Table 2.13 Former breeding birds in England

Species	Last recorded breeding	Status elsewhere in Britain	International conservation status
White-tailed Eagle	1830s	up to 8 pairs in Scotland	Globally threatened
Osprey	1842*	50+ pairs in Scotland	EEC-'Annex I'
Kentish Plover	1979**	Annual vagrant	EEC-Migratory
Black Tern	1978***	Annual migrant	EEC-'Annex I'
Red-backed Shrike	1992****	Annual migrant	EEC-'Annex I'
Chough	1952	341 pairs in Scotland, Wales & the Isle of Man.	EEC-'Annex I'

Sources: Batten *et al* (1990), Poole (1989).

* It is hopefully just a matter of time before the Osprey once again breeds in England. Displaying individuals have been noted at a number of sites in England in recent years.

** Regular breeder until 1935; also bred several times during the 1950s.

*** Became extinct as a regular breeding bird by the mid-19th Century.

**** One pair bred in 1992 for the first time since 1988.

There is also historical evidence which suggests that a number of other species have also bred in England in the last few centuries. These include Pallas's Sandgrouse, Spoonbill, Great Bustard and Great Auk, the latter species now globally extinct.

2.3.12 Other birds of special interest in England

There are a number of bird species occuring in England that are of special interest for reasons other than those noted above, as shown in Table 2.14. This is because they are either candidate *Red Data Birds* (Batten *et al* 1990) or over three-quarters of the British breeding and/or wintering population is located in England. It is uncertain whether candidate *Red Data Birds* will maintain their numbers and distribution in Britain over the next 25 years and hence their future status should be carefully monitored. All the species breed or are resident, unless otherwise stated.

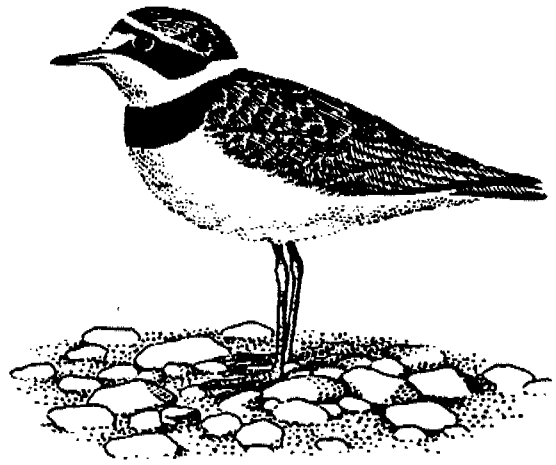


Table 2.14 Other birds of special interest in England

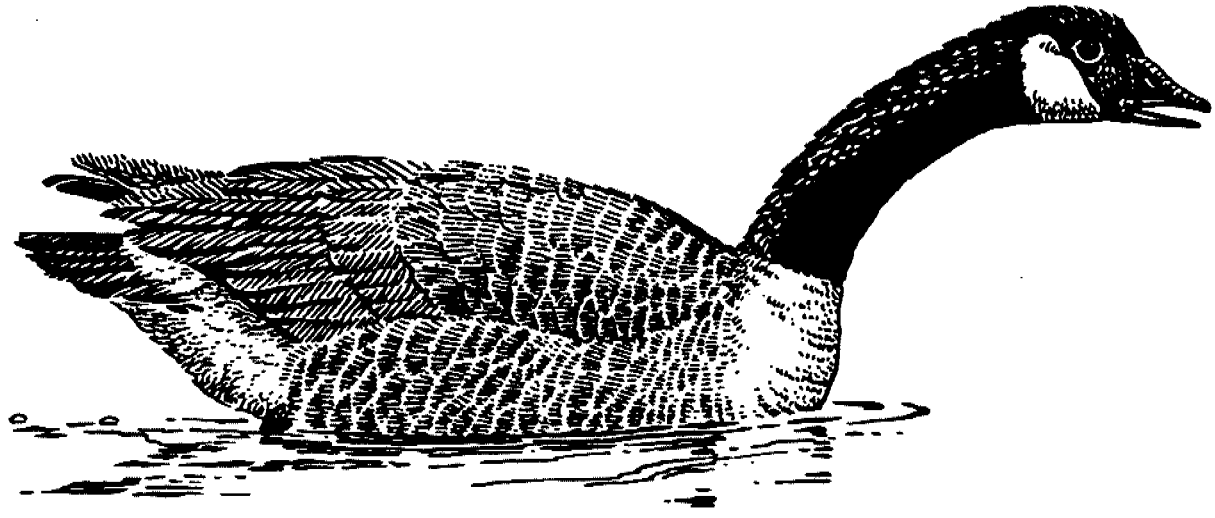
Species	Number of breeding pairs or wintering individuals in England	% of British population in England	Reason for inclusion
Smew	up to c.100 (W)	75+	% in England
Buzzard	?	?	candidate RDB
Hobby	500+	>95	% in England
Little Ringed Plover	610	up to 100	% in England
Snipe	5000-10,000	17-33	candidate RDB
Green Sandpiper	500-1000 (W)	75+	% in England
Herring Gull	28,030	17	candidate RDB
Kittiwake	126,570	26	candidate RDB
Common Tern	5260	43	EEC-'Annex I'
Puffin	21,660	6	candidate RDB
Rock Dove	?	?	candidate RDB
Turtle Dove	?	75+	candidate RDB
Short-eared Owl	?	?	candidate RDB EEC - 'Annex I'
Kingfisher	?	?	candidate RDB EEC - 'Annex I'
Lesser Spotted Woodpecker	?	75+	% in England
Sand Martin	?	?	candidate RDB
Swallow	?	?	candidate RDB
Water Pipit	c.100 (W)	up to 100	% in England
Yellow Wagtail	?	?	candidate RDB
Dipper	?	?	candidate RDB
Nightingale	4000-5000	100	candidate RDB
Redstart	?	?	candidate RDB
Whinchat	?	?	candidate RDB
Stonechat	?	?	candidate RDB
Wheatear	?	?	candidate RDB
Ring Ouzel	?	?	candidate RDB
Sedge warbler	?	?	candidate RDB
Reed Warbler	?	75+	% in England
Lesser Whitethroat	?	75+	% in England
Whitethroat	?	?	candidate RDB
Spotted Flycatcher	?	?	candidate RDB
Raven	?	?	candidate RDB
Tree Sparrow	?	?	candidate RDB
Linnet	?	?	candidate RDB
Hawfinch	?	75+	% in England
Lapland Bunting	200-500 (W)	up to 100	% in England
Corn Bunting	?	?	candidate RDB

(W) denotes a species of special interest for its wintering population in England.

