

**AUDIT OF PRIORITY SPECIES  
OF RIVERS AND WETLANDS  
Bittern *Botaurus stellaris* in South  
Hampshire and the Isle of Wight**

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HAMPSHIRE &  
ISLE OF WIGHT  
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TRUST



# **A species audit for the Bittern in the Environment Agency's Southern Region (Hampshire & the Isle of Wight)**

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## Introduction

The following report has been commissioned by the Environment Agency (Southern Region). It has been prepared on behalf of the Hampshire and Isle of Wight Wildlife Trust and is one of seven audits covering species of rivers and wetlands that are considered to be a priority for conservation action by the Environment Agency and its partners.

The species covered by the audits are:

- Wetland and river molluscs:
  - Anisus vorticullus*
  - Pisidium tenuilineatum*
  - Pseudanodonta complanata*
  - Segmentina nitida*
  - Vertigo moulinsiana*
- Fresh water Cray-fish
- Southern Damselfly
- Marsh Fritillary
- Black Bog Ant
- Birds of rivers and reedbeds
  - Kingfisher
  - Bittern
- Water Vole

## Confidentiality

Since the Bittern no longer breeds in either Hampshire or the Isle of Wight, this report does not contain any sensitive information concerning breeding sites. Reference is made to breeding areas in other parts of the country, but care has been taken to avoid mentioning any sites that are not widely known to the public.

Information on Bittern wintering sites contained in this report is not considered to be sensitive, and in any case is available in the relevant bird reports.

Most of the proposed action is not sufficiently site specific to be considered sensitive. It is thus unlikely that this report contains any information of a confidential nature.

## 1. Description

The Bittern (*Botaurus stellaris*) is one of Britain's most threatened breeding birds. 70-80 cm (c.30 inches) in length, with a wing-span of 125-135 cm (c.51 inches) it is a stocky, thick-necked member of the heron family. It has an intricately patterned brown plumage with blackish mottling and bars giving it exceptional camouflage when standing amongst reeds. The bill is yellowish and legs green. Crown and moustaches are black in the adult and brown in the juvenile. Only adults have golden-brown in the plumage, though following moult in July-November is not possible to age birds in the field. Both sexes look alike.

Bitterns are generally shy and secretive, spending practically all their life in and around reedbeds. They are usually crepuscular (i.e. most active around dawn and dusk). Their behaviour is typically skulking, walking slowly and deliberately with lowered head and hunched shoulders. They may stand motionless for some time before taking the next step. If alarmed, the Bittern may adopt a characteristic posture with outstretched neck and bill pointing vertically, at the same time swaying with the adjacent vegetation, usually reeds. Flight is distinctive, owl-like, on broad, rounded wings low over reeds, with retracted neck hidden (appearing short and thick) and legs trailing. In flight, it sometimes utters a harsh (kau-kau) call.

The breeding call of the male Bittern is a most characteristic loud, foghorn-like boom. It is audible for 2-5 km. 'Booming' occurs in the spring. It is often sporadic and individual birds may have several 'booming' sites. Through detailed research, it has been discovered that individual males can be recognised from analysing their boom with a sound spectrograph. Males may be polygamous. However, as females do not boom or display it is difficult to know how many are associated with each male.

The nest, which is constructed from dead reeds, is always sited in a reedbed. A single clutch of 4-6 eggs is laid between early April to June.

## **2. Habitat requirements**

Bitterns breed in lowland freshwater marshes dominated by large stands of pure Common Reed, *Phragmites australis* (National Vegetation Classification community S4). Such reedbeds must be wet, with no scrub, and usually managed (in order to arrest seral succession). Also they need to be extensive, usually at least 20-25 hectares of pure reed, with dykes. However, Bitterns have been known to commute between fragmented blocks to feed, and nest in stands down to 1 hectare provided that they are totally undisturbed. It should be noted that sites supporting more than one booming male are all over 40 hectares. The nest is always built in shallow water, usually about 0.1 m deep, amongst reeds.

Fish, especially small eels (up to 60 grammes) form a major part of the Bittern's diet. The reedbed must be connected to a watercourse if large numbers of suitable-sized eels are to be present. Amphibians and invertebrates are also important food items.

Research, involving radio-tagged Bitterns, has shown that they feed mostly within 15 m of the water's edge and reed that is more than 30 m from open water may not be used. Therefore, to make a reedbed suitable for Bitterns, it is recommended that at least 20 % of its area is occupied by a network of dykes and pools.

