	Extinct or Probably Extinct in Norfolk	Spp. New to National BAP List				
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
<i>Anaptychia ciliaris ciliaris</i>	P?	-	-			GB Red List No records post 1990 – a few sites need checking ( Fritton, Heydon Park) <b>New to national list of BAP priority species 2007</b>
<i>Bacidia incompta</i>	P?	3	2		Peter Lambley	Classified <i>Vulnerable</i> Old records from Wighton, Sandringham, Old Buckenham. "Probably extinct in county, elm hosts dead" – P.Lambley pers.comm,13/1/04 No change 2008
Starry Breck Lichen <i>Buellia asterella</i>	P?				Peter Lambley	Listed as <i>Critically Endangered</i> on the GB Red List. Was at Weeting Heath. Now considered extinct (P Lambley pers.comm. 20/11/03) No change 2008. Norfolk Action Plan published December 1998, revised April 2004.
<i>Caloplaca atroflava</i>	P	1	-			One record, Blakeney Point in 1915, suspected error (P. Lambley 2008) Found in Norfolk? <b>New to national list of BAP priority species 2007</b>
Orange-Fruited Elm-lichen <i>Caloplaca luteoalba</i>	P	16	1		Peter Lambley	Listed as <i>Vulnerable</i> on the GB Red List Rare, on elm, occasionally <i>Aesculus</i> . Originally recorded at six sites, now only one recent record from one S. Norfolk locality, tree reported in good condition in 2006. Still present, but apparent signs of decline (P.Lambley 2008). Norfolk Action Plan published December 1998, revised August 2005.
<i>Cliostomum corrugatum</i>	P					Recorded c1990 on fencepost in salt marsh Burnham Overy (P. Lambley 2008) <b>New to national list of BAP priority species 2007</b>
<i>Enterographa sorrediata</i>	P	3	2		Peter Lambley	UK endemic, categorised as <i>Near Threatened</i> . One site in Norfolk – on a single ancient oak, checked 2007.
Scaly Breck-Lichen <i>Squamarina lentigera</i>	P				Peter Lambley	Classified <i>Endangered</i> in Great Britain. Weeting Heath, last recorded 2005. Could not re-find colony Dec 2007 - extinct?

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
<i>Toninia physaroides</i>	P					Several places on Weeting Heath December 2007. no other sites currently known (P. Lambley 2008) <b>New to national list of BAP priority species 2007</b>
<i>Usnea articulata</i>	P					On sand dunes Holkham, first recorded 1980 still present 2007. Formerly pre1984 on East Hills, Wells, colony now extinct. <b>New to national list of BAP priority species 2007</b>



FUNGI AND LOWER PLANTS						
FUNGI						
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Sandy Stiltball <i>Battarrea phalloides</i>	P	59	8 (may refer to only 5 sites)	Norfolk Fungus Group	Norfolk Fungus Group has offered updated records. BMS web database	Listed as <i>Endangered</i> on the GB Red List. Danby Wood, Cockley Cley, Narborough, Drayton Road, Stoke Holy Cross. Recent records provided by Trevor Dove. Norfolk Action Plan published December 1998. Update underway by Communities and Nature BAP Topic Group.
Fen Puffball <i>Bovista paludosa</i>	P	7	1	ditto	Norfolk Fungus Group has offered updated records. BMS web database	Classified <i>Endangered</i> in RDL. Known from Buxton Heath (1996) and Brundall
Orange Chanterelle <i>Cantharellus friesii</i>	? in Norfolk?	-	-		Norfolk Fungus Group has offered updated records. BMS web database	Classified <i>Vulnerable</i> . Not recorded from Norfolk. Records from Yorkshire and East Suffolk. <b>New to national list of BAP priority species 2007</b>
Berkeley's Earthstar <i>Geastrum berkeleyi</i>	P	1 record in BMS database	-	ditto	Norfolk Fungus Group has offered updated records. BMS web database	Classified <i>Endangered</i> . Blakeney 1926 <b>New to national list of BAP priority species 2007</b>
Weathered Earthstar <i>Geastrum corollinum</i>	P	7	1	ditto	Norfolk Fungus Group has offered updated records. BMS web database	Classified <i>Endangered</i> . Several pre 1900, Wortwell 1983 and 1985. 2006 in a greenhouse near Edgefield! <b>New to national list of BAP priority species 2007</b>
Elegant Earthstar <i>Geastrum elegans</i>	P	2	-	ditto	Norfolk Fungus Group has offered updated records. BMS web database	Classified <i>Endangered</i> . Holkham Meals 2002 and 2003 but subject to confirmation <b>New to national list of BAP priority species 2007</b>
Tiny Earthstar <i>Geastrum minimum</i>	P	16	12	ditto	Norfolk Fungus Group has offered updated records. BMS web database	Classified <i>Vulnerable</i> . Holkham – four small populations over about 1 km. <b>New to national list of BAP priority species 2007</b>
Bearded Tooth fungus. Lion's Mane, Hedgehog <i>Hericium erinaceus</i>	P	1	1	ditto	Norfolk Fungus Group has offered updated records. BMS web database	Classified <i>Endangered</i> . Occurred for the first time in Norfolk at Whitlingham in 2006

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Zoned Tooth Fungus <i>Hydnellum conrescens</i>	P	4	4	ditto	Norfolk Fungus Group has offered updated records. BMS web database	Classified Vulnerable, included in the provisional red data list of European fungi. Records from Felthorpe, Holt. The Surlingham record is no longer considered to be correct by Trevor Dove who made the original det. <i>Hydnellum</i> spp. Difficult to distinguish and errors may have been made.
A Tooth Fungus <i>Hydnellum ferrugineum</i>	P in Norfolk?	-	-	ditto	Norfolk Fungus Group has offered updated records. BMS web database	Classified Near threatened. Not recorded from Norfolk, but occurs in West Suffolk, Yorkshire.
A Tooth Fungus <i>Hydnellum scrobiculatum</i>	P?	1	-	ditto	Norfolk Fungus Group has offered updated records. BMS web database	Record from VC27 in 1971 with no other data. Not recently recorded from Norfolk
Velvet Tooth <i>Hydnellum spongiosipes</i>	P	6	5	ditto	Norfolk Fungus Group has offered updated records. BMS web database	Classified Vulnerable, included in the provisional red data list of European fungi. Felthorpe, Marsham, Wheatfen. <i>Hydnellum</i> spp. are difficult to distinguish and errors may have been made.
A Tooth Fungus <i>Phellodon confluens</i>	P	2	1	ditto	Norfolk Fungus Group has offered updated records. BMS web database	Surlingham 2005 – needs confirmation. Classified Vulnerable, included in the provisional red data list of European fungi
Oak Polypore <i>Piptoporus quercinus</i>	P	3	1	ditto	Norfolk Fungus Group has offered updated records. BMS web database.	Classified as Endangered on the pRDL. First recent record for Norfolk in Sept 03 near Castle Rising, first since Plowright 1873
Nail Fungus <i>Poronia punctata</i>	P?	5	1	ditto	Norfolk Fungus Group has offered updated records. BMS web database	Listed on the GB Red List as <i>Endangered</i> , There are old records on the fungus database & National Mycological Inst. Records, but premature to record as extinct in Norfolk. Norfolk Action Plan published December 1998, revised April 2004.
<i>Tulostoma melanocyclus</i> Scaly Stalkball	P	4	3	ditto	Norfolk Fungus Group has offered updated records.	Classified Endangered in Red Data List Regularly recorded from Holme Dunes, also Burnham, Old Hunstanton. <b>New to BAP Species List June 2007</b>

<b>FUNGI AND LOWER PLANTS: CHAROPHYTES</b>	<b>Extinct or probably extinct in Norfolk</b>	<b>Spp. New to National BAP List</b>				
<b>Species</b>	<b>Present or absent in Norfolk</b>	<b>No. of records in database</b>	<b>No. of 1km squares recorded since 1980</b>	<b>Possible other sources of data sets</b>	<b>Other survey work completed or in progress</b>	<b>Comments</b>
Baltic Stonewort <i>Chara baltica</i>	P	5	3	Stephen Lambert PhD	John Williamson and Dr Carl Sayer are working on charophytes and will let us have their records	Known from five sites in Britain., and one part of Hickling Broad. Last record 1965. Classified RDB Vulnerable Norfolk Group Action Plan published January 2008.
Bearded Stonewort <i>Chara canescens</i>	P?	2	-	Stephen Lambert PhD	John Williamson and Dr Carl Sayer are working on charophytes and will let us have their records	Norfolk B.A. Plan "could be reintroduced to the Broads" Known from 3 sites near Peterborough, and recorded from Hickling Broad but not since 1954 Classified RDB Endangered Norfolk Group Action Plan published January 2008.
Convergent Stonewort <i>Chara connivens</i>	P?	6	1	Stephen Lambert PhD	John Williamson and Dr Carl Sayer is working on charophytes and will let us have his records	Heigham Sound, Hickling Broad, Martham Broad. Classified Endangered Norfolk Group Action Plan published January 2008.
Lesser Bearded Stonewort <i>Chara curta</i>	P	4	1	Stephen Lambert PhD	John Williamson and Dr Carl Sayer are working on charophytes and will let us have their records	Foulden, Langmere, Lopham. Last record 1961. Once widespread in East Anglia, it is now thought to be extinct in the Fens. Classified Near Threatened
Intermediate Stonewort <i>Chara intermedia</i>	P	3	3	Stephen Lambert PhD	John Williamson and Dr Carl Sayer are working on charophytes and will let us have their records	Stephen Lambert found this species in Hickling Broad and Horsey Mere Reserve in the course of his PhD thesis 2004-2005. Norfolk Group Action Plan published January 2008. <b>New to BAP Species List June 2007</b>
Slender Stonewort <i>Nitella gracilis</i>	P?	1	-	Stephen Lambert PhD	John Williamson and Dr Carl Sayer are working on charophytes and will let us have their records	Classified Endangered. Present distribution unknown – rarely occurs in any site more than once.

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Dwarf Stonewort <i>Nitella tenuissima</i>	P?	5	-	Stephen Lambert PhD	John Williamson and Dr Carl Sayer are working on charophytes and will let us have their records	Calcareous, peaty areas. Foul登, South Lopham, Lenwade. Last record 1976 – known recently from only 3 British sites. Classified Endangered
Starry Stonewort <i>Nitellopsis obtusa</i>	P	12	2	Stephen Lambert PhD	John Williamson and Dr Carl Sayer are working on charophytes and will let us have their records	Recorded from six sites in the Norfolk Broads, but recent surveys in only two. May return to former sites if benthos disturbed or vegetation cleared. Norfolk Group Action Plan published January 2008.
Tassel Stonewort <i>Tolypella intricata</i>	P	4	3	Stephen Lambert PhD	John Williamson and Dr Carl Sayer are working on charophytes and will let us have their records. Stephen Lambert surveys 2008.	Gillingham, Cantley Marshes. Sculthorpe Fen in 2006 Classified Endangered. Norfolk Action Plan published January 2007.
Great Tassel Stonewort <i>Tolypella prolifera</i>	P	4	1	Stephen Lambert PhD	John Williamson and Dr Carl Sayer are working on charophytes and will let us have their records	Welney, Southery. G. Nobes found it in dyke at Cess near Martham in July 2006 – first Norfolk record for fifty years. Not re-found at Cess in 2007 or 2008 (P. Heath pers.comm.) Classified Endangered

## ANNEX 6: TERRESTRIAL AND FRESHWATER INVERTEBRATES

TERRESTRIAL AND FRESHWATER INVERTEBRATES	Spp. Considered Extinct	Spp. New to National BAP List				
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Dragonflies, Crayfish Anemone, Molluscs etc.						
Norfolk Hawker <i>Aeshna isosceles</i>	P	96	47	County Recorder		RDB Species Found on fen and grazing marsh dyke systems in Broadlands. Internationally threatened - Conversion of grazing marsh to arable farming, inappropriate ditch management, penetration of saltwater into grazing marshes, fluctuation in water levels, eutrophication and pollution. <b>New to national list of BAP priority species 2007</b>
White-clawed Crayfish <i>Austropotamobius pallipes</i>	P	226	100		River Glaven surveys 2006 and 2007; River Thet surveys 2008.	Internationally threatened – Pollution, habitat degradation, invasive species and disease. Norfolk Action Plan published December 1998, revised February 2002.
Large Dune Leafhopper <i>Doratura impudica</i>	P?	?	?	County Recorder		RDB Species Found on grasses on sand dunes. It was known in Britain only from the north Norfolk coast (Kirby 1992). Until it was collected in Essex by the P.R. Harvey at Colne Point and Crabknowe Spit in 1990 and 1991. Declining – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Mole Cricket <i>Gryllotalpa gryllotalpa</i>	P	-	-	County Recorder.		Current SAP Declining – Agricultural intensification, drainage of arable areas, use of insecticides. The species is listed as <i>Endangered</i> in the GB Red List, and is protected under Schedule 5 of the WCA 1981. No modern Norfolk records.
Lesser Water Measurer <i>Hydrometra gracilentia</i>	P	4	3			Current Species Statement. Found on the surface of small water bodies such as dykes or shallow pools with overhanging vegetation. The water bodies are usually situated in mature fen vegetation. Declining – Causes unclear.
Crystal Moss-animal <i>Lophopus crystallinus</i>	P	5	5			Current UK Species Action Plan Found in lakes, ponds, ditches and slow rivers. Marked decline in UK - Eutrophication of water bodies, water abstraction and over-tidying of water bodies, especially the removal of fallen wood.

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Large Marsh Grasshopper <i>Stethophyma grossum</i>	P	?	?	County Recorder		Current UK Species Action Plan Last recorded in the late sixties and now considered extinct in Norfolk. Restricted to very wet, marshy areas, commonly quaking acidic bogs, although historically the species also occupied fenland and riverside habitats. Marked decline in UK – Pollution, drainage of habitat and climate change.

HYMENOPTERA - Bees	Spp. Considered Extinct	Spp. New to National BAP List				
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Great Yellow Bumblebee <i>Bombus distinguendus</i>	A	1	-			Last Norfolk record in 1876 – Considered extinct in Norfolk. Nationally Scarce, considered extinct in England. Current UK Species Action Plan. Associated with extensive areas of meadowland supporting a large number of plant species with long corolla flower types. Marked decline in UK - Loss of extensive, herb-rich grasslands.
Brown-banded Carder-bee <i>Bombus humilis</i>	P	31	3			Current UK Species Action Plan Associated with extensive areas of meadowland supporting a large number of plant species with long corolla flower types. Marked decline in UK - Loss of extensive, herb-rich grasslands.
Moss Carder-bee <i>Bombus muscorum</i>	P	14	3			Generally associated with coastal habitats but does occur inland, mainly on dry heath environments. Marked decline in UK – Habitat loss and degradation <b>New to national list of BAP priority species 2007</b>
Red-shanked Carder-bee <i>Bombus ruderarius</i>	P	128	5			Formerly common in many habitat types, including gardens. Marked decline in UK – Causes unclear as the species is not a dietary specialist nor is it close to the limit of its geographical range. <b>New to national list of BAP priority species 2007</b>
Large Garden Bumblebee <i>Bombus ruderatus</i>	P	15	1	County Recorder		Nationally Scarce. Current UK Species Action Plan. Associated with extensive areas of meadowland supporting a large number of plant species with long corolla flower types. Marked decline in UK - Loss of extensive, herb-rich grasslands.
Short-haired Bumblebee <i>Bombus subterraneus</i>	A	1	-			Nationally Scarce. Current UK Species Action Plan. Only one county record (1923, Hunstanton). Considered extinct in Norfolk. Associated with extensive areas of grassland, including dunes and coastal shingle, supporting a large number of plant species with long corolla flower types. Declining - Loss of extensive, herb-rich grasslands.

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Shrill Carder Bee <i>Bombus sylvarum</i>	P?	8	-			Last Norfolk record in 1963 Current UK Species Action Plan Associated with herb-rich rough grasslands such as headlands. Declining - Loss of herb-rich grasslands through agricultural intensification.
Sea-aster Colletes Bee <i>Colletes halophilus</i>	P	1	1			Nationally Scarce Associated with coastal salt marshes. Females have a close association with flowers of Sea Aster <i>Aster tripolium</i> . Internationally threatened – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Long-horned Bee <i>Eucera longicornis</i>	P	1	1			Nationally Scarce. Found on rough grassland and coastal soft cliffs. Internationally threatened – Habitat loss and degradation. Possibly under-recorded as soft cliffs have been a neglected habitat. <b>New to national list of BAP priority species 2007</b>
Wall Mason Bee <i>Osmia parietina</i>	P?	1	-			Last Norfolk record in 1975 Current UK Species Action Plan Nests in cavities within a variety of substrates, including dry-stone walls and holes in dead wood, in full sun. There is a close association with bird's-foot trefoil. Declining - Agricultural intensification of upland herb-rich pastures, destruction of dry-stone walls and inappropriate management of pasture woodlands.