Three of the species are listed on 'Annex 1' of the EC Birds Directive (Common Tern, Short-eared Owl and Kingfisher) and so should be subject to *special conservation measures* to maintain their numbers and range within EC Member States.

2.3.13 Introduced and feral bird species in England

A number of non-native bird species are present in the wild in England. Their occurrence results from either specific introductions, such as for shooting purposes, or escape/release from captivity. Examples include introduced gamebirds, such as pheasants and *Alectoris* partridges, and other species such as Canada Goose and Little Owl, and feral species, such as Ruddy Duck and Ring-necked Parakeet. These include one candidate *Red Data Bird*, the introduced Red-legged Partridge, and a number of species for which England supports over 75% of the population, such as Ruddy Duck. Introduced and feral species have not, however, been included within the review.



3. PRIORITIES FOR BIRD CONSERVATION IN ENGLAND: A SPECIES APPROACH

3.1 Introduction

Whilst it would clearly be inadvisable to neglect the study of our more abundant breeding and wintering birds, or those which are less vulnerable than others, we believe that conservation action for birds should focus on the most threatened, vulnerable and important species as a priority. Given that the resources available for bird conservation are finite, it is essential that priorities for conservation action are established. In this chapter we recognise three groups of birds; those in need of conservation action as a matter of high, medium or low priority. Within these groups, we have desisted from ranking individual species since action for any one species will rarely be taken in isolation from others. Action for birds grouped by common habitat is more likely, as discussed later. Exact ranking is, in any case, likely to be a contentious and relatively unproductive exercise.

3.2 Birds requiring action : high priority

Amongst those birds which are of the highest priority for conservation action by English Nature, two sub-groups of species have been identified and listed accordingly.

High Priority *'List 1'* species are all *Red Data Birds*. All or nearly all of their British population occurs in England. Effective conservation action must therefore be focused within England. Some occur in internationally important numbers, others are rare breeders or are locally distributed, with one species of special concern. English Nature has a particular responsibilty amongst the Statutory Conservation Agencies to safeguard the populations of these species. For some species, English Nature also has a parallel international responsibility. English Nature should therefore take a lead role in their conservation and work closely with appropriate partners, especially the RSPB, to safeguard and where necessary enhance populations of these species. For several species, considerable effort is needed to maintain the integrity of current populations and enhance these as appropriate.

Birds in England : High Priority 'List 1'	
Bittern	Dunlin
Bewick's Swan	Ruff
Bean Goose	Black-tailed Godwit
Brent Goose (both races)	Sandwich Tern
Gadwall	Little Tern
Garganey	Nightjar
Pochard	Woodlark
Montagu's Harrier	Cetti's Warbler
Marsh Harrier	Savi's Warbler
Avocet	Marsh Warbler
Stone Curlew	Dartford Warbler
Grey Plover	Bearded Tit
Knot	Golden Oriole
	Cirl Bunting

Appendix IV indicates the criteria against which each species qualifies for this priority group.

High Priority '*List 2*' species, with the exception of Lapwing, are all *Red Data Birds*. England, together with Scotland and/or Wales, supports breeding or wintering populations of each species. Some occur in Britain in internationally important numbers, some are rare breeders (with >10 pairs), locally distributed, declining or their status is of special concern. Although listed as a candidate *Red Data Bird* in Batten *et al* (1990), recent evidence suggests that Lapwing is now eligible for full *Red Data Bird* status on the basis of recent decline in its breeding population. The Red Kite is now a rare breeder in England following early success of a re-introduction scheme. The Corncrake is now a rare, irregular or occasional breeder in England. They have been placed in the High Priority category as they are both globally threatened. English Nature has a joint responsibility with the other Statutory Conservation Agencies and key partners, notably RSPB, to take co-ordinated and jointly agreed conservation action for these species. For many, we have a joint international responsibility to safeguard their populations.

Birds in England : High Priority 'List 2'	
Red-throated Diver	Merlin
Black-throated Diver	Peregrine
Great Northern Diver	Red Grouse
Black-necked Grebe	Black Grouse
Manx Shearwater	Quail
Storm Petrel	Grey Partridge
Gannet	Spotted Crake
Whooper Swan	Corncrake
Pink-footed Goose	Dotterel
Greylag Goose	Golden Plover
Barnacle Goose	Lapwing
Shelduck	Oystercatcher
Wigeon	Ringed Plover
Teal	Sanderling
Shoveler	Bar-tailed Godwit
Pintail	Curlew
Scaup	Redshank
Long-tailed Duck	Turnstone
Common Scoter	Arctic Tern
Velvet Scoter	Roseate tern
Honey Buzzard	Guillemot
Red Kite	Razorbill
Hen Harrier	Barn Owl
Goshawk	Twite
Golden Eagle	

Appendix IV indicates the criteria against which each species qualifies for this priority group.

The division of birds for high priority action into two groups should not be viewed as divisive. It is more a reflection of geography and numbers; Scottish and Welsh agencies, for example, would be unlikely to place Stone Curlew or Cirl Bunting within their highest priority grouping for conservation funding as these species do not occur within these countries.