A leaflet, 'Reedbed Management for Bitterns', produced by the RSPB gives much useful information including suggested ditch profiles and dyke management. It recommends that dykes should be at least 2 m wide and 1.5 m deep to reduce reed invasion. At least one side should be sloped to extend Bittern feeding areas. Management is required, but disposal of

dredgings must be done very carefully in order to prevent raising and subsequent drying-out of the ditch margins and reed-edge. Another problem is that spoil 'lips' may prevent fish entering the reedbed.

Water level management is extremely important. The water depth within different parts of the reedbed itself should vary between 0.1-0.25 m to allow Bitterns to feed over a larger area of reedbed. This is particularly important during the breeding season. A site consisting of 'wall-to-wall' reed or a reedbed which is drying out does not provide suitable feeding habitat. Unfortunately, many reedbeds are in this condition today.

Reedbed management for commercial production of thatching reed can create suitable conditions for Bitterns. The shallow summer flooding is certainly beneficial (Andrews and Ward 1991). They will use reed which is cut every one to three years. Some standing reed from the previous year is important to provide breeding/feeding seclusion early in the season when no other cover is available.

Tidal reedbeds may be used for feeding but seldom for breeding.

In winter, Bitterns may frequent a range of habitats, including reedbeds, lakes, large ponds, small streams and even watercress beds. Reedbeds too small and/or dry for breeding can provide suitable over-wintering sites. Indeed, these small reedbeds may play a vital role in supporting wintering birds from other parts of Britain and the Continent, particularly during hard weather.

### **3. Distribution and status**

#### **a) Worldwide distribution**

The world range of the Bittern extends right across the Palearctic region, in Europe as far north as southern Fennoscandia. There is also an isolated population in southern Africa.

#### **b) European distribution**

Approximately three-quarters of the European population is found in Russia and the Ukraine. In NW Europe, only the Netherlands and France hold substantial, though declining, populations.

Within Europe, the northern and eastern populations are migratory, but those in the west are more sedentary (Cramp and Simmons 1977). Birds from eastern and northern Europe winter in western Europe and North Africa, alongside resident populations in those regions.

The Bittern is known to have declined considerably in Europe in both population size and range during the early 1900s (Cramp and Simmons 1977). Populations continue to decline in many European countries, as shown in figure 1 below.

	<b>No. of pairs</b>	<b>Year</b>	<b>Population trend</b>
Belgium	2-13	1981-90	Small decrease
Denmark	57-76	1991	Large increase
Finland	100-150	1992	Large increase
France	300-350	1990	Small decrease
Netherlands	150-275	1989-91	Large decrease
Poland	1,100-1,400	-	Stable
Russia	10,000-30,000	-	Small decrease ?
Ukraine	4,000-4,300	1988	Stable
U.K.	16	1988-91	Large decrease

**Figure 1. Numbers of pairs of breeding Bittern in selected European countries (adapted from Tucker and Heath 1994).**

### **c) U.K. distribution**

In the 1600s the Bittern was fairly common throughout England, and also bred in Wales, southern Scotland and probably Ireland (Ward 1991). However, a combination of drainage and persecution drove it to extinction as a breeding species by 1900. It re-established in Norfolk in 1911. Numbers peaked in the early 1950s, with about 80 booming males recorded (Gibbons, Reid and Chapman 1993). There then followed a serious decline, starting in the Norfolk Broads in the 1950s, and elsewhere during the 1960s. A national survey in 1976 revealed 45-47 boomers in the whole of Britain (Day and Wilson 1978). It has bred in 11 counties since 1940 (Cramp and Simmons 1977).

Today, the entire British breeding population consists of about 17 pairs confined to a few sites in East Anglia (the Broads, north Norfolk and the Suffolk coast), Leighton Moss in Lancashire and a site in SW England.

In winter, Bitterns are both more widespread and numerous as numbers are boosted by visitors from continental Europe. Between 30-100 birds are reported in Britain away from their breeding areas each winter, with a record 189 in 1978/79 (Bibby 1981). More arrive in hard weather. Probably most of these birds come from NW Europe, and certainly all the foreign-ringed Bitterns recovered in Britain have come from this area, with birds from Sweden, West Germany, Belgium and the Netherlands (Lack 1986).