HYMENOPTERA - Wasps	Spp. Considered Extinct	Spp. New to National BAP List				
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Five-banded Weevil-wasp <i>Cerceris quinquefasciata</i>	P	3	3	BWARS		Current UK Species Action Plan Associated with coastal, bare sand habitats. Nests gregariously in areas of bare sand in places exposed to the sun. Declining - Loss of open areas of sandy ground for nesting and flower-rich sandy grasslands for foraging.
Fen Mason-wasp <i>Odynerus simillimus</i>	P	?	?	BWARS, County Recorder		pRDB Species Considered extinct in Britain until its rediscovery in 1986 in Norfolk. Associated with coastal grazing marsh and fens. Declining – Known from very few locations in Britain and mainland Europe. Large aggregations were found in 2002 at Hickling Broad on old ditch dredgings. <b>New to national list of BAP priority species 2007</b>

COLEOPTERA - Beetles	Spp. considered extinct	Spp. New to National BAP list				
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Red-horned Cardinal Click Beetle <i>Ampedus rufipennis</i>	A	-	-			Old County records only. Probably not present since 19 <sup>th</sup> Century. Considered extinct in Norfolk. Declining – Habitat loss Grouped action plan for saproxylic beetles
Heath Short-spur <i>Anisodactylus nemorivagus</i>	A	-	-			Old county records only (c.1912). Considered extinct in Norfolk. Declining - Loss and fragmentation of heathland. Inappropriate heathland management, leading to loss of open ground and scrub encroachment.
Chestnut Click Beetle <i>Anostirus castaneus</i>	A	-	-			Old county records only (pre 1830). Considered extinct in Norfolk. Declining – Unknown reasons UK Species Action Plan
Scarce Four-dot Pin-palp <i>Bembidion quadripustulatum</i>	P	1	1	Ground Beetle Recording Scheme		One record – Holme Dunes (1996). Found primarily in coastal habitats although may be present in riverine sediments. Marked decline in UK – Habitat loss. <b>New to national list of BAP priority species 2007</b>
Pale Pin-palp <i>Bembidion testaceum</i>	A	-	-	Ground Beetle Recording Scheme		Old county records only (c. 1890). Considered extinct in Norfolk. Marked decline in UK – Habitat loss. Grouped action plan for river shingle beetles
One-grooved Diving Beetle <i>Bidessus unistriatus</i>	P	23	3			Two localities – STANTA and Catfield Fen. Declining - Water abstraction, agricultural improvement resulting in drainage and enrichment, cessation of traditional management techniques for reed fen in the Broads. No specimens were found during surveys by Geoff Nobes in 2007 at Catfield Great Fen and Mrs Myhill's Marsh. Norfolk action plan in preparation.
Poplar Leaf-rolling Weevil <i>Byctiscus populi</i>	A	-	-			Old county records only (c 1890). Considered extinct in Norfolk. Declining - Loss of broadleaved woodland. Inappropriate woodland management. Decline of coppice management.

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Lesser Searcher <i>Calosoma inquisitor</i>	A	-	-	Ground Beetle Recording Scheme		Old county records only (19 <sup>th</sup> century). Considered extinct in Norfolk. Marked decline in UK – Habitat loss. Found in woodland habitats. <b>New to national list of BAP priority species 2007</b>
Necklace Ground Beetle <i>Carabus monilis</i>	P	1	1	Ground Beetle Recording Scheme		Formerly common in Norfolk but only one recent record (Horsham St Faith, 1988). Found primarily among litter and tussocks on acid grassland. Declining – Habitat loss. <b>New to national list of BAP priority species 2007</b>
Black Night-runner <i>Chlaenius tristis</i>	A	-	-	Ground Beetle Recording Scheme		Old county records only (c. 1800). Considered extinct in Norfolk. Found in wetland habitats, particularly fens. Declining – Loss of wetland habitat. <b>New to national list of BAP priority species 2007</b>
Tansy Beetle <i>Chrysolina graminis</i>	A	-	-			Old county records only (pre 1873) and possible confusion with <i>C. herbacea</i> (= <i>menthastri</i> ). Considered extinct in Norfolk. Occurs on Tansy ( <i>Tanacetum vulgare</i> ) beside river courses. Declining – Reasons for the decline of this beetle are unknown. Present threats may include shading mainly by willows, planted to help to stabilise the riverbank, or the introduced plant Himalayan balsam ( <i>Impatiens gludulifera</i> ). <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Northern Dune Tiger Beetle <i>Cicindela hybrida</i>	A	-	-			Old county records only (c. 1910). Considered extinct in Norfolk.  Marked decline in UK - Dune stabilisation schemes, increased recreational use of coastal dunes.
Hazel Pot Beetle <i>Cryptocephalus coryli</i>	A	-	-			Old county records only (early 19 <sup>th</sup> century). Considered extinct in Norfolk.  Declining - Reasons are not well understood, but may be related to the reduction in coppicing. The beetle is at risk from clearance of birch from heathland.
Pashford Pot Beetle <i>Cryptocephalus exiguus</i>	A	2	-			Old county records only (1888). Considered extinct in Norfolk. Declining - The only known site in Suffolk is threatened by lowering of the water table due to drainage of adjacent land.
Zircon Reed Beetle <i>Donacia aquatica</i>	P	8	2			Restricted to Broad. Declining - Water abstraction, disturbance to marginal vegetation, infilling of lakes and ponds, eutrophication.
Two-tone Reed Beetle <i>Donacia bicolora</i>	A	-	-			Old county records only (1875). Considered extinct in Norfolk. Declining - Water abstraction, disturbance to marginal vegetation, infilling of lakes and ponds, eutrophication.
a Ground Beetle <i>Dromius quadrisignatus</i>	A	-	-	Ground Beetle Recording Scheme		Old county records only (1875). Considered extinct in Norfolk. Marked decline in UK – Reasons unknown.
Petty Whin Weevil <i>Exapion genistae</i>	A	-	-			Old county records only (1810). Considered extinct in Norfolk. Found on grassland and wet heathland, associated with <i>Genista</i> spp. Declining – habitat loss by development and agricultural intensification. <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Noble Chafer <i>Gnorimus nobilis</i>	A	-	-			Old county records only (19 <sup>th</sup> Century) – probable accidental import. Considered extinct in Norfolk.  Declining - Loss of habitat, especially through the grubbing out of old orchards and replacement of ancient decaying fruit trees. Loss of nectar and pollen sources through inappropriate management of orchard grassland. Use of chemical pesticides.
Brush-thighed Seed-eater <i>Harpalus froelichi</i>	P	4	3			Present on a few Breckland sites. Marked decline in UK - Loss of ruderal communities on disturbed sand, including field margins. Modern treatment of arable weeds through herbicide and seed cleaning. Norfolk Action Plan published February 2007.
a Seed-eater Ground Beetle <i>Harpalus melancholicus</i>	A	-	-	Ground Beetle Recording Scheme		Old county records only (1883). Considered extinct in Norfolk.  Found in coastal sand dunes although also recorded inland. Marked decline in UK – Habitat loss. <b>New to national list of BAP priority species 2007</b>
New Forest Mud Beetle <i>Helophorus laticollis</i>	A	-	-			Old county records only (c. 1990). Considered extinct in Norfolk. Declining - Water abstraction, damage to headwater drainage systems, in particular associated with tourist development and road improvement. Reduction in grazing, resulting in scrub encroachment.
Oxbow Diving Beetle <i>Hydroporus rufifrons</i>	A	-	-			Old county records only (19 <sup>th</sup> Century). Considered extinct in Norfolk. Recent re-introduction attempt at East Wretham with stock from Cumbria still to be assessed ( cf. Geoff Nobes, Garth Foster). Marked decline in UK - Loss of unimproved pasture, damage to lakeside marginal pool complexes, inundation through impoundment for reservoirs.
Blue Plunderer <i>Lebia cyanocephala</i>	P	1	1	Ground Beetle Recording Scheme		Accidental import in 1998. Found on scrubby ruderal grassland on fringes of heath. Marked decline in UK – Reasons unclear. <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Stag Beetle <i>Lucanus cervus</i>	P	-?	-?	Stag Beetle Recording Scheme, County Recorder		Some old records based on accidental introduction but several recent records, mainly in Norwich/Broads area. No current consensus on this species – some convinced any records are Lesser Stag. Only specimen or photographs will resolve the issue. Declining - Loss of habitat through the removal of stumps and other dead wood. Collection for sale may be a contributory factor.
Scarlet Malachite Beetle <i>Malachius aeneus</i>	A	-	-	Bug Life		Old county records only (19 <sup>th</sup> Century). Considered extinct in Norfolk. Declining – Causes unknown.
a Click Beetle <i>Megapenthes lugens</i>	A	-	-			Old county records only (20 <sup>th</sup> Century). Considered extinct in Norfolk. Marked decline in UK - Loss or degradation of old woodlands and parklands, destruction and inappropriate management of veteran trees and loss of dead wood
Sallow Guest Weevil <i>Melanapion minimum</i>	P	16	9			Widespread and locally common in the Broads. Declining – Causes unknown.
Black Oil Beetle <i>Meloe proscarabaeus</i>	P	1	1			Formerly common. Strong colony discovered at East Harling Heath in 2005 where it continued to be common in 2007. Found on heaths, coastal cliffs and moors. Marked decline in UK – Possibly due to decline in host bee species. <b>New to national list of BAP priority species 2007</b>
Violet Oil Beetle <i>Meloe violaceus</i>	A	-	-			Old county records only (19 <sup>th</sup> Century). Primarily found in coastal habitats. Declining - Possibly due to decline in host bee species. <b>New to national list of BAP priority species 2007</b>
Eyed Longhorn Beetle <i>Oberea oculata</i>	A	-	-			Old county records only (1890). Considered extinct in Norfolk. Declining – Causes unknown
Set-aside Downy-back <i>Ophonus laticollis</i> (= <i>Harpalus punctatulus</i> )	P	6	6		Brecks site surveyed by Telfer in 2008	Four sites since 1995 – Methwold, E. Beckham, Edgefield Woods and STANTA. 57 individuals found in 2008 on key site near Thetford. Marked decline in UK – Causes unknown. Norfolk Action Plan published February 2007.

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
a Downy-back Ground Beetle <i>Ophonus puncticollis</i>	A	-	-			Old county records only (1900), probably identification errors. Considered extinct in Norfolk. Associated with lowland calcareous grassland. Marked decline in UK - Dune stabilisation and increased recreational use of coastal dunes, inappropriate management of chalk grasslands. <b>New to national list of BAP priority species 2007</b>
Crucifix Ground Beetle <i>Panagaeus cruxmajor</i>	A	-	-	Ground Beetle Recording Scheme		Old county records only (c. 1800) but possible confusion with <i>P. bipustulatus</i> . Considered extinct in Norfolk. Marked decline in UK - Lack of grazing on wet pasture or dune slacks leading to growth of scrub or coarse grassland.
Kugelann's Green Clock <i>Poecilus (= Pterostichus) kugelanni</i>	P	?	?	Ground Beetle Recording Scheme, County Recorder.		Formerly found on Mousehold Heath (1883) and Edgefield Heath (1937) and more recently discovered at STANTA (2006). Marked decline in UK - Unsuitable heathland management, and the widespread loss and fragmentation of this habitat.
Yellow Pogonus <i>Pogonus luridipennis</i>	P	11	3			Main site is Salthouse (1 <sup>st</sup> British site) but isolated records from Holkham and Titchwell. Found under seaweed, driftwood and strandline litter, primarily on saltmarshes. Marked decline in UK - Probably both due to the development of coastal habitats and pollution. <b>New to national list of BAP priority species 2007</b>
Alder Flea Weevil <i>Rhynchaenus testaceus</i>	P	32	4			STANTA is currently the only known site. Was also present at Santon Downham (1987) but alder plantation was then felled. Some old records for the Broads area. Declining – Causes unknown.
a Camphor Beetle <i>Stenus longitarsis</i>	A	-	-			Old county records only (1877). Considered extinct in Norfolk. Found along river banks in riverine sediment also associated with eutrophic standing water bodies. Marked decline in UK – Habitat loss due to river engineering. <b>New to national list of BAP priority species 2007</b>

DIPTERA - flies						
Species	Spp. Considered Extinct	Spp. New to National BAP List	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Hornet Robberfly <i>Asilus crabroniformis</i>	A	8	-			Current UK Species Action Plan Last Norfolk record in 1965. Considered extinct in Norfolk Found on heaths and commons. Declining – Habitat loss and degradation.
Black Fungus Gnat <i>Asindulum nigrum</i>	P	?	?	County Recorder		Found in fen areas. Internationally threatened – Loss of habitat through drainage etc. <b>New to national list of BAP priority species 2007</b>
Golden Hoverfly <i>Callicera spinolae</i>	P	18	6			Current UK Species Action Plan Found on parkland and open woodland. Declining – Causes unclear.
Broads Long-legged Fly <i>Dolichopus laticola</i>	P	1	1			RDB Species Found in fen areas of the Broads. Internationally threatened – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Bure Long-legged Fly <i>Dolichopus nigripes</i>	P?	?	?	County Recorder		Found in areas of fen. Declining – Loss of habitat through drainage and agricultural intensification. <b>New to national list of BAP priority species 200</b>
Clubbed Big-headed Fly <i>Dorylomorpha claviferora</i>	P?	?	?			Unconfirmed report from Hickling NNR in 1990. Found in fenland environments. Internationally threatened - Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>



Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Cigarillo Gall-fly <i>Lipara similis</i>	P?	-	-			Not recorded in Norfolk but might be expected to be present. Found in reedbeds. Declining – Causes unclear but may be under-recorded. <b>New to national list of BAP priority species 2007</b>
Dune Snail-killing Fly <i>Salicella fasciata</i>	P	?	?	County Recorder		Recorded at Blakeney Point. RDB Species. Associated with coastal sand dunes. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Mottled Bee-fly <i>Thyridanthrax fenestratus</i>	A	1	-			Last recorded in the 19 <sup>th</sup> century. Considered extinct in Norfolk. Current Species Action Plan. Associated with open, heather-dominated heathland. Inappropriate heathland management, encroachment by scrub and trees, uncontrolled heathland fires and damage to paths and open areas by increasing recreational use, especially horse riding, or by intense military use.

LEPIDOPTERA: BUTTERFLIES	Spp. Considered Extinct	Spp. New to National BAP List				
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
High Brown Fritillary <i>Argynnis adippe</i>	P?	9	0			Recently extinct in Norfolk – Last recorded in 1975 at Beeston Regis Common. Marked decline in UK - Reduction of coppicing, agricultural improvement, cessation of grazing and traditional forms of bracken management.
Pearl-bordered Fritillary <i>Boloria euphrosyne</i>	P?	5	0			Extinct in Norfolk – Last recorded as a resident species in early 1900s. May be candidate for reintroduction. Marked decline in UK - Loss of open clearings and canopy gaps within modern high forest systems, cessation of grazing on unimproved grassland and abandonment of traditional bracken and gorse management.
Small Pearl-bordered Fritillary <i>Boloria selene</i>	P?	10	3			Recently extinct in Norfolk – Last recorded in Norfolk in 1983 in the Sea Palling/Waxham area. May be candidate for reintroduction. Marked decline in UK – Loss of open clearings and canopy gaps within modern high forest systems, cessation of grazing on unimproved grassland and abandonment of traditional bracken and gorse management. <b>New to national list of BAP priority species 2007</b>
Small Heath <i>Coenonympha pamphilus</i>	P	926	22		BC	Found in open, short grassland including roadside verges and heaths. Marked decline in UK – Reason unclear, although may be due to loss of microhabitats that allow the growth of larval foodplants (e.g. fine grasses) <b>New to national list of BAP priority species 2007</b>
Small Blue <i>Cupido minimus</i>	P?	4	0			Extinct in Norfolk – Last recorded in early 1900s. May be candidate for reintroduction. Marked decline in UK – Loss and degradation of habitat. <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Dingy Skipper <i>Erynnis tages</i>	P	63	11		BC	Found on coastal and downland habitats. Marked decline in UK – Habitat loss and fragmentation. <b>New to national list of BAP priority species 2007</b>
Marsh Fritillary <i>Eurodryas aurinia</i>	P?	8	0			Extinct in Norfolk – Last recorded in early 1900s. May be candidate for reintroduction. Internationally threatened and international responsibility - Agricultural improvement of marshy and chalk/limestone grasslands, afforestation and development of habitats, changes in grazing stock and practice, fragmentation and isolation of habitats.
Grayling <i>Hipparchia semele</i>	P	410	140		BC	Primarily associated with coastal grasslands, although can be found on some inland sites. Marked decline in UK – Loss, degradation and fragmentation of habitat. <b>New to national list of BAP priority species 2007</b>
Wall <i>Lasiommata megera</i>	P	1492	521		BC	Found in a wide range of grassland habitats. Marked decline in UK – Reasons for decline are unclear. Disappeared from almost everywhere in Norfolk except north and east coasts, and third most likely candidate for regional extinction after Dingy and Grizzled Skippers (Andy Brazil, pers.comm) <b>New to national list of BAP priority species 2007</b>
White Admiral <i>Limenitis camilla</i>	P	42	26		BC	Associated with woodland containing honeysuckle ( <i>Lonicera periclymenum</i> ) with rides and clearings. Given as having a marked decline in UK on the BAP list, although appears to be expanding its range northwards. <b>New to national list of BAP priority species 2007</b>
Silver-studded Blue <i>Plebejus argus</i>	P	216	16		BC	Current UK Species Action Plan. Associated with heathland habitat. Declining, although reintroductions have enhanced existing populations and re-established previously extinct colonies. Norfolk Action Plan published June 2006.

