

1 INTRODUCTION

This Species Action Plan (SAP) is a joint plan for Hampshire's priority shorebirds. These are birds that depend on the county's coastal, estuarine and intertidal habitats for breeding, over-wintering or for stop-over during migration along the East Atlantic flyway and have been identified in the Hampshire Biodiversity Action Plan (BAP) as being of special conservation concern in the county. The SAP is intended to draw attention to the value and vulnerability of Hampshire's coastline as a habitat for these and other species and to identify actions necessary to ensure that its quality and the populations of the birds it supports are maintained or increased.

1.1 Solent Birds

As part of the Hampshire BAP, the plan is targeted specifically at the county's shorebirds. However, many of the issues involved apply not just to the Hampshire coastline but to the Solent as a whole and to the larger population of birds and other wildlife that occur there. From an ornithological viewpoint, the Solent should be considered as a single contiguous and high-ranking ecosystem. In winter, it regularly holds around 190,000 water birds, the fourth largest concentration on any UK estuary. The three eastern harbours, Portsmouth, Langstone and Chichester, considered as a single unit, rank about twelfth in overall ornithological importance in Europe¹. From a biodiversity planning perspective, the value of the habitat and the efforts that must be taken to protect it cannot be overstated.

The shorebirds included in this plan have been identified as priority species in the Hampshire BAP because their numbers in Hampshire are important at either a national or, in some cases, international level. However many additional species regularly utilise the Solent shoreline and harbours and contribute to the area's outstanding ornithological value. The impressive numbers and variety of birds are obvious to even the casual visitor and have a marked impact on the overall character of the coast². There are large breeding colonies of black-headed gull *Larus ridibundus*, common tern *Sterna hirundo* and Sandwich tern *Sterna sandvicensis*, concentrations of breeding waders, including oystercatcher *Haematopus ostralegus*, ringed plover and redshank *Tringa totanus* and huge gatherings of over-wintering and migratory gulls and wildfowl including dark-bellied brent goose *Branta bernicla bernicla*, shelduck *Tadorna tadorna*, wigeon *Anas penelope*, and teal *Anas crecca*. Offshore, in winter, there are nationally important numbers of red-breasted merganser *Mergus*

serrator and notable concentrations of Slavonian and Black-necked grebes *Podiceps auritus* and *P. nigricolis*. This spectacular assemblage of birds attracts predatory species, such as peregrine *Falco peregrinus* and merlin *Falco coumbarius*, and, outside the breeding season, is swelled by flocks of passerines such as skylark *Alauda arvensis* and meadow pipit *Anthus pratensis*.

Several Solent species have been identified as Hampshire BAP priority species but are not included in this plan. For one of these, the dark-bellied brent goose, the Solent is particularly important. Over 10% of the world population of this distinctive subspecies winters in the area. It has recently been the subject of a dedicated strategy study³ and has been excluded from this plan because its own SAP is currently in preparation. In contrast, another priority species, the little egret *Egretta garzetta*, is in the very early stages of colonising the county. Although it occurs regularly on the Hampshire coast, albeit still in relatively small numbers, it is not wholly dependent on shoreline habitat. Slavonian and black-necked grebes and red-breasted merganser winter in the sheltered harbours of the Solent but have been excluded because their habitat requirements differ markedly from the shorebirds considered in this plan.

1.2 Priority Shorebirds

The priority shorebirds covered by this plan fall into two groups :

a) Wintering and migrant wading birds:

Ringed plover	<i>Charadrius hiaticula</i>
Grey plover	<i>Pluvialis squatarola</i>
Knot	<i>Calidris canutus</i>
Sanderling	<i>Calidris Alba</i>
Dunlin	<i>Calidris alpina</i>
Black-tailed godwit	<i>Limosa limosa</i>
Bar-tailed godwit	<i>Limosa lapponica</i>
Redshank	<i>Tringa totanus</i>
Turnstone	<i>Arenaria interpres</i>

b) Scarce breeding birds:

Mediterranean gull	<i>Larus melanocephalus</i>
Roseate tern	<i>Sterna dougallii</i>
Little tern	<i>Sterna albifrons</i>

The species in these groups have been identified as priority species for quite different reasons. Those in the first group occur in large numbers in Great Britain as migrants and winter visitors. (Some races also breed or over-summer in the country.) For these, the British populations represent significant fractions of the European totals and, for some of

them, the numbers occurring in the Solent are of international importance (i.e. they exceed 1% of the East Atlantic flyway population.) In some cases concentrations occur at particular Hampshire locations which exceed the international threshold in their own right (ringed plover, grey plover and dunlin in Langstone Harbour, black-tailed godwit in Southampton Water and bar-tailed godwit in Chichester Harbour).

