



Bittern *Botaurus stellaris* monitoring in the UK

Summary of the 2009 season

Simon Wotton, Ben Lewis, Elizabeth Pledger,
Sabine Schmitt, Keith Kellett, Richard Gregory
and Andy Brown.

September 2009



**a million
voices for
nature**



RSPB, The Lodge, Sandy, Bedfordshire, SG19 2DL.

Natural England, Northminster House, Peterborough, PE1 1UA.

Key Results

- A further increase in the number of booming male Bitterns to 82, up from 75 in 2008.
- No change in the same number of active nests, with 39 confirmed.
- A slight increase, by two, in the number of sites occupied by booming male Bitterns, up from 41 in 2008.
- A decrease in the number of sites with nests, with 18 occupied sites in 2009, two down on 2008.
- Booming confirmed at ten new sites (but nine 2008 sites were unoccupied in 2009).
- Nesting at Lakenheath Fen for the first time, with four nests confirmed.
- Seven confirmed nests in the Somerset Levels, up from two in 2008.

This report provides a short summary of the results of the Bittern Monitoring Programme in 2009.

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 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:

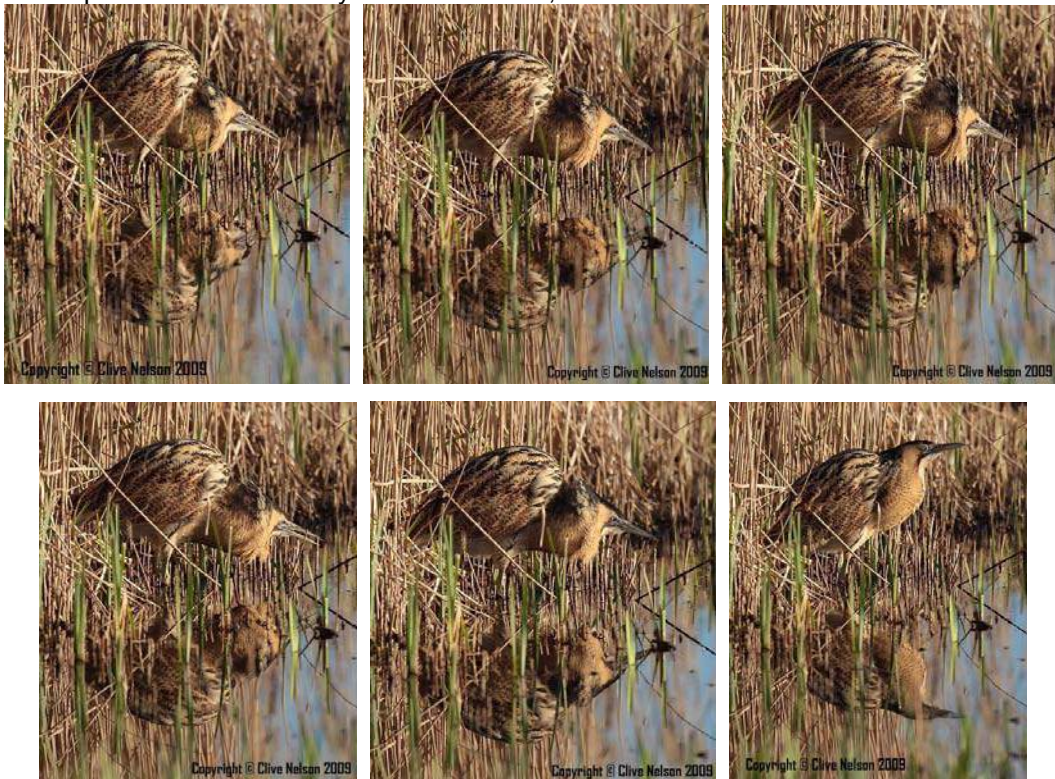
- An adult is observed leaving and subsequently returning to the same small area within the reedbed or fen (usually less than 20m x 20m) on four or more occasions in the same day or on two separate days if the nest is advanced and the female is away for long periods.

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.

This amazing sequence of photos shows a male booming at Minsmere in March this year, in front of Island Mere hide. The pictures were taken by RSPB volunteer, Clive Nelson. © Clive Nelson.



