

# NORFOLK BIODIVERSITY ACTION PLAN

## BITTERN (*Botaurus stellaris*)

The bittern is a large, buff-brown heron, which breeds only in extensive *Phragmites* reedbeds and feeds primarily on fish, frogs and insects.

Ref 1/S6	Tranche 1	Species Action Plan 6
Plan Author:	RSPB	
Plan Co-ordinator:	Wetlands BAP Topic Group	
Plan Leader:	RSPB	
Date:	Stage:	
31 December 1998	Final Draft	
3 February 2009	Revised Final Plan	

## 1. CURRENT STATUS

### National Status

- Although its population is increasing, the bittern is still rare and localised in the UK. The UK population had declined to about 14 booming males in 1997 from a peak of 70 booming males in the late 1960s. However, work completed through two separate EU LIFE projects had a dramatic effect on the population, with 55 booming males recorded in 2004. Numbers are also boosted in winter by continental immigrants.
- The bittern is listed on Annex I of the EC Birds Directive and Appendix II of the Berne Convention. It is protected in the UK under Schedule 1 of the WCA 1981. It is a Red List species, having declined by over 50% in the last 25 years.

### Norfolk Status

- The bittern breeds in north Norfolk and the Norfolk Broads. The bittern also over-winters on other reedbeds in Norfolk, e.g., along the Wensum and at Bowthorpe and Guist.
- The results of recent counts of booming males and nests in Norfolk are summarised below:
  - 2004: Minimum of 19 and maximum of 25 booming males, with nine nests.
  - 2005: Minimum of 11 and maximum of 11 booming males, with a minimum of seven and a maximum of eight nests.
  - 2006: Minimum of 13 and a maximum of 16 booming males, with six nests.
  - 2007: Minimum of thirteen and a maximum of 20 booming males, with a minimum of four and a maximum of six nests.
  - 2008: Minimum of 25 and maximum of 29 booming males.

## 2. CURRENT FACTORS CAUSING LOSS OR DECLINE

The main factors limiting successful breeding of bittern within the Broads and Norfolk coast are:

- Lack of sufficient food in some areas during the breeding season; and
- Inappropriate water level management and control within suitable breeding sites.

Additional factors which are likely to be leading to loss or decline include:

- Loss of suitable breeding areas in fens and reedbeds through natural succession and lack of appropriate management (particularly cutting and water management);
- Degradation of habitat quality through eutrophication;

- Salt water intrusion into coastal reedbeds and threat of habitat loss due to sea level rise and isostatic land movements;
- Vulnerability to severe winter weather.

### **3. CURRENT ACTION IN NORFOLK**

- All remaining bitterns breed on SSSIs, most of which are managed as nature reserves. Specific annual management activities carried out include cutting of reed and sedge, clearance of invading scrub and maintenance of open ditches and pools. Currently, management of water level control structures is key to providing seasonally correct water levels; in future, it would be desirable to move towards more naturally functioning floodplains.
- During 1995 and 1996, English Nature mechanically removed scrub from 26ha of the 30ha Hoveton marshes (outside but adjacent to Bure Broads & Marshes SSSI), at a cost of £58,000 and with the help of Broads Authority volunteers. In 1997, approximately three kilometres of dykes were mud pumped to improve water circulation and fish habitat. Since then, bitterns have used the site every winter, but there have been no records of breeding behaviour. The site was considerably improved by creation of open fen with open water features; however, re-growth of scrub requires further action at this site.
- Another project was carried out by English Nature and the Broads Authority at Bure Marshes NNR in 1999, when 4.7 ha of old reedbed were lowered by the BA digger. This created a revitalised reedbed with permanent standing water (with improved connectivity to the River Bure), including 0.6 ha of open water. This has been used since by bitterns for wintering and feeding during the summer, and was the final increase to the area of suitable habitat within the middle Bure which is now used by breeding bittern.
- More recently, management work has been carried out in Norfolk by EN, RSPB, BA and NWT to benefit bittern as part of two nationally developed EU LIFE projects. The key aims of the second LIFE project (which ended in 2006) were to: increase the number of fledged young produced; provide fledglings with suitable sites to move on to; and provide more suitable sites for wintering bitterns both from home and abroad.
- Most work on the LIFE projects involved improving water level control, restoring degraded reedbeds either by cutting or lowering the bed surface, and creating suitable habitat for fish and other aquatic life that is likewise accessible for bittern. Key sites included in the LIFE projects were NWT reserves at Holme, Cley and Hickling, RSPB reserves at Titchwell and Strumpshaw and BA's Buttle marsh adjacent to How Hill.
- RSPB continues to carry out detailed ecological studies of bitterns including annual mapping of booming males and active nest sites to inform successful breeding.