3.3 Birds requiring action : medium priority

Forty-two species have been identified as of medium priority for conservation action within England. They consist largely of 'candidate' *Red Data Birds* which England supports in large numbers, or species whose breeding or wintering populations lie mostly (at least 75%) in England. This includes five *Red Data Birds*. For three of these species, there is no perceived threat to their populations (Mediterranean Gull, Black Redstart and Firecrest) and so they do not warrant inclusion in the high priority group. The Crane is a rare breeder which occurs entirely on one site within England and so is suitable for conservation action over and above that for an occasional or irregular breeder. Red-necked Grebe was selected for *Red Data Bird* status on the basis of being an occasional breeder. Whilst this would place the species in the low priority group, England supports at least 75% of the wintering population. Common Tern has been included as it is the only species listed on 'Annex I' of the EC Birds Directive that does not qualify for the high or medium priority groups based on other criteria. The species should therefore be subject to *special conservation measures* within EC Member States. England supports over 40% of the British population and so will play a major role in its conservation within Britain.

All species within the medium priority group could be termed the "Birds to watch in England"; as we learn more about the status of these species, it may be necessary to transfer individual species to either the low or one of the high priority groups, as appropriate.

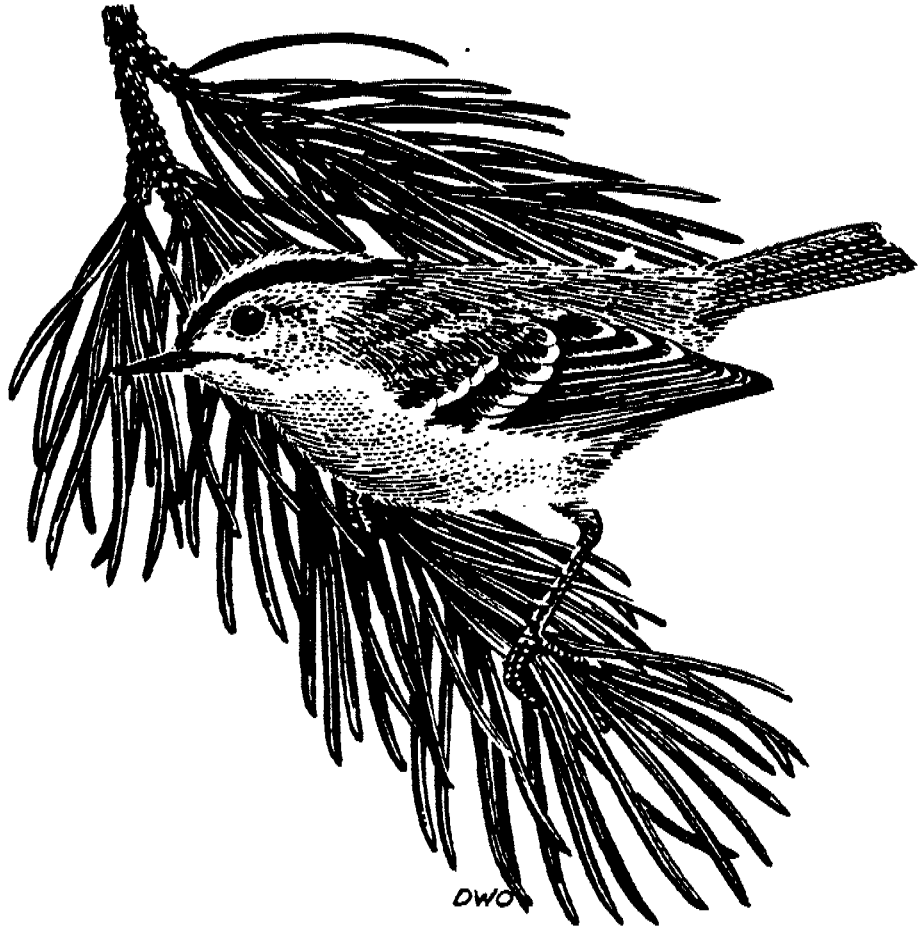
Birds in England : Medium Priority	
Red-necked Grebe	Water Pipit
Smew	Yellow Wagtail
Buzzard	Dipper
Hobby	Nightingale
Crane	Black Redstart
Little Ringed Plover	Redstart
Snipe	Whinchat
Green Sandpiper	Stonechat
Mediterranean Gull	Wheatear
Herring Gull	Ring Ouzel
Kittiwake	Sedge Warbler
Common Tern	Reed Warbler
Puffin	Lesser Whitethroat
Rock Dove	Whitethroat
Turtle Dove	Firecrest
Short-eared Owl	Spotted Flycatcher
Kingfisher	Raven
Lesser Spotted Woodpecker	Tree Sparrow
Shorelark	Linnet
Sand Martin	Hawfinch
Swallow	Corn Bunting

Appendix IV indicates the criteria against which each species qualifies for this priority group.

3.4 Birds requiring action : low priority

One-hundred-and-seventeen species have been identified as of low priority for conservation action within England. This is the largest category of birds. It consists of regularly occurring breeding or wintering species not considered to be of high or medium priority. Most species are very common and distributed widely, or are under no apparent threat. This includes a number of introduced or feral species that occur in the wild in England, with apparently self-sustaining populations (marked *; see section 2.3.13). The category also includes a number of *Red Data Birds*. These have been identified as low priority because they have never bred in England (although breeding may be imminent in some cases), or they breed in very small numbers (less than 10 pairs) or only very occasionally. Species marked ** formerly bred in England and we have historical evidence of their former range and numbers. The inclusion of a species within this category does not necessarily imply that we are complacent about its status within England. For example, opportunistic conservation action may be employed to protect the breeding site or individuals of an irregular breeder, or population control of non-native species may be considered if there is conflict with native bird populations.

It should be noted that many of the common and widespread species provide important indicators of environmental change within the countryside (Brenchley 1984: Hardy *et al* 1987; Newton 1986; Marchant *et al* 1990). Many are thus essential components of long-term bird population monitoring programmes.