2009 Results

Encouragingly, there has been another increase in the number of booming Bitterns this year. There were a minimum of 82 booming males confirmed in England and Wales, an increase of 7% on the 2008 figure of 75 boomers. The population of booming males is up to or even above the 20th Century peak that was reached in the 1950s. The number of sites supporting at least one booming male in 2009 increased by two to 43.

The same number of active nests was found as last year, at 39, following the 44% increase between

2007 and 2008. The number of sites with nesting females dropped slightly, from 20 in 2008 to 18 in 2009.

The cold spell during January and February 2009 may have affected Bitterns across the country, with booming being recorded later than usual at a number of sites this year. The freezing conditions may have resulted in many Bitterns having problems finding food.

Booming

The first booming Bittern in 2009 was heard on 14th February on the Suffolk coast, 18 days later than the earliest record in 2008. A few boomers were heard into the end of June and the latest report was on 7th July, at Lakenheath Fen. Booming was somewhat sporadic in the UK this year with many birds appearing to boom for shorter periods and at a weaker rate compared to 2008, possibly due to the cold winter spell leading to many males not being in optimal booming condition. Booming was confirmed at ten new sites this year, in Greater Manchester, North Lincolnshire, Nottinghamshire, Essex, East Sussex, Kent, Norfolk and Wales. However, no booming was recorded at nine sites that were occupied in 2008.

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 2009.

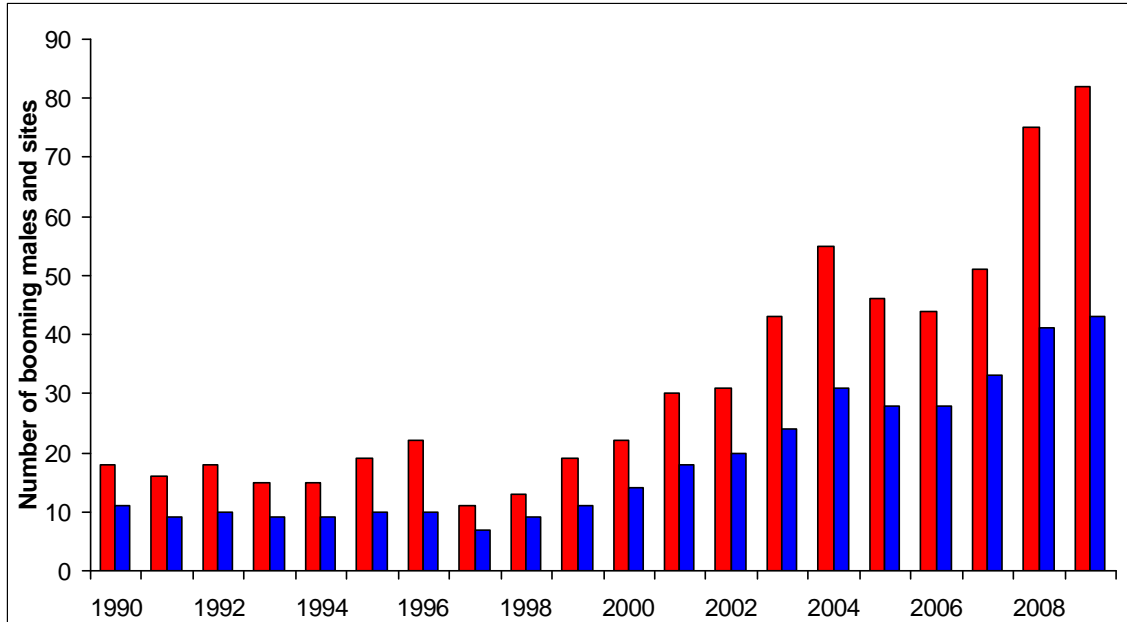


Table 1. The minimum number of booming male Bitterns in the UK since 1996 and the number of occupied sites involved each year (with the maximum figures shown in brackets).

| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|-------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|
| Males | 22 (22) | 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) |
| Sites | 10 (10) | 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) |

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) encompassing the core UK range and the other regions in England.

On the Suffolk coast, there were 28 booming males on seven sites, the highest number yet recorded and also the highest number of occupied sites since the monitoring programme began. This was up by four on the 2008 total, mainly due to the increase at Walberswick, where eight boomers were recorded, the highest number recorded at this site since the monitoring programme began. There was confirmed booming at a site that has suffered repeated saline incursions, for the first time since 1991.