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Grizzled Skipper <i>Pyrgus malvae</i>	P	71	16		BC	Associated with open, sunny but sheltered, unfertilised grassland, woodland rides and glades or abandoned industrial sites. Marked decline in UK – Habitat loss, degradation and fragmentation. <b>New to national list of BAP priority species 2007</b>
White Letter Hairstreak <i>Satyrrium w-album</i>	P	108	35		BC	Associated with woodland and hedgerows containing Elms ( <i>Ulmus</i> spp.). Marked decline in UK – Habitat loss, degradation and fragmentation. This butterfly was far more common prior to the advent of Dutch Elm Disease. <b>New to national list of BAP priority species 2007</b>

LEPIDOPTERA: MOTHS	Spp. Considered Extinct	Spp. New to National BAP List				
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Grey Dagger <i>Acronicta psi</i>	P	378	132	BC, Rothamstead Institute		Widespread in many habitats. Marked decline in UK – May be due to habitat or ecological changes. <b>New to national list of BAP priority species 2007</b>
Knot Grass <i>Acronicta rumicis</i>	P	23	14	BC, Rothamstead Institute		Widespread in many habitats. Marked decline in UK – May be due to habitat or ecological changes <b>New to national list of BAP priority species 2007</b>
The Forester <i>Adscita statices</i>	P	20	11	BC, Rothamstead Institute		In the UK the forester occurs in isolated colonies on damp meadows, rough grassland, woodland glades, sea cliffs, boggy moorland, sandhills, chalk downs and limestone grassland. Marked decline in UK – Habitat loss, degradation and fragmentation <b>New to national list of BAP priority species 2007</b>
Flounced Chestnut <i>Agrochola helvola</i>	P	46	29	BC, Rothamstead Institute		In southern Britain generally associated with woodland habitats. Marked decline in UK – Causes unclear, although may be due to loss of habitats. <b>New to national list of BAP priority species 2007</b>
Brown-spot Pinion <i>Agrochola litura</i>	P	160	65	BC, Rothamstead Institute		Frequents woodland, heathland and bushy suburban habitats. Marked decline in UK – Causes unclear <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Beaded Chestnut <i>Agrochola lychnidis</i>	P	196	67	BC, Rothamstead Institute		Frequents a large variety of habitats, including gardens. Marked decline in UK – Causes unclear <b>New to national list of BAP priority species 2007</b>
Sloe Carpet <i>Aleucis distinctata</i>	P?	1	-	BC, Rothamstead Institute		Last Norfolk record in 1979 Associated with scrubby grassland containing a good growth of sloe bushes. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Green-brindled Crescent <i>Allophyes oxyacanthae</i>	P	142	58	BC, Rothamstead Institute		Occurs in woodland, hedgerow and suburban habitats. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Ear Moth <i>Amphipoea oculea</i>	P	101	57	BC, Rothamstead Institute		Favours damp habitats Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Mouse Moth <i>Amphipyra tragopoginis</i>	P	316	114	BC, Rothamstead Institute		Found in a wide variety of habitats. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Large Nutmeg <i>Apamea anceps</i>	P	86	35	BC, Rothamstead Institute		Associated with dry, calcareous grassland, arable farmland, gardens and woodland rides and edges. Marked decline in UK – Causes unclear <b>New to national list of BAP priority species 2007</b>
Dusky Brocade <i>Apamea remissa</i>	P	236	89	BC, Rothamstead Institute		Associated with a range of grassland habitats including gardens. Marked decline in UK – Causes unclear <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Deep-brown Dart <i>Aporophyla lutulenta</i>	P	11	6	BC, Rothamstead Institute		Associated with open habitats, particularly on calcareous or light sandy soils. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Garden Tiger <i>Arctia caja</i>	P	213	99	BC, Rothamstead Institute		Associated with a wide variety of habitats. Marked decline in UK – Possibly due to climate change leading to mild, damp winters. <b>New to national list of BAP priority species 2007</b>
The Sprawler <i>Asteroscopus sphinx</i>	P	18	12	BC, Rothamstead Institute		Associated with broadleaved woodland and other well wooded areas, including gardens. Marked decline in UK – possibly due to habitat degradation. <b>New to national list of BAP priority species 2007</b>
Centre-barred Sallow <i>Atethmia centrago</i>	P	124	62	BC, Rothamstead Institute		Associated with broadleaved woodland and more open areas with isolated Ash trees. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Marsh Moth <i>Athetis palustris</i>	P?	1				Species Action Plan Old record of Marsh Moth from Sportsman's Staithe, Ormesby. It has been searched for elsewhere to no avail (pers.comm.Phil Heath/Ken Saul)
Dark Brocade <i>Blepharita adusta</i>	P	108	43	BC, Rothamstead Institute		Associated with a variety of habitats, including heathland, chalk downland, fens, woodland and gardens. Marked decline in UK – Causes unclear but may be linked with habitat degradation and climate change. <b>New to national list of BAP priority species 2007</b>
Minor Shoulder-knot <i>Brachylochia viminalis</i>	P	121	58	BC, Rothamstead Institute		Associated with damp woodland, marshland, fens, heathland, river valleys, pond edges and some gardens. Marked decline in UK - Causes unclear but may be linked with habitat degradation. <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Mottled Rustic <i>Caradrina morpheus</i>	P	404	126	BC, Rothamstead Institute		Occurs in a wide variety of lowland habitats, including coastal areas. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Haworth's Minor <i>Celaena haworthii</i>	P	19	8	BC, Rothamstead Institute		Associated with boggy acid moorland, fens and marshes. Very local in East Anglian fens. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
The Crescent <i>Celaena leucostigma</i>	P	140	52	BC, Rothamstead Institute		Associated with boggy acid moorland, fens, reedbed, carr and marshes. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
The Streak <i>Chesias legatella</i>	P	46	24	BC, Rothamstead Institute		Associated with a variety of habitats but more frequent on heathland, moorland and open woodland. Marked decline in UK – Causes unclear <b>New to national list of BAP priority species 2007</b>
Broom-tip <i>Chesias rufatas</i>	P	2	2	BC, Rothamstead Institute		Nationally Scarce B Associated with open habitat, including heathland, breckland and moorland. Usually where large and long-established stands of Broom ( <i>Cytisus scoparia</i> ) are found. Marked decline in UK – Causes unclear, although probably linked to habitat loss and degradation <b>New to national list of BAP priority species 2007</b>
Latticed Heath <i>Chiasmia clathrata</i>	P	189	74	BC, Rothamstead Institute		Found in a wide variety of habitats but most abundant around Lucerne crops. Marked decline in UK – Causes unclear <b>New to national list of BAP priority species 2007</b>



Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Fenn's Wainscot <i>Chortodes brevilinea</i>	P	28	14	BC, Rothamstead Institute		RDB species, occurring only in Norfolk Broads with isolated populations on the Suffolk coast. Found in reedbeds, preferring drier areas and associated with biannual management regimes. Small British population constricted by available habitat, although has shown recent signs of range expansion. <b>New to national list of BAP priority species 2007</b>
Water-dock Case-bearer <i>Coleophora hydrolapathella</i>	P	5	4	BC, Rothamstead Institute		Nationally Scarce B Restricted to Broads in association with Water Dock ( <i>Rumex hydrolapathum</i> ). Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Basil-thyme Case-bearer <i>Coleophora tricolor</i>	P	53	17	BC, Rothamstead Institute		Current UK Species Action Plan. Internationally threatened - Decline in the abundance of the foodplant due to reductions in grazing intensity, particularly as a result of changes in rabbit populations and loss of unimproved Breck grassland.
White-spotted Pinion <i>Cosmia diffinis</i>	P	10	3	BC, Rothamstead Institute		pRDB species. Current UK Species Action Plan. Marked decline in UK - Death of mature elms as a result of Dutch elm disease.
Goat Moth <i>Cossus cossus</i>	P	14	10	BC, Rothamstead Institute		Nationally Scarce B Associated with mature deciduous trees in fens, marshes, riverbanks, parks, hedgerows and woodland edges. Declining – Possibly due to decline in large, mature trees that are required by it's larvae. <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
False Mocha <i>Cyclophora porata</i>	P	19	12	BC, Rothamstead Institute		Nationally Scarce B. Associated with oak trees in woodland, heathland and carr habitats. Appears to prefer scrubby, long-established oak coppice re-growth. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Oak Lutestring <i>Cymatophorima diluta</i>	P	8	3	BC, Rothamstead Institute		Found in long-established broadleaved woodland containing mature oak trees and occasionally gardens. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Small Square-spot <i>Diarsia rubi</i>	P	399	134	BC, Rothamstead Institute		Found in most habitats but more abundant in damp woodland or marshy environments. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Figure of Eight <i>Diloba caeruleocephala</i>	P	58	28	BC, Rothamstead Institute		Found in most habitats where foodplants ( <i>Prunus sp, Crataegus sp Malus sp. etc</i> ) grow. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Small Phoenix <i>Ecliptopera silaceata</i>	P	226	112	BC, Rothamstead Institute		Found wherever foodplants ( <i>Epilobium spp</i> ) occur, although more numerous in woodland rides. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
September Thorn <i>Ennomos erosaria</i>	P	78	40	BC, Rothamstead Institute		Associated with woodland, parks and gardens. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Dusky Thorn <i>Ennomos fuscantaria</i>	P	86	43	BC, Rothamstead Institute		Found in most habitats where Ash ( <i>Fraxinus excelsior</i> ) occurs. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
August Thorn <i>Ennomos quercinaria</i>	P	45	26	BC, Rothamstead Institute		Associated with woodland, parks, scrubby downland and some gardens. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Dark-bordered Beauty <i>Epione vespertaria</i>	P?	3	-	BC, Rothamstead Institute		Last Norfolk Record in 1972. RDB species. Current Species Action Plan. Mainly associated with open, damp, scrubby grassland or heath, containing taller trees . Declining – Habitat loss and degradation.
Galium Carpet <i>Epirrhoe galiata</i>	P	7	2	BC, Rothamstead Institute		Associated with open grassy coastal habitats, including dunes, cliffs and shingle. Also found on calcareous grassland. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Autumnal Rustic <i>Eugnorisma glareosa</i>	P	44	37	BC, Rothamstead Institute		Predominantly found on heathland, moors and rough grassland that are not over-grazed. Also found on fens, beaches and open woodland. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
The Spinach <i>Eulithis mellinata</i>	P	115	56	BC, Rothamstead Institute		Associated with gardens and allotments, including major urban areas. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Scarce Pug <i>Eupithecia extensaria occidua</i>	P	3	2	BC, Rothamstead Institute		RDB Species. Occurs on the fringes and higher ground of saltmarshes. Internationally threatened – Habitat loss and degradation. Also restricted by distribution of foodplant, Sea Wormwood ( <i>Artemisia maritima</i> ). <b>New to national list of BAP priority species 2007</b>
Garden Dart <i>Euxoa nigricans</i>	P	108	52	BC, Rothamstead Institute		Occurs in a wide range of habitats but typically gardens, allotments, farmland and rough open ground. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
White-line Dart <i>Euxoa tritici</i>	P	101	52	BC, Rothamstead Institute		Still common in Norfolk, coastal and heathland. . Variable, and can be difficult to tell apart from <i>E. obelisca</i> and <i>E. cursoria</i> . <b>New to national list of BAP priority species</b>
Double Dart <i>Graphiphora augur</i>	P	128	59	BC, Rothamstead Institute		Associated with a wide range of habitats, including broadleaved woodland, hedgerows and gardens. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Bordered Gothic <i>Heliophobus reticulata</i>	P	15	3	BC, Rothamstead Institute		Nationally Scarce B. Current UK Species Action Plan. Found on chalk downland, restricted to calcareous areas of Breckland in Norfolk.
Narrow-bordered Bee Hawk-moth <i>Hemaris tityus</i>	P	4	1	BC, Rothamstead Institute		Nationally Scarce B. Current Species Action Plan. Associated with unimproved grassland, including wet, acidic pasture, lightly grazed calcareous grassland, acid bogs and drier heath. Declining – Agricultural improvement and inappropriate habitat management.
Small Emerald <i>Hemistola chrysoprasaria</i>	P	29	14	BC, Rothamstead Institute		Occurs in a wide variety of habitats, including downland, open woodland and gardens. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Ghost Moth <i>Hepialus humuli</i>	P	208	85	BC, Rothamstead Institute		Occurs in open grassy or weedy areas, both on open ground and in woodland rides. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
The Rustic <i>Hoplodrina blanda</i>	P	328	116	BC, Rothamstead Institute		Found in most lowland habitats, including urban areas. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Rosy Rustic <i>Hydraecia micacea</i>	P	286	99	BC, Rothamstead Institute		Occurs in a wide range of habitats, including gardens. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Bright Wave <i>Idaea ochrata cantitata</i>	P?	1	1			Species Action Plan Found on the Bure near Runham in 2004 (PH, KS) almost certainly a migrant
Currant-shoot Borer <i>Lampronia capitella</i>	P	3	2	BC, Rothamstead Institute		Nationally Scarce B, pRDB. Associated with areas where foodplant ( <i>Ribes</i> spp) occurs, particularly gardens. Marked decline in UK – Loss of foodplants in gardens and development of habitat. <b>New to national list of BAP priority species 2007</b>
Grey Carpet <i>Lithostege griseata</i>	P	18	16	BC, Rothamstead Institute		RDB Species. Primarily restricted to local populations in Breckland. Found on field margins, roadside verges, disturbed ground and heath, where foodplant ( <i>Descurainia Sophia</i> ) occurs. Marked decline in UK – Isolation of populations. <b>New to national list of BAP priority species 2007</b>
Brindled Beauty <i>Lycia hirtaria</i>	P	164	60	BC, Rothamstead Institute		Occurs in broadleaved woodland, scrub, hedgerows, parks and gardens. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
V-moth <i>Macaria wauaria</i>	P	52	22	BC, Rothamstead Institute		Occurs mainly in gardens and allotments where foodplant occurs ( <i>Ribes spp.</i> ). Marked decline in UK – Probably due to the decline in use of foodplant in gardens and use of pesticides in commercial fruit farms. <b>New to national list of BAP priority species 2007</b>
The Lackey <i>Malacosoma neustria</i>	P	59	31	BC, Rothamstead Institute		Associated with open sunny areas, especially hedgerows, gardens and open woodland. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Dot Moth <i>Melanchra persicariae</i>	P	361	122	BC, Rothamstead Institute		Frequent in gardens and hedgerows. Occurs in a wide range of habitats. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Broom Moth <i>Melanchra pisi</i>	P	196	95	BC, Rothamstead Institute		Occurs in many habitats but most numerous on heath and moorland. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Pretty Chalk Carpet <i>Melanthia porcellata</i>	P	19	13	BC, Rothamstead Institute		Found in woodland, scrub, hedgerows and gardens on calcareous soils. Marked decline in UK – Causes unclear although may be linked to habitat degradation. <b>New to national list of BAP priority species 2007</b>
Rosy Minor <i>Mesoligia literosa</i>	P	210	95	BC, Rothamstead Institute		Occurs on various open calcareous habitats, including gardens and coastal cliffs and dunes. Marked decline in UK – Causes unclear although may be linked to habitat degradation. <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Shoulder-striped Wainscot <i>Mythimna comma</i>	P	246	101	BC, Rothamstead Institute		Most commonly found on fens and marshes but can occur in gardens and wet woodland. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Lunar Yellow Underwing <i>Noctua orbona</i>	P	171	67	BC, Rothamstead Institute		Nationally Scarce B. Current UK Species Action Plan. Associated with dry, sandy heath or calcareous open sites and open woodland, both on the coast and inland. Marked decline in UK - Causes unclear.
Scarce Vapourer <i>Orygia recens</i>	P	6	2	BC, Rothamstead Institute		RDB Species. Associated with lowland heath, wet woodland, fens, bogs and hedgerows. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Oblique Carpet <i>Orthonama vittata</i>	P	47	22	BC, Rothamstead Institute		Associated with fens, marshes, bogs, wet meadows and damp woodland. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Powdered Quaker <i>Orthosia gracilis</i>	P	142	54	BC, Rothamstead Institute		Most common in marshy habitat but also present in damp woodland, gardens and open areas. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Common Fan-foot <i>Pechipogo stigmatata</i>	P?	7	-	BC, Rothamstead Institute		Last Norfolk record in 1975. Nationally Scarce B. Current Species Action Plan. Found in fairly open ancient woodland. Marked decline in UK – Causes unclear but may be due to habitat degradation.
Dark Spinach <i>Pelurga comitata</i>	P	67	31	BC, Rothamstead Institute		Occurs in a range of habitats, including derelict urban plots, gardens and allotments. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Grass Rivulet <i>Perizoma albulata albulata</i>	P	26	24	BC, Rothamstead Institute		Associated with open grassland, usually on calcareous soils, dune slacks and coastal shingle. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Pale Shining Brown <i>Polia bombycina</i>	P	10	2	BC, Rothamstead Institute		pRDB Species. Current UK Species Action Plan. Mainly associated with scrubby grassland on light calcareous soils. Marked decline in UK – Causes unknown but may be linked to habitat degradation.
Large Wainscot <i>Rhizodra lutosa</i>	P	128	48	BC, Rothamstead Institute		Still common in Norfolk - reedbeds and reedy ditches. <b>New to national list of BAP priority species</b>
Mullein Wave <i>Scopula marginepunctata</i>	P	11	4	BC, Rothamstead Institute		Primarily a coastal distribution on grassland, heathland and vegetated shingle. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Shaded Broad-bar <i>Scotopteryx chenopodiata</i>	P	208	98	BC, Rothamstead Institute		Inhabits a range of open habitats. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
White Ermine <i>Spilosoma lubricipeda</i>	P	384	132	BC, Rothamstead Institute		Found in a wide variety, including woodland, heathland, fens, scrub and grasslands. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Buff Ermine <i>Spilosoma luteum</i>	P	467	153	BC, Rothamstead Institute		Found in a wide variety, including gardens, woodland, heathland, fens, scrub and grasslands. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
The Anomalous <i>Stilbia anomala</i>	P	3	3	BC, Rothamstead Institute		Associated with heathland habitat but also occurs on coastal grassland, moorland and grassy uplands. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority</b>