Birds in England : Low Priority		
Little Grebe	Black-headed Gull	Wood Warbler
Great Crested Grebe	Common Gull	Chiffchaff
Slavonian Grebe	Lesser Black-backed Gull	Willow Warbler
Fulmar	Iceland Gull	Goldcrest
Cormorant	Glaucous Gull	Pied Flycatcher
Shag	Great Black-backed Gull	Long-tailed Tit
Little Bittern	Black Tern**	Marsh Tit
Grey Heron	Black Guillemot	Willow Tit
Mute Swan*	Woodpigeon	Coal Tit
Canada Goose*	Collared Dove	Blue Tit
Egyptian Goose*	Ring-necked Parakeet*	Great Tit
Mandarin Duck*	Cuckoo	Nuthatch
Tufted Duck	Little Owl*	Treecreeper
Eider	Tawny Owl	Penduline Tit
Goldeneye	Long-eared Owl	Red-backed Shrike
Red-breasted Merganser	Swift	Jay
Goosander	Hoopoe	Magpie
Ruddy Duck*	Bee-eater	Chough**
White-tailed Eagle**	Wryneck**	Jackdaw
Sparrowhawk	Green Woodpecker	Rook
Rough-legged Buzzard	Great Spotted Woodpecker	Carrion Crow
Osprey**	Skylark	Starling
Kestrel	House Martin	House Sparrow
Pheasant*	Tree Pipit	Chaffinch
Golden Pheasant*	Meadow Pipit	Brambling
Red-legged Partridge*	Rock Pipit	Serin
Lady Amherst's	Grey Wagtail	Greenfinch
Pheasant*	Pied Wagtail	Goldfinch
Water Rail	Waxwing	Siskin
Moorhen	Wren	Redpoll
Coot	Dunnock	Crossbill
Black-winged Stilt	Robin	Parrot Crossbill
Kentish Plover**	Blackbird	Scarlet Rosefinch
Purple Sandpiper	Fieldfare	Bullfinch
Jack Snipe	Song Thrush	Lapland Bunting
Woodcock	Redwing	Snow Bunting
Spotted Redshank	Mistle Thrush	Yellowhammer
Greenshank	Grasshopper Warbler	Reed Bunting
Common Sandpiper	Garden Warbler	
Little Gull	Blackcap	

4. BIRD HABITATS IN ENGLAND

4.1 Introduction

Birds are neither randomly nor evenly distributed across England. Particular species associate with particular habitats for nesting, feeding, loafing or roosting. In this chapter, we describe the birds associated with the major habitat groups that are found in England. These syntheses are intended primarily as synopses of information on birds for habitat and non-bird species specialists. We wish to work closely with all such people towards our bird conservation goals.

For each habitat we provide an insight into the overall significance of the habitat for birds, the status of individual species of concern, and a summary of the present level of knowledge regarding their population dynamics and ecological requirements. We provide a list of regularly occurring *Red Data Birds* and candidate *Red Data Birds*, indicating their priority for action for English Nature, Annex I and Schedule 1 status, and population trend. We also list sites recognised as of international importance for birds and summarise the main threats and opportunities for conservation action in each habitat. Finally, we provide brief recommendations for the implementation of conservation action for birds and a key bibliography.

Note: All wetland sites listed as classified or proposed Special Protection Areas, which support internationally important populations of waterbirds, also qualify as ornithological Ramsar sites.

4.2 Uplands

Definition: This category includes a small area of montane habitat; unenclosed heather moors, upland grasslands and blanket bogs; cliffs, screes and tors; unimproved and partially improved upland pastures which may or may not be enclosed; and upland streams, rivers and reservoirs. It does not include upland woods (see section 4.3).

Significance: The birds of the English uplands form part of an internationally important assemblage of breeding birds (Ratcliffe 1990). Many of the breeding bird populations are the southern-most in the West Palearctic (eg Merlin on Exmoor) or the World (eg Golden Plover, Dunlin and Red Grouse on Dartmoor, Dotterel in Northern England) and populations of others are racially distinct and geographically isolated (Red Grouse, Dunlin and Twite). The uplands support only one species identified as high priority 'List 1' (Dunlin; on the basis of its coastal wintering population). This merely reflects the fact that both Wales and Scotland also hold important upland breeding bird populations. Action to conserve these species should therefore be co-operative and co-ordinated. The uplands are relatively unimportant for birds in the winter months as conditions rarely permit efficient foraging and roosting. A notable exception is Bodmin Moor which supports huge winter flocks of Golden Plover and the more improved upland pastures of the Pennines supporting large flocks of foraging Lapwing, Golden Plover and thrushes in winter. In addition several Hen Harrier and Merlin roosts are found in the uplands in winter.

Upland streams and rivers support an important assemblage of more common species, notably Common Sandpiper, Dipper and Grey Wagtail.

Special protection: A large number of species which nest in the uplands are *Red Data Birds*. Fourteen of these breed in England and have been recognised as high priority species, in addition to Lapwing. A further ten breeding species are candidate *Red Data Birds* all of which are recognised as medium priority. Seven species are listed on 'Annex I' of the EC Birds Directive, of which five are also listed on Schedule 1 of the 1981 Act. Details are given in Table 4.1.