In contrast, the three breeding species in the second group (the Mediterranean gull is also a winter visitor and all three species are migrants) are comparatively rare and threatened in Great Britain. The Hampshire populations, though small, make significant contributions to the national totals and are important in terms of the diversity of the country's breeding birds. Their importance at the European level is recognised by their citation (along with common tern and Sandwich tern) in the designation of the Solent and Southampton Water Special Protection Area (SPA) under EU Directive 79/409 on the Conservation of Wild Birds.

1.3 The Habitat

Hampshire's Solent shoreline is shielded on the seaward side by the Isle of Wight and much of it is further sheltered within estuarine or harbour systems. This distinctive and unusual morphology has resulted in the formation of large areas of tidal mudflat and saltmarsh, flanked on the seaward side by shingle banks and landward by wet grassland. Although significant areas of intertidal habitat have been lost through land reclamation schemes (see section 3), the remaining areas are still extensive and are of exceptionally high biodiversity value. Natural habitats above the high water mark have also been much reduced by industrial, urban and agricultural development. Sizeable stretches of wet grassland remain along with small but important areas of shingle bank, sand dune and saline lagoon. These habitats are described in detail in the Coastal Habitat Action Plan (HAP)⁴ and will only be considered here with specific reference to the birds that are dependent upon them.

The two groups of birds in this plan are attracted to the Hampshire coast for different reasons. The wintering and migrant shorebirds benefit from the prolific invertebrate food supply available in the intertidal areas. Niche habitats, such as shingle banks for ringed plover and wet meadows for black-tailed godwit are also important. For the breeding birds, in addition to food supply, it is the existence of suitable nesting habitat on the shingle banks, islets and saltmarsh that makes the area attractive. Although both groups are important in biodiversity terms, the wintering and migrant birds far outnumber the breeders (see section 2.3). Further details of the ecological and habitat requirements of some of the species are given in section 2.1.

1.4 Links with Habitat Action Plans

This plan should be read in conjunction with the Coastal HAP⁴ which provides a comprehensive overview of the factors affecting the Hampshire coastline and contains separate plans for the following component habitats:

- Saltmarsh
- Mudflats and eelgrass beds
- Saline lagoons
- Shingle and sand dune
- Maritime cliff
- Coastal wet grassland
- Marine

Some of the species in this plan utilise non-coastal habitats for roosting and feeding. For example, black-tailed godwits are regularly found on river valley floods (e.g. in the Avon Valley) and Mediterranean gulls rely for much of their food during the breeding season on farmland where they collect earthworms. The links between the plans for these habitats^{5,6,7} and the current SAP should also be taken into account.

2 CURRENT STATUS

2.1 Ecology and Habitat Requirements

The ecological and habitat requirements considered below^{1,8} are those that are relevant in Hampshire for the identified species during autumn, winter and spring for the species in group a) and during spring and summer for those in group b). There is considerable overlap in the ecological and habitat requirements of the wintering and migrant wading birds so, in the interests of brevity, details are given below for just a selection of group a) species. This is in no way intended to understate the importance of the remaining species but has been done to avoid repetition and because the chosen species are sufficient to illustrate the main conservation issues involved. All will benefit from the agreed actions.

a) Wintering and migrant wading birds:

- Ringed plover – Breeds from north-east Canada east to eastern Russia and reaches its most southerly breeding limit in Great Britain & northern France. The population wintering in the UK consists mainly of west-European breeding birds, although there is little direct evidence to support this for birds wintering in the Solent. During the winter and on migration it feeds in small flocks on the upper shores of estuaries and sandy and shingle beaches where it takes a variety of small invertebrates, particularly polychaete worms and crustaceans. It roosts at high tide often in single-species flocks on sand or shingle bars, for example at Eastney Beach and Gilkicker Point.
- Grey plover – Breeds on the arctic tundra from north-western Russia east to eastern

Canada and winters around the coasts of Europe, Africa, Asia, Australasia and the Americas. Outside the breeding season it is almost exclusively a coastal bird occupying large, open mud-flats, beaches and, to a lesser extent, saltmarsh and neighbouring pools. Its food consists of marine polychaete worms, molluscs and crustaceans. It roosts communally on saltmarsh, sand and shingle banks and coastal fields.

- Dunlin – A circumpolar species, breeding mostly in the Arctic but extending southwards to western Europe. The smallest and most familiar of our wintering waders, the *alpina* race is attracted to muddy estuaries. It also occurs regularly on beaches, lagoons, tidal rivers and on the margins of freshwater lakes. The *schinzii* and *arctica* races occur on migration en route between west Africa and their northern breeding grounds. At coastal sites it usually feeds in flocks on a wide range of small marine invertebrates and roosts out high tide in large flocks on salt marshes and shingle spits.