In a study of their winter distribution and numbers between 1960-79 Bibby (1981) showed that the majority of the records came from SE England, with the greatest numbers from Norfolk, Kent and Dorset. Fieldwork for the *Wintering Atlas*, during the three winters, 1981/82, 1982/83 and 1983/84, produced similar data with over 50% of all records for Britain and Ireland coming from SE England (Lack 1986).

### **d) Status**

The Bittern is listed on Annex 1 of the EC Birds Directive on account of its unfavourable conservation status in Europe, and should therefore be subject to special conservation measures to maintain its population and range within EC Member States. It is on Appendix iii

of the Bern Convention. In the UK, the Bittern is protected under Schedule 1 of the Wildlife and Countryside Act 1981 and Schedule I of the Wildlife (Northern Ireland) Order 1985.

It has been identified as a Red Data Bird in Britain (Batten *et al.* 1990). In assessing bird conservation priorities in England, Brown and Grice (1993) consider the Bittern as a high priority 'List 1' species. It is also included on the Red List in 'Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man' (Anon 1996).

#### **4. Historic records of the Bittern in Hampshire and the Isle of Wight**

##### **a) Wintering**

The majority of the historic records of Bittern relate to birds which were shot during the winter months. The following is an extract from Kelsall and Munn (1905): 'A rare winter visitor. Formerly a resident in suitable localities in the county and Isle of Wight, but now merely an occasional visitor, except perhaps in the valleys of our three largest rivers, where it occurs pretty regularly in winter, and occasionally in such numbers that it might be considered a regular winter visitor to these places'. Reference is made in Kelsall and Munn to specimens being brought to the 'bird-stuffers' and also to the eating of Bittern, it tasting like 'wild duck or Teal, but not so delicate'. Records in Kelsall and Munn for Hampshire include: A pair shot at Stockbridge on 18th January 1892, one at Worthy on 11th November 1893, one at Avington on 6th January 1897, a pair shot at Marsh Court in 1898 and another in 1904.

All the records for the Isle of Wight given in Kelsall and Munn (1905) concern birds which were shot and include the following: One at St. Lawrence in 1840, one in Parkhurst Forest in the winter of 1843/44, one at Atherfield on 7th February 1895, a male at Cowes on 28th November 1898, a male at Freshwater on 20th January 1903 and one procured at Brook on 24th March 1903.

According to Cohen and Taverner (1972) there were only three records from the Isle of Wight between 1905-1972, as follows: One at Newtown Marsh on 9th February 1949, one flew south over Newport on 9th April 1954 and one found dead in hard weather at Lake on 2nd February 1963. Interestingly, this bird had been ringed as a nestling on 16th June 1957 on Lake Malaren, Sweden.

##### **b) Breeding**

Kelsall and Munn (1905) mentions that the most recent breeding record of Bittern in Hampshire was in Avington Park as recently as 1886. An egg was taken from the nest. According to Cohen and Taverner, a pair was present in the Test Valley at Longparish in 1942, where an empty nest typical of a Bittern was found in dense reedbed on 22nd July 1952. At Titchfield Haven, booming was heard on 4th April 1929 and 16th May 1970, and an old nest was found between 1950 and 1952 (Clark and Eyre 1993).

There appear to be no records of breeding on the Isle of Wight.

## 5. i) Current status of the Bittern in Hampshire and the Isle of Wight

### a) Hampshire

Today, the Bittern is considered to be a very scarce but regular winter visitor to Hampshire. The species has been recorded in Hampshire in all but two winters between 1950/51-1991/92 (Clark and Eyre 1993).

The first birds tend to arrive any time between late October and December, though there have even been records in July e.g. one near Romsey on 31st July 1989. Typically, the number of Bittern sightings peaks in January or February. This is probably largely due to influxes from the Continent, as well as other parts of Britain, during severe weather. However, hard weather can cause changes in the birds' behaviour, in particular by forcing them out of reedbeds, thus making them more readily observed. Most have departed by mid-March. Occasionally individuals remain at a site for several months. e.g. one was regularly seen at Sinah Gravel Pit, Hayling Island from 18th December 1981-23rd April 1982.

Many, though certainly not all, wintering Bitterns are seen in, or close to, reedbeds. Titchfield Haven National Nature Reserve (NNR), a site with extensive reedbeds, as well as open water, has produced many of the sightings in recent years. The species is recorded almost every winter at Titchfield Haven with as many as five present in December 1983. Sowley Pond in the New Forest, east of Lymington was once a regular site with one or two seen in most winters from 1958/59-1978/79, but very few since.