There was a slight drop in the number of boomers in the Norfolk Broads this year, with 19 confirmed booming males, down from 21 in 2008. As Table 2 shows, this figure still well above the numbers recorded before 2008. Two sites held confirmed boomers for the first time, while an unconfirmed boomer was at another new site. Many of the Broads sites appeared to be affected by the preceding dry winter and spring, which may have had some affect on the number and location of boomers. Unlike 2008, the majority of boomers in the Broads sounded much weaker this year and typically had a much shorter booming period. On the North Norfolk coast, five boomers were confirmed, up one from 2008. A site had a confirmed boomer for the first time.

Table 2. The minimum number of booming males located within each region in England and in Wales, between 1996 and 2009 (the maximum figures are shown in brackets).

| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | % change 08-09 |
|-------------------------|-----------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|----------------|
| Suffolk Coast | 11 | 4 | 4 (6) | 8 | 10 (13) | 15 (17) | 14 (19) | 18 (19) | 19 (20) | 20 (24) | 20 (29) | 20 (25) | 24 (27) | 28 (31) | +17 |
| Norfolk Broads | 2 | 2 | 1 (3) | 5 | 5 (6) | 7 | 10 (11) | 12 (15) | 17 (22) | 8 | 10 (12) | 10 (17) | 21 (25) | 19 (23) | -10 |
| Norfolk Coast | 3 | 1 (2) | 1 | 1 (3) | 1 (3) | 1 (2) | 0 | 0 | 2 (3) | 3 | 3 (4) | 3 | 4 | 5 (6) | +25 |
| The Fens | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 (3) | 4 | 2 (3) | 6 | 12 (13) | 12 (14) | 0 |
| NE England | 0 | | 1 (2) | 0 | 2 | 2 | 2 | 5 (8) | 9 (10) | 9 (12) | 7 (9) | 9 | 8 (9) | 6 (8) | -25 |
| NW England | 5 | 3 | 3 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 1 (2) | 2 (3) | 2 | 2 (3) | 0 |
| SE England | 0 | 0 | 1 | 0 (1) | 1 | 1 | 2 | 2 (3) | 3 (4) | 0 (2) | 1 (2) | 1 (2) | 2 | 4 (5) | +67 |
| SW England | 1 | 1 | 2 | 1 | 1 | 2 | 1 (1) | 1 | 1 | 1 (1) | 0 (1) | 0 | 2 (3) | 3 (5) | +50 |
| East (S) England | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 (1) | 0 | 0 | 0 | 0 | 0 (1) | 1 (2) | n/a |
| Midlands | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 (1) | n/a |
| Wales | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 (1) | 0 (1) | 0 | 0 | 1 (2) | n/a |
| UK TOTAL | 22 | 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) | +9 |

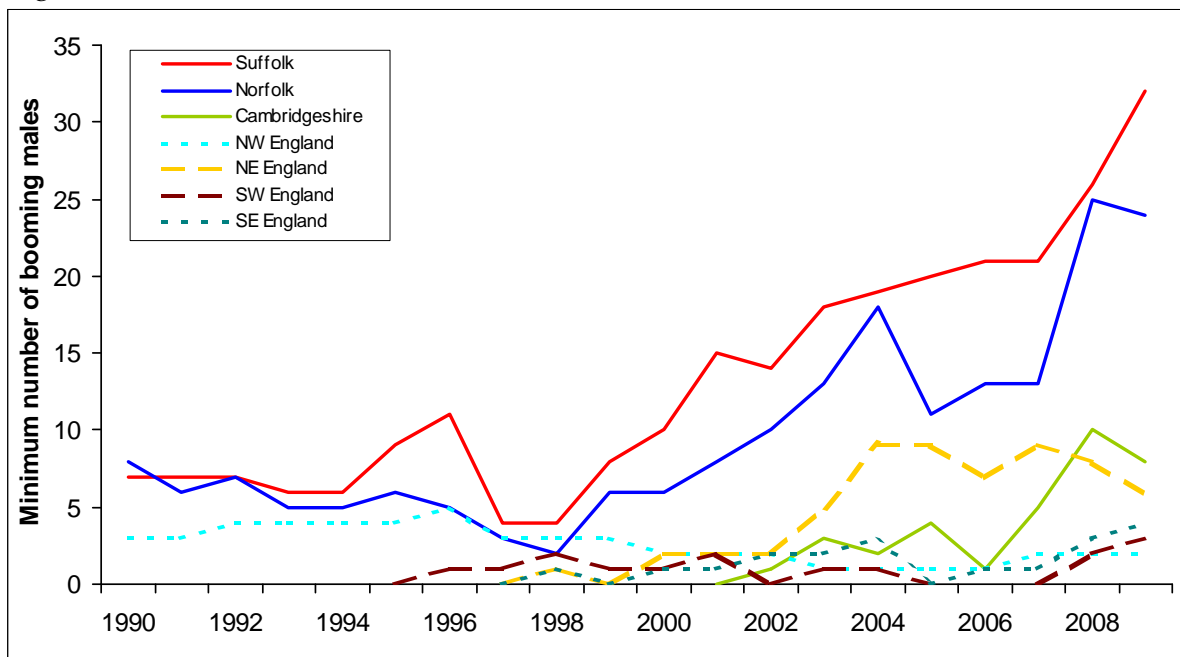
There was the same number of boomers in The Fens this year as last year, although the distribution has changed slightly, with one site being unoccupied this year. This is still very encouraging, bearing in mind that there were only two boomers in the Fens in 2006. Lakenheath Fen has shown the biggest change, with four boomers spread across the site this year, compared to two in 2008.

