Bittern *Botaurus stellaris* monitoring in the UK

Summary of the 2011 breeding season

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Key Results

- **An increase in the number of booming male Bitterns, up from 87 in 2010 to 104 this year.**
- **A large increase in the number of confirmed nests, up from 41 in 2010 to 63 this year.**
- **An increase in the number of sites occupied by booming Bitterns, with 51 sites being used.**
- **Further substantial increases in booming males and nesting attempts in the Avalon Marshes, Somerset.**
- **Confirmed nesting for the first time in over 40 years at Stodmarsh, Kent.**

This report provides a short summary of the results of the Bittern Monitoring Programme in 2011.

The Bittern fieldwork team endeavours to investigate any reports of booming Bitterns in the country. If confirmed, this will be followed up later in the season with observations to establish whether breeding has occurred. This report is widely distributed and therefore mentions only a few sites that are already well-known as Bittern sites.

UK Population Monitoring

The Bittern population in the UK has been surveyed annually since 1990. The main aims of the survey are to:

- Report the minimum and maximum numbers of booming male Bitterns in Britain.
- Report the minimum and maximum numbers of nest attempts that reach the chick stage in Britain.

The accuracy and standardisation of the annual survey is extremely important. Major wetland habitat creation, restoration and management are ongoing for this species and annual population monitoring is the main indicator with which we can measure its success.

Booming

The essential information collected during the monitoring of booming male Bitterns are:

- The dates and times of visits to sites to assess listening effort.
- The start and stop dates of booming males.
- The mapped positions of any booming males heard on each visit to a site.
- Descriptions of the rate of booming of each male during each visit and the "quality" of the sound of the boom.

Only those males that are known to have boomed for a week or more are counted in the minimum figures for the year. Where a site or area holds, or is thought to hold, more than one boomer, it is important to confirm the number of boomers actually involved. This can be achieved by hearing different boomers at the same time, and by comparing the booming periods of each male to confirm that they overlap.

A maximum figure for booming males is also presented, which includes the records of other males that either boomed for less than a week or could not be confirmed as definitely different birds to adjacent boomers. However, the minimum figures are those that are published and used, as they are the most reliable and are comparable with the published figures from previous years.

Nesting

No attempts are made to visit any active Bittern nests, but through long watches to look for regular female feeding flights, nests are identified and their approximate locations established. The nesting figures quoted in this report, therefore, are for nests where females are feeding young. The current methods for recording active nests have been followed since 2001, so the figures before then are not directly comparable although the earlier methods used were similar.

A CONFIRMED nest is one where:

- An adult is observed leaving and subsequently returning to the same small area within the reedbed or fen (usually less than 20m x 20m) on four or more occasions in the same day or on two separate days if the nest is advanced and the female is away for long periods.

A PROBABLE nest attempt is one where:

- An adult is observed leaving and subsequently returning (or vice versa) to the same small area within the reedbed (usually less than 20m x 20m) on only two or three occasions in the same day, and is not recorded on subsequent watches.

Several sites adjacent to, or near, sites with booming male territories were also watched for nesting activity. As in previous years, a large amount of effort and time was put into this monitoring. In line with the booming totals, there are two figures quoted; **minimum** – which only includes confirmed nesting attempts and **maximum** – which includes both confirmed and probable nesting attempts.

2011 Results

The early part of the 2010/11 winter was very cold, it being the coldest December for over 100 years. Most wetlands across the country had frozen solid, and it is likely that the freezing conditions affected the condition of wintering Bitterns, as they struggled to find food. Bitterns were reported in some strange places as they left their typical wintering sites to search for food. A request for supplementary feeding of Bitterns was distributed in early December and was undertaken at a number of sites across the country. There then followed a dry spring over much of England an Wales from March to May, particularly in east and southeast England, resulting in lower than usual water levels at a number of sites.

Despite the very cold conditions during December and the generally lower water levels due to the dry spring, there has been another increase in the number of booming Bitterns this year. There were a minimum of 104 booming males, an increase of 20% on the 2010 figure of 87 boomers. The number of sites supporting at least one booming male in 2011 increased to 51, up from 47 sites in 2010.

There was a dramatic increase in the number of confirmed nests, with 63 nests recorded at 26 sites, compared to 41 nests at 17 sites in 2010. Nesting was confirmed for the first time at six of these sites.