- Black-tailed godwit – The subspecies wintering in Britain, *L. l. islandica*, breeds in Iceland and, in very small numbers, in Shetland, Faroes and Norway. During the winter and on migration it prefers the upper reaches of muddy estuaries but also occurs regularly inland on river valley floods and wet grassland. It forms tightly packed, distinct roosts at traditional sites on saltmarsh or coastal lagoons. It feeds on a wide range of estuarine and farmland invertebrates. In Hampshire, after periods of heavy rainfall, black-tailed godwits move from inter-tidal areas to flooded meadows at Titchfield Haven NNR and the Avon Valley. There is also a link with Newtown Harbour on the Isle of Wight⁹.

- Bar-tailed godwit – The subspecies wintering in Britain, *L. l. lapponica*, breeds in arctic Scandinavia and western Siberia. Outside the breeding season it is almost entirely coastal, with a preference for the sandier parts of relatively undisturbed bays and estuaries. It generally feeds in flocks on the tideline, where it takes a variety of marine invertebrates. It roosts on the beach unless forced by high water to move to more elevated locations.

b) Scarce breeding birds:

- Mediterranean gull – Breeds mainly on Islands in the Black and Aegean Seas with colonies scattered thinly across Europe to Great Britain. It usually nests in single-species colonies but in Hampshire typically nests with black-headed gulls on saltmarsh and shingle ridges. During the breeding season it feeds mainly on earthworms and, in winter, on marine fauna including fish and molluscs. The proximity of farmland and landfill sites to provide food during the nesting season is probably an important factor in determining breeding success.

- Roseate tern – Breeds on all continents other than Antarctica but its range is highly fragmented. It is globally threatened and one of the UK's rarest breeding seabirds. It usually nests in mixed colonies with other species of tern on offshore islands. The nest site is often sheltered by rocks or overhanging vegetation but can also be on open shingle. Food consists of small fish, especially sand eels. Birds breeding in Great Britain winter predominantly in West Africa.

- Little tern – Has a world-wide distribution. In western Europe, it is essentially a coastal breeding species. It usually nests in small, single-species colonies, on open sand or shingle and in Langstone Harbour often amongst the annual sea-blite, *Suaeda maritima*. Its nest site is often only just above the high water mark. Its food consists of small fish, crustaceans and invertebrates. Birds breeding in Great Britain migrate to winter along the coasts of West Africa.

2.2 National Population and Population Trends

a) Wintering and migrant wading birds:

All the species in this group are monitored in the UK by the Wetland Bird Survey (WeBS) which is jointly organised by the British Trust for Ornithology (BTO), the Wildfowl & Wetlands Trust (WWT), the Royal Society for the Protection of Birds (RSPB) and the Joint Nature Conservation Committee (JNCC). Co-ordinated high-tide roost counts are made, mostly by volunteers, on a monthly basis from September to March and, in many parts of the Solent, throughout the year. Estimates of the maximum GB non-breeding populations for the period 1994/95 to 1998/99 are given in the following table together with the long term trend for each of the species^{10,11}. (Note the numbers in the table are higher than the totals counted by WeBs. They have been adjusted to include birds excluded by WeBs.)

Species	Maximum GB non-breeding population	25 year trend
Ringed plover	32,450	Decline
Grey plover	52,750	Increase
Knot	283,600	Decline
Sanderling	20,540	Stable
Dunlin	555,800	Decline
Black-tailed godwit	15,390	Increase
Bar-tailed godwit	61,590	Stable
Redshank	116,100	Stable
Turnstone	49,550	Stable

At both the national and regional levels, the population trends for these species are mixed with some increasing or stable while others are declining.

b) Scarce breeding birds:

The status of the three breeding species are reviewed each year by the Rare Breeding Birds

Panel supported by JNCC and reported in the journal *British Birds*. The UK breeding populations in 2000 are given in the table below¹².

Species	UK breeding population (prs)	25 year trend
Mediterranean gull	90-109	Increase
Roseate tern	52-56	Decline
Little tern	2430	Stable

Mediterranean gull first bred in Britain in Hampshire in 1968¹³. Thereafter the number of pairs breeding in the country increased very slowly but latterly more quickly so that it now nests at about 30 locations, mainly in southern and eastern England. In contrast, over the same period, the national population of Roseate terns has declined by more than 90%, from an estimated population of 670 pairs in 1969 to maximum 56 pairs in 2000. Little tern numbers also fell markedly until the 1970s when conservation measures successfully halted the decline and stabilised the population.