						<b>species 2007</b>
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Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Hedge Rustic <i>Tholera cespitis</i>	P	81	48	BC, Rothamstead Institute		Found on grassland, heathland, open woodland, gardens and fens. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Feathered Gothic <i>Tholera decimalis</i>	P	54	36	BC, Rothamstead Institute		Found on grassland, heathland, open woodland and some gardens. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Blood-vein <i>Timandra comae</i>	P	127	126	BC, Rothamstead Institute		Occurs in a wide range of habitats, particularly those with rich vegetation cover. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Pale Eggar <i>Trichiura crataegi</i>	P	36	20	BC, Rothamstead Institute		Found in open woodland, scrub, hedgerows heathland and gardens. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Barred Tooth-striped <i>Trichopteryx polycommata</i>	P	5	5	BC, Rothamstead Institute		Nationally Scarce A. Current UK Species Action Plan. Occurs in woodland clearings and rides on chalk, limestone or clay soils, and on chalk downland where the larval foodplant, wild privet <i>Ligustrum vulgare</i> , grows in full sunlight. Declining - Loss of downland habitat and inappropriate management regimes.
The Cinnabar <i>Tyria jacobaeae</i>	P	251	113	BC, Rothamstead Institute		Most numerous on well drained, rabbit-grazed grassland but also present in a wide range of habitats, where foodplant ( <i>Senecio jacobaea</i> ) occurs. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Four-spotted Moth <i>Tyta luctuosa</i>	P	9	3	BC, Rothamstead Institute		Nationally Scarce A. Current UK Species Action Plan. A grassland species which is typically found on south-facing banks on well-drained soils with sparse vegetation and bare earth. Declining - Loss of habitat due to agricultural intensification and development. Inappropriate grassland management.
Oak Hook-tip <i>Watsonalla binaria</i>	P	271	118	BC, Rothamstead Institute		Found on scrub oak on heathland, woodland, fens, grassland and gardens. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Dusky Lemon Sallow <i>Xanthia gilvago</i>	P	17	6	BC, Rothamstead Institute		A local species found in broadleaved woodland, hedgerows and parkland containing elm trees ( <i>Ulmus spp</i> ). Marked decline in UK – Probably due to loss of habitat, particularly the loss of mature elms. <b>New to national list of BAP priority species 2007</b>
The Sallow <i>Xanthia ictertia</i>	P	166	74	BC, Rothamstead Institute		Occurs in a wide variety of habitats, where <i>Populus</i> and <i>Salix spp</i> occur, but most numerous in broadleaved woodland. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Dark-barred Twin-spot Carpet <i>Xanthorhoe ferrugata</i>	P	371	125	BC, Rothamstead Institute		Occurs in a wide range of habitats, including gardens, woodland and fens. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>
Heath Rustic <i>Xestia agathina</i>	P	22	11	BC, Rothamstead Institute		Localised to acid heathland and moorland. Marked decline in UK – Causes unclear. <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Neglected Rustic <i>Xestia castanea</i>	P?	3	-	BC, Rothamstead Institute		Last Norfolk record in 1914. Found on heath and moorland. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Sword-grass <i>Xylena exsoleta</i>	P	9	1	BC, Rothamstead Institute		Nationally Scarce B. Current UK Species Action Plan. Recorded in a wide range of habitats, mostly in uplands and moorlands. Declining – Causes unclear but may be linked to habitat degradation.

TERRESTRIAL AND FRESHWATER MOLLUSCS	Spp. Considered Extinct	Spp. New to National BAP List				
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Little Whirlpool Ram's-horn snail <i>Anisus vorticulus</i>	P	37	12			Current UK Species Action Plan Occurs in unpolluted, calcareous waters in well-vegetated marsh drains. Internationally threatened - Over-frequent ditch clearance, nutrient enrichment due to fertiliser applications, and conversion of grazing levels to arable farming with associated water table lowering. Norfolk Action Plan published December 1998, revised January 2003.
Swollen Spire Snail <i>Mercuria similis (M. confusa)</i>	P	?	?	County Recorder		RDB Species Found at Wheatfen Broad, Rockland Broad and in the river Yare. It is also found in the Waveney where it has extended its range. Typically found on bare mud exposed at low tide beneath emergent vegetation such as <i>Phragmites australis</i> or <i>Glyceria maxima</i> . Declining – Salinity changes, flood defence works and climate change. <b>New to national list of BAP priority species 2007</b>
Glutinous Snail <i>Myxas glutinosa</i>	A	3	-			Last Norfolk record in 1968. Considered extinct in Norfolk. Endangered. Current Species Action Plan Occurs in clear, hard water which is free from fine sediment and nitrate/phosphate pollution. Marked decline in UK – Disturbance and pollution.

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Mud Snail <i>Omphiscola glabra</i> ( <i>Lymnaea glabra</i> )	P	1	1			RDB Species Discovered in a pingo on East Walton Common. Typically found in acidic, nutrient poor water with little other aquatic life. Declining – Habitat loss but may be under-recorded. <b>New to national list of BAP priority species 2007</b>
Depressed River Mussel <i>Pseudanodonta complanata</i>	P	76	42			Current UK Species Action Plan Occurs in lowland river, drains, canals and ditches. Described as declining nationally – Pollution and drought. Although this species is extending its range in the River Waveney. Norfolk Action Plan published December 1998, revised January 2003.
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Shining Ram's-horn Snail <i>Segmentina nitida</i>	P	79	17			Current UK Species Action Plan Found in unpolluted, usually calcareous water in the ponds and drains of grazing marshes. Declining – Causes unclear but believed to be over-frequent ditch clearance, eutrophication due to fertiliser run-off, and conversion of grazing levels to arable farming, with associated water table lowering. Norfolk Action Plan published December 1998, revised January 2003.

Cylindrical Whorl Snail <i>Truncatellina cylindrica</i>	P	?	?	County Recorder	RDB Species. Found at Thetford in 1952 but not since. Associated with dry, calcareous grassland and occasionally on sand dunes. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Large-mouthed Valve Snail <i>Valvata macrostoma</i>	P	45	21		RDB Species. Quite widespread in suitable habitat. Associated with coastal and floodplain grazing marshes. Internationally threatened – Habitat loss, degradation and pollution. <b>New to national list of BAP priority species 2007</b>
Narrow-mouthed Whorl Snail <i>Vertigo angustior</i>	P	22	9		RDB Species. Current UK Species Action Plan. New sites discovered in 2006. Occurs in damp, short grass and moss on marshes, including <a href="#">salt marshes</a> , or among flood debris. Internationally threatened - The habitat of this snail is very vulnerable to changes in hydrological conditions, reduced grazing pressure and physical disturbance. Norfolk Action Plan published December 1998, revised January 2003.
Geyer's Whorl Snail <i>Vertigo geyeri</i>	P	1	1	County Recorder, EA	Discovered in Scarning Fen, Norfolk in 2005 (Holyoak) and confirmed in 2006.. RDB Species. Current UK Species Action Plan. Occurs only on tufa-depositing springs and was previously known from only two sites in England and one in Wales. It has also recently been found at sites in Scotland. Internationally threatened - Habitat is vulnerable to destruction from changes in hydrology or grazing levels, or trampling by humans and animals.
Desmoulin's Whorl Snail <i>Vertigo moulinsiana</i>	P	18	9	County Recorder, EA	Norfolk Action Plan published December 1998, revised January 2003.

SPIDERS						
Species	Spp. Considered Extinct	Spp. New to National BAP List	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Golden Lantern-spider <i>Agroeca cuprea</i>	P?	3	-	British Arachnological Society		Last Norfolk record in 1970 at Grimes Graves. May be under-recorded. Associated with grassland habitats and restricted to Breckland. Marked decline in UK – Habitat loss. <b>New to national list of BAP priority species 2007</b>
Yellow-striped Bear Spider <i>Arctosa fulvolineata</i>	P?	1	-	British Arachnological Society		Last Norfolk record in 1959. May be under recorded. A halophilic spider associated with saltmarsh habitat. Declining – Habitat loss <b>New to national list of BAP priority species 2007</b>
Small Mesh-weaver <i>Dictyna pusilla</i>	P	3	1	British Arachnological Society		Generally associated with boggy habitats. Marked decline in UK – Reason unclear, although may be due to loss of habitats. <b>New to national list of BAP priority species 2007</b>
Silky Gallows-spider <i>Dipoena inornata</i>	P?	1	-	British Arachnological Society		Last Norfolk record in 1959. May be under recorded. Associated with heathland and coastal grassland. Marked decline in UK – Habitat loss <b>New to national list of BAP priority species 2007</b>
Fen Raft Spider <i>Dolomedes plantarius</i>	P	6	2	UEA, Natural England		Current Species Action Plan Found at only two sites in Norfolk, at Redgrave and Lopham Fen (Smith 2006) Associated with wet fens Declining - Water abstraction, inappropriate ditch management, deterioration in water quality and loss of suitable wetland habitat.
Swamp Lookout Spider <i>Notioscopus sarcinatus</i>	P?	3	-	British Arachnological Society		Last Norfolk record in 1974. May be under recorded. Associated with fenland environments. Marked decline in UK – Habitat loss <b>New to national list of BAP priority species 2007</b>
Sand Running-spider <i>Philodromus fallax</i>	P	5	3	British Arachnological Society		Associated with coastal sand dunes. Marked decline in UK – Habitat loss <b>New to national list of BAP priority species 2007</b>
Whelk-shell Jumper <i>Pseudeuophrys obsoleta</i>	P?	1	-	British Arachnological Society		Last Norfolk record in 1953. May be under recorded. Associated with coastal vegetated shingle. Current Species Action Plan. Declining – Reasons unclear



Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Triangle Hammock-spider <i>Saaristoa firma</i>	P?	1	-	British Arachnological Society		Last Norfolk record in 1963. May be under recorded. Associated with heath and woodland. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>
Sedge Jumper <i>Sitticus caricis</i>	P	7	1	British Arachnological Society		Associated with fenland habitat. Marked decline in UK – Habitat loss and degradation. <b>New to national list of BAP priority species 2007</b>

## ANNEX 7: MARINE INVERTEBRATES

MARINE INVERTEBRATES	Spp. Considered Extinct	Spp. New to National BAP List				
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Lagoon Sea Slug <i>Tenellia adspersa</i>	P	2	1	JNCC		Current UK Species Statement. Favours a range of sheltered brackish water habitats including saline lagoons, brackish ditches, estuaries and harbours, tolerating salinities down to 3%. Internationally threatened – Habitat loss and degradation, salt water encroachment and pollution.
Starlet Sea Anemone <i>Nematostella vectensis</i>	P	8	2			RDB Species. Current UK Species Action Plan Occurs in coastal lagoons and brackish ponds and ditches. Declining - Loss and damage to lagoon and other sheltered brackish water habitats caused by pollution, drainage and other activities, isolation of pools leading to fragmentation of populations and coastal defence works and associated infilling. Norfolk Action Plan published December 1998, revised May 2007.

## ANNEX 8: TERRESTRIAL MAMMALS

MAMMALS						
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Water Vole <i>Arvicola terrestris</i>	P	1210	606	Steve Henson/NWT records (+-1500)	NCC/NWT/NE/IDB/others mink project	Paucity of records from Waveney, Thet & Wensum valley. Data transfer from NWT this year. Norfolk Action Plan published December 1998, revised February 2002.
Barbastelle bat <i>Barbastella barbastellus</i>	P	115	39		Various proposals for surveys – these require funding	European Protected Species. Probably an almost complete record of the species in the county. New site found in 2006. Norfolk action plan in preparation.
European Hedgehog <i>Erinaceus uropaeus</i>	P	1025	1097			Figures from national monitoring projects suggest serious decline <b>New to national list of BAP priority species 2007</b>
Brown Hare <i>Lepus europaeus</i>	P	3007	1520		Should try: NNNS Norfolk Natterjack newsletter showing gaps	Lack of records West Norfolk due to observer bias. Weighted by estates in North Norfolk. Northern Distributor Road evaluation showed very few in arable lands round Norwich. Norfolk Action Plan published December 1998, revised January 2006.
Otter <i>Lutra lutra</i>	P	1069	315	Steve Henson/NWT records (+-1500) Data transfer from NT agreed		European Protected Species The serious declines of the 1950s-1970s have been arrested with protection and improved water quality. Numbers slowly recovering. Lack of records Norfolk/Suffolk border and Tas Valley. Data transfer from NWT this year. Norfolk Action Plan published December 1998, revised February 2002.
Harvest Mouse <i>Micromys minutus</i>	P	693	284			Small number of records annually indicate that with concerted attention this species may be widespread but under-recorded <b>New to national list of BAP priority species 2007</b>
Dormouse <i>Muscardinus avellanarius</i>	P?	6	1			Six old records, with a possible sighting in 2006. Small captive breeding program in the county, supporting the suggestion of reintroduction in the future.
Polecat <i>Mustela putorius</i>	P?	8	6			Currently recolonising parts of lowland Britain from which it was trapped to extinction at the end of the 19thC. Difficult to assess confusion between this species, ferrets and hybrids. <b>New to national list of BAP priority species 2007</b>
Noctule Bat <i>Nyctalus noctula</i>						Has declined in Britain owing to modern intensive agricultural practices with loss of suitable feeding habitat (permanent pasture and woodland edge/hedgerows rich in invertebrate fauna. Loss of suitable trees for roosting is also a major factor. Norfolk umbrella action plan for bats in preparation. <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Soprano Pipistrelle <i>Pipistrellus pygmaeus</i>	P	70	38			European Protected Species The taxonomic split into two species lends confusion, and many records are held under <i>Pipistrellus</i> spp. Much research underway Norfolk umbrella action plan for bats in preparation. <b>New to national list of BAP priority species 2007</b>
Brown Long-eared Bat <i>Plecotus auritus</i>	P	500	232			European Protected Species. Norfolk umbrella action plan for bats in preparation. <b>New to national list of BAP priority species 2007</b>
Lesser Horseshoe Bat <i>Rhinolophus hipposideros</i>	P	2	2			There are two old records from Happisburgh and Ellingham, and one from Bury St Edmunds in Suffolk.
Red Squirrel <i>Sciurus vulgaris</i>	A	818	113			Effectively extinct in Norfolk, with possible exception of Thetford Forest, but occasional escapes or releases from captivity reported

## ANNEX 9: MARINE MAMMALS

MARINE MAMMALS	Spp. Considered Extinct	Spp. New to National BAP List				
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Minke Whale <i>Balaenoptera acutorostrata</i>	P	13	2	Cetacean Research Unit, European Cetacean Society, JNCC	Cetacean sightings card distributed in Norfolk in 2008.	Grouped UK plan for baleen whales Declining – Over-exploitation, pollution (chemical & noise), by-catch, collisions and climate change.
Sei Whale <i>Balaenoptera borealis</i>	P?	1	-	Cetacean Research Unit, European Cetacean Society, JNCC		Grouped UK plan for baleen whales Declining – Over-exploitation, pollution (chemical & noise), by-catch, collisions and climate change. Although there are no recent records, this species is wide ranging and may occur in the North Sea.
Fin Whale <i>Balaenoptera physalus</i>	P	4	4	Cetacean Research Unit, European Cetacean Society, JNCC		Grouped UK plan for baleen whales Declining – Over-exploitation, pollution (chemical & noise), by-catch, collisions and climate change.
Common Dolphin <i>Delphinus delphis</i>	P	8	5	Cetacean Research Unit, European Cetacean Society, JNCC		Grouped UK plan for small dolphins Declining - Ecosystem changes resulting from the widespread over-exploitation of marine biological resources, by-catch, pollution, boat activity and climate change.
Long-finned Pilot Whale <i>Globicephala melas (melaena)</i>	P	7	6	Cetacean Research Unit, European Cetacean Society, JNCC	Cetacean sightings card distributed in Norfolk in 2008.	Grouped UK plan for toothed whales Declining – Over-exploitation, pollution (chemical & noise), by-catch, collisions and climate change.
Northern Bottlenose Whale <i>Hyperodon ampullatus</i>	P	7	2	Cetacean Research Unit, European Cetacean Society, JNCC		Grouped UK plan for toothed whales Internationally threatened – Over-exploitation, pollution (chemical & noise), by-catch, collisions and climate change.
Atlantic White-sided Dolphin <i>Lagenorhynchus acutus</i>	P	1	1	Cetacean Research Unit, European Cetacean Society, JNCC	Cetacean sightings card distributed in Norfolk in 2008.	Grouped UK plan for small dolphins Declining - Ecosystem changes resulting from the widespread over-exploitation of marine biological resources, by-catch, pollution, boat activity and climate change.
White-beaked Dolphin <i>Lagenorhynchus albirostris</i>	P	27	17	Cetacean Research Unit, European Cetacean Society, JNCC	Cetacean sightings card distributed in Norfolk in 2008.	Grouped UK plan for small dolphins Declining - Ecosystem changes resulting from the widespread over-exploitation of marine biological resources, by-catch, pollution, boat activity and climate change.