## 4. ACTION PLAN OBJECTIVES AND TARGETS

### National

- Increase the number of booming male bitterns to 60 in the UK by 2010.
- Increase the number of sites supporting booming male bitterns in the UK to 32 by 2010.
- Increase the number of booming male bitterns in the UK on inland sites (i.e. sites not at risk from saline intrusion) to 24 by 2010.
- Restore bittern range to >4 occupied 10km squares in Wales by 2020.

### Norfolk

- Increase the Norfolk population to at least 20 booming males and at least 15 nests by 2010 and 25 booming males and 20 nests by 2015.
- Maintain the number and quality of sites currently holding breeding bitterns in Norfolk at eight.
- Increase the number of sites holding breeding bitterns to ten by 2010 and 13 by 2015.
- Ensure appropriate water level management and quality at all priority Norfolk sites listed in Table 1 below, in order to secure key nesting and feeding areas.
- Create at least 100ha of habitat suitable for bitterns (in blocks greater than 20ha) by 2015. This is in addition to any wetland habitat that may be created to compensate for losses related to sea level rise.

**Table 1: Key Norfolk reedbed sites capable of supporting breeding bittern.**

SITE NAME	GRID REF	SSSI NAME
Barton Fen	TG360236	Ant Broads and Marshes SSSI
Bure Marshes	TG355159	Bure Broads and Marshes SSSI
Burnham Overy	TF854450	North Norfolk Coast SSSI
Catfield fen	TG370210	Ant Broads and Marshes SSSI
Cley Marshes	TG055445	North Norfolk Coast SSSI
Hickling Broad (incl. Heigham)	TG420200	Upper Thurne Broads and Marshes SSSI
Horsey Mere	TG456205	Upper Thurne Broads and Marshes SSSI
How Hill	TG372190	Ant Broads and Marshes SSI
Martham Broad	TG456205	Upper Thurne Broads and Marshes SSSI
Ranworth Flood	TG370150	Bure Broads and Marshes SSSI
Sharp Street Fen	TG370200	Ant Broads and Marshes SSSI
Strumpshaw Fen	TG335064	Yare Broads and Marshes SSSI
Sutton Fen (incl. Sutton High Fen)	TG364189	Ant Broads and Marshes SSSI
Titchwell	TF752445	North Norfolk Coast SSSI
Upton Fen	TG389134	Upton Broad and Marshes SSSI
Number of Sites = 15		

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NATIONAL ACTION		NORFOLK ACTION	LEAD ACTION BY:	PARTNERS:
<b>5.1</b>	<b>Policy and Legislation</b>			
<b>5.1.1</b>	Implement initiatives for the creation and management of large scale reedbeds on agricultural land.	Promote use of HLS to support delivery of EA/NE/RSPB joint wetland vision.	NE	EA, RSPB
<b>5.1.2</b>	Implement water abstraction policies which give priority to nature conservation sites.	Ensure Review of Consents takes account of bittern requirements.	EA	NE, RSPB, NWT, NT, BA
<b>5.1.3</b>	Protect freshwater sites of high conservation importance from seawater incursion.	Protect freshwater sites of high conservation importance from seawater incursion, where feasible and appropriate.	EA	
<b>5.1.4</b>	Promote, in development plans, appropriate conditions of after-use for sand and gravel extraction sites which would favour reedbed development.	Encourage the adoption of a strong habitat re-creation policy in the new minerals Local Development Framework.	NCC	
<b>5.1.5</b>	Consider developing environmental land management schemes to include prescriptions and incentives for reedbed restoration and management.	Promote the use of HLS to create, restore and manage reedbed and other wetland habitats.	NE	EA, RSPB, NWT, NT, BA
<b>5.1.6</b>	Promote the development and enhancement of suitable bittern habitats in relevant Catchment Management Plans and Water Level Management Plans.	Promote development and enhancement of suitable bittern habitats in the Broadland rivers, Ely Ouse, North Norfolk and North-West Norfolk and other relevant CHaMPs and WLMPs.	EA	IDBs
<b>5.2</b>	<b>Site Safeguard and Management</b>			
<b>5.2.1</b>	Protect any sites which are important for bitterns, having regard to the significance of formal and informal site designations when considering any proposed developments.	Protect any sites important for bitterns (all of which are SSSI/SPA/Ramsar sites) when considering development proposals.	LAs	NE, EA