Booming

The earliest reports of booming were again from the Somerset Levels this year, with the first record on 6th February, at Westhay Moor NNR. In 2010, first reports of booming were generally later than in recent years, but this year booming was heard earlier at most regular sites. For example, grunting was first heard on the Suffolk coast on 8th February, compared to 6th March in 2010 and 14th February in 2009. It is likely that, as the very cold spell was early in the winter period, male Bitterns had more time to recover their condition this year.

Booming was confirmed at new sites in Cambridgeshire, Gloucestershire, Lincolnshire, Nottinghamshire, Somerset and West Yorkshire in 2011.

A summary of the minimum national booming figures is shown in Figure 1 and Table 1, including details on the number of sites. The maximum figures are also quoted in Table 1 as a guide, but the following text refers to the minimum figures only.

Figure 1. The minimum number of booming male Bitterns (in red) in the UK and the number of occupied sites (in blue) between 1990 and 2011.

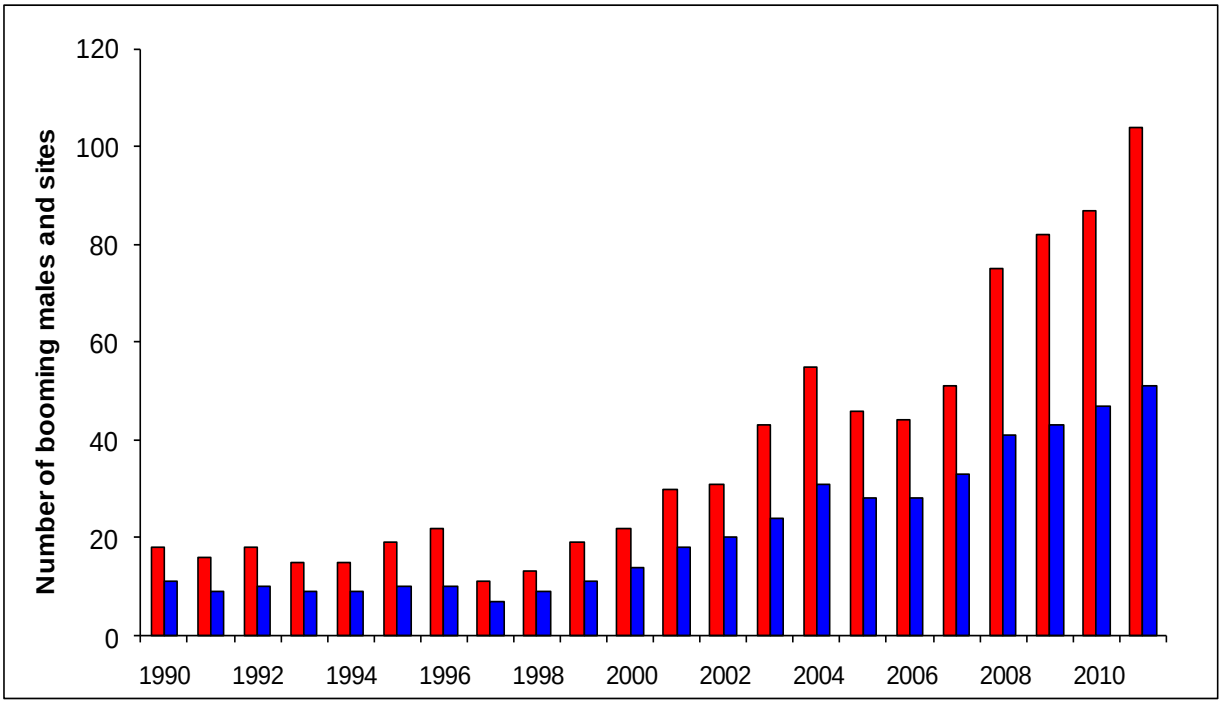


Table 1. The minimum number of booming male Bitterns in the UK since 1997 and the number of occupied sites involved each year (with the maximum figures shown in brackets).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Males	11 (12)	13 (18)	19 (22)	22 (28)	30 (33)	31 (37)	43 (52)	55 (65)	46 (54)	44 (63)	51 (63)	75 (87)	82 (100)	87 (106)	104 (128)
Sites	7 (8)	9 (12)	11 (14)	14 (16)	18 (18)	20 (23)	24 (29)	31 (33)	28 (30)	27 (35)	33 (40)	41 (47)	43 (55)	47 (58)	51 (63)

Table 2 provides a summary of booming activity by region and country. Figure 2 shows the annual numbers for the three East Anglian counties (Suffolk, Norfolk and Cambridgeshire) and the other regions in England.