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Sowerby's Beaked Whale <i>Mesoplodon bidens</i>	P?	1	-	Cetacean Research Unit, European Cetacean Society, JNCC		Grouped UK plan for toothed whales Declining – Over-exploitation, pollution (chemical & noise), by-catch, collisions and climate change.
Killer Whale <i>Orcinus orca</i>	P	1	1	Cetacean Research Unit, European Cetacean Society, JNCC		Grouped UK plan for toothed whales Declining – Over-exploitation, pollution (chemical & noise), by-catch, collisions and climate change.
Eastern Atlantic Harbour Seal/Common Seal <i>Phoca vitulina</i>	P	181	59	Seal Conservation Society		Found mainly along shorelines and in estuaries. Internationally threatened – Pollution and disease. <b>New to national list of BAP priority species 2007</b>
Harbour Porpoise <i>Phocoena phocoena</i>	P	356	60	Cetacean Research Unit, European Cetacean Society, JNCC	Cetacean sightings card distributed in Norfolk in 2008.	Current UK Species Action Plan Internationally threatened - Incidental capture and drowning in fishing nets; environmental contaminants; environmental change (effects of fishing and possibly climate change). Norfolk Action Plan published December 1998, revised May 2007.
Sperm Whale <i>Physeter macrocephalus</i>	P	12	12	Cetacean Research Unit, European Cetacean Society, JNCC		Grouped UK plan for toothed whales Internationally threatened – Over-exploitation, pollution (chemical & noise), by-catch, collisions and climate change.
Bottlenosed Dolphin <i>Tursiops truncatus</i>	P	4	3	Cetacean Research Unit, European Cetacean Society, JNCC	Cetacean sightings card distributed in Norfolk in 2008.	Grouped UK plan for small dolphins Internationally threatened - Ecosystem changes resulting from the widespread over-exploitation of marine biological resources, by-catch, pollution, boat activity and climate change.
Cuvier's Beaked Whale <i>Ziphius cavirostris</i>	P	2	2	Cetacean Research Unit, European Cetacean Society, JNCC		Grouped UK plan for toothed whales Declining – Over-exploitation, pollution (chemical & noise), by-catch, collisions and climate change.

## ANNEX 10: VASCULAR PLANTS

VASCULAR PLANTS	Extinct in Norfolk	Spp. New to National BAP List				Nearly half a million records were incorporated in the main database in 2007. Our thanks go to the BSBI, Flora Recorders and Flora Group, whose generous help is acknowledged
Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Pheasants-eye <i>Adonis annua</i>	P?	8	-			Annual known until about 1900 in cornfields, last record in 1915. ( <i>Flora</i> ). Seen in 2008 but thought to originate from a European wildflower mix. Extinct in Norfolk
Ribbon-leaved Water Plantain <i>Alisma gramineum</i>	A	1	-			Introduced, and now extinct, in Norfolk. <i>The Flora of Norfolk</i> – “Langmere 1972. Brought on feet of migrating waterfowl” Formerly recorded from Norfolk and Cambridgeshire in the 70s, but has disappeared from both sites Norfolk Action Plan published December 1998, revised January 2003.
Creeping Marshwort <i>Apium repens</i>	A	3	1			Extinct in Norfolk
Tower Mustard <i>Arabis glabra</i>	P	63	23		The Norfolk Flora Group	Almost confined to Breckland, but scattered sites elsewhere.(Gillian Beckett pers.comm.) Nationally scarce ( <i>Flora</i> ). Norfolk Action Plan published February 2007.
Lamb's Succory <i>Arnoseria minima</i>	A	2				Archaeophyte, extinct in Norfolk, and indeed Britain
Field Wormwood <i>Artemisia campestris</i>	P	31	7		ditto	Perennial herb of short, open grassland, forest rides and tracks. Does not persist in tall, closed turf Extant at only three native sites in England. Breckland speciality, now represented only by an introduction site. (Gillian Beckett pers.com.) Classified Endangered. <b>New to national list of BAP priority species 2007</b>
Purple Milk-vetch <i>Astragalus danicus</i>	P	14	10		ditto	Has declined substantially on the chalk, largely due to agricultural and grazing practices. Still frequent in suitable chalky grassland in the Brecks (Gillian Beckett pers.comm.) <i>Flora: curiously absent from the chalk grasslands N of the Nar.</i> <b>New to national list of BAP priority species 2007</b>
Pedunculate Sea-purslane <i>Atriplex pedunculata</i>	A	-	-			<i>Flora: first discovered at Yarmouth around 1776, now known from only one site in the British Isles.</i> RDB. Extinct in Norfolk.
Flat-sedge <i>Blysmus compressus</i>	P	3	2		The Norfolk Flora Group	<i>Flora: scarce in long established, damp meadows. Always uncommon.</i> Severe decline throughout its range. <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Interrupted Brome <i>Bromus interrupt</i>	A	6	5		The Norfolk Flora Group	Found in West Newton and Anmer in 1946. Not seen in Britain since 1972 and considered extinct
Thorow-wax <i>Bupleurum rotundifolium</i>	A	-	-			Believed extinct in Norfolk, last seen in 1971
Slender Hare's-ear <i>Bupleurum enuissimum</i>	P	-	-		ditto	<i>Flora: Once found on banks and grassland adj. to the sea from Wolferton to Blakeney, and around Breydon Water estuary. Seen at Wolferton in 1987, Berney and Halvergate in 1990, Belton in 1994 and Thornham in 1998. A nationally scarce species.</i> Still by banks on Halvergate levels, rare elsewhere (Gillian Beckett pers.comm.) <b>New to national list of BAP priority species 2007</b>
Narrow Small-reed <i>Calamagrostis stricta</i>	P	25	4		ditto	<i>Flora: confined to waterlogged peaty soils. Sparse in all sites but showing signs of recovery after scrub clearande. Nationally Scarce.</i> Only two sites recorded post 2000 (Gillian Beckett pers.comm.) <b>New to national list of BAP priority species 2007</b>
Divided Sedge <i>Carex divisa</i>	P	-	"present in at least 12 2km squares" Gillian Beckett)		ditto	<i>Flora: Scarce, locally frequent.</i> Found chiefly on fresh-water wetlands near the coast, but also in fens and wet meadows inland. (Gillian Beckett pers.comm.) <b>New to national list of BAP priority species 2007</b>
Rare Spring-sedge <i>Carex ericetorum</i>	P	16	6		ditto	Known from short turf on calcareous soils, often on ant heaps. Four recent sites (Gillian Beckett pers.comm.) <b>New to national list of BAP priority species 2007</b>
Cornflower <i>Centaurea cyanus</i>	A	16	3			Extinct in Norfolk. <i>Flora: Deliberate sowings on roadside verges and set-asides</i>
Chamomile <i>Chamaemelum nobile</i>	A	1	1			Not seen since 1965 – believed extinct in Norfolk
Upright Goosefoot <i>Chenopodium urbicum</i>	P?				ditto	Archaeophyte. Rare annual, few records. Does it still exist in Norfolk? <b>New to national list of BAP priority species 2007</b>
Stinking Goosefoot <i>Chenopodium vulvaria</i>	A	-	-			Extinct in Norfolk. <i>Flora: Recorded in the 19<sup>th</sup> C from Kings Lynn and Yarmouth</i>
Basil Thyme <i>Clinopodium acinos</i>	P	45	21		ditto	<i>Flora: once described as common, now frequent only in rides in the Breckland forests.</i> Not infrequent on drier soils (Gillian Beckett pers.comm.) <b>New to national list of BAP priority species 2007</b>



Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Stinking Hawks-beard <i>Crepis foetida</i>	A	-	-			Extinct in Norfolk
an Early Marsh Orchid <i>Dactylorhiza incarnate ochroleuca</i>	A	-	-			Subspecies not seen in Norfolk since 1968, ( <i>Flora</i> ) and indeed close to National extinction
Frog Orchid <i>Dactylorhiza (Coeloglossum) viridis</i>	A	-	-			Not seen since 1954, believed extinct in Norfolk
Deptford Pink <i>Dianthus armeria</i>	A	1				Last seen at Pulham in 1964, believed extinct in Norfolk.
Crested Buckler-fern <i>Dryopteris cristata</i>	P	212	29		The Norfolk Flora Group	RDB. Frequent only in Broadland, with two sites on N. Norfolk coast. <b>New to national list of BAP priority species 2007</b>
Glandular Eyebright <i>Euphrasia anglica</i>	P	-	-		ditto	Found in damp, acid turf. <b>New to national list of BAP priority species 2007</b>
Chalk Eyebright <i>Euphrasia pseudokernerii</i>	P	2	2		ditto	<i>Flora: a scarce species of calcareous grassland.</i> Most recently seen at Badley Moor in 2000. Becoming scarce because of enrichment of its habitats- (Gillian Beckett pers.comm.) <b>New to national list of BAP priority species 2007</b>
Red-tipped Cudweed <i>Filago lutescens</i>	P	10	3		ditto	Thetford. <i>Flora of Norfolk: "known from five sites since 1950, now only where it was found in W63 (Snettisham) in 1997. A Red Data Book species"</i> . Update: Since the flora several colonies seen at illian Beckett pers.comm.) RDB. Classified Endangered. Norfolk Action Plan published April 2007.
Broad-leaved Cudweed <i>Filago pyramidata</i>	A	25	19			Last seen in 1958, considered extinct in Norfolk. RDB
Red Hemp-nettle <i>Galeopsis angustifolia</i>	P	31	3		ditto	Archaeophyte. <i>Flora of Norfolk: "now very scarce and recently seen only at Snettisham..."</i> Seen again in 2005. Classified Nationally Scarce . Norfolk Action Plan published April 2007.
Corn Cleavers <i>Galium tricorutum</i>	A	15	1			Introduced, found at Heacham in 1992. Thought to be extinct in Norfolk

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Field Gentian <i>Gentianella campestris</i>	P	-	-		The Norfolk Flora Group	Thought confined to East Walton where it was seen in 1997 Marked decline nationally <b>New to national list of BAP priority species 2007</b>
Musk Orchid <i>Herminium monorchis</i>	A	-	-		ditto	Thought to be extinct in Norfolk – not seen since 1914. Nationally Scarce <b>New to national list of BAP priority species 2007</b>
Sea Barley <i>Hordeum marinum</i>	P	1	GB has 20 tetrad records		ditto	Grassy sea walls. Less frequent, but still occurring regularly in scattered sites. Nationally Scarce (Gillian Beckett pers.comm.) <b>New to national list of BAP priority species 2007</b>
Juniper <i>Juniperus communis</i>	A					Not considered native to Norfolk – two planted sites.
Least Lettuce <i>Lactuca saligna</i>	A	-	-			Last observed in 1953, considered extinct in Norfolk
Fen Orchid <i>Liparis loeselii</i>	P	95	7		ditto	Mostly pre-1980. Broads. <i>Flora of Norfolk</i> – “a rare plant of pools on fen peat formerly known in E07 and W71, but last seen in both sites in 1965. Its loss is directly due to a falling water table. It is still extant at three sites in the Broads. Reintroduced into one site in West Norfolk. A Red Data Book species.” Norfolk Action Plan published December 1998, revised March 2004.
Floating Water-plantain <i>Luronium natans</i>	P	18	1		ditto	Not considered native to Norfolk. Broads. Last record 1991 – believed to be a small stable population near Potter Heigham <i>Flora of Norfolk</i> – “found in Calthorpe Broad in 1974 and at Potter Heigham in 1979 “ “Still present on Potter Heigham Marshes in 2000” (P. Heath, pers.comm.) Classified <i>Nationally Scarce</i> Norfolk Action Plan published December 1998, revised January 2003.
Marsh Clubmoss <i>Lycopodiella inundata</i>	A	21	1		ditto	Last recorded 1971. Considered extinct in Norfolk
Grass-poly <i>Lythrum hyssopifolium</i>	A	-	-		ditto	An archaeophyte, nationally rare since the beginning of the 19 <sup>th</sup> C. No modern Norfolk records
Crested Cow-wheat <i>Melampyrum cristatum</i>	P	4	1		ditto	<i>Flora</i> -“survives precariously on a road verge in Beetley” “Still present near Beetley 2007” – P. Heath pers.comm. Nationally Scarce <b>New to national list of BAP priority species 2007</b>
Pennyroyal <i>Mentha pulegium</i>	A	-	-			Last record 1961. Considered extinct in Norfolk, and becoming endangered nationally

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Fine-leaved Sandwort <i>Minuartia hybrida</i>	P	10	7		ditto	Nationally Scarce. Greatly declined in arable and grassland habitats through agricultural intensification. <b>New to national list of BAP priority species 2007</b>
Yellow Bird's-nest <i>Monotropa hypopitys</i>	P	4	1		The Norfolk Flora Group	<i>Flora</i> : seen at seven sites between 1968 and 1984, most recently at Holkham 1992 <b>New to national list of BAP priority species 2007</b>
Grape-hyacinth <i>Muscari neglectum</i>					ditto	Native on light soils, especially Breckland, also in churchyards where it may be the remnants of a former local population. <b>New to national list of BAP priority species 2007.</b>
Holly-leaved Naiad <i>Najas marina</i>	P	37	14	We believe work has been done on this sp. at UEA	The Norfolk Flora Group	Only known in UK from a few sites in the Broads. <i>Flora of Norfolk</i> – “annual known only from partly brackish waters on the Broads, first British record discovered in 1883 in Hickling Broad and still found there, also during this survey at Cockshoot and Upton; Barton Broad, Heigham Sound and Martham Broad” Decreased in in the 1960s as a result of pollution, but is responding to to reduction in nutrient levels in the Broads. Norfolk Action Plan published December 1998, revised January 2003.
Tubular Water-dropwort <i>Oenanthe fistulosa</i>					ditto	<b>New to national list of BAP priority species 2007</b>
Fly Orchid <i>Ophrys insectifera</i>	A	-	-			Not recorded since 1914, and considered extinct in Norfolk
Man Orchid <i>Orchis (Aceras) anthropophora</i>	P	-	-		ditto	<i>Flora</i> : recorded from two sites in dry grassland, Holt and Holme. Nationally Scarce <b>New to national list of BAP priority species 2007</b>
Pillwort <i>Pilularia globulifera</i>	P?	28	2		Biodiversity Partnership has commissioned a survey at Lound, to be carried out once water levels are suitable.	<i>Flora of Norfolk</i> : “formerly on heathy commons both north of Norwich and in the King’s Lynn area, seen at Horsford in 1951 and Derby Fen in 1960..observed at Lound Waterworks, Hopton ..in 1991..Also found around a small pond in a horse pasture at Rollesby in 1998. 10.7.06 No trace at Rollesby – see report S.Henson. Also not at Lound in 2006, so this species may be lost to Norfolk. Classified Near Threatened, declining throughout Europe Has been re-introduced to some former sites. Norfolk Action Plan published March 2007.
Lesser Butterfly-orchid <i>Platanthera bifolia</i>	P	4	3		ditto	<i>Flora</i> : a rare plant of wet heaths and grasslands, now much decreased in frequency and found only at Roydon, Beeston and Holt <b>New to national list of BAP priority species 2007</b>

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Black Poplar <i>Populus nigra</i> ssp. <i>betulifolia</i>	P	109	94		Action Plan developed. NCC survey	<b>Local Norfolk BAP sp. Only – not on UK list</b> Estimated 70 mature male trees survive, except for a female at Old Buckenham. No regeneration from seed observed. Scarce. Problem with hybrids of other ssp. Norfolk Action Plan published September 2005.
Sharp-leaved Pondweed <i>Potamogeton acutifolius</i>	P	18	8		The Norfolk Flora Group	<i>Flora</i> : "ditches on grazing marshes on the lower reaches of the Yare where it has been known since the 1880s. Reorded at 12 sites in this area". In gradual long-term decline. <b>New to national list of BAP priority species 2007</b>
Grass-wrack Pondweed <i>Potamogeton compressus</i>	P?	77	9			Broads. <i>Flora of Norfolk</i> : "A plant of ditches on grazing marshes with 5 old records from Broadland. Now found at one site on Upton marshes E31 in 1989". Classified Nationally Scarce, in gradual decline for 150 years. No recent records Norfolk action plan in preparation.
Borrer's Saltmarsh-grass <i>Puccinellia fasciculata</i>	P	-	-		ditto	<i>Flora of Norfolk</i> : "Rare on bare places in salt marshes and on sea walls, also rarely inland by roads. Found at Holme in 1987, Salthouse 1993, Cley 1994, Breydon Wall 1997, Thornham 1998. A Nationally Scarce species" <b>New to national list of BAP priority species 2007</b>
<i>Pulicaria vulgaris</i> Small Fleabane	A	-	-		ditto	Declining throughout Europe and reaches its northern limit in Surrey. Recorded twice in east Norfolk before 1918, now Extinct in Norfolk <b>New to national list of BAP priority species 2007</b>
Pasqueflower <i>Pulsatilla vulgaris</i>	A					Recorded in the 18 <sup>th</sup> and 19 <sup>th</sup> C. ( <i>Flora</i> ). Extinct in Norfolk <b>New to national list of BAP priority species 2007</b>
Corn Buttercup <i>Ranunculus arvensis</i>	P	10	7		The Norfolk Flora Group	<i>Flora</i> : "Seen only six times since 1968, five of them on heavy clay within 10 miles of Dereham" <b>New to national list of BAP priority species 2007</b>
Prickly Saltwort <i>Salsola kali kali</i>	P	2			ditto	<i>Flora</i> : Annual of the tide line, especially on sand <b>New to national list of BAP priority species 2007</b>
Shepherd's Needle <i>Scandix pecten-veneris</i>	P	13	4		ditto	Archaeophyte. Nationally Scarce. <i>Flora of Norfolk</i> : "spring-germinating annual, once considered almost lost but making a come-back on heavier soils. Suggested its fruits are being carried to new sites on the fleece of the increasing number of sheep flocks moved around the county." Wacton 2002. Norfolk Action Plan published June 2007