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NATIONAL ACTION		NORFOLK ACTION	LEAD ACTION BY:	PARTNERS:
5.2.2	Facilitate reedbed restoration through collaborative projects and appropriate wetland strategies, to maintain wet conditions and prevent scrub encroachment in existing reedbeds.	Consider designating sites which become important for bittern as SSSIs.  Produce a strategy defining essential management criteria for all priority Norfolk reedbed sites (Table 1) capable of supporting bittern. Once completed, Wetland Topic Group to agree how to implement this strategy.	NE  RSPB	Wetland BAP Topic Group
5.2.3	Seek to ensure appropriate management for this species, of reedbeds currently within designated areas.	Ensure the needs of bitterns are addressed in the management of reedbeds and fens within designated areas. Wetland BAP Topic Group to provide input to site management proposals where bittern breed, over-winter or have the potential to breed.	NE	Wetland BAP Topic Group
5.2.4	Promote the creation of new reedbeds on suitable sites such as surplus agricultural land, mineral extraction sites, etc.	Promote creation of new bittern habitat on suitable sites, particularly mineral extraction sites.	NCC	LAs, NE, FWAG, mineral companies
<b>5.3</b>	<b>Species Management and Protection</b>			
5.3.1	Consider supplementary feeding in severe winters.	Consider supplementary feeding in severe winters, particularly on nature reserves.	RSPB	NWT, NT, NE
5.3.2	Determine current food supply on key sites and manage accordingly.	Consider the desirability of enhancing fish populations, eg, by improving width, depth and connectivity of watercourses within sites and to consider stocking with appropriate fish species.  Ensure ice-free areas in severe winters, particularly on nature reserves.	RSPB  RSPB	NE, BA, EA, NWT, NT  NE, NWT, NT
5.3.3	No national action	Investigate and prosecute	Norfolk	RSPB

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NATIONAL ACTION		NORFOLK ACTION	LEAD ACTION BY:	PARTNERS:
5.3.4	No national action	any reported incidents of persecution or egg collecting.  Support mink control projects within Norfolk.	Constabulary  NCC, BA	NE, RSPB, NWT, EA, IDBs, landowners
5.4 5.4.1	<b>Advisory</b> Advise reedbed owners and managers, of bittern requirements in order to promote appropriate management for this species.	Provide targeted advice to landowners and managers of sites holding (or with potential to hold) bittern.	RSPB	NE, BA
5.5 5.5.1	<b>Future Research and Monitoring</b> Monitor the UK population annually.	Monitor and record number of booming bitterns and number of nesting attempts wherever possible.	RSPB	NE, NWT, NT, BA
5.5.2	Monitor reedbed habitats and food availability at key bittern sites, in conjunction with NGOs.	Monitor reedbed habitats and food availability at key bittern sites.	RSPB	NE, EA, BA
5.5.3	Ensure that any bittern corpses or addled eggs are analysed for heavy metals and pesticides.	Ensure that any bittern corpses or addled eggs are analysed.	RSPB	NE, NWT, NT, BA
5.5.4	In conjunction with NGOs, produce assessments of the suitability and management of key reedbeds for bitterns, to identify the main features of each site and the principal actions required to improve or maintain them.	Produce assessments of the suitability and management of key reedbed and fen sites for bitterns, to identify the main features of each site and the principal actions required to improve or maintain them. The assessments are to be carried out within the scope of the "Towards 2010" project and through informal discussions with landowners.	RSPB	NE, BA, NWT, NT
5.5.5	Promote further research	No action currently		