Table 4.1 Important birds of the English uplands

Species	EN priority	Annex I	Schedule 1	Population trend
Wigeon	High (2)			Stable
Teal	High (2)			Stable?
Hen Harrier	High (2)	*	1	Declining
Buzzard	Medium			Stable or increasing
Golden Eagle	High (2)	*	1	Stable
Merlin	High (2)	*	1	Declining
Peregrine	High (2)	*	1	Increasing
Red Grouse	High (2)			Declining
Black Grouse	High (2)			Declining
Dotterel	High (2)	*	1	Declining
Golden Plover	High (2)	*		Declining
Lapwing	High (2)			Declining
Dunlin	High (1)			Declining
Snipe	Medium			Declining
Curlew	High (2)			Stable or increasing
Redshank	High (2)			Declining
Short-eared Owl	Medium	*		Increasing
Dipper	Medium			Stable or increasing
Whinchat	Medium			Declining
Stonechat	Medium			Declining
Wheatear	Medium			Stable
Ring Ouzel	Medium			Uncertain
Raven	Medium			Variable
Twite	High (2)			Uncertain

Threats: Upland birds and their habitats face a diversity of threats in England and many, relating primarily to land-use, are wide-scale in their impact (see, for example, Bibby 1988). Threats to upland breeding birds in England include overgrazing, poor management or inappropriate application of burning regimes, enclosure and improvement by reseeding, drainage and the addition of fertiliser, agricultural abandonment/neglect of management, recreation and, locally or potentially, afforestation and peat extraction (which are currently far more prevalent in uplands outside England). Acidification and other pollution has very widespread impacts

(Ormerod *et al* 1991). Illegal persecution almost certainly continues to limit the range and numbers of several diurnal raptors, in particular, Buzzard and Hen Harrier (Cadbury 1992).

Knowledge of status and population trends: We possess detailed knowledge of the distribution and abundance of upland breeding birds in the unenclosed land of Dartmoor, Exmoor and the Pennines south of Skipton (Brown 1991). Detailed information for selected species, usually the raptors (Peregrine, Merlin and Hen Harrier) or other relatively scarce species is also available for other areas. Detailed survey information for the most imortant area for upland breeding birds in England, the North Pennines, is limited, dated and not comprehensive. Surveys currently (1992-4) in progress aim to identify important areas of enclosed upland. Our knowledge of the distribution and abundance of birds on enclosed farmland in the uplands is poor, though we know that such habitats can support very high densities of some breeding species (Baines 1988). No scheme currently exists for monitoring long-term change for the majority of upland breeding birds. The instigation of such a scheme is a matter of some urgency.

Ecological knowledge: As in other bird asemblages, individual species of upland breeding bird have distinct habitat preferences and aversions. Although we have a clear idea of broad associations, we are only just beginning to quantify these for the majority of species (for example, Haworth & Fielding 1988). The more important factors appear to be geographic location, altitude and slope (Brown & Stillman 1993). For some species we have a clear knowledge of management requirements (for example, see Baines 1990) but for the majority, and particularly those which are widespread, such as Golden Plover, we can only provide general restrictive prescriptions instead of detailed positive advice and guidance on sympathetic land management. We urgently require research into the detailed ecological requirements of many upland species. We have a detailed knowledge of the impacts of acidification but our understanding of the impact of recreation is slight (see, for example, Yalden 1992): birds are clearly disturbed but we are not clear whether this has any impact on distribution, numbers or breeding success.

Important Sites:

South Pennine Moors pSPA
North Pennine Moors pSPA
Bowland Fells pSPA
Shap Fells pSPA
North Yorkshire Moors pSPA
Yorkshire Dales Moorlands pSPA
Bodmin Moor pSPA

Implementation: Action needs to continue on the submission to Government of the existing published list of proposed Special Protection Areas in the uplands. Research into the management requirements of upland bird assemblages is also required. This should include both autecological research and a thorough investigation of the impacts of predation and recreational disturbance. We also need to include upland bird species within an effective long-term population monitoring programme. We will continue to support the MAFF-led 'Campaign Against Pesticide Abuse' which aims to reduce both the intentional and accidental illegal poisoning of wildlife.

Key bibliography: Baines (1988), Bibby & Nattrass (1986), Brown (1991), Brown (*in press*), Brown & Shepherd (*in press*), Davies (1988), Elliot (1992), Ratcliffe (1990).

4.3 Woodland and scrub

Definition: This habitat grouping consists of all broad-leaf, coniferous and mixed woodland, both semi-natural (ancient and secondary) and planted. It also includes scrub habitats.

Significance: Woodland bird assemblages in England largely consist of species which are widespread and abundant, both nationally and internationally. However, two species occur on the northern-most edge of their breeding range in England (Nightingale and Firecrest), and English woods once more provide the nest sites for Red Kite, a 'globally threatened' species, as a result of the on-going re-introduction programme. A number of other rare breeding species are associated with particular types of woodland.

Special protection: English woodlands support 13 *Red Data Birds* and five candidate *Red Data Birds*. Four of these species are also listed on 'Annex I' of the EC Birds Directive and 12 are listed on Schedule 1 of the Wildlife and Countryside Act (Table 4.2). Most *Red Data Birds* are either rare or occasional breeding birds, such as Golden Oriole, Red-backed Shrike and Serin, or diurnal raptors dependent on woodland for nest sites, including Honey Buzzard, Red Kite and Goshawk. The remaining two species, Nightjar and Woodlark, are dependent on clear-felled areas or the early growth stages of plantations or coppice (Ravenscroft 1989; Bowden & Hoblyn 1990).

Four candidate *Red Data Birds* are dependent on the maintenance of a diverse and open structure within semi-natural woodland; Nightingale, Redstart, Whitethroat and Spotted Flycatcher. Nightingale and Whitethroat are also supported by scrub. Young scrub also supports Linnet, another candidate *Red Data Bird*. These are all medium priority species, together with Buzzard (another candidate *Red Data Bird*). Added to the above is a suite of common breeding birds which, although of lower conservation priority, are nonetheless of conservation importance. These include Sparrowhawk, Woodcock, owls, woodpeckers, Tree Pipit, Wren, Dunnock, thrushes, tits, Nuthatch, Treecreeper, corvids, warblers, Pied Flycatcher and finches. England supports over 75% of the breeding population of three of these species, which are therefore of medium priority; Lesser Spotted Woodpecker, Lesser Whitethroat and Hawfinch.