2.3 Populations and Distribution in Hampshire

a) *Wintering and migrant wading birds:*

Although these birds generally roost in tightly packed flocks, they feed over large areas of exposed foreshore. For this reason roost counts, such as those made by WeBS, may give a misleading impression of the importance of any particular location. The Solent shoreline is a series of linked and interdependent sites forming a single extended ecosystem with birds moving between sites to feed and roost. Seasonal shifts also occur with species such as black-tailed godwits as described above.

- **Ringed plover** – Based on the WeBS January counts, Hampshire currently holds about 5% of the GB winter total. Langstone Harbour is internationally important with annual peak counts averaging 560 over the period 1996-2001. In fact much higher counts (c. 1000 birds) are made regularly at shingle roost sites at Eastney and Gilkicker but these are not covered by WeBS. Counts in Chichester Harbour sometimes exceed 300, the threshold for a site of national importance although most of these birds feed and roost in Sussex. Smaller, though significant numbers are found at Lymington/Hurst, the Beaulieu Estuary, Southampton Water and Portsmouth Harbour. The recent population trend is downwards in line with the national picture. Both the wintering and autumn migrant populations are of national and international significance and represent birds from different breeding populations^{14, 15}.
- **Grey plover** – Hampshire currently holds about 8% of the GB total as counted by WeBs. Both Chichester and Langstone Harbours are of international importance with peak counts averaging 1945 and 1550 respectively over the period 1996-2001. The Beaulieu Estuary holds nationally important numbers averaging 630 over

the same period. Smaller numbers are found at several other sites including Lymington/Hurst, Southampton Water and Portsmouth Harbour.

- **Knot** – Hampshire currently holds less than 1200 birds representing only a small percentage (0.4%) of the GB wintering population. Most occur in the eastern harbours where, occasionally, larger counts are made e.g. 2500 in Langstone Harbour in January 2000. Although numbers wintering in Hampshire are generally low, this species has been included in this SAP because it contributes significantly to the diversity of shorebirds on the Hampshire coast.
- **Sanderling** – The Hampshire population is concentrated mainly on the East Hayling and Hayling Bay shores although birds are increasingly being seen further west in the Southsea area. Numbers fluctuate from year to year but, in mid winter, are typically around 300 or 4% of the GB WeBs count total.
- **Dunlin** – Hampshire currently holds, on average, 4.9% of the East Atlantic Flyway winter population¹⁶ and about 8% of the GB WeBS count total making this species the most numerous by far of our shorebirds. Both Langstone and Chichester Harbours are of international importance with peak counts over the period 1996-2001 averaging 24,325 and 17,014 respectively. Southampton Water and Portsmouth Harbour are both of national importance although numbers roosting at these sites have declined substantially over recent years. Roosts at Portsmouth Harbour have been lost due to development, e.g. Port Solent Marina; the birds have had to move to Langstone Harbour to roost.
- **Black-tailed godwit** – Hampshire currently holds approximately 12% of the GB mid winter total. Southampton Water is of international importance with peak counts averaging 804 over the 1996-2001 period. Chichester, Langstone and Portsmouth Harbours, the Beaulieu Estuary and Lymington/Hurst are all of national importance and hold a combined population averaging around 900 birds. In recent winters a very large flock, reaching 3000 in 2003, has built up in the lower part of the Avon Valley. Recent estimates for the Islandic race put the population at only 37,500, half the previously accepted figure¹⁷ which makes the Solent population particularly significant. Furthermore, ringing studies have shown that the adult annual survival rate of the Solent birds is higher than that of birds wintering on the East Anglian estuaries. This, coupled with the proximity of the wet grassland at Titchfield Haven NNR and in the Avon Valley, make the area particularly important for the long term well-being of the Islandic race¹⁸.
- **Bar-tailed godwit** – The Hampshire population is mainly concentrated in Chichester and Langstone Harbours. Of these, Chichester Harbour is of international importance with annual peak counts averaging 1005 over the period 1996-2001 -

about 2% of the GB WeBs count total. Numbers in Langstone Harbour sometime exceed the nationally important threshold but the population trend is downwards. The importance of viewing the Solent as a single extended ecosystem is again highlighted by this species which regularly crosses from the mainland to feed on Bembridge and Ryde sands on the Isle of Wight⁹.