Site	Grid reference	Minimum no. of Bitterns recorded, 1975/76-94/95
<b>Hampshire</b>		
Titchfield Haven	SU 53 02	22
Fleet Pond	SU 82 55	19
Farlington Marshes	SU 68 04	8
Sowley Pond	SZ 37 96	5
Broadlands Lake	SU 35 16	5
Lower Test Marshes	SU 36 14	4
Marsh Court, Stockbridge	SU 35 33	4
Greywell	SU 71 51	4
Sinah Gravelpit, Hayling Is.	SZ 69 99	3
Wildgrounds, Gosport	SU 57 01	3
<b>Isle of Wight</b>		
Bembridge Ponds	SZ 636 883	4

Figure 2. Minimum number of Bitterns recorded at the main wintering sites in Hampshire and the Isle of Wight over the 20 winters, 1975/76-94/95.



Although most sightings have come from coastal reedbeds and the main river valleys, wintering Bitterns have also occurred along small streams, around lakes and gravel pits, and on watercress beds, particularly during severe weather when they may be forced out of reedbeds. Several have been found dead in such conditions.

Analysis of records in the Hampshire Bird Reports (1976-95) over the 20 winters, 1975/76-94/95, shows that Titchfield Haven is the most important wintering site in the county, with a minimum of 22 Bitterns recorded over the period (Figure 2). In addition to the sites listed in the table, two birds were recorded at a further six sites and single birds at another 40 localities over the 20 winters.

#### **b) Isle of Wight**

It is probably an even rarer visitor to the Isle of Wight. The only documented records for the Isle of Wight are the Annual Bird Reports of Isle of Wight Natural History and Archaeological Society, and since 1985, the Isle of Wight Ornithological Group Bird Report. Analysis of records from these two sources over the 20 winters, 1975/76-94/95, shows that Bembridge Ponds is the most regular wintering site on the island, with a minimum of four Bitterns recorded over the period (Figure 2). Two were present at Bembridge Ponds on 20th January 1986.

Single birds have occurred at seven other sites between 1975/76-94/95, including Bembridge Marsh (Grid ref. SZ 625 883), Priory Pond, Carisbrooke (SZ 49 87), Yarbridge (SZ 607 864), Old Park, St. Lawrence (SZ 525 758) and Dodnor Creek (SZ 502 915).

There appear to be no reported sightings from the Isle of Wight between 1963 and 1973. In January 1997, single birds were seen at Afton Marsh on 13th, Bembridge Ponds on 15th and Dodnor Pond, Newport on 18th (S. Colenutt pers. comm.).

These records support the opinion of Green and Cade (1989) that 'the reedbeds of Bembridge Pond ... is the best spot on the island to find a Bittern during spells of severe cold'.

#### **ii) Current status of Reedbed habitat in Hampshire and the Isle of Wight**

Although today, there are not many reedbeds in the Environment Agency's Southern Region (Hampshire and the Isle of Wight), the region does boast some extensive areas of reedbed habitat (Figure 3). This is significant, since there are only about 50 reedbeds in the UK greater than 20 hectares.

The area of reedbed in Hampshire currently stands at approximately 370 hectares (Clark and Eyre 1993). This represents over 7 % of the total area of reedbed in the UK.

-- Environment Agency  
(Southern Region)  
Hampshire and  
Isle of Wight



	Grid reference	Approx. area of reed (ha)
<b>Hampshire</b>		
1. Lower Test Marshes	SU 36 14	50
2. Keyhaven & Pennington Marshes	SZ 32 92	50
3. Lymington River	SZ 32 96	30
4. North Solent NNR (incl. Beaulieu)	SZ 49NW	30
5. Titchfield Haven	SU 53 02	30
6. Sowley Pond	SZ 37 96	15
7. Alresford Pond	SU 59 33	12
8. Hamble Woods	SU 48 06	10
9. Emer Bog, N. Baddesley	SU 39 21	10
10. Browndown Common	SZ 58 99	
11. Farlington Marshes	SU 68 04	5
12. Hook-with-Warsash	SU 49 05	5
<b>Isle of Wight</b>		
13. Brading & Bembridge Marshes	SZ 62 88	
14. Freshwater & Afton Marshes	SZ 34 86	

Figure 3. Major reedbed sites in Hampshire and the Isle of Wight  
(source: N.Court, HCC, plus personal knowledge).