Scrub habitats can support diverse breeding bird communities with high population densities of fairly common species. The abundant berries supplied by scrub support large numbers of thrushes and starlings in autumn and the first half of winter, and mature scrub provides important winter roost sites. Scrub also provides food and shelter for large numbers of migrants during the spring and autumn.

Table 4.2 Important woodland and scrub birds in England

Species	EN priority	Annex I	Schedule 1	Population trend
Honey Buzzard	High (2)	*	1	Stable
Red Kite	High (2)	*	1	Increasing
Goshawk	High (2)		1	Increasing
Buzzard	Medium			Stable or increasing
Nightjar	High (1)	*		Declining
Wryneck	Low		1	Declining
Lesser Spotted Woodpecker	Medium			Declining
Woodlark	High (1)	*	1	Declining or fluctuating
Nightingale	Medium			Fluctuating
Redstart	Medium			Increasing following decline
Fieldfare	Low		1	Stable
Redwing	Low		1	Stable
Lesser Whitethroat	Medium			Fluctuating
Whitethroat	Medium			Fluctuating following crash
Firecrest	Low		1	Increasing
Spotted Flycatcher	Medium			Declining
Golden Oriole	High (1)		1	Fluctuating
Red-backed Shrike*	Low	*	1	Decline
Tree Sparrow	Medium			Declining
Serin	Low		1	Fluctuating
Linnet	Medium			Declining
Scarlet Rosefinch**	Low		1	Colonising?
Hawfinch	Medium			Uncertain

* One pair bred in 1992 for the first time since 1988.
** First bred in England in 1992 (five pairs).

Threats and opportunities: The main threats and opportunities facing woodland birds generally differ between upland and lowland areas. Overgrazing and a lack of management continue to be the main threat where woodland still exists in the English uplands. Natural regeneration on abandoned moorland could provide an opportunity for woodland birds to expand their range and numbers in the uplands, although this should be directed away from areas of importance for birds of open areas. In the lowlands, the main threats are inappropriate management and increasing browsing by deer, which can cause destruction of the woodland under-storey. There is great potential for expanding the area of semi-natural woodland in lowland areas and this may have considerable benefits for woodland and scrub birds. The main concern is that new woodland is directed away from areas of existing high bird interest, such as

semi-natural grasslands, and is designed and managed in a manner sympathetic to bird interests (NCC 1991).

Knowledge of status and population trends: The distribution of individual woodland bird species is well known (Sharrock 1976; Lack 1986). In contrast, our knowledge of the population sizes of woodland birds is surprisingly poor. This is largely due to the abundance of some of the more commoner species and, unlike certain other species groups, woodland birds do not generally nest colonially or flock together in the non-breeding season. The exceptions are the rare breeders, which are monitored annually by the Rare Breeding Birds Panel, and several uncommon species which have been periodically surveyed. These include Nightjar, Woodlark and Nightingale (Gribble 1983; Sitters 1986; Davis 1982). Our knowledge of the population trends of breeding woodland birds is much more complete. The BTO's Common Bird Census (CBC) has monitored woodland bird populations since 1964 and provides excellent information on the population trends of the commoner woodland species.

Ecological knowledge: The comparatively detailed understanding of woodland bird communities results largely from three classic studies (Yapp 1962; Simms 1971; Fuller 1982) and the subsequent research they spawned. Woodland bird communities vary greatly in terms of species richness, species composition and the density of populations. Apart from the obvious apparent changes due to geographical phenomena such as geology, soil type and altitude, much of this variation can be explained by three factors; woodland structure, tree species composition and woodland area. Research has shown for example, that overall bird density and species richness are a function of structural complexity, with those woods having complex foliage profiles, areas of young and old growth, and abundant microhabitats, such as old/deadwood, supporting more birds of more species than relatively homogeneous woods. We also know that higher bird densities tend to occur in broad-leaf woods and that richer bird communities are supported by larger woods, which are likely to contain a greater diversity of habitats.

Much of the variation in woodland structure, tree composition and area results from woodland management. Different woodland management practices therefore favour different bird communities. For example, traditional woodland management, such as coppice with standards and the management of rides and glades, favours a different group of birds to managed or non-interventionist high-forest (see, for example, Fuller 1992). We can therefore provide detailed management prescriptions for birds within woodland if the objectives are clear (Smart & Andrews 1985; Fuller & Warren 1990; Stowe 1987; Warren & Fuller 1990; Fuller & Peterken *in press*).

Our knowledge of the variation in species richness and abundance of scrub bird communities, apart from where they occur on downland, is comparatively poor. In general, structural diversity is provided by variation in the openness and height of the scrub according to its age. The more species-rich breeding bird communities are therefore associated with areas of scrub with a variety of growth stages, with recently closed canopy scrub supporting the most diverse and abundant populations (Fuller 1982).

Important sites: No Special Protection Areas are proposed or classified solely on the grounds of their woodland or scrub bird communities. Woodland and scrub does, however, form part of the habitat mosaics of a number of sites, such as

Minsmere-Walberswick SPA, The New Forest pSPA and Windsor Forest and Great Park pSPA.

Implementation: Action for woodland and scrub birds should be mainly targeted on the wider countryside and, to a lesser extent, on protected sites and be appropriate to each natural area of England. Much of this action should be pro-active, involving advice at the strategic level to ensure birds and other wildlife are uppermost in the planning, design and management of the new lowland forests. County/regional level conservation plans, such as 'Indicative Forest Strategies', should be prepared to ensure that areas of low existing wildlife interest are targeted for new woodland, both in the lowlands and uplands. At a more local level, the appropriate management of existing semi-natural woods, particularly on SSSIs, could greatly benefit woodland birds. Likewise, the sympathetic management of both existing and new plantations and smallscale farm woods could add to the general bird interest of the countryside (Bayes 1989; Fuller 1990). We should continue to work with our partners, such as RSPB and Forestry Enterprise, to ensure rare woodland birds are protected and monitored. Special initiatives, such as the Cambridgeshire County Council scheme which encourages the creation of poplar woodland suitable for nesting Golden Orioles, should be encouraged. The monitoring of woodland breeding birds should continue. The CBC must, however, become more representative of woodlands throughout England (ie less biased to the south and east) and based on a random sample of sites.