On the Suffolk coast, there were 25 booming males on seven sites, a slight decline of one boomer from last year. There were 11 confirmed boomers at Minsmere this year, up from nine in 2010. Only one boomer was recorded at North Warren this year.

The number of booming males in the Norfolk Broads increased by three this year, to 20, with twelve sites holding boomers. On the North Norfolk coast, there were just three boomers, two down on 2010.

Table 2. The minimum number of booming males located within regions in England between 1997 and 2011 (the maximum figures are shown in brackets).

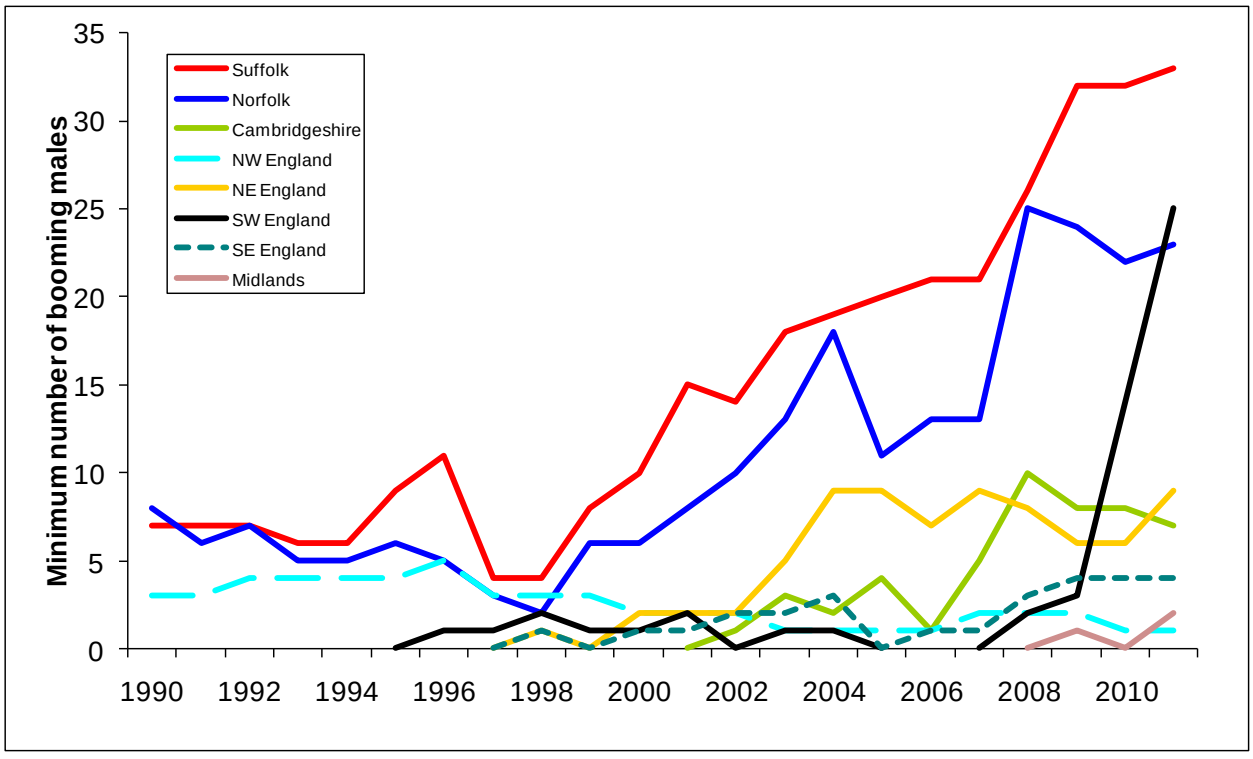
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	% change 10-11
Suffolk Coast	4	4 (6)	8	10 (13)	15 (27)	14 (19)	18 (19)	19 (20)	20 (24)	20 (29)	20 (25)	24 (27)	28 (31)	26 (29)	25 (30)	**-3**
Norfolk Broads	2	1 (3)	5	5 (6)	7	10 (11)	12 (15)	17 (22)	8	10 (12)	10 (17)	21 (25)	19 (23)	17 (20)	20 (25)	**+18**
Norfolk Coast	1 (2)	1	1 (3)	1 (3)	1 (2)	0	0	2 (3)	3	3 (4)	3	4	5	5 (6)	3 (4)	**-40**
The Fens	0	0	0	0	0	0	3	2 (3)	4	2 (3)	6	12 (13)	12 (14)	14 (16)	15 (19)	**+7**
NE England	0	1 (2)	0	2	2	2	5 (8)	9 (10)	9 (12)	7 (9)	9	8 (9)	6 (8)	6 (8)	9 (10)	**+50**
NW England	3	3	3	2	2	2	1	1	1	1 (2)	2 (3)	2	2 (3)	1 (2)	1 (2)	**0**
SE England	0	1	0 (1)	1	1	2	2 (3)	3 (4)	0 (2)	1 (2)	1 (2)	2	4 (5)	4 (5)	4 (5)	**0**
SW England	1	2	1	1	2	0 (1)	1	1	1 (2)	0 (1)	0	2 (3)	3 (5)	14 (17)	25 (28)	**+79**
Midlands	0	0	0	0	0	0	0	0	0	0	0	0	1 (2)	0 (1)	2 (3)	**na**
East (S) England	0	0	0	0	0	0	0 (1)	0	0	0	0	0 (1)	1 (2)	0 (1)	0	**0**
Scotland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 (2)	**0**
Wales	0	0	0	0	0	0	0	1	0 (1)	0 (1)	0	0	1 (2)	0 (1)	0	**0**
UK TOTAL	**11 (12)**	**13 (18)**	**19 (22)**	**22 (28)**	**30 (33)**	**31 (37)**	**43 (52)**	**55 (65)**	**46 (57)**	**44 (63)**	**51 (65)**	**75 (87)**	**82 (100)**	**87 (106)**	**104 (128)**	**+20**