## **6. Population trends in Hampshire and the Isle of Wight**

Clark and Eyre (1993) provides the most detailed account available of Bittern records in Hampshire since 1950. The following information was obtained from this reference:

An average of about four Bitterns per winter was recorded from the mid-1950s until the late 1970s. However, this increased to eight during the 1980s. Interestingly, this upturn was in contrast to the fortunes of the British breeding population which declined markedly between the 1950s and 1980s. However, as pointed out by Clark and Eyre (1993), the increase in the wintering population in Hampshire coincided with the series of five severe winters between 1978/79 and 1986/87.

## **7. State of knowledge of the Bittern in Hampshire and the Isle of Wight**

Given that the Bittern is an easily identifiable and large bird which frequents reedbeds and lakes, two important bird habitats visited by large numbers of bird watchers, it would seem likely that a high proportion of birds are seen. Also, on account of its rarity, most sightings are likely to be reported to the relevant county bird recorder/ornithological society. All accepted records are likely to feature in the Hampshire Bird Report, a report published annually by the Hampshire Ornithological Society or, for the Isle of Wight, one of two annual bird reports, one produced by the Isle of Wight Natural History and Archaeological Society and another by the Isle of Wight Ornithological Group.

The most recent account of the status of the Bittern in Hampshire is found in Clark and Eyre (1993). Records for the Isle of Wight have not been reviewed since Cohen and Taverner (1972).

Although there may be good data relating to which sites are visited and when, we know very little about the origins of our wintering birds and whether they are faithful to the same wintering site.

## **8. Tentative suggestions of additional localities for Bittern in Hampshire and the Isle of Wight**

Nowadays, it is extremely unlikely that the Bittern could breed in Hampshire or the Isle of Wight without being detected and reported. Undoubtedly, a few wintering birds may escape notice, particularly at private sites such as Bembridge Marsh on the Isle of Wight. However, most of the likely sites are well watched and recorded.

## **9. Current/past conservation work**

It is probably true to say that conservation effort in Hampshire and the Isle of Wight has never been specifically targeted to provide optimum habitat conditions for Bittern to breed.

However, part of the reedbed at Titchfield Haven is now being managed to enhance the site's potential to attract Bitterns as an objective. This management has included the introduction of

greater of water level control, ditch clearance and the creation of shallow areas of open water within the reedbed.

Of course, the continued conservation management of other reedbeds, such as Farlington Marshes and Lymington Reedbeds, is important in providing a network of potential wintering sites.

English Nature's Species Recovery Programme, and initiatives by the RSPB, the Broads Authority and others have all targeted action to assist the recovery of the Bittern in England. In 1994/95, English Nature's Bittern Recovery Project spent £60,000 on improving the management of reedbeds at 14 sites in Norfolk, Suffolk, Essex, Kent, Humberside and Yorkshire. A pilot project for creating a network of new reedbeds has been initiated in the Lea Valley by the Lee Valley Park Authority and RSPB. This will involve linking a 23 mile long corridor of reedbeds and lakes from Newham, east London to Ware in Hertfordshire.

A £1.5m grant from the European Union's environment programme (LIFE) has recently been awarded to a partnership of the Broads Authority, English Nature, the Environment Agency, National Trust, Norfolk and Suffolk Wildlife Trusts, and the RSPB. The money is being used to restore and extend reedbeds at 10 sites in Norfolk, and Suffolk, as well as individual sites in Cambridgeshire, Essex and Lancashire.

It is too soon to assess the success of most of these projects. However, there have already been some extremely encouraging results. e.g. following suitable management on a National Nature Reserve (NNR), Bittern returned to SW England as a breeding species in 1996 (Pers. comm. R. Mitchell, Species Recovery Project Manager, English Nature).

Recent research by the RSPB and others has revealed much information about the habitat requirements of the Bittern. They have been able to put this into practice at key sites such as Minsmere. This has demonstrated that Bittern populations can be maintained and indeed enhanced through appropriate management.

## **10. Current conservation issues**

### **a) Threats**

#### **Lack of, or inappropriate, management of existing reedbeds**

Many reedbeds have deteriorated due to lack of or inappropriate management leading to drying out, scrub invasion and eventually succession to woodland. Such sites no longer provide suitable Bittern breeding habitat. Action is required now to prevent further sites from deteriorating and to rehabilitate degraded reedbeds.