Key bibliography: Avery & Leslie (1990), Bayes & Henderson (1988), Bayes (1989), Davis (1982), Fuller (1982), Fuller (1990), Fuller (1992), Fuller (*in press*), Fuller & Warren (1990), Fuller & Warren (1991), Gribble (1983), Grice (*in press* - a), Marquiss & Newton (1982), Sitters (1986), Smart & Andrews (1985), Smith (1988), Turner & Housden (1992), Warren & Fuller (1990).

4.4 Lowland heaths, bogs and dry grasslands

Definition: This category consists of a range of vegetation communities which share a broadly similar bird assemblage associated with open ground in the lowlands, and which has traditionally been managed by grazing livestock. It therefore includes heather-dominated lowland heaths and raised bogs, the sparser vegetated breck-heath, and unimproved calcareous dry grassland, such as chalk downland. Apart from raised bogs, these habitats occur largely within England in a British context; for example, around 80% of Britain's lowland heath occurs within England (Farrell 1989) and virtually all chalk downland is confined to England (Keymer & Leach 1990). Areas of wooded habitat, such as isolated trees and patches of scrub often form an important component of these open habitats for birds.

Significance: English heathlands are recognised as internationally important remnants of a once more extensive habitat type. Although only around 45,000 ha of lowland heaths remain in England, this may represent 16% of that remaining in Europe (Farrell 1989). They support a unique breeding bird assemblage. This includes several species which occur on the northern edge of their West Palearctic range in England, such as Dartford Warbler and Stone Curlew, in addition to other rare breeders, such as Nightjar and Woodlark. England's dry grassland birds have, until recently, been regarded as a relatively low conservation priority (Porter *et al* 1991). Although a number of *Red Data Birds* and candidate *Red Data Birds* are supported by dry grassland habitats, the populations of such species are small in an international context. This is largely a reflection of two factors; firstly, the massive loss of semi-natural dry grassland in England (for example, an 80% loss of chalk downland since

the 1940s), and secondly, that extensive areas of steppe grassland still remain in continental Europe, notably in Spain and Hungary. England's dry grassland birds are nonetheless of conservation significance given the dramatic decline in the area of this vulnerable bird habitat in both a national and international context.

England's lowland heaths and dry grasslands also provide important hunting areas and roost sites for wintering raptors and owls. Lowland dry grasslands also provide traditional staging areas for certain migrants, such as Dotterel and Ring Ouzel, and post-breeding feeding areas for Lapwing.

Special protection: Nine *Red Data Birds* regularly breed on England's lowland heaths, bogs and dry grasslands. All are of high conservation priority, with five species on 'List 1' and the remaining four on 'List 2', in addition to Lapwing. Four of these species are listed on 'Annex 1' of the EC Birds Directive, whilst five species are listed on Schedule 1 of the 1981 Act, in addition to Hobby (medium priority). Six candidate *Red Data Birds*, of which five are of medium priority, also breed (Lapwing is listed as high priority 'List 2'). A further two Red Data raptor species hunt and roost in these habitats in winter.

Table 4.3 Important birds of lowland heath and dry grasslands in England

Species	EN priority	Annex I	Schedule 1	Population trend
Hen Harrier	High (2)	*	(1)	Declining
Montagu's Harrier (DG)	High (1)	*	1	Increasing
Merlin	High (2)	*	(1)	Declining
Hobby	Medium		1	Increasing
Grey Partridge (DG)	High (2)			Declining
Quail (DG)	High (2)			Fluctuating
Stone Curlew	High (1)	*	1	Stable following decline
Lapwing (DG)	High (2)			Declining
Curlew	High (2)			Declining
Short-eared Owl	Medium	*		Uncertain
Barn Owl (DG)	High (2)		1	Declining
Nightjar (LH)	High (1)	*		Declining
Woodlark	High(1)	*	1	Fluctuating
Whinchat (DG)	Medium			Declining
Stonechat (LH)	Medium			Declining
Wheatear (DG)	Medium			Declining
Dartford Warbler (LH)	High (1)		1	Increasing
Red-backed Shrike (LH)	Low	*	1	Declining
Corn Bunting (DG)	Medium			Declining

LH = occurs predominantly on lowland heath within this category.
DG = occurs predominantly on dry grassland within this category.
(1)= Listed on Schedule 1 but occurs in winter only in these habitats.

Threats: The major threats to birds on lowland heaths and dry grasslands continue to be habitat loss and a lack of or poor management. The main causes of loss have historically been agriculture, afforestation (mainly on heathlands), lack of management/scrub encroachment and built developments. These combined forces have, for example, resulted in the loss of over 80% of England's heathlands since c.1800. The remaining resource is now highly fragmented. Lack of management is widely recognised as a problem. For example, undergrazing on Breckland has undoubtebly resulted in a decline in the numbers of breeding Stone Curlew. Many of the remnants of both lowland heaths and dry grassland are SSSIs, with the greatest threats emanating from lack of management, increasing recreational pressures, and urban, industry and road developments. Additional threats to birds in these habitats include fire and climate; extremely harsh winters or poor spring/summer weather can have a dramatic effect on several species on the edge of their range (Dartford Warbler, Woodlark and Stone Curlew). For example, Dartford Warbler numbers fell to just 12 breeding pairs following the harsh winter of 1962/63.