The number of booming males increased again in the Fens, with 15 boomers recorded, from seven sites. Booming was confirmed for the first time at one of these sites. Lakenheath held seven boomers this year, up one from 2011. Fen Drayton and the Nene Washes held two boomers for the first time. No booming was reported from one regular site this year.

In NE England, the number of boomers increased to nine, largely due to booming being recorded from two new sites, in North Lincolnshire and West Yorkshire. In NW England, there was just one boomer at Leighton Moss for the ninth year in a row, and only heard a few times over a period of a month. The Midlands held two boomers at two new sites, in Gloucestershire and Nottinghamshire.

In SE England, four booming males were recorded again, at four sites, three in Kent and one in East Sussex. There was another large increase in booming activity in the Avalon Marshes in Somerset, with 25 boomers confirmed from seven sites, compared to 14 at four sites in 2010. There were 12 boomers at Ham Wall, including parts of the reserve separated from the main reedbed, and neighbouring Shapwick Heath held nine. This year, there was more booming activity in private reedbeds (that were formerly peat workings), adjacent to Ham Wall, Shapwick Heath, Westhay Heath and Westhay Moor.

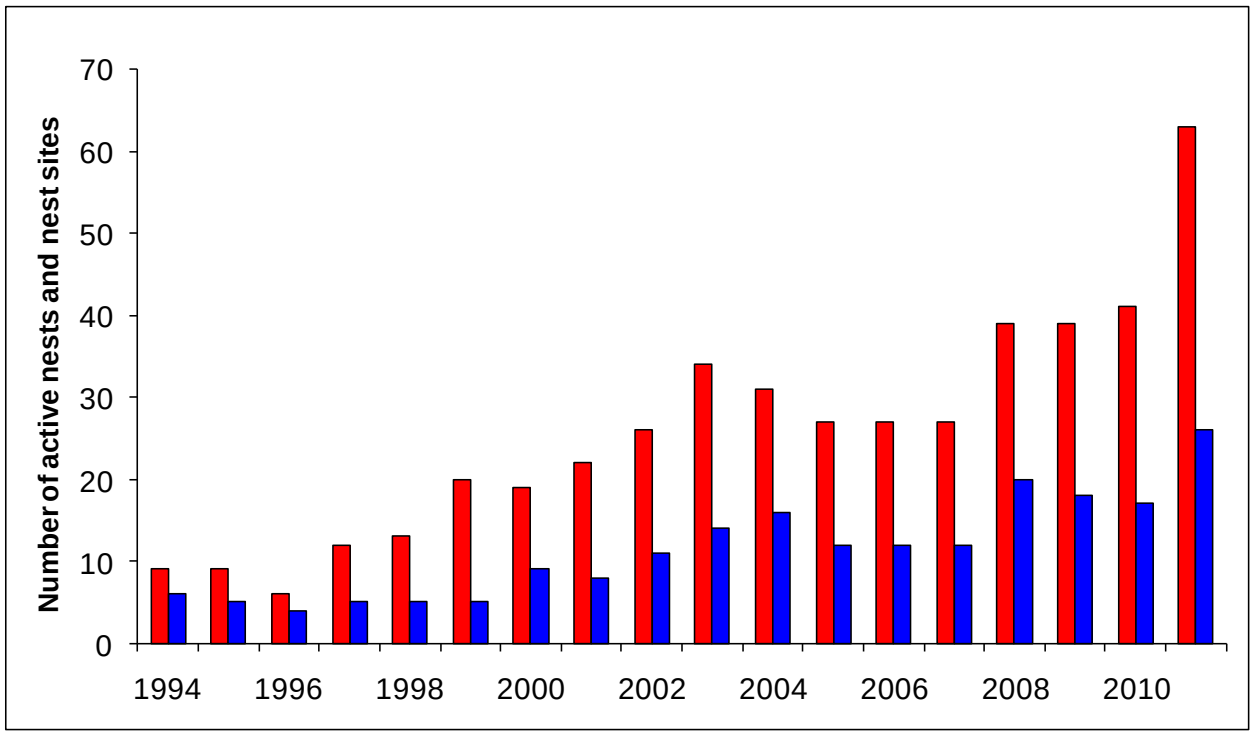
Figure 2. The minimum number of booming male Bitterns within key counties and regions in England, between 1990 and 2011.



Breeding