In NE England, there was another decline in booming males, from eight in 2008 to six in 2009. Five sites held boomers this year, compared to seven in 2008, including one new site. In NW England, there was just one boomer at Leighton Moss for the seventh year in a row. A boomer was reported briefly at a new site early in the season, although this was considered just a wintering bird.

In SE England, five confirmed boomers were recorded, at five sites. Sites in Kent, East Sussex and Essex (in the Lee Valley) held confirmed boomers for the first time. In SW England, there were three confirmed boomers in Somerset, up from two in 2008. There was confirmed booming at a site in the Midlands for the first time since the monitoring programme began.

Wales had a confirmed boomer for the first time since 2004, at a new site. This male was one of the earliest boomers in the country, being first heard on 16th February. There was also an unconfirmed boomer heard on one day only at another new site.

Figure 2. The minimum number of booming male Bitterns within key counties and regions in England, between 1990 and 2009.



Breeding

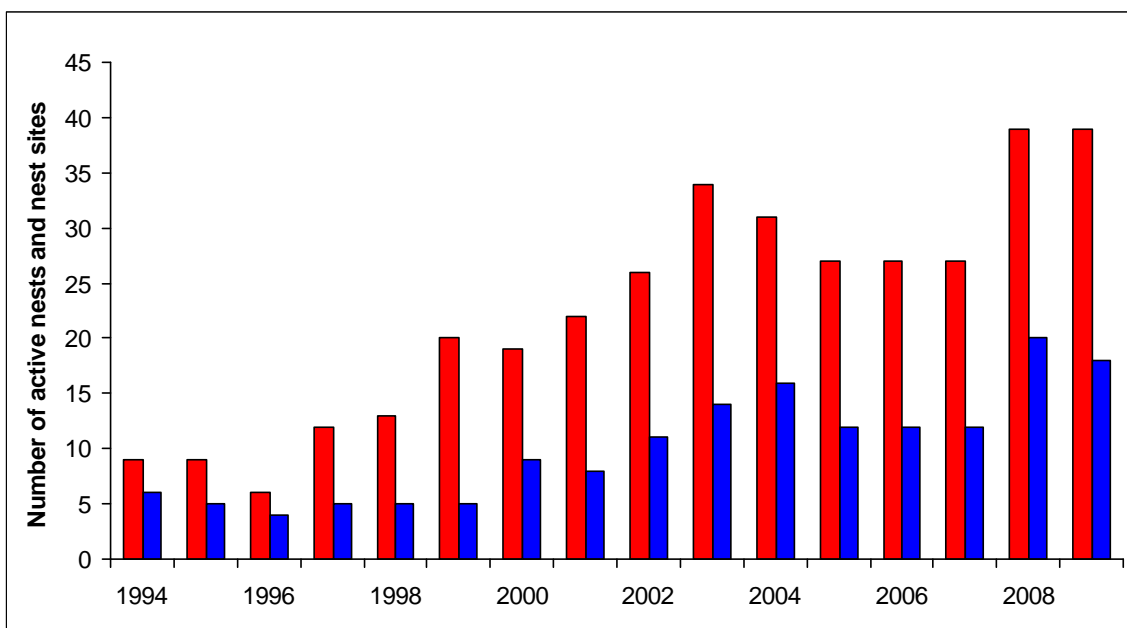
Nesting activity was confirmed at 18 sites, compared to the 43 sites that held booming males. Figure 3 and Table 3 summarise the numbers of active nests nationally. The maximum figures are also quoted in Table 3 as a guide, but the following text refers to the minimum figures only.