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NATIONAL ACTION		NORFOLK ACTION	LEAD ACTION BY:	PARTNERS:
	into habitat use, suitability and the requirements of this species in the UK.	proposed.		
<b>5.5.6</b>	Pass information gathered during survey and monitoring of this species to JNCC or BRC so that it can be incorporated in national databases.	Pass information gathered during survey and monitoring to the Norfolk Biodiversity Information Service.	RSPB	NE, NWT, NT, NNNS
<b>5.5.7</b>	Provide information annually to BirdLife International on the UK status of the species to contribute to maintenance of an up-to-date global red list.	No action proposed.		
<b>5.6</b>	<b>Communications and Publicity</b>			
<b>5.6.1</b>	Use this species to promote the importance of reedbeds and their conservation.	Use this species to promote the importance of reedbeds and their conservation.	RSPB	NE, NWT, BA
<b>5.7</b>	<b>Links with other Action Plans</b> None given.	This plan should be considered in conjunction with the Norfolk HAP for reedbeds.	Wetland BAP Topic Group	

### Abbreviations

BA	Broads Authority
EA	Environment Agency
FWAG	Farming and Wildlife Advisory Group
IDBs	Internal Drainage Boards
LA	Local authority
NCC	Norfolk County Council
NE	Natural England
NNNS	Norfolk and Norwich Naturalists' Society
NT	National Trust
NWT	Norfolk Wildlife Trust
RSPB	Royal Society for the Protection of Birds

## **MANAGEMENT GUIDANCE**

**(This guidance is a general summary; for more detailed information or advice, please consult the references or contacts below.)**

A great deal of effort has been put into understanding the habitat requirements of bitterns over the last 20 years. The key management principles have been distilled and improved upon during the implementation of the two EU LIFE bittern projects.

The key considerations are to provide sustainable and secure feeding and breeding sites within wet reedbeds. As long as habitat remains limited, understanding and managing water movement and levels within a site is probably the most important factor. In recent years, dry winters followed by cold, dry early spring conditions have proved disastrous for breeding bitterns with poor breeding productivity throughout the UK. These natural conditions mirror the conditions on a site where water levels are either too low, maintained at the wrong levels or are unable to be managed. In the longer-term, the ideal situation would be to have large, naturally functioning systems containing a mosaic of habitats, in which the need for intensive management of the kind outlined above would be reduced.

Recent land management thinking has shifted from management for the bird to management for the food supply of the bird, namely: providing ideal breeding, feeding and wintering conditions for a range of bittern prey items (mostly fish species) and creating conditions where bitterns can access this food supply (eg, by creating areas with shallow feeding edges and promoting shallow-edged dykes).

These considerations are explained within the RSPB publication, *The Reedbed Guide*, which describes the different techniques that can be applied to improve reedbed quality for bitterns.

To get the most out of each site which is currently used by bitterns (or which has the potential to be colonised by bitterns), carefully-targeted management is required. Experienced ecologists and land managers are best placed to deliver this advice; the RSPB Advisory Department is able to facilitate this process.

## **CONTACTS**

RSPB Advisory Department  
The Lodge  
Sandy  
Bedfordshire

Tel: 01767-680551

Ian Robinson  
RSPB Broads Area Manager  
C/o Staithe Cottage  
Low Road  
Strumpshaw  
Norwich  
NR13 4HS

Tel: 01603-715191

## **REFERENCES**

Hawke, C. and Jose, P. (1996). *Reedbed Management for Commercial and Wildlife Interests*. RSPB, Sandy.

Nuttall, P.M., Boon, A. G., and Rowell, M.R. (1997). *Review of the design and management of constructed wetlands*. CIRIA Report 180. CIRIA, London.

Self, M., Hawke, C. and Jose, P. (1996). Reedbed enhancement and creation at RSPB nature reserves. *RSPB Conservation Review* 10: 45-53.

White, G., Purps, J. and Alsbury, S. (2006). *Bittern in Europe: a guide to species and habitat management*. RSPB, Sandy.

Wotton, S. *et al.* (2008). Bittern *Botaurus stellaris* monitoring in the UK. Summary of the 2008 season. RSPB and Natural England.

## **WEBSITES**

[www.rspb.org](http://www.rspb.org)

[www.bitterns.org.uk](http://www.bitterns.org.uk) (for information about the EU Life projects)