There was a large increase in the number of confirmed nests this year, up 54% from 2010. This increase was reflected in the number of sites involved, with nesting activity confirmed at 26 sites in 2011, up from 17 sites in 2010. Figure 3 and Table 3 summarise the numbers of active nests nationally. The maximum figures are also quoted in Table 3 as a guide, but the following text refers to the minimum figures only.

Figure 3. The minimum number of active nests where feeding flights were observed (in red) and the number of sites with nests (in blue), in the UK between 1994 and 2011.



Again, most nesting attempts were in East Anglia and the Fens, with 35 of the 63 nests occurring here (56%). There was a further increase in nesting attempts in Somerset, where at least 19 nests were confirmed, and there were also welcome increases on the Suffolk coast, Norfolk Broads and NE England, following declines last year. Nesting was confirmed at new sites in Cambridgeshire, Somerset and Yorkshire. The nesting attempts at a regional and county level are summarised in Table 3 and Figure 4.

On the Suffolk Coast, there were 14 confirmed nests in 2011, up three on 2010. Numbers at Minsmere increased slightly again with six nests recorded, compared to only three in 2009. There was a nesting attempt at North Warren again this year, following the blank year last year.

Nine nests were confirmed in the Broads this year, three up on last year. Three nests were confirmed at both Hickling Broad and Strumpshaw Fen, the first time that three nests have been recorded at Strumpshaw during the annual monitoring programme. Nesting was confirmed at five sites in the Broads this year, compared to eight sites in 2008. As in 2009 and 2010, many

sites in the Broads appeared to be very dry throughout the spring. There were two confirmed nests on the North Norfolk coast, at only one site, Titchwell, this year.