#### **Water shortages**

Over abstraction, especially in parts of SE England, is currently of major concern and may be partly responsible for the drying out of some reedbeds.

### **Eutrophication**

Water enrichment from agricultural run-off and sewage effluent is a concern. It can lead to algal blooms, and sometimes the death of reed and fish.

### **Pollution of freshwater supplies to reedbeds**

Localised water pollution incidents, such as toxic chemicals, can kill fish and amphibians.

### **Habitat loss due to sea-level rise**

Many important reedbeds are found on the coast of eastern England, where relative sea-level rise is predicted to lead to the loss of significant areas of coastal habitat.

### **Declining Bittern populations elsewhere in Europe**

In the past, colonising birds have probably come from the Continent. Thus, the decline of Bitterns on the Continent may well threaten the potential for recovery in Britain. Future expansion will become more dependent on 'home-grown' birds.

### **Severe weather**

Whilst severe winters may cause local extinctions, it is generally considered that most populations are able to recover fairly quickly. However, this could pose a threat to our rather isolated resident population while it is so small and localised.

### **b) Opportunities**

Recent initiatives such as Biodiversity Action Planning (National Action Plan for the Bittern, the National Reedbed Habitat Action Plan, local action plans), English Nature's Species Recovery Programme for the Bittern, Local Environment Agency Plans (LEAPs) and water level management plans all provide mechanisms and real opportunities to provide suitable conditions to enable the Bittern to spread.

The RSPB and Environment Agency (Southern Region) have recently appointed a Bittern Project Officer on a six month contract commencing in February 1997. David Whitehorne, the project officer, will be systematically examining the counties of Hampshire, the Isle of Wight, West Sussex, East Sussex and Kent to identify several potential sites for the creation of an extensive reedbed of about 200 hectares. This is a most exciting venture.

There are opportunities to work alongside other recovery projects involving wetland species. For example, conservation action for the Otter might identify the need for management to increase eel populations. If targeted at reedbed sites it could benefit both Otters and Bitterns.

The produce of conservation-directed management of reedbeds - cut reed - can have an economic value in much the same way as coppiced woodlands can be managed for an economic return. Indeed, the growth in the market for thatch is currently so great that U.K. sources can only meet a sixth of the demand (Hawke and Jose 1996). Furthermore, reedbeds can be created quickly and easily on a range of land-uses such as improved permanent pasture and arable land. These two factors enhance the feasibility of managing the existing resource and expanding or creating reedbeds.

The use of reedbeds for the treatment of effluents will present opportunities for creating new reedbeds.

There are existing funding mechanisms which could be more fully utilised to maintain, expand and create reedbeds. To improve the economic incentive to bring reedbeds into management, it may be necessary to develop markets for cut reed, perhaps following the model of the Wessex Coppice Group.

Financial incentives are available for the management of existing reedbeds in the Test Valley, Avon Valley and South Downs Environmentally Sensitive Areas (ESAs), and under Countryside Stewardship. Furthermore, Countryside Stewardship can be used to fund the creation of new reedbeds as can the Habitat Scheme, but the latter only allows for the creation of reedbeds next to existing sites of wildlife interest on former set-aside land. The Wildlife Enhancement Scheme (WES) which reimburses SSSI owners and managers for carrying out positive management can assist with the management of reedbed SSSIs.

A long term possibility is to demarcate large contiguous areas of improved grassland and arable land in a river floodplain, or otherwise naturally wet area, which could be subject to very low intensity grazing and very little other management. This would allow natural development of a whole range of habitats including reedbeds. It is likely that changes in agricultural policy would be needed before such an aim could be achieved.

## **11. Potential future opportunities in Hampshire and the Isle of Wight**

### **a) Existing reedbeds under good management**

Titchfield Haven currently offers the greatest potential to attract Bittern to breed. It must therefore be an extremely high priority to ensure that this site is given sufficient resources to continue good conservation management. Of course, Titchfield Haven is also exceptionally important for a range of other species, including reedbed specialists, whose requirements may differ from those of the Bittern.

### **b) Existing reedbeds requiring rehabilitation**

Not all the existing reedbeds in Hampshire are under good conservation management. Given sufficient resources, including funding and specialist advice, there are opportunities to restore a proportion of existing sites. Even small reedbeds should be maintained.

It is important to ensure that all existing reedbeds (including Sowley Pond, Alresford Pond and Farlington Marshes in Hampshire, and Brading/Bembridge Marshes and Freshwater/Afton Marshes on the Isle of Wight) are under good management.