- **Redshank** – Hampshire currently holds around 3% of the GB population as measured by mid winter WeBs counts. Internationally important numbers occur only in Chichester Harbour, where the majority roost in West Sussex, but the species can be found in good numbers in all Hampshire's harbours and estuaries. Numbers usually peak during autumn migration.
- **Turnstone** – Based on the January WeBs counts, Hampshire currently holds about 3% of the GB winter totals although larger numbers are recorded in autumn when a roost exceeding 500 occurs in Langstone Harbour. The species can be found at many locations along the coast with the main concentrations in the eastern harbours, Southampton Water and the Lymington/Hurst area.

b) Scarce breeding birds:

- **Mediterranean gull** – Following confirmation of breeding in 1968¹³, subsequent breeding attempts in the county were intermittent until the 1990s when there was a rapid expansion in the number of summering birds. In 1996, five pairs bred at Beaulieu Estuary and the following year two pairs raised three young on the RSPB islands in Langstone Harbour. By 2001, the islands colony held 46 pairs (the largest colony in the UK) which raised 20 young and four pairs were noted at two additional sites. In 2002 the islands colony fell to only 19 breeding pairs although another ten adult pairs were present. These latter birds were presumed not to be in breeding condition possibly because of a lack of available earthworms and other terrestrial invertebrates during March and April. The Hampshire population is still small and fluctuating from year to year. Nevertheless, it represents a significant proportion (at least 25%) of the national total.
- **Roseate tern** – Breeding was first recorded in Hampshire in 1957¹⁹. Over the intervening years there have been repeated breeding attempts, generally of one or two pairs per year but the success rate has been low. The species is not firmly established in the county but, given the very low numbers breeding nationally, any practical steps that can be taken to increase the Hampshire population should be encouraged.
- **Little tern** – Recorded nesting in the county for the first time in 1930 and subsequently bred at several sites along the west Solent coast¹⁹. Unfortunately, some sites were deserted either because of disturbance, for example on Hurst Spit, or because the habitat deteriorated. Little terns

have nested in the Langstone, Chichester and Portsmouth Harbour complex since at least 1964. Prior to the acquisition of the Langstone Harbour Islands by the RSPB in 1978, breeding was mainly confined to Chichester Harbour (max. 150 pairs in 1972). From 1979, the main breeding colonies have been in Langstone Harbour with a maximum of 171 pairs on the RSPB islands in 1989. Numbers in the harbour fell to a minimum of 60 pairs in 1994 but have since recovered to 136 pairs in 2002. Of this total, only 14 pairs nested on the RSPB islands probably as a result of increasing competition for nest sites from black-headed gulls and Sandwich and common terns. Little terns are opportunistic and will rapidly occupy new sites if conditions are suitable. For example, in Langstone Harbour, a new colony has recently been established on an artificial island in a saline lagoon at the old oyster beds in the West Hayling Local Nature Reserve. This has proved attractive as an alternative for the RSPB island birds and has grown rapidly from two pairs in 1997 to 122 pairs in 2002. This colony is one of the most productive in the UK. In 2001 115 pairs fledged 179 young²⁰. Another colony has been established on the north point of Hurst Spit. In 2002, the county population stood at 175 pairs, or around 7% of the national total.

2.4 Protection

All the species in this plan are protected under the Wildlife and Countryside Act 1981, Annex I or II of the EC Birds Directive and Appendix II or III of the Bern Convention.

3 CURRENT FACTORS AFFECTING HAMPSHIRE'S SHOREBIRDS

Factors affecting Hampshire's coastal habitats have been reviewed in detail in the Coastal HAP⁴. Only those factors that are of particular relevance to the shorebirds are discussed below.

- **Rising sea level and increased storminess**
A combination of global warming and geodynamics (tilting of the land surface) is leading to a rise in sea level and a resultant reduction in the extent of the intertidal zone. This process has been occurring for many years but, principally because of the geodynamic effect, it is particularly marked in the Solent, and the rate of change is accelerating. In the long term it represents the greatest single threat to the habitat used by all the shorebirds considered in this plan. Its impact includes both the progressive reduction in feeding and roosting areas for wintering and migrant waders and the loss of suitable nest sites for the scarce breeding birds. Sea level rise in the western Solent, especially on neap tides, is a particular problem for feeding shorebirds when the area of inter-tidal areas exposed is much reduced²¹. The problem is exacerbated because much of the Hampshire coastline, even away from the extensive urban areas, is protected by flood defence barriers which

prevent the high water mark moving inland as the sea level rises.

Global warming poses an additional threat to the breeding birds. More frequent and intense storms are predicted to accompany climate change and these will increase the likelihood of nests being flooded and destroyed. They may also speed the rate of erosion and de-stabilisation of existing breeding sites.

- Land claim and development

Over the last few hundred years, Hampshire's natural coastal habitat has been very significantly reduced by land claim and development. Large areas of saltmarsh have been embanked and converted into grazing marsh. More recently, major stretches of coastline have been developed for industrial, urban and recreational use. Although much of the coastline is now legally protected, pressures to utilise more land in this way are ongoing, for example as evidenced by the current application to build a new container terminal at Dibden Bay. Furthermore, some of the grassland sites used as roost sites are unprotected and therefore at greater risk of development.