The weather in 2009 was an improvement on the past two summers, although there were heavy spells of rain at times, particularly in the west. Even so, it is unlikely that any nests failed due to

flooding events this year, unlike in 2007 and 2008. Again, most nesting attempts were in East Anglia, with 28 of the 39 nests (71%) occurring in Suffolk and Norfolk, although there were no confirmed nests in Cambridgeshire this year. The highlight of the year was the sharp increase in nesting activity in Somerset in 2009. 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 2009, down one on 2008. There was, however, a distinct shift in the distribution of nests along the Suffolk Coast this year. Minsmere has been the main Bittern nesting site for a number of years now, but there were just three confirmed nests this year, down from seven in 2008 and nine in 2007. From the regular flight watches, the signs were that there were a number of females here, but either not attempting to nest or failed early on. The possible reasons for this decline are being explored. On a more positive note, there has been confirmed nesting at sites that have suffered saline incursions in recent years. There were two active nests at Easton Broad in 2009 after none were recorded here last year. At another site, there were three confirmed nests, an encouraging sign as this site had been thought unsuitable for a number of years due to regular inundations.

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 2009.



The Norfolk Broads had a relatively poor breeding season, compared to 2008, with seven nests confirmed, down by four. Hickling Broad remains the most important and productive site for nesting Bitterns in the Broads. Nesting was confirmed at five sites in The Broads, compared to eight last year. Many sites in the Broads appeared to be very dry throughout the breeding season. On the North Norfolk coast, three nests were confirmed at last year's new site, although no nesting activity was recorded elsewhere.

There were four nests in the Fens this year, all at Lakenheath Fen. This is the first time that nesting has been confirmed at this site that was formerly carrot fields in the mid 1990s! No nests were confirmed at Kingfishers Bridge this year, although there was female activity here earlier in the

season. In NE England, there were three nests for the second year running at the same two sites on the Humber as 2008. In NW England, only one nest was confirmed at Leighton Moss, with a possible second nest here.

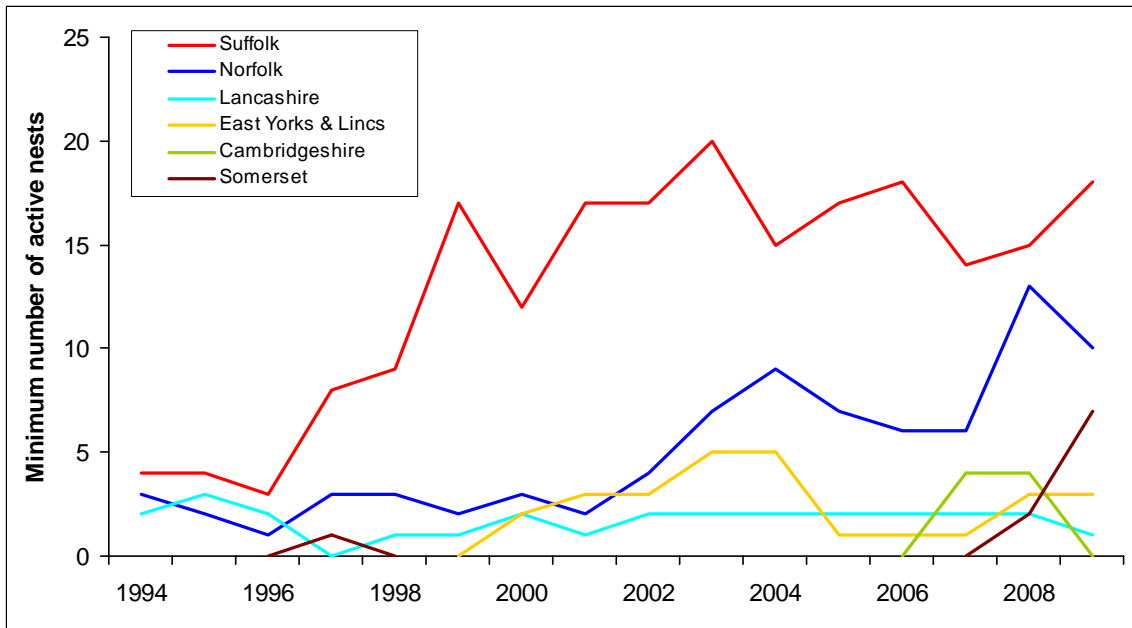


Table 3. The minimum number of active Bittern nests in each region since 1996 (and the number of sites with nests in brackets).

| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | % change 08-09 |
|-----------------------|----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|----------------|
| Suffolk Coast | 3 (2) | 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) | -7 |
| Norfolk Broads | 1 (1) | 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) | -36 |
| Norfolk Coast | 0 | 2 (1) | 2 (1) | 1 (1) | 2 (2) | 0 | 0 | 0 | 2 (2) | 1 (1) | 2 (2) | 0 | 2 (2) | 3 (1) | +50 |
| The Fens | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 (1) | 4 (2) | 4 (1) | 0 |
| NE England | 0 | 0 | 0 | 0 | 2 (1) | 2 (1) | 3 (2) | 5 (4) | 5 (5) | 1 (1) | 1 (1) | 1 (1) | 3 (2) | 3 (2) | 0 |
| NW England | 2 (1) | 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) | -50 |
| SW England | 0 | 1 (1) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 (1) | 7 (2) | +250 |
| UK TOTAL | 6 (4) | 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) | 0 |

There was an encouraging increase in the number of confirmed nests in SW England this year, following the first nesting attempts at Ham Wall in 2008. Seven nests were confirmed this year, all in the Somerset Levels, of which six were at Ham Wall and one at nearby Shapwick Heath, for the first time.

Figure 4. The minimum number of active Bittern nests by county/region - 1994 to 2009.



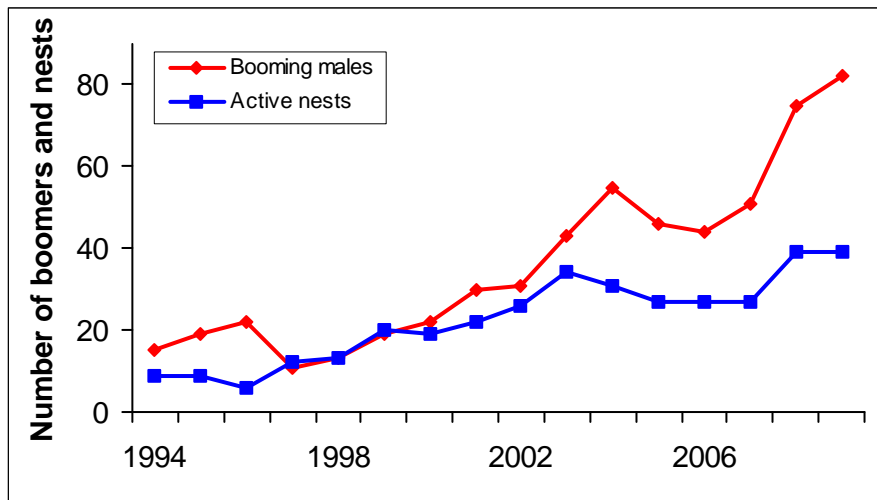
Summary

It has been encouraging that there has been another increase in the number of boomers this year, following on from the 47% rise between 2007 and 2008. However, the coldest spell of weather since the mid 1990s, in January and February, did appear to delay booming at sites across the country and no booming was recorded at nine sites that were occupied in 2008. On a more positive note, the ten sites where booming was confirmed for the first time were widely scattered. Reedbed restoration and creation work was undertaken at three of these new sites through the second EU LIFE Bittern project, which ran from 2002 to 2006.