### **c) Opportunities to expand existing reedbeds**

The potential to expand all existing reedbeds should be assessed. However, in many cases there appears to be relatively little scope for expansion.

#### **d) Opportunities to create new reedbeds**

There may well be opportunities to create several entirely new large reedbeds which could provide suitable breeding habitat. All mechanisms for achieving this should be explored. e.g. Restoration of mineral sites (perhaps through the Hampshire Minerals Local Plan), Local Environment Agency Plans (formerly River Catchment Management Plans), local biodiversity action plans, etc.

There appear to be fewer opportunities on the Isle of Wight. However, the possibility of creating at least one reedbed of over 20 hectares which could potentially support breeding Bittern should be pursued.

The work being undertaken by the RSPB/Environment Agency's Bittern Project Officer will greatly assist in the identification of potential sites to create new reedbeds, both in Hampshire and the Isle of Wight.

There are many more opportunities to create entirely new small reedbeds which could provide suitable wintering habitat. e.g. Reedbed filtration systems, disused gravel pits.

#### **e) Implications of national biodiversity targets**

Given the national target in the UK Biodiversity Action Plan to 'encourage the creation of at least 1,200 hectares of reedbed in blocks of greater than 20 hectares at existing, former and new areas in England and Wales', a target of perhaps four new large reedbeds could reasonably be set for Hampshire and one for the Isle of Wight. One could easily argue that this figure should be higher (say six new reedbeds over 20 ha for Hampshire and two for the Isle of Wight) if one targets SE England, where reedbed habitat is of greatest conservation value.

Another target in the UK Biodiversity Action Plan is to 'identify and rehabilitate by the year 2000 the priority areas of existing reedbed (targeting those of 2 hectares or more) and maintain this thereafter by active management'. Presumably all the reedbeds listed in Figure 3, plus several others, are priority for rehabilitation/active management by 2000.

In the UK Biodiversity Action Plan it is also proposed to 'develop a clear national strategy for reedbed creation and management by 1997'. Situated in the targeted area of SE England, Hampshire and the Isle of Wight will surely have a key role to play in this.

## **12. Summary**

- Since 1954, the number of booming Bitterns in the U.K. has declined from about 80 to 16.
- Deterioration of their reedbed habitat (through lack of management, leading to drying-out and scrub invasion) has been the main cause of this decline.

- Declining water quality, falling water tables and reduced river flows are further factors contributing to habitat degradation.
- Bitterns require large reedbeds of 20-25 ha to breed, although they may use smaller reedbeds which are part of a group.
- Small reedbeds may be important as wintering sites for both British and Continental birds.
- Much is known about the habitat requirements of Bittern. Since they prefer managed wet reedbed, there is a high chance of re-establishing them in reedbed restored for commercial use.
- The National Reedbed Habitat Action Plan and Bittern Species Action Plan, as part of the UK Biodiversity Action Plan, set realistic targets which should enable the Bittern to spread as a breeding species. Action will be required in Hampshire and the Isle of Wight in order to meet these targets.
- The RSPB/Environment Agency's Bittern Project Officer will greatly assist in the identification of potential sites to create new reedbeds, both in Hampshire and the Isle of Wight.
- There is considerable potential to assist the Bittern to re-colonise Hampshire as a breeding species through both the rehabilitation of existing reedbeds and, in particular, the creation of extensive new reedbeds.
- Whilst the Isle of Wight has several important reedbeds, opportunities to provide suitable Bittern breeding habitat are fewer. Nevertheless, it has some important wintering sites.

### **13. Conclusion**

The National Biodiversity Action Plan for Bittern has set the following targets:

- 'To arrest the decline of the Bittern, maintaining at least 20 booming birds over the present range, and start to increase the population and range before the year 2000.
- Increase the population to about 50 booming males by 2010, by ensuring appropriate management of the existing 22 large reedbeds where Bittern once occurred.
- Initiate work to secure the long-term future of Bitterns in the UK by providing suitable habitat for a population of not less than 100 booming males by 2020.
- Encourage the creation of at least 1,200 hectares of reedbed in blocks of greater than 20 hectares at existing former and new areas in England and Wales'.



Consideration should be given to the national targets set in the UK Biodiversity Action Plan, both for Reedbed Habitat and the Bittern, and how they might relate to Hampshire and the Isle of Wight. Furthermore, the RSPB has a target to have 6 booming Bitterns in the South-east by 2020.