Industrialisation and urbanisation not only reduce and degrade the shoreline habitat directly but also have associated indirect impacts. For example, dredging to maintain shipping access to ports or industrial sites can lead to erosion and a reduction in the area of intertidal mudflats. Water quality is adversely affected by effluent from urban, industrial and agricultural areas and the risk of a catastrophic oil or chemical spillage is ever present. Inevitably, growing numbers of people living and working close to the shore bring increasing levels of disturbance.

- Recreation

Disturbance of feeding, roosting and nesting birds, usually unwittingly by people undertaking various leisure activities, represents an increasing threat to Hampshire's shorebirds. The Solent is already very heavily used for recreation, both water-based – sailing, wind-surfing, water-skiing jet-skiing etc. and land-based – wildfowling, bait-digging, dog-walking etc. The intrusion of people adds to the increasing levels of disturbance caused by birds of prey and other predators. In general, the birds seem able to cope with the current level of disturbance but their capacity to accommodate continually higher levels is unknown. Disturbance in cold weather or on neap tides is a particular cause for concern.

Although the accidental disturbance of nesting birds, for example by wind surfers landing close to nest colonies, can cause problems, the wilful disturbance of scarce breeding birds by egg collectors or vandalism, is rare. It does still occur, however, and represents a real threat. For this reason some details of nesting sites have been deliberately excluded from this Plan.

4.1 Site and Species Protection

- The international importance of Hampshire's coastline for birds (including many species not specifically covered by this plan) has been recognised by the designation of three Special Protection Areas. These cover Chichester and Langstone Harbours, Portsmouth Harbour and parts of Southampton Water and the west Solent shore. These areas are also designated as Ramsar sites and encompass many Sites of Special Scientific Interest (SSSI). Additional protection is afforded through ownership and/or management of many of the sites as nature reserves by HCC, EN, HWT, RSPB and others.

- Only one of the species in this plan, roseate tern, is included as a priority species in the UK Biodiversity Action Plan. This is as a result of the very major decline in the British breeding population over the last 30 years (see section 2.2). This species, together with black-tailed godwit, are also 'red-listed' as UK birds which are of global conservation concern. Other species in the plan are 'amber-listed' usually on the basis of the large percentage of the East Atlantic Flyway population (waders) that occur in the UK or because of their vulnerability and unfavourable conservation status in Europe.

4.2 Site and Habitat Management

A broad range of international, national and local government initiatives are available to promote biodiversity management on the Hampshire coast. These include the Solent European Marine Sites (SEMS) Management Scheme, the Solent Coastal Habitat Management Plan (CHaMP), DEFRA's Countryside Stewardship Scheme, Shoreline Management Plans (SMPs), Coastal and Harbour Management Plans, Local Environment Agency Plans (LEAPs) and Water Level Management Plans (WLMPs). Of these, the Solent CHaMP is particularly relevant to the long term prospects for Hampshire's shorebirds. It aims to provide a strategic view on the balance of habitat losses and gains likely to occur in response to rising sea levels and coastal squeeze. It also seeks to identify the new habitats that need to be created to offset losses and the flood and coastal defence works required to maintain protected habitats. The derivation and implementation of such a strategy will invariably highlight conflicts, for example between EN's responsibility to protect existing habitats and the need to modify them to ensure that they survive long term.

Further details of each of these schemes including and the responsible agencies are given in the Coastal HAP⁴.

- Coastal Nature Reserves, such as Farlington Marshes, Titchfield Haven and Lower Test Marshes, are managed to maintain their

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biodiversity value through measures such as control of grazing, water levels and public access. For the two groups of birds in this plan, minimisation of disturbance, either to roost sites for the migrant and wintering shorebirds or to nest sites for the scarce breeding birds, represents one of the most effective steps that can be taken to protect the birds. The benefit of such measures is demonstrated clearly on the Langstone Harbour Islands where acquisition by the RSPB and subsequent control of public access, has enabled colonies of little terns and, more recently, Mediterranean gulls to be established. Another example is afforded by the 'tern island' created in the West Hayling Local Nature Reserve (see 2.3 above.)

4.3 Species Monitoring and Research

- As described in Section 2.2, the wintering and migrant shorebirds in this plan have been monitored for many years by the Wetland Bird Survey (WeBS)⁹. In addition to the core roost counts made at high tide, a five-yearly low tide count scheme on UK estuaries was incorporated into WeBS in the winter of 1992/93. This aims to provide information on the relative importance of intertidal feeding areas of estuaries and thus to complement the information gathered by the roost counts. Low tide counts have been carried out annually in Southampton Water since the early 1990s and, more recently, in all Hampshire's other main estuaries. A large amount of data is now available²².
- Bird ringing studies have been carried out for many years by the Farlington Ringing Group and, more recently, by the Solent Shorebird Study Group. This work has demonstrated *inter alia* how the various sites in the Solent are interlinked - how shorebirds move between them for feeding and roosting during winter and on migration.
- Practical methods of increasing the breeding success of roseate and little terns are being tested in this country, Ireland and North America. These generally involve protection of the nests either by the elimination of predators or by the provision of favourable nest sites. Roseates in particular, do not like to nest in the open and are generally more successful if artificial nest boxes are provided²³. Little terns also benefit from having artificial refuges available where they can shelter from predators. In 2003 the RSPB and EN organised a workshop on little terns which included consideration of habitat management and creation, predation, etc. The proceedings of the conference will be published in spring 2004²⁴.