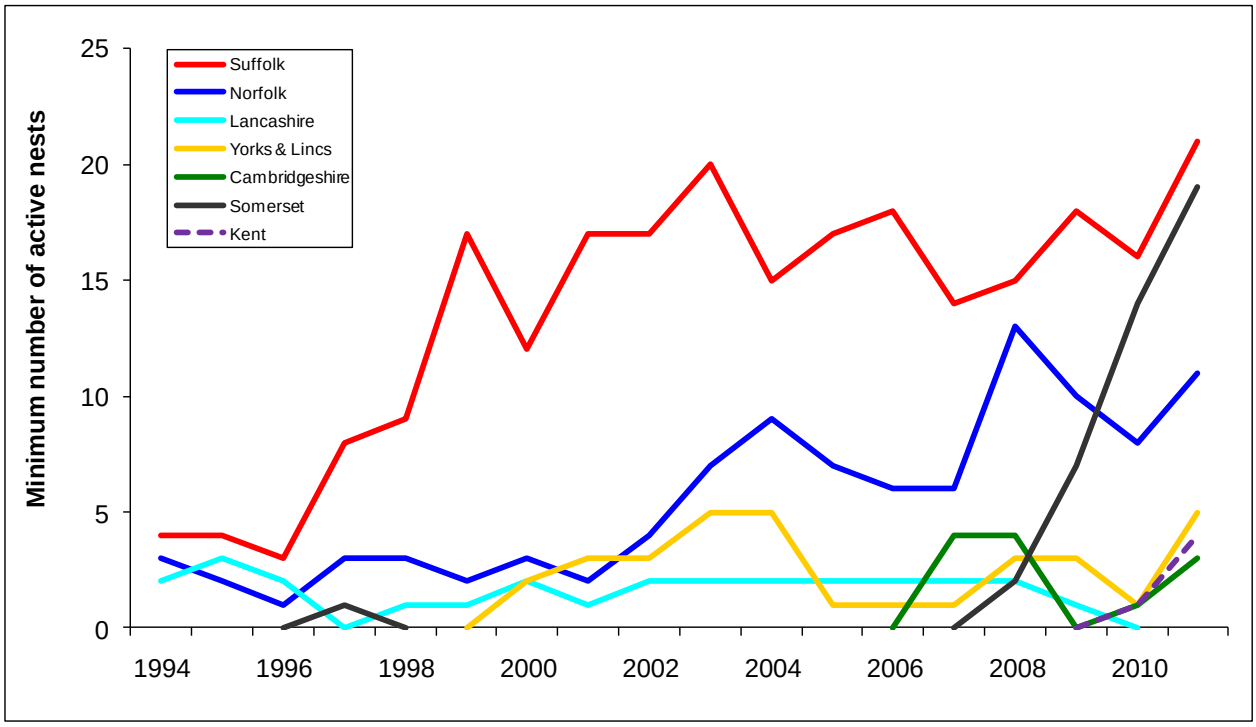
Table 3. The minimum number of active Bittern nests in each region since 1997 (and the number of sites with nests in brackets).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	% change 10-11
Suffolk Coast	8 (2)	9 (2)	17 (2)	12 (4)	17 (4)	17 (5)	20 (5)	15 (5)	17 (5)	18 (5)	14 (5)	15 (4)	14 (6)	11 (4)	14 (5)	**+27**
Norfolk Broads	1 (1)	1 (1)	1 (1)	1 (1)	2 (2)	4 (3)	7 (4)	7 (3)	6 (4)	4 (3)	6 (4)	11 (8)	7 (5)	6 (4)	9 (5)	**+50**
Norfolk Coast	2 (1)	2 (1)	1 (1)	2 (2)	0	0	0	2 (2)	1 (1)	2 (2)	0	2 (2)	3 (1)	2 (2)	2 (1)	**0**
The Fens	0	0	0	0	0	0	0	0	0	0	4 (1)	4 (2)	4 (1)	6 (2)	10 (4)	**+67**
NE England	0	0	0	2 (1)	2 (1)	3 (2)	5 (4)	5 (5)	1 (1)	1 (1)	1 (1)	3 (2)	3 (2)	1 (1)	5 (3)	**+400**
NW England	0	1 (1)	1 (1)	2 (1)	1 (1)	2 (1)	2 (1)	2 (1)	2 (1)	2 (1)	2 (1)	2 (1)	1 (1)	0	0	**0**
SE England	0	0	0	0	0	0	0	0	0	0	0	0	0	1 (1)	4 (2)	**+300**
SW England	1 (1)	0	0	0	0	0	0	0	0	0	0	2 (1)	7 (2)	14 (3)	19 (6)	**+36**
UK TOTAL	**12 (5)**	**13 (5)**	**20 (5)**	**19 (9)**	**22 (8)**	**26 (11)**	**34 (14)**	**31 (16)**	**27 (12)**	**27 (12)**	**27 (12)**	**39 (20)**	**39 (18)**	**41 (17)**	**63 (26)**	**+54**