The geographic location of Hampshire and the Isle of Wight makes this region well placed to play an important role in assisting the recovery of the Bittern in the UK. This could involve introducing new management regimes to several of the existing large reedbeds in the region and the creation of new reedbeds. All mechanisms of achieving this should be explored.

Recent research has greatly increased our knowledge of the ecology of the Bittern, in particular its complex breeding requirements. If we put this knowledge into practice through the restoration of existing reedbeds and the creation of new reedbeds, there is good reason to believe that we can reverse the current decline.

#### **14. Acknowledgements**

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### b) Further reading

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## 16. Annex 1 : Recommendations for future works and actions

a) Policy framework	Cost	Priority
<ul style="list-style-type: none"> <li>Promote, in development plans, appropriate conditions of after-use for sand and gravel extraction sites which would favour reedbed development.</li> </ul>	Nil	Medium
<ul style="list-style-type: none"> <li>Promote the development and enhancement of suitable Bittern habitats in relevant Local Environment Agency Action Plans (LEAPs) and water level management plans.</li> </ul>	Nil	Medium
<ul style="list-style-type: none"> <li>Target grant schemes, including Countryside Stewardship, Environmentally Sensitive Area (ESA), Habitat Scheme and Wildlife Enhancement Scheme (WES) towards maintaining, enhancing and expanding existing reedbeds, recreating former reedbeds and creating wholly new reedbeds.</li> </ul>	Nil	High
<ul style="list-style-type: none"> <li>Liaise with neighbouring counties over strategies towards conserving and enhancing Bittern populations.</li> </ul>	Nil	Medium
<b>b) Advisory work</b>		
<ul style="list-style-type: none"> <li>Advise reedbed owners and managers (through a combination of site meetings, Bittern workshops and leaflets) of Bittern requirements in order to promote appropriate management for this species.</li> </ul>	?	High
<ul style="list-style-type: none"> <li>Organise a reedbeds and Bitterns seminar for planners and other policy makers in local authorities, the Ministry of Agriculture, Fisheries and Food (MAFF), the Environment Agency, the Countryside Commission and other organisations in order to consider strategies to provide suitable Bittern habitat.</li> </ul>	£900	High
<b>c) Habitat management</b>		
<ul style="list-style-type: none"> <li>Ensure that the majority of existing reedbeds in Hampshire and the Isle of Wight of over two hectares (i.e. All those identified in Figure 3, plus a number of others) are under good conservation management by the year 2000 (as identified as a target in the UK Biodiversity Action Plan for Reedbed). Use Reserves Enhancement Scheme and Wildlife Enhancement Scheme to secure management on SSSIs</li> </ul>	?	High
<ul style="list-style-type: none"> <li>Aim to create at least four entirely new freshwater reedbeds of over 20 hectares in Hampshire. Use Environmentally Sensitive Areas and Countryside Stewardship.</li> </ul>	?	Medium
<ul style="list-style-type: none"> <li>Explore the possibility of creating one entirely new freshwater</li> </ul>	Nil	Medium

reedbed of at least 20 hectares on the Isle of Wight.

- Explore the possibility of creating a large new area of wetland habitat from set-aside or improved grassland. This area of minimum intervention land should be approximately 200 hectares and would include large stands of reedbed. Nil Medium

**d) Research**

- Prepare an inventory of all reedbed sites of over 2 hectares. Establish the current status, condition and management of these reedbeds, including whether they are afforded protection (e.g. SSSI, LNR), freshwater or saline, permanently wet or drying-out, managed with nature conservation objectives, receive any form of grant aid to assist with management (e.g. Countryside Stewardship, English Nature grant, etc). Update this inventory on a five yearly basis. £600 to prepare, £300 per revision (exc. inflation) High
- Identify priority sites for habitat enhancement and expansion. £450 High
- Produce an inventory of all Bittern wintering sites used since 1980, including information on numbers and duration of stay. ? Medium

**e) Market research**

- Explore ways to improve markets for locally produced reed. ? medium

**f) Monitoring and surveillance**

- Continue to record all sightings of Bittern in Hampshire and the Isle of Wight. Collate records on a yearly basis. Nil Very high
- EA to review fisheries surveys to incorporate the monitoring of Eel populations at selected sites in both counties, recording size classes and abundance and undertaking regular screening to detect the presence of any toxic pollutants. Nil Medium