5 OBJECTIVES

The overall aim of this Plan is to protect and increase the populations of two groups of birds – migrant and wintering shorebirds and scarce breeding birds – both of which are particularly important contributors to the biodiversity of Hampshire's coastal habitat. This broad aim translates into the specific objectives set out below. Where feasible, objectives have been allocated targets against which achievement can be measured. The 'Proposed Action' table in section 6 identifies the action to be taken to meet these objectives

	OBJECTIVES	PROPOSED ACTIONS
A	Maintain the populations of shorebirds utilising Hampshire's coastal habitat during winter and on migration.	1-7
B	Maintain the populations of the breeding birds nesting on Hampshire's coast.	1-6, 8
C	Establish a stable breeding population of roseate terns and increase the populations of Mediterranean gulls and little terns by 25% by 2010	2, 3, 5, 6, 8
D	Establish a comprehensive understanding of the distributions, status and an ecological requirement of birds using Hampshire's coastal habitats during winter and on migration through appropriate research, survey and monitoring.	10-15
E	Establish a comprehensive understanding of the status and an ecological requirement of scarce birds breeding on Hampshire's coastal habitats through appropriate research, survey and monitoring.	8, 11,13,14,16
F	Promote communication, education and awareness of the status and needs of birds using Hampshire's coastal habitats for over-wintering, breeding and during migration.	17-20

6 PROPOSED ACTION

The following table lists the actions required to achieve the objectives set out in this Plan. Those actions in the Coastal HAP that are relevant to the specific objectives of this Plan have been incorporated below. Each action has been assigned to one or more 'Key Partners'. Key Partners are those organisations that are expected to take responsibility for the delivery of the actions assigned to them, according to the targets set in this Plan. Other organisations may also be involved in the delivery of action, and they have been indicated in the 'Others' column.

Key to symbols in Action Table:

- ◆ To be completed by the indicated year. Work can commence at any time before the due date, at the discretion of the Key Partner.
- ◆⇨ Design or production of a plan/strategy to be completed by this year and then followed by its implementation.
- To start by the indicated year and usually followed by ongoing work. A start arrow in year 2004 can indicate a new action, or a new impetus to existing work.
- ⇨ Work that has already begun and is ongoing.

	ACTION	DELIVERY BY		YEAR						MEETS OBJ.
		Key Partner	Others	2004	2005	2006	2007	2008	2010	
◆ = complete by ➤ = start by ⇨ = ongoing ◆⇨ = design by and implement										
Site and Species Policy and Protection										
1	Ensure all actions identified in the Coastal HAP relevant to the protection and management of coastal habitat for wintering, migratory and breeding birds are fully and speedily implemented.	HBP		⇨	⇨	⇨	⇨	⇨	⇨	A, B
2	Apply appropriate conservation designations to all remaining areas of habitat used by shorebirds including sediment flat, shingle bank, saltmarsh and coastal wet grassland that meet international, national or local criteria for site selection.	EN, HCC LAs			◆					A, B, C
3	Ensure that development schemes, dredging, aggregate extraction, landfill etc. do not result in deterioration of habitat for shorebirds. Seek opportunities to revoke existing permissions where necessary and appropriate.	EN, HCC Las, P&HA		⇨	⇨	⇨	⇨	⇨	⇨	A, B, C
4	Incorporate biodiversity objectives into all relevant plans and policies affecting the Hampshire coast to discourage development on coastal habitats or on adjacent land that may be required for coastal re-alignment.	LAs, HCC, EA			◆⇨					A, B
5	Support coastal management strategies that encourage the protection of all habitats used by shorebirds including shingle banks, mudflats and saltmarsh from undue disturbance by pedestrian access from either the landward or seaward sides.	LAs		⇨	⇨	⇨	⇨	⇨	⇨	A, B, C