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Annual Knawel <i>Scleranthus annuus</i>	P	3	1		ditto	Declined throughout its range. Described as 'widespread' in 1968 but now far less common and rare in the east of the county. <b>New to national list of BAP priority species 2007</b>
Prostrate Perennial Knawel <i>Scleranthus perennis prostrates</i>	P?	5	2		The Norfolk Flora Group	Not seen in the county since 1961, a few recent introductions in Breckland. RDB species.
Fen Ragwort <i>Senecio paludosus</i>	A					<i>Flora</i> - plentiful in Norfolk in 1714, not recorded since 11876. Extinct in Norfolk, almost extinct in Britain except for Cams. <b>New to national list of BAP priority species 2007</b>
Small-flowered Catchfly <i>Silene gallica</i>	P	23	6		ditto	Archaeophyte. <i>Flora of Norfolk - Scarce annual, sometimes overwintering. A particularly large colony at Gimingham in 1995. A nationally scarce species"</i> Snettisham 2004. Classified Endangered (PlantLife) Norfolk Action Plan published April 2007.
Spanish Catchfly <i>Silene otites</i>	P	39	8		ditto	<i>Flora: "Typical of, and confined to, Breckland. Now only at Theford, Harling and Cranwich. RDB species".</i> <b>New to national list of BAP priority species 2007</b>
Greater Water-parsnip <i>Sium latifolium</i>	P	172	39	Tim Pankhurst/ Plantife	J.M. Halls' data to be imported shortly; Plantlife survey of fens ongoing.	<i>Flora of Norfolk – herbaceous perennial along ditch-sides in fens, least scarce in Broadland but always in small colonies".</i> Classified <i>Nationally Scarce</i> Norfolk Action Plan published July 2005.
<i>Spartina maritima</i> Small Cord-grass	A	-	-		ditto	Once not uncommon on tidal land, not recorded in Norfolk since 1968 ( <i>Flora</i> ). Extinct in Norfolk <b>New to national list of BAP priority species 2007</b>
Marsh Stitchwort <i>Stellaria palustris</i>	P	-	-		ditto	<i>Flora: "Winter green perennial of marsh and fen, rather scattered and never common"</i> <b>New to national list of BAP priority species 2007</b>
Spreading Hedge-parsley <i>Torilis arvensis</i>	A	-	-		ditto	Archaeophyte. Most dramatic decline nationally of any arable weed. <i>Flora " Locally abundant in hedgerows on heaths in the 1950s</i> Nationally scarce. Extinct in Norfolk
Broad-fruited Cornsalad <i>Valerianella rimosa</i>	A	1	-		ditto	Archaeophyte. ( <i>Flora</i> ) Not recorded since 1941) Extinct in Norfolk.

Species	Present or absent in Norfolk	No. of records in database	No. of 1km squares recorded since 1980	Possible other sources of data sets	Other survey work completed or in progress	Comments
Fingered Speedwell <i>Veronica triphyllos</i>	P	30	6		The Norfolk Flora Group	<i>Flora</i> "Confined to Norfolk and Suffolk, found at Thetford where...its original cornfield habitat is now a housing estate. Sown at Weeting where it has become well established. RDB species" Archaeophyte, first recorded in Britain in 1670 main decline before 1930, conservation management ensures its survival at remaining Broadland habitats
Spring Speedwell <i>Veronica verna</i>	P	18	4			<i>Flora</i> : "First recorded Thetford in 1850, introduced Weeting together with <i>V. triphyllos</i> and <i>V. praecox</i> , where it is well established although not as successful as the other two species. RDB
Fen Violet <i>Viola persicifolia</i>	A	-	-		ditto	<i>Flora</i> : "RDB species. Once recorded on a fen near West Dereham, last recorded in 1936." Survives in Cambs. & Oxon. Extinct in Norfolk. <b>New to national list of BAP priority species 2007</b>

## ANNEX 11: LIST OF UK BAP SPECIES NOT RECORDED IN NORFOLK

(For the full list of BAP species, <http://www.ukbap.org.uk/bapgroup.aspx?id=112>)

Scientific name	Common name
<b>BIRDS</b>	
<i>Lagopus lagopus scoticus</i>	Red Grouse
<i>Loxia scotica</i>	Scottish Crossbill
<i>Tetrao tetrix britannicus</i>	Black Grouse
<i>Tetrao urogallus</i>	Western Capercaillie
<i>Troglodytes troglodytes fridariensis</i>	Fair Isle Wren
<i>Troglodytes troglodytes hirtensis</i>	St Kilda Wren
<i>Turdus philomelos hebridensis</i>	Hebridean Song Thrush
<b>FRESHWATER FISH</b>	
<i>Coregonus albula</i>	Vendace
<i>Coregonus autumnalis</i>	Pollan
<i>Coregonus lavaretus</i>	Whitefish (Powan, Gmyniad or Schelly)
<b>HERPTILES</b>	
<i>Coronella austriaca</i>	Smooth Snake
<i>Lacerta agilis</i>	Sand Lizard
<b>LOWER PLANTS and FUNGI</b>	
<i>Acarospora subrufula</i>	a Lichen
<i>Acaulon triquetrum</i>	Triangular Pygmy-moss
<i>Acrobolbus wilsonii</i>	Wilson's Pouchwort
<i>Adelanthus lindenbergianus</i>	Lindenberg's Featherwort
<i>Alectoria ochroleuca</i>	a Lichen
<i>Amanita friabilis</i>	Fragile Amanita
<i>Anastrophyllum joergensenii</i>	Joergensen's Notchwort
<i>Andreaea nivalis</i>	Snow Rock-moss

<i>Anomodon longifolius</i>	Long-leaved Tail-moss
<i>Aplodon wormskjoldii</i>	Carrion-moss
<i>Armillaria ectypa</i>	Agaric
<i>Arthonia anglica</i>	a Lichen
<i>Arthonia atlantica</i>	a Lichen
<i>Arthonia cohabitans</i>	a Lichen
<i>Arthonia invadens</i>	a Lichen
<i>Arthonia patellulata</i>	a Lichen
<i>Arthothelium dictyosporum</i>	a Lichen
<i>Arthothelium macounii</i>	a Lichen
<i>Aspicilia melanaspis</i>	a Lichen
<i>Atrichum angustatum</i>	Lesser Smoothcap
<i>Bacidia circumspecta</i>	a Lichen
<i>Bacidia subincompta</i>	a Lichen
<i>Bacidia subturgidula</i>	a Lichen
<i>Bankera fuligineoalba</i>	a Tooth fungus
<i>Barbilophozia kunzeana</i>	Bog paw-wort
<i>Bartramia stricta</i>	Rigid Apple-moss
<i>Belonia calcicola</i>	a Lichen
<i>Biatorella fossarum</i>	a Lichen
<i>Biatoridium monasteriense</i>	a Lichen
<i>Blarneya hibernica</i>	a Lichen
<i>Boletopsis perplexa</i>	Black Falsebolete
<i>Boletus immutatus</i>	Constant Bolete
<i>Boletus pseudoregius</i>	The Pretender
<i>Boletus regius</i>	Royal Bolete
<i>Boletus rhodopurpureus</i>	Oldrose Bolete
<i>Boletus torosus</i>	Brawny Bolete
<i>Brodoa intestiniformis</i>	a Lichen
<i>Bryoerythrophyllum caledonicum</i>	Scottish Beard-moss
<i>Bryoria furcellata</i>	Forked hair-lichen
<i>Bryoria nadvornikiana</i>	a Lichen
<i>Bryoria smithii</i>	a Lichen



<i>Bryum calophyllum</i>	Matted bryum
<i>Bryum cyclophyllum</i>	Round-leaved Bryum
<i>Bryum gemmiparum</i>	Welsh Thread-moss
<i>Bryum marratii</i>	Baltic Bryum
<i>Bryum salinum</i>	Saltmarsh Thread-moss
<i>Bryum schleicheri</i>	Schleicher`s Thread-moss
<i>Bryum uliginosum</i>	Ceruous bryum
<i>Bryum warneum</i>	Sea bryum
<i>Buellia hyperbolica</i>	a Lichen
<i>Buellia violaceofusca</i>	a Lichen
<i>Buxbaumia viridis</i>	Green Shield-Moss
<i>Calicium adpersum</i>	a Lichen
<i>Calicium corynellum</i>	a Lichen
<i>Calicium diploellum</i>	a Lichen
<i>Calocybe onychina</i>	Lilac Domecap
<i>Caloplaca ahtii</i>	a Lichen
<i>Caloplaca aractina</i>	a Lichen
<i>Caloplaca caesiorufella</i>	a Lichen
<i>Caloplaca flavorubescens</i>	a Lichen
<i>Caloplaca herbidella</i>	a Lichen
<i>Caloplaca lucifuga</i>	a Lichen
<i>Caloplaca virescens</i>	a Lichen
<i>Candelariella superdistans</i>	a Lichen
<i>Cantharellus melanoxeros</i>	Blackening Chanterelle
<i>Catapyrenium michelii</i>	a Lichen
<i>Catapyrenium psoromoides</i>	Tree Catapyrenium
<i>Catillaria alba</i>	a Lichen
<i>Cephaloziella baumgartneri</i>	Chalk Threadwort
<i>Cephaloziella calyculata</i>	Entire Threadwort
<i>Cephaloziella dentata</i>	Toothed Threadwort
<i>Cephaloziella integerrima</i>	Lobed Threadwort
<i>Cephaloziella nicholsonii</i>	Greater Copperwort
<i>Ceratodon conicus</i>	Scarce Redshank
<i>Chaenotheca gracilenta</i>	a Lichen

<i>Chaenotheca laevigata</i>	a Lichen
<i>Chaenotheca phaeocephala</i>	a Lichen
<i>Chlorencoelia versiformis</i>	Flea's Ear
<i>Chrysomyxa pirolata</i>	Wintergreen Rust
<i>Cladonia botrytes</i>	Stump Lichen
<i>Cladonia convoluta</i>	a Lichen
<i>Cladonia mediterranea</i>	Reindeer Lichen
<i>Cladonia peziziformis</i>	a Lichen
<i>Clavaria purpurea</i>	Purple Spindles
<i>Collema dichotomum</i>	River Jelly Lichen
<i>Collema fasciculare</i>	a Lichen
<i>Collema fragile</i>	a Lichen
<i>Collema fragrans</i>	a Lichen
<i>Collema latzelii</i>	a Lichen
<i>Cotylidia pannosa</i>	Wooly Rosette
<i>Cryphaea lamyana</i>	Multi-fruited River Moss
<i>Cryptolechia carneolutea</i>	a Lichen
<i>Cyclodictyon laetevirens</i>	Bright-green Cave-moss
<i>Cyphelium trachylioides</i>	a Lichen
<i>Daltonia splachnoides</i>	Irish Daltonia
<i>Dicranum bergeri</i>	Waved Fork-moss
<i>Dicranum elongatum</i>	Dense Fork-moss
<i>Didymodon glaucus</i>	Glaucous Beard-moss
<i>Didymodon tomaculosus</i>	Sausage Beard-moss
<i>Diplotomma pharcidium</i>	a Lichen
<i>Ditrichum cornubicum</i>	Cornish Path Moss
<i>Ditrichum plumbicola</i>	Lead-moss
<i>Ditrichum subulatum</i>	Awl-leaved Ditrichum
<i>Dumortiera hirsuta</i>	Dumortier's Liverwort
<i>Endocarpon adscendens</i>	a Lichen
<i>Enterographa elaborata</i>	New Forest beech-lichen
<i>Entoloma bloxamii</i>	Big Blue Pinkgill
<i>Ephemerum cohaerens</i>	Clustered earth-moss
<i>Ephemerum spinulosum</i>	Prickly earth-moss

<i>Eurhynchium pulchellum</i>	Elegant Feather-moss
<i>Fissidens curvatus</i>	Portuguese Pocket-moss
<i>Fissidens serrulatus</i>	Large Atlantic Pocket-moss
<i>Fulgensia fulgens</i>	a Lichen
<i>Funaria pulchella</i>	Pretty Cord-moss
<i>Fuscopannaria ignobilis</i>	a Lichen
<i>Fuscopannaria sampaiana</i>	a Lichen
<i>Geastrum berkeleyi</i>	Berkeley's Earthstar
<i>Geoglossum atropurpureum</i>	Dark-purple Earthtongue
<i>Gomphillus calycioides</i>	a Lichen
<i>Gomphus clavatus</i>	Pig's Ear
<i>Graphina pauciloculata</i>	a Lichen
<i>Graphis alboscripta</i>	a Lichen
<i>Grimmia crinita</i>	Hedgehog Grimmia
<i>Grimmia elongata</i>	Brown Grimmia
<i>Grimmia sessitana</i>	Alpine Grimmia
<i>Gyalecta ulmi</i>	Elm gyalecta (a Lichen)
<i>Gyalidea roseola</i>	a Lichen
<i>Habrodon perpusillus</i>	Lesser Squirrel-tail moss
<i>Herbertus borealis</i>	Northern Prongwort
<i>Heridium coralloides</i>	Coral Tooth
<i>Heterodermia leucomela</i>	Ciliate strap-lichen
<i>Heterodermia speciosa</i>	a Lichen
<i>Hohenbuehelia culmicola</i>	Marram Oyster
<i>Homomallium incurvatum</i>	Incurved Feather-moss
<i>Hydnellum aurantiacum</i>	a Tooth fungus
<i>Hydnellum caeruleum</i>	a Tooth fungus
<i>Hydnellum peckii</i>	a Tooth fungus
<i>Hygrocybe spadicea</i>	Date-Coloured Waxcap
<i>Hygrohypnum styriacum</i>	Snow Brook-moss
<i>Hygrophorus pudorinus</i>	Rosy Woodwax
<i>Hypocreopsis lichenoides</i>	Willow Gloves
<i>Hypocreopsis rhododendri</i>	Ascomyte Fungus
<i>Hypogymnia vittata</i>	a Lichen

<i>Jamesoniella undulifolia</i>	Marsh Earwort
<i>Jungermannia leiantha</i>	Long-leaved Flapwort
<i>Lamprothamnium papulosum</i>	Foxtail Stonewort
<i>Lecania chlorotiza</i>	a Lichen
<i>Lecanographa amylacea</i>	a Lichen
<i>Lecanora achariana</i>	Tarn lechanora (a Lichen)
<i>Lecanora cinereofusca</i>	a Lichen
<i>Lecanora quercicola</i>	a Lichen
<i>Lecanora sublivescens</i>	a Lichen
<i>Lecidea erythrophaea</i>	a Lichen
<i>Lecidea inops</i>	Copper lecidea (a Lichen)
<i>Lejeunea holtii</i>	Holt's Pouncewort
<i>Lejeunea mandonii</i>	Atlantic lejeunea
<i>Leptogium brebissonii</i>	a Lichen
<i>Leptogium cochleatum</i>	a Lichen
<i>Leptogium hibernicum</i>	a Lichen
<i>Leptogium saturninum</i>	a Lichen
<i>Lophozia longiflora</i>	Reddish Notchwort
<i>Lyophyllum favrei</i>	Gilded Domecap
<i>Marsupella arctica</i>	Arctic Rustwort
<i>Marsupella profunda</i>	Western Rustwort
<i>Megalaria laureri</i>	a Lichen
<i>Megalospora tuberculosa</i>	a Lichen
<i>Melanelia subargentifera</i>	a Lichen
<i>Melaspilea lentiginosa</i>	a Lichen
<i>Microglossum olivaceum</i>	Earth-Tongue
<i>Micromitrium tenerum</i>	Millimetre Moss
<i>Mielichhoferia mielichhoferiana</i>	Alpine Copper-moss
<i>Mycena renati</i>	Beautiful Bonnet
<i>Myriostoma coliforme</i>	Pepper Pot
<i>Nephroma arcticum</i>	Arctic kidney-lichen
<i>Nyssopsora echinata</i>	Spignel Rust
<i>Opegrapha prosodea</i>	a Lichen
<i>Opegrapha subelevata</i>	a Lichen