Knowledge of status and population trends: Our knowledge of the distribution, population sizes and long-term trends for all the high priority species are both up-to-date and of high quality, with the exception of Grey Partridge. Most of these species are rare breeders and so are monitored annually by the Rare Breeding Birds Panel. Others, such as Nightjar, Woodlark, Barn Owl and Dartford Warbler, have been the subject of periodic surveys (Gribble 1983; Sitters 1986; Shawyer 1987; Robbins & Bibby 1984). Wintering raptors are counted regularly as part of the winter roosts survey programme (see Clarke & Watson 1990). For the more abundant species, our data is of lower quality. The BTO atlasses of breeding and wintering birds do, however, provide distributional data for all species, although information on population trends for some of the commoner species is only available from the results of the Common Bird Census on farmland. It is therefore vital that the more abundant and widespread species are covered by the new national bird monitoring scheme organised by BTO.

Ecological knowledge: Our understanding of the habitat requirements of most of the rarer heathland birds, although far from complete, is generally good. We can therefore be fairly precise when recommending management prescriptions for species such as Stone Curlew, Nightjar, Woodlark and Dartford Warbler. The Nightjar, for example, nests on patches of bare ground close to small trees on heather-dominated heathland, and requires a source of large invertebrates (mainly moths) for food (Ravenscroft 1989; Alexander & Cresswell 1990). Positive management for Nightjars includes both the provision of potential nest sites by creating bare patches in areas of existing heather and creating glades by clearing birch/Scots pine, and maximising the heath/woodland edge to provide songposts, roosts and foraging areas (Burgess *et al* 1989). The Woodlark requires extensive areas of bare or sparsely vegetated ground for feeding, such as short turf, grasses, mosses or lichens, with patches of taller vegetation for nesting, such as grass tussocks and heather, and isolated young trees for perching/song posts (Bowden 1990). In contrast, the Dartford Warbler prefers dense bushes of common gorse amongst mature heather, which have a high density of invertebrates (Bibby 1978; Westerhoff & Tubbs 1991).

Our knowledge of the ecology of dry grassland birds has, until recently, been relatively poor. On-going research contracted by English Nature and others should, however, improve our understanding of the habitat requirements and management needs of key species (see Dolman 1992). There is a pronounced split in the habitat preferences of lowland dry grassland bird species: those which require a close-cropped

grassland sward, often with areas of bare ground such as Stone Curlew, Lapwing and Wheatear, and those which prefer longer vegetation for nesting and/or feeding such as Whinchat, Curlew, Quail, Barn Owl and Short-eared Owl (Grice, *in press* - b). Other species, such as Woodlark, require a mosaic (see above). It is therefore crucial that a balance between shorter grass, bare areas and longer vegetation is maintained or restored.

Much less is known about the more common species that occur on lowland heaths and dry grasslands, such as Hobby and Corn Bunting.

Important sites:

Lowland heath & bogs:	Breckland Heaths pSPA (also includes dry grassland) Minsmere - Walberswick SPA Thames Basin Heaths pSPA Thursley, Hankley & Frensham Commons pSPA Woolmer Forest pSPA The New Forest pSPA Dorset Heathlands pSPA East Devon Heaths pSPA Thorne & Hatfield Moors pSPA (raised bog)
Dry grassland:	Salisbury Plain pSPA Porton Down SPA

Implementation: Action will continue on the submission to Government of the existing published list of proposed SPAs covering England's lowland heath and dry grassland sites. Strategic conservation action is urgently required for these highly fragmented sites, to ensure that those of national significance are properly managed. It is essential that we encourage the positive management of all these areas for birds and other wildlife, whilst at the same time targeting degraded areas of former lowland heath and downland for habitat restoration or re-creation. This should enable these fragmented habitat 'islands' to be linked to form much more extensive areas of open habitat.

Key bibliography: Auld *et al* (1992), Bibby (1987), Burgess *et al* (1990), Cadbury (1989), Dolman (1992), Elliot (1988), Farrar & Davies (1991), Fuller & Glue (1977), Green (1988), Gribble (1983), Grice (*in press* - b), Parr (1985), Ravenscroft (1989), Robbins & Bibby (1984), Sitters (1986), Westerhoff & Tubbs (1991).

4.5 Lowland wet grasslands

Definition: This habitat consists of managed grassland below 200 m which is subject to seasonal flooding by freshwater. It also includes coastal grazing marsh which may be subject to seepage or sporadic inundation by saline water. It does not include reedbeds which are discussed in Section 4.6, although they can occur in association with lowland wet grasslands away from open freshwaters.

Significance: Of all the habitats in Britain, lowland wet grasslands, along with lowland heaths and downlands, have suffered the greatest losses in area this century and continue to be one of the most threatened habitats in England. With few exceptions, populations of birds typical of lowland wet grasslands have undergone continued and dramatic declines throughout this century, the rate of decline being

particularly marked in recent decades (Marchant *et al* 1990). A number of England's most threatened birds are associated with lowland wet grasslands, including several species which are almost entirely dependent on them during the breeding season. These include Garganey, Ruff and Black-tailed Godwit. Several other waders breed in large numbers and at high densities on lowland wet grasslands, although they are not restricted to this habitat. They include Lapwing, Curlew, Snipe and Redshank. Other important breeding species include Barn Owl and Yellow Wagtail.

English lowland wet grasslands also support the bulk of Britain's internationally important wintering population of Bewick's Swan. A number of other wintering waterfowl are also supported in large numbers, including Whooper Swan, Bean Goose, Barnacle Goose, Wigeon, Gadwall, Teal, Shoveler, Pochard, Golden Plover and Lapwing.

Special protection: 19 *Red Data Birds* are supported by lowland wet grasslands, with eight species listed on 'Annex I' of the EC Birds Directive. Six of the 13 *Red Data Birds* which breed are listed on Schedule 1 of the 1981 Act. Thirteen breeding species are recognised as high priority with five included on 'List 1'; Gadwall, Garganey, Pochard, Ruff and Black-tailed Godwit. Four of the 13 high priority species that winter on lowland wet grasslands are included on 'List 1'; Bewick's Swan, Bean Goose, Gadwall and Pochard. A further five candidate *Red Data Birds* breed on lowland wet grasslands in England.