Shorebirds

6	Continue to develop a practical strategy for maintaining coastal habitats in the face of rising sea level by managed retreat. Incorporate this into the current planning system to guide planning decisions on related issues such as flood prevention and coastal development.	HCC, EA, EN		↔	↔	↔	↔	↔	↔	A, B, C
Site and Species Management										
7	Continue implementation of the Dark-bellied Brent Goose Strategy and extend this to cover the western Solent by preparing a Solent-wide SAP.	LAs, HWT		↔	↔	↔	↔	↔	↔	A
8	Establish pilot scheme to investigate potential to increase populations of scarce breeding birds on selected areas of shingle and saltmarsh. Specifically, trial the use of artificial nest shelters for Roseate and Little Terns.	EN, HCC RSPB	HWT	◆↔						C
9	Investigate opportunity of using the Arable Stewardship scheme to incentivise farmers close to the coast to manage land in a condition suitable for Mediterranean gulls to feed during the breeding season.	DEFRA FWAG	EN, NFU	➔						B, C
Research, Survey and Monitoring										
10	Carry out survey to assess value of non-protected grassland areas as 'last-ditch' roost sites. (See item 2: where appropriate, ensure such areas are designated)	HOS SSSG	LAs, HWT JHBMG	➔						A, D
11	Support research to investigate effectiveness of using recharge to combat erosion and create new habitats.	EN, EA	JHBMG	➔						A, D
12	Carry out analysis to assess how well WeBS covers the Hampshire shoreline. Ensure that gaps in coverage of areas or species are plugged as speedily as possible.	EN	BTO, HOS JHBMG			◆				A, D
13	Establish annual population indices for Solent/Hampshire shorebirds and publish them regularly to monitor the population changes.	EN	HOS, BTO JHBMG			◆				A, D, E
14	Support research, including current monitoring and ringing programmes, and ensure that information about Hampshire's shorebirds is published and made available, as required, to aid management and advise future planning.	HCC, EN	HOS, BTO RSPB FRG SSSG JHBMG	↔	↔	↔	↔	↔	↔	
15	Develop a scientific ringing strategy to continue to establish patterns of use of the Solent during tidal cycle and through seasons, to monitor changes and health of populations and survival rates over time and to plug gaps in our knowledge about migration routes/origins of nationally/internationally important wintering/passage shorebird populations that use the Solent and assist with national programme to monitor changes over time in relation to sea level rise and global warming.	FRG SSSG, EN	JHBMG	↔	↔	↔	↔	↔	↔	A, B, C, D, E, F

Shorebirds

16	Initiate research to investigate the impact of gull predation on Hampshire tern colonies .	HCC, EN		➔							B,C,E
Communication, Awareness and Promotion											
17	Highlight the importance of the Solent as a habitat for shorebirds to the general public, landowners and policy makers in order to promote increased attention and beneficial habitat management.	EN, HCC	RSPB HOS JHBMG	↔	↔	↔	↔	↔	↔	↔	A, B, C, F
18	Seek to increase awareness of the ecology and conservation requirements of Hampshire's shorebirds particularly amongst the general public, who use the coast for recreational purposes, and other coastal interest groups.	JHBMG		↔	↔	↔	↔	↔	↔	↔	A, B, C, F
19	Promote an appreciation for, and the conservation of, Hampshire's shorebirds through provision of habitat guidelines, workshops, events and open days, press releases and appeals for records.	JHBMG		↔	↔	↔	↔	↔	↔	↔	A, B, C, F
20	Maintain liaison between organisations in Hampshire with an interest in monitoring and protecting Hampshire's shorebirds (HOS, RSPB, BTO, HWT, HCC) in order to facilitate efficient exchange of information on research progress and national issues.	JHBMG	LAs	↔	↔	↔	↔	↔	↔	↔	A, B, C, F

KEY TO ORGANISATIONS:

BTO British Trust for Ornithology
 DEFRA Department of Environment, Farming and Rural Affairs
 EA Environment Agency
 EN English Nature
 FWAG Farming and Wildlife Advisory Group
 FRG Farlington Ringing Group
 HBP Hampshire Biodiversity Partnership
 HCC Hampshire County Council
 HOS Hampshire Ornithological Society

HWT Hampshire Wildlife Trust
 JHBMG Joint Hampshire (BAP) Bird Monitoring Group
 JNCC Joint Nature Conservation Committee
 NFU National Farmers' Union
 LAs Local Authorities
 P&HA Port and Harbour Authority
 RSPB Royal Society for the Protection of Birds
 SSSG Solent Shorebird Study Group

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This is one of many Habitat, Species and Topic Action Plans being prepared by the Hampshire Biodiversity Partnership.

This species action plan has been prepared by Dr. John A. Eyre and the Hampshire Ornithological Society on behalf of the Hampshire Biodiversity Partnership. The valuable contributions by Chris Cockburn of the RSPB and Peter Potts of the Solent Shorebird Study Group and the Farlington Ringing Group are acknowledged by the author.

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