<i>Orthodontium gracile</i>	Slender Thread-moss
<i>Orthotrichum gymnostomum</i>	Aspen bristle-moss
<i>Orthotrichum pallens</i>	Pale Bristle-moss
<i>Orthotrichum pumilum</i>	Dwarf bristle-moss
<i>Pallavicinia lyellii</i>	Veilwort
<i>Parmeliella testacea</i>	a Lichen
<i>Parmelina quercina</i>	a Lichen
<i>Parmotrema robustum</i>	a Lichen
<i>Peltigera lepidophora</i>	Ear-lobed Dog-lichen
<i>Peltigera malacea</i>	Matt felt lichen
<i>Peltigera venosa</i>	a Lichen
<i>Pertusaria velata</i>	a Lichen
<i>Phaeophyscia endococcina</i>	a Lichen
<i>Phellodon melaleucus</i>	a Tooth fungus
<i>Phellodon niger</i>	Black Tooth
<i>Phellodon tomentosus</i>	a Tooth fungus
<i>Philonotis cernua</i>	Swan-necked Apple-moss
<i>Philonotis marchica</i>	Bog Apple-moss
<i>Pholiota astragalina</i>	Conifer Scalycap
<i>Phylloporus pelletieri</i>	Golden Gilled Bolete
<i>Physcia tribacioides</i>	Southern grey physcia (a Lichen)
<i>Plagiobryum demissum</i>	Alpine Hump-moss
<i>Podoscypha multizonata</i>	Zoned Rosette
<i>Poeltinula cerebrina</i>	a Lichen
<i>Pohlia obtusifolia</i>	Blunt-leaved Thread-moss
<i>Pohlia scotica</i>	Scottish Pohlia
<i>Polychidium dendriscum</i>	a Lichen
<i>Porina effilata</i>	a Lichen
<i>Porina hibernica</i>	a Lichen
<i>Porina sudetica</i>	a Lichen
<i>Psathyrella caput-medusae</i>	Medusa Brittlestem
<i>Pseudocyphellaria aurata</i>	a Lichen
<i>Pseudocyphellaria intricata</i>	a Lichen
<i>Pseudocyphellaria lacerata</i>	Ragged pseudocyphellaria (a Lichen)

<i>Pseudocyphellaria norvegica</i>	a Lichen
<i>Pseudoleskea incurvata</i>	Brown Mountain Leskea
<i>Puccinia clintonii</i>	Lousewort Rust
<i>Puccinia physospermi</i>	Bladder-seed Rust
<i>Puccinia scorzonerae</i>	Scorzonera Rust
<i>Puccinia septentrionalis</i>	Alpine Rust
<i>Puccinia thesii</i>	Bastard-toadflax Rust
<i>Pyrenula dermatodes</i>	a Lichen
<i>Pyrenula hibernica</i>	a Lichen
<i>Pyrenula nitida</i>	a Lichen
<i>Radula carringtonii</i>	Carrington`s Scalewort
<i>Ramonia chrysophaea</i>	a Lichen
<i>Ramonia dictyospora</i>	a Lichen
<i>Ramonia nigra</i>	a Lichen
<i>Rhynchostegium rotundifolium</i>	Round-leaved Feather-moss
<i>Rhytidiadelphus subpinnatus</i>	Scarce Turf-moss
<i>Riccia bifurca</i>	Lizard Crystalwort
<i>Riccia canaliculata</i>	Channelled Crystalwort
<i>Riccia nigrella</i>	Black Crystalwort
<i>Rinodina degeliana</i>	a Lichen
<i>Rinodina isidioides</i>	a Lichen
<i>Sarcodon glaucopus</i>	a Tooth fungus
<i>Sarcodon scabrosus</i>	a Tooth fungus
<i>Sarcodon squamosus</i>	Scaly Tooth
<i>Sarcodontia crocea</i>	Orchard Tooth
<i>Sarcosphaera coronaria</i>	Violet Crowncup
<i>Schismatomma graphidioides</i>	a Lichen
<i>Sclerophora pallida</i>	a Lichen
<i>Scopelophila cataractae</i>	Tongue-leaf Copper-moss
<i>Seligeria carniolica</i>	Water Rock-bristle
<i>Seligeria oelandica</i>	Irish Rock-bristle
<i>Solenopsora liparina</i>	Serpentine solenopsora (a Lichen)
<i>Southbya nigrella</i>	Blackwort
<i>Sphagnum balticum</i>	Baltic Bog-Moss

<i>Splachnum vasculosum</i>	Rugged Collar-moss
<i>Stephanospora caroticola</i>	Carroty False Truffle
<i>Stereocaulon delisei</i>	a Lichen
<i>Stereocaulon symphycheilum</i>	a Lichen
<i>Sticta canariensis</i>	a Lichen
<i>Strigula stigmatella stigmatella</i>	a Lichen
<i>Strigula tagananae</i>	a Lichen
<i>Stropharia hornemanii</i>	Conifer Roundhead
<i>Synalissa symphorea</i>	a Lichen
<i>Tayloria lingulata</i>	Tongue-leaved Gland-moss
<i>Tayloria tenuis</i>	Slender Gland-moss
<i>Telaranea nematodes</i>	Irish Threadwort
<i>Teloschistes flavicans</i>	Golden hair-lichen
<i>Tephrocybe osmophora</i>	Sweet Greyling
<i>Tetradontium repandum</i>	Small four-tooth moss
<i>Thamnobryum angustifolium</i>	Derbyshire Feather-moss
<i>Thamnobryum cataractarum</i>	Yorkshire Feather-moss
<i>Thelenella modesta</i>	Warty Wax-lichen
<i>Timmia austriaca</i>	Sheathed Timmia
<i>Toninia sedifolia</i>	a Lichen
<i>Tortula cernua</i>	Flamingo moss
<i>Tortula cuneifolia</i>	Wedge-leaved Screw-moss
<i>Tortula freibergii</i>	Freiberg`s Screw-moss
<i>Tortula wilsonii</i>	Wilson`s Pottia
<i>Tracya hydrocharidis</i>	Frogbit Smut
<i>Tremella moriformis</i>	Mulberry Brain
<i>Tremellodendropsis tuberosa</i>	Ashen Coral
<i>Tricholoma colossus</i>	Giant Knight
<i>Tricholoma robustum</i>	Robust Knight
<i>Tulostoma niveum</i>	Stalked Puffball
<i>Umbilicaria spodochroa</i>	a Lichen
<i>Urocystis colchici</i>	Colchicum Smut
<i>Urocystis primulicola</i>	Bird's-eye Primrose Smut
<i>Uromyces gentianae</i>	Felwort Rust

<i>Usnea florida</i>	a Lichen
<i>Verrucaria xyloxena</i>	a Lichen
<i>Vulpicida pinastri</i>	a Lichen
<i>Wadeana dendrographa</i>	a Lichen
<i>Wadeana minuta</i>	a Lichen
<i>Weissia condensa</i>	Curly Beardless-moss
<i>Weissia levieri</i>	Levier`s Beardless-moss
<i>Weissia multicapsularis</i>	Moss
<i>Weissia squarrosa</i>	Spreading-leaved beardless-moss
<i>Weissia sterilis</i>	Sterile beardless-moss
<i>Zygodon forsteri</i>	Knothole Moss
<i>Zygodon gracilis</i>	Nowell`s Limestone Moss
<b>MARINE SPECIES</b>	
<i>Amphianthus dohrnii</i>	Sea-fan Anemone
<i>Anotrichium barbatum</i>	Bearded Red Alga (Seaweed)
<i>Aphanopus carbo</i>	Black Scabbardfish
<i>Arachnanthus sarsi</i>	Scarce Tube-dwelling Anemone
<i>Arrhis phyllonyx</i>	a Deep-sea Shrimp
<i>Ascophyllum nodosum ecad mackii</i>	Wig Wrack or Sea-loch Egg Wrack (Alga)
<i>Atrina fragilis</i>	Fan Mussel
<i>Balaenoptera musculus</i>	Blue Whale
<i>Caretta caretta</i>	Loggerhead Turtle
<i>Centrophorus granulosus</i>	Gulper shark
<i>Centrophorus squamosus</i>	Leafscraper shark
<i>Centroscymnus coelolepsis</i>	Portuguese dogfish
<i>Clavopsella navis</i>	Brackish hydroid
<i>Coryphaenoides rupestris</i>	Roundnose grenadier
<i>Cruoria cruoriaeformis</i>	a Red Alga (Seaweed)
<i>Dalatias licha</i>	Kitefin shark
<i>Dermocorynus montagnei</i>	a Red Alga (Seaweed)
<i>Edwardsia timida</i>	Timid Burrowing Anemone
<i>Eubalaena glacialis</i>	Northern Right Whale



<i>Eunicella verrucosa</i>	Pink Sea-fan
<i>Fucus distichus</i>	Brown Alga
<i>Funiculina quadrangularis</i>	Tall Sea Pen
<i>Gitanopsis bispinosa</i>	an Amphipod Shrimp
<i>Grampus griseus</i>	Risso`s Dolphin
<i>Haliclystus auricula</i>	a Stalked Jellyfish
<i>Hippocampus guttulatus</i>	Long-snouted Seahorse
<i>Hippocampus hippocampus</i>	Short-Snouted Seahorse
<i>Hippoglossus hippoglossus</i>	Atlantic Halibut
<i>Hoplostethus atlanticus</i>	Orange Roughy
<i>Isurus oxyrinchus</i>	Shortfin Mako
<i>Leptopsammia pruvoti</i>	Sunset Cup Coral
<i>Leucoraja circularis</i>	Sandy Ray
<i>Lithothamnion coralloides</i>	Coral Maërl (Alga)
<i>Lucernariopsis campanulata</i>	A Stalked Jellyfish
<i>Lucernariopsis cruxmelitensis</i>	A Stalked Jellyfish
<i>Megaptera novaeangliae</i>	Humpback Whale
<i>Mesoplodon mirus</i>	True`s Beaked Whale
<i>Mitella pollicipes</i>	Gooseneck Barnacle
<i>Molva dypterygia</i>	Blue Ling
<i>Pachycerianthus multiplicatus</i>	Fireworks Anemone
<i>Padina pavonica</i>	Peacock`s Tail (Alga)
<i>Palinurus elephas</i>	Crayfish, Crawfish or Spiny Lobster
<i>Phymatolithon calcareum</i>	Common Maërl (Alga)
<i>Prionace glauca</i>	Blue Shark
<i>Reinhardtius hippoglossoides</i>	Greenland Halibut
<i>Rostroraja alba</i>	White or Bottlenosed Skate
<i>Stenella coeruleoalba</i>	Striped Dolphin
<i>Styela gelatinosa</i>	Loch Goil Sea Squirt
<i>Swiftia pallida</i>	Northern Sea Fan
<i>Thunnus thynnus</i>	Blue-fin Tuna

<b>TERRESTRIAL and FRESHWATER INVERTEBRATES</b>	
<i>Acosmetia caliginosa</i>	Reddish Buff
<i>Agabus brunneus</i>	Brown Diving Beetle
<i>Agonopterix atomella</i>	Greenweed Flat-body Moth
<i>Agonopterix capreolella</i>	Fuscous Flat-body Moth
<i>Agonum scitulum</i>	a Ground Beetle
<i>Agrotera nemoralis</i>	Beautiful Pearl
<i>Alopecosa fabrilis</i>	Great Fox-spider
<i>Altella lucida</i>	Dorset Mesh-weaver
<i>Amara famelica</i>	Early Sunshiner
<i>Amara fusca</i>	Wormwood Moonshiner
<i>Amiota variegata</i>	Variiegated Fruit-fly
<i>Anania funebris</i>	White-spotted Sable Moth
<i>Anarta cordigera</i>	Small Dark Yellow Underwing
<i>Andrena ferox</i>	Oak Mining Bee
<i>Andrena tarsata</i>	Tormentil Mining Bee
<i>Anergates atratulus</i>	Dark Guest Ant
<i>Anisodactylus poeciloides</i>	Saltmarsh Short-spur
<i>Anthophora retusa</i>	Potter Flower Bee
<i>Aplasta ononaria</i>	Rest Harrow
<i>Aplota palpella</i>	Scarce Brown Streak
<i>Archanara neurica</i>	White-mantled Wainscot
<i>Aricia artaxerxes</i>	Northern Brown Argus
<i>Armandia cirrhosa</i>	Lagoon Sandworm
<i>Aspitates gilvaria gilvaria</i>	Straw Belle
<i>Bagous nodulosus</i>	Flowering Rush Weevil
<i>Baryphyma duffeyi</i>	Duffey's Bell-head Spider
<i>Bembidion humerale</i>	Thorne Pin-palp
<i>Bidessus minutissimus</i>	Minutest Diving Beetle
<i>Blera fallax</i>	a Hoverfly
<i>Bombylius minor</i>	Heath bee-fly
<i>Botanophila fonsecai</i>	Fonseca's Seed Fly
<i>Brachinus sclopeta</i>	Bombardier Beetle
<i>Brachyptera putata</i>	Northern February Red

<i>Bracteon (=Bembidion) argenteolum</i>	Silt Silver-spot
<i>Campsicnemus magius</i>	Fancy-legged Fly
<i>Carabus intricatus</i>	Blue Ground Beetle
<i>Carterocephalus palaemon</i>	Chequered Skipper
<i>Catocala promissa</i>	Light Crimson Underwing
<i>Catocala sponsa</i>	Dark Crimson Underwing
<i>Celypha woodiana</i>	Mistletoe Marble
<i>Centromerus serratus</i>	Serrated Tongue-spider
<i>Cerceris quadricincta</i>	Four-banded Weevil-wasp
<i>Chlorita viridula</i>	Sea-wormwood Leafhopper
<i>Chortodes extrema</i>	The Concolorous
<i>Chrysis fulgida</i>	Ruby-tailed Wasp
<i>Chrysotoxum octomaculatum</i>	Broken-banded Wasp-hoverfly
<i>Chrysura hirsuta</i>	Northern Osmia Ruby-tailed Wasp
<i>Cicadetta montana</i>	New Forest Cicada
<i>Cicindela germanica</i>	Cliff tiger Beetle
<i>Cicindela sylvatica</i>	Heath Tiger Beetle
<i>Clorismia rustica</i>	Southern Silver Stiletto-fly
<i>Clubiona rosserae</i>	Rosser's Sac-Spider
<i>Clusiodes geomyzinus</i>	Strathspey Clusiid Fly
<i>Coenagrion mercuriale</i>	Southern Damselfly
<i>Coenonympha tullia</i>	Large Heath
<i>Coleophora vibicella</i>	Large Gold Case-bearer
<i>Coleophora wockeella</i>	Betony Case-bearer
<i>Colletes floralis</i>	The Northern Colletes
<i>Coscinia cribraria bivittata</i>	Speckled Footman
<i>Cryptocephalus decemmaculatus</i>	Ten-spotted Pot Beetle
<i>Cryptocephalus nitidulus</i>	Shining Pot Beetle
<i>Cryptocephalus primarius</i>	Rock-rose Pot Beetle
<i>Cryptocephalus punctiger</i>	a Pot Beetle
<i>Cryptocephalus sexpunctatus</i>	Six-spotted Pot Beetle
<i>Curimopsis nigrita</i>	Mire Pill-Beetle

<i>Cyclophora pendularia</i>	Dingy Mocha
<i>Dasypolia templi</i>	Brindled Ochre
<i>Decticus verrucivorus</i>	Wart-biter
<i>Dicycla oo</i>	Heart Moth
<i>Doros profuges</i>	Phantom Hoverfly
<i>Dorycera graminum</i>	Phoenix Fly
<i>Dromius vectensis</i>	a Ground Beetle
<i>Edwardsii ivelli</i>	Ivell's Sea Anemone
<i>Empis limata</i>	English Assassin Fly
<i>Entephria caesiata</i>	Grey Mountain Carpet
<i>Epermenia insecurella</i>	Chalk-hill Lance-wing
<i>Erebia epiphron</i>	Mountain Ringlet
<i>Eresus sandaliatus</i>	Ladybird Spider
<i>Erigone welchi</i>	Welch's Money-spider
<i>Eristalis cryptarum</i>	Bog Hoverfly
<i>Eudarcia richardsoni</i>	Dorset Tineid Moth
<i>Eurysa douglasi</i>	Chalk Planthopper
<i>Euscelis venosus</i>	Carlina Thistle Leafhopper
<i>Eustroma reticulata</i>	Netted Carpet
<i>Formica exsecta</i>	Narrow-headed Ant
<i>Formica pratensis</i>	Black-Backed Meadow Ant
<i>Formica rufibarbis</i>	Red Barbed Ant
<i>Formicoxenus nitidulus</i>	Shining Guest Ant
<i>Gammarus insensibilis</i>	Lagoon Sand-shrimp
<i>Glossosoma intermedium</i>	Small Grey Sedge
<i>Glyphesis cottonae</i>	Cotton's Amazon Spider
<i>Gnophomyia elsneri</i>	Royal Splinter Cranefly
<i>Gnorimus variabilis</i>	Variable Chafer
<i>Graphoderus zonatus</i>	Spangled Diving Beetle
<i>Grapholita pallifrontana</i>	Liquorice Piercer
<i>Gryllus campestris</i>	Field Cricket
<i>Gyraulus acronicus</i>	Thames Ram`s-horn Snail
<i>Hadena albimacula</i>	White-spot
<i>Hagenella clathrata</i>	Window Winged Sedge