Ten nests were recorded in the Fens this year, at four sites. Seven of these nests were at Lakenheath Fen, the highest number of confirmed nests at a site in East Anglia this year. There were five confirmed nests in NE England this year, two on the Humber and three at a new site in Yorkshire. There was no confirmed breeding recorded at Leighton Moss for the second year in a row.

In Kent, nesting was confirmed at Stodmarsh NNR for the first time in over 40 years and nesting also occurred at Dungeness for the second year in a row. There was a further increase in the number of confirmed nests in Somerset this year, with 19 nests being confirmed in the Avalon Marshes, up from 14 in 2010. Eight were found at both Ham Wall and neighbouring Shapwick Heath. Three nests were recorded in private sites (from old peat workings) adjacent to the Avalon Marshes reserves.

Figure 4. The minimum number of active Bittern nests by county/region - 1994 to 2011.



A late nesting attempt at Stodmarsh has provided some unrivalled views of near-fledged or recently-fledged young inter-acting with each other and with the adult female, and being fed by the female, during late August and early September, as can be seen from the following three photos. It is thought that this female attempted to nest earlier in the season, but this attempt failed. From our experience, it is unusual for late nests to be successful, although the above-average rainfall through June and July this year may well have helped.

Summary

Despite the freezing conditions over the early winter period and the generally dry spring, it has been a remarkable year for the increase in the number of boomers and particularly for the large jump in the number of confirmed nests. The populations in the Avalon Marshes and the Fens have continued to expand, but it has also been encouraging that booming and nesting has been recorded at a number of new sites this year, some of which have been created with the aim of

encouraging Bitterns. At the same time, well-established sites, such as Stodmarsh, have responded well to recent management.

In recent years there has been some concern that the number of nesting attempts has not been increasing at the same rate as the number of booming males. There was an increasing discrepancy from around 2003, which was particularly noticeable between 2008 and 2010. The large increase in nesting attempts this year is, however, very encouraging, and suggests that more sites are now in much more suitable condition for nesting.

Monitoring in 2012

Please be aware that RSPB will not have dedicated field staff on the ground in 2012. I will, however, still be coordinating Bittern monitoring across the country next year, through the Bittern Monitoring Programme, an ***Action for Birds in England*** (***AfBiE***) project. Under the ***AfBiE*** agreement, a conservation partnership between Natural England and RSPB, it is proposed that there will be periodic, rather than annual, full surveys every few years from now on.

For 2012, we would request that the many volunteers, conservation site staff and landowners continue to monitor sites for booming males and nesting attempts as has happened this year. I will be contacting everyone early from February onwards to confirm the monitoring plans. RSPB will aim to collate all of the records, with the intention of producing a similar report next year.

With active reedbed management and creation throughout the UK and an expanding Bittern population, it is possible that new sites could be (re)colonised across the country. Please keep an ear out for them next spring, even at sites where they have not been heard for many years.

To report any observations or for a copy of the survey methods and recording forms, please contact Simon Wotton on the contact details below.

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Acknowledgements

We wish to thank everyone who has helped us in monitoring Bitterns in the UK: site managers, landowners, wardens, volunteers, county recorders and local birders for their reporting of boomers and in many cases following up reports of birds. Particular thanks go to the landowners and site managers who have allowed access to sites for monitoring and to all those who have monitored sites and have helped with co-ordinated watches, including volunteers and staff at a number of reserves across the country. Thanks go to Ron McIntyre and Dave Rogers for generously allowing the use of their photographs in this report. The Bittern Monitoring Programme was funded through ***Action for Birds in England***, a conservation partnership between Natural England and the RSPB, and organised by the Species Monitoring & Research section of the RSPB Conservation Science Department.