<i>Hamearis lucina</i>	Duke of Burgundy
<i>Hammerschmidtia ferruginea</i>	Aspen Hoverfly
<i>Haplodrassus dalmatensis</i>	Heath Grasper
<i>Harpalus honestus</i>	St. Bees Seed-eater
<i>Heleobia stagnorum</i>	Lagoon Spire Snail
<i>Heliothis maritima</i>	Shoulder-striped Clover
<i>Homonotus sanguinolentus</i>	Bloody Spider-hunting Wasp
<i>Hydraecia osseola hucherardi</i>	Marsh Mallow Moth
<i>Hydrochus nitidicollis</i>	Gravel Water Beetle
<i>Hydroporus necopinatus roni</i>	Ron's Diving Beetle
<i>Hydropsyche bulgaromanorum</i>	Scarce Grey Flag
<i>Idea dilutaria</i>	Silky Wave
<i>Idiocera sexguttata</i>	Six-spotted Cranefly
<i>Ironoquia dubia</i>	Scarce Brown Sedge
<i>Isogenus nubecula</i>	Scarce Yellow Sally
<i>Jodia croceago</i>	Orange Upperwing
<i>Laccophilus poecilus</i>	Sussex Diving Beetle or Puzzled Skipper
<i>Lacon querceus</i>	Oak Click Beetle
<i>Lasioglossum angusticeps</i>	a Mining Bee
<i>Leptidea sinapis</i>	Wood White
<i>Limoniscus violaceus</i>	Violet Click Beetle
<i>Lipsothrix ecucullata</i>	Scottish Yellow Splinter
<i>Lipsothrix errans</i>	Northern Yellow Splinter
<i>Lipsothrix nervosa</i>	Southern Yellow Splinter
<i>Lipsothrix nigristigma</i>	Scarce Yellow Splinter
<i>Lonchaea ragnari</i>	Viking Sword Fly
<i>Luperina nickerlii leechi</i>	Sandhill Rustic (Cornish ssp.)
<i>Lycia zonaria britannica</i>	Belted Beauty
<i>Macaria carbonaria</i>	Netted Mountain Moth
<i>Macrosteles cyane</i>	Pondweed Leafhopper
<i>Maculinea arion</i>	Large Blue Butterfly
<i>Margaritifera margaritifera</i>	Freshwater pearl mussel
<i>Mecopisthes peusi</i>	Peus's Long-back Spider

<i>Megalomus hirtus</i>	Bordered Brown Lacewing
<i>Meioneta mollis</i>	Thin Weblet
<i>Melandrya barbata</i>	Bearded False Darkling Beetle
<i>Melanotus punctolineatus</i>	Sandwich Click Beetle
<i>Melitaea cinxia</i>	Glanville Fritillary
<i>Mellicta athalia</i>	Heath Fritillary
<i>Meloe rugosus</i>	Rugged Oil-beetle
<i>Meotica anglica</i>	Shingle Rove Beetle
<i>Metaiulus pratensis</i>	Kentish Snake Millipede
<i>Midia midas</i>	Midas Tree-weaver
<i>Minoa murinata</i>	Drab looper
<i>Monocephalus castaneipes</i>	Broad Groove-head Spider
<i>Myolepta potens</i>	Western Wood-vase Hoverfly
<i>Nemapogon picarella</i>	Pied Tineid Moth
<i>Nematopogon magna</i>	Scarce Long-horn Moth
<i>Nemophora fasciella</i>	Horehound Long-horn Moth
<i>Neoempheria lineola</i>	a Fungus Gnat
<i>Nigrobaetis niger</i>	Iron Blue Mayfly
<i>Niphargus glenniei</i>	British Cave Shrimp
<i>Nomada armata</i>	a Cuckoo Bee
<i>Nomada errans</i>	a Cuckoo Bee
<i>Nothogophilus turki</i>	Turk's Earth-centipede
<i>Nothophantes horridus</i>	Horrid Ground-weaver
<i>Ochthebius poweri</i>	Rockface Beetle
<i>Odontomyia hydroleon</i>	Barred Green Colonel
<i>Odynerus melanocephalus</i>	Black-headed Mason-wasp
<i>Ophonus melletii</i>	Mellet's Downy-back
<i>Ophonus stictus</i>	Oolite Downy-back
<i>Oria musculosa</i>	Brighton Wainscot
<i>Osmia inermis</i>	a Mason Bee
<i>Osmia uncinata</i>	a Mason Bee
<i>Osmia xanthomelana</i>	Large Mason Bee
<i>Ozyptila nigrita</i>	Southern Crablet
<i>Paracolax tristalis</i>	Clay Fan-Foot

<i>Pareulype berberata</i>	Barberry Carpet
<i>Phaonia jaroschewskii</i>	Hairy Canary
<i>Philodromus margaritatus</i>	Lichen Running-spider
<i>Phyllonorycter sagitella</i>	Scarce Aspen Midget Moth
<i>Phyllonorycter scabiosella</i>	Surrey Midget Moth
<i>Physatocheila smreczynskii</i>	Apple Lace-bug
<i>Pisidium tenuilineatum</i>	Fine-lined Pea Mussel
<i>Platycis cosnardi</i>	Cosnard's Net-winged Beetle
<i>Polyzonium germanicum</i>	Boring Millipede
<i>Potamanthus luteus</i>	Yellow Mayfly
<i>Prostoma jenningsi</i>	Jennings's Ribbon-worm
<i>Protolampra sobrina</i>	Cousin German
<i>Pseudepipona herrichii</i>	Purbeck Mason Wasp
<i>Psylliodes luridipennis</i>	Lundy Cabbage Flea Beetle
<i>Pyrausta sanguinalis</i>	Scarce Crimson And Gold
<i>Pyropteron chrysidiformis</i>	Fiery Clearwing
<i>Quickella arenaria</i>	Sandbowl Snail
<i>Rhabdomastix japonica</i>	River-shore Crane-fly
<i>Rhamphomyia hirtula</i>	an Assassin Fly
<i>Rheumaptera hastata</i>	Argent and sable
<i>Ribautodelphax imitans</i>	Tall Fescue Planthopper
<i>Saldula setulosa</i>	Hairy Shore-bug
<i>Sciota hostilis</i>	Scarce Aspen Knot-horn
<i>Scotopteryx bipunctaria</i>	Chalk Carpet
<i>Scythris siccella</i>	Least Owlet
<i>Semljicola caliginosus</i>	Cloud-living Spider
<i>Shargacucullia lychnitis</i>	Striped Lychnis
<i>Silometopus incurvatus</i>	Bend-bearing Blunt-brow Spider
<i>Siona lineata</i>	Black-veined Moth
<i>Sitticus distinguendus</i>	Distinguished Jumper
<i>Sphaerium solidum</i>	Witham Orb Mussel
<i>Stenus palposus</i>	Lough Neagh Camphor Beetle
<i>Stigmella zelleriella</i>	Sandhill Pigmy Moth
<i>Synaptus filiformis</i>	Hairy Click Beetle

<i>Syncopacma albipalpella</i>	Slate Sober Moth
<i>Syncopacma suecicella</i>	Western Sober Moth
<i>Tapinocyba mitis</i>	Gentle Groove-head Spider
<i>Tapinoma erraticum</i>	Erratic Ant
<i>Temnothorax interruptus</i>	Long-spined Ant
<i>Thalera fimbrialis</i>	Sussex Emerald
<i>Thecla betulae</i>	Brown Hairstreak
<i>Thinobius newberyi</i>	Newbery's Rove Beetle
<i>Thymelicus acteon</i>	Lulworth Skipper
<i>Trachysphaera lobata</i>	Sand Pill-millipede
<i>Triops cancriformis</i>	Tadpole shrimp
<i>Trisateles emortualis</i>	Olive crescent
<i>Vertigo genesii</i>	Round-mouthed Whorl Snail
<i>Vertigo modesta</i>	Cross Whorl Snail
<i>Victorella pavida</i>	Trembling Sea-mat
<i>Walckenaeria corniculans</i>	Small-horned Walckenaer
<i>Xanthorhoe decoloraria</i>	Red Carpet
<i>Xestia alpicola alpina</i>	Northern Dart
<i>Xestia ashworthii</i>	Ashworth's Rustic
<i>Zygaena loti scotica</i>	Slender Scotch Burnet
<i>Zygaena viciae argyllensis</i>	New Forest Burnet
<b>TERRESTRIAL MAMMALS</b>	
<i>Felis silvestris</i>	Wildcat
<i>Lepus timidus</i>	Mountain Hare
<i>Martes martes</i>	Pine Marten
<i>Myotis bechsteinii</i>	Bechstein's Bat
<i>Rhinolophus ferrumequinum</i>	Greater Horseshoe Bat
<b>VASCULAR PLANTS</b>	
<i>Ajuga chamaepitys</i>	Ground-pine
<i>Ajuga pyramidalis</i>	Pyramidal Bugle
<i>Alchemilla acutiloba</i>	Lady's Mantle
<i>Alchemilla micans</i>	a Lady's-mantle



<i>Alchemilla minima</i>	Alchemilla
<i>Alchemilla monticola</i>	a Lady`s mantle
<i>Alchemilla subcrenata</i>	a Lady`s mantle
<i>Arenaria norvegica norvegica</i>	Arctic Sandwort
<i>Armeria maritima elongata</i>	Tall Thrift
<i>Artemisia norvegica</i>	Norwegian Mugwort
<i>Asparagus officinalis prostratus</i>	Wild Asparagus
<i>Astragalus alpinus</i>	Alpine Milk-vetch
<i>Calamagrostis scotica</i>	Scottish Small-reed
<i>Campanula patula</i>	Spreading Bellflower
<i>Campanula rapunculus</i>	Rampion Bellflower
<i>Carex depauperata</i>	Starved Wood-sedge
<i>Carex maritima</i>	Curved Sedge
<i>Carex vulpina</i>	True Fox Sedge
<i>Carum carvi</i>	Caraway
<i>Centaurea calcitrapa</i>	Red Star-thistle
<i>Centaureum scilloides</i>	Perennial Centaury
<i>Cephalanthera damasonium</i>	White Helleborine
<i>Cephalanthera longifolia</i>	Narrow-leaved Helleborine
<i>Cephalanthera rubra</i>	Red Helleborine
<i>Cerastium arcticum</i>	Arctic Mouse-ear
<i>Cerastium fontanum scoticum</i>	a Mouse-ear
<i>Cerastium nigrescens</i>	Shetland Mouse-ear
<i>Cicendia filiformis</i>	Yellow Centaury
<i>Cicerbita alpina</i>	Alpine Blue-sow-thistle
<i>Clinopodium menthifolium</i>	Wood Calamint
<i>Cochlearia micacea</i>	Mountain Scurvy-grass
<i>Cochlearia officinalis scotica</i>	Scottish scurvygrass
<i>Coincya wrightii</i>	Lundy Cabbage
<i>Corrigiola litoralis</i>	Strapwort
<i>Cotoneaster integerrimus</i>	Wild Cotoneaster
<i>Crepis mollis</i>	Northern Hawk`s-beard
<i>Cynoglossum germanicum</i>	Green Hound`s-tongue
<i>Cyperus fuscus</i>	Brown Galingale

<i>Cypripedium calceolus</i>	Lady`s Slipper Orchid
<i>Dactylorhiza purpurella cambrensis</i>	a Northern marsh-orchid
<i>Damasonium alisma</i>	Starfruit
<i>Epipactis sancta</i>	Lindisfarne helleborine
<i>Erigeron borealis</i>	Alpine Fleabane
<i>Eryngium campestre</i>	Field Eryngo
<i>Euphrasia cambrica</i>	an Eyebright
<i>Euphrasia campbelliae</i>	an Eyebright
<i>Euphrasia heslop-harrisonii</i>	an Eyebright
<i>Euphrasia marshallii</i>	Eyebright
<i>Euphrasia ostenfeldii</i>	Eyebright
<i>Euphrasia pseudokernerii</i>	Chalk Eyebright
<i>Euphrasia rostkoviana montana</i>	an Eyebright
<i>Euphrasia rotundifolia</i>	an Eyebright
<i>Euphrasia vigursii</i>	an Eyebright
<i>Fallopia dumetorum</i>	Copse-bindweed
<i>Filago pyramidata</i>	Broad-leaved Cudweed
<i>Fumaria purpurea</i>	Purple Ramping-fumitory
<i>Galium pumilum</i>	Slender Bedstraw
<i>Gentianella anglica</i>	Early Gentian
<i>Gentianella ciliata</i>	Fringed Gentian
<i>Gentianella uliginosa</i>	Dune Gentian
<i>Helianthemum oelandicum levigatum</i>	a Hoary rock-rose
<i>Herminium. backhousei</i>	Hawkweed
<i>H. calvum</i>	Hawkweed
<i>H. graniticola</i>	Hawkweed
<i>H. grovesii</i>	Hawkweed
<i>H. insigne</i>	Hawkweed
<i>H. kennethii</i>	Hawkweed
<i>H. larigense</i>	Hawkweed
<i>H. leptodon</i>	Hawkweed
<i>H. macrocarpum</i>	Hawkweed

<i>H. notabile</i>	Hawkweed
<i>H. optimum</i>	Hawkweed
<i>H. pseudocurvatum</i>	Hawkweed
<i>H. pseudopetiolatum</i>	Hawkweed
<i>Hieracium</i> section <i>Alpestris</i>	Hawkweed
<i>H. subgracilentipes</i>	Hawkweed
<i>Iberis amara</i>	Wild Candytuft
<i>Illecebrum verticillatum</i>	Coral-necklace
<i>Juncus pygmaeus</i>	Pygmy Rush
<i>Leersia oryzoides</i>	Cut-grass
<i>Linnaea borealis</i>	Twinflower
<i>Lobelia urens</i>	Heath Lobelia
<i>Lolium temulentum</i>	Darnel
<i>Luzula arcuata</i>	Curved Wood-rush
<i>Luzula pallidula</i>	Fen Wood-rush
<i>Matthiola sinuata</i>	Sea Stock
<i>Melampyrum sylvaticum</i>	Small Cow-wheat
<i>Melittis melissophyllum</i>	Bastard Balm
<i>Minuartia rubella</i>	Mountain Sandwort
<i>Minuartia sedoides</i>	Cyphel
<i>Moneses uniflora</i>	One-flowered Wintergreen
<i>Monotropa hypopitys hypophegea</i>	Bird's-Nest
<i>Monotropa hypopitys hypopitys</i>	Yellow bird's-nest
<i>Najas flexilis</i>	Slender Naiad
<i>Neotinea ustulata</i>	Burnt Orchid
<i>Orchis simia</i>	Monkey Orchid
<i>Orobanche artemisiae-campestris</i>	Oxtongue Broomrape
<i>Otanthus maritimus</i>	Cottonweed
<i>Phyteuma spicatum</i>	Spiked Rampion
<i>Pilosella flagellaris bicapitata</i>	Shetland mouse-ear-hawkweed
<i>Poa flexuosa</i>	Wavy Meadow-grass
<i>Poa glauca</i>	Glaucous Meadow-grass

<i>Polygonatum verticillatum</i>	Whorled Solomon`s-seal
<i>Polystichum lonchitis</i>	Holly-fern
<i>Potamogeton rutilus</i>	Shetland Pondweed
<i>Potentilla rupestris</i>	Rock Cinquefoil
<i>Pseudorchis albida</i>	Small-white Orchid
<i>Pulmonaria obscura</i>	Suffolk Lungwort
<i>Pyrus cordata</i>	Plymouth Pear
<i>Ranunculus tripartitus</i>	Three-lobed Water-crowfoot
<i>Rumex aquaticus</i>	Scottish Dock
<i>Rumex rupestris</i>	Shore Dock
<i>Sagina nivalis</i>	Snow Pearlwort
<i>Salix lanata</i>	Wooly Willow
<i>Salix lapponum</i>	Downy Willow
<i>Salix myrsinites</i>	Whortle-leaved Willow
<i>Saxifraga cernua</i>	Drooping Saxifrage
<i>Saxifraga cespitosa</i>	Tufted Saxifrage
<i>Saxifraga hirculus</i>	Yellow Marsh Saxifrage
<i>Schoenoplectus triqueter</i>	Triangular Club-rush
<i>Scirpoides holoschoenus</i>	Round-headed Club-rush
<i>Sorbus arranensis</i>	a Whitebeam
<i>Sorbus bristoliensis</i>	a Whitebeam
<i>Sorbus eminens</i>	a Whitebeam
<i>Sorbus leptophylla</i>	a Whitebeam
<i>Sorbus leyana</i>	Ley`s Whitebeam
<i>Sorbus minima</i>	a Whitebeam
<i>Sorbus pseudofennica</i>	Arran Service-tree
<i>Sorbus subcuneata</i>	a Whitebeam
<i>Sorbus vexans</i>	a Whitebeam
<i>Sorbus wilmottiana</i>	a Whitebeam
<i>Spiranthes romanzoffiana</i>	Irish Lady`s-tresses
<i>Taraxacum clovense</i>	a Dandelion
<i>Taraxacum geirhildae</i>	a Dandelion
<i>Tephrosieris integrifolia</i> <i>integrifolia</i>	Field Fleawort

<i>Teucrium scordium</i>	Water Germander
<i>Thlaspi perfoliatum</i>	Cotswold Pennycress
<i>Viola lactea</i>	Pale Dog-violet
<i>Woodsia ilvensis</i>	Oblong Woodsia