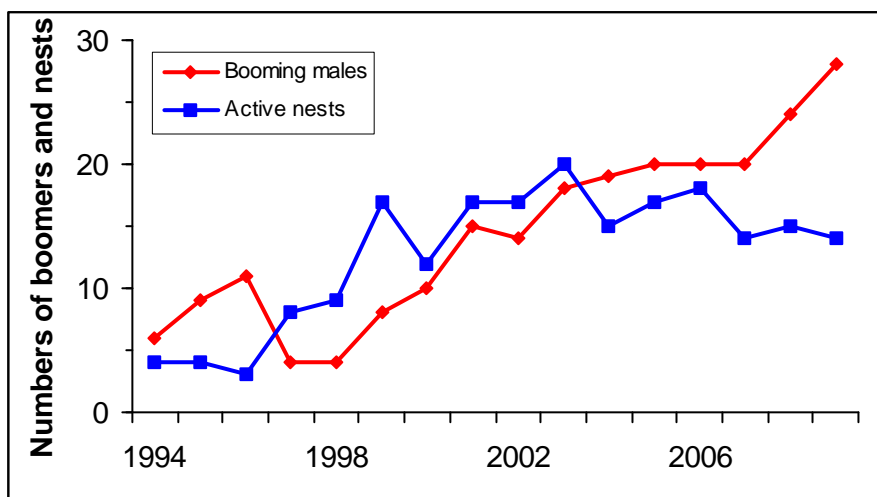
Finally, the following graphs highlight the changes that have been occurring in the UK Bittern population. Figure 5a shows that before 2004, the number of boomers and nesting attempts was similar, however since then there has been an increasing gap between the numbers of boomers and nesting attempts. Alongside the amazing increase in the number of booming males, at 43 sites in 2009, it is sobering to consider that only 18 of these sites have nesting Bitterns.

Figure 5a. The number of confirmed booming males and active nests in the UK between 1994 and 2009.



The most productive area for Bitterns in the UK in this period has been the Suffolk coast, and figure 5b shows that between 1997 and 2003 there were more confirmed nests than booming males here. The prime site on the Suffolk coast has been Minsmere and Figure 5c shows that the majority of the nesting attempts on the Suffolk coast between 1997 and 2003 were at Minsmere.

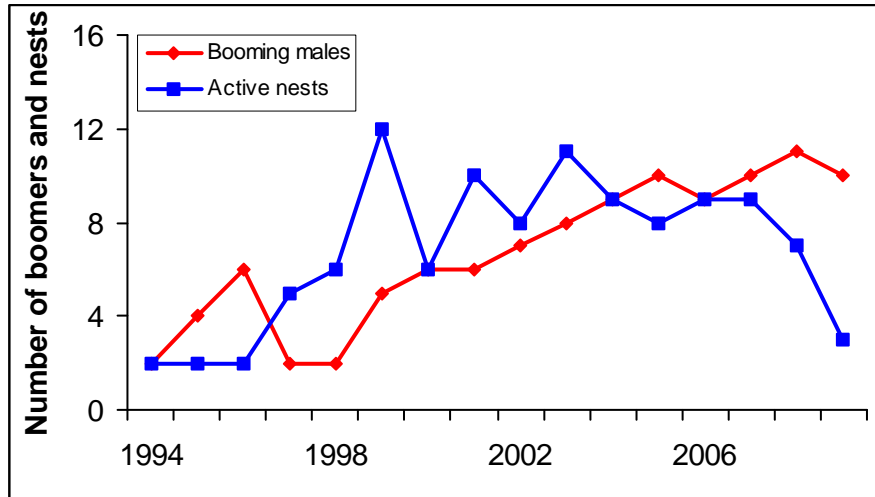
Figure 5b. The number of confirmed booming males and active nests on the Suffolk coast between 1994 and 2009.



Since 2003, the number of confirmed nests on the Suffolk coast has slightly declined despite a further increase in booming males from 2007 onwards. At Minsmere, the number of confirmed

boomers has been constant from 2003 onwards, but the number of confirmed nesting attempts has dropped alarmingly in the last couple of years.

Figure 5c. The number of confirmed booming males and active nests at Minsmere between 1994 and 2009.



A key issue, therefore, is to encourage better breeding success at sites across the country that have:

- Booming males, but sub-optimal nesting performance;
- Booming males, but with little or no evidence of successful nesting;
- Apparently suitable habitat but no booming or nesting Bitterns.

The long-term survival of Bittern in the UK does depend on shifting the core breeding population from vulnerable coastal sites in East Anglia to areas of reedbed that are safe from saline incursions and are capable of supporting breeding females. Thus, the key points from 2009 are the heartening signs that sustainable breeding populations are establishing in the Fens and the Somerset Levels.

For more information on the importance of the Suffolk coastal reedbeds and of shifting the centre of distribution away from coastal areas subject to saline incursion, see the recent paper in *British Wildlife* (June 2009), 'Boom or bust – a sustainable future for reedbeds and Bitterns?'



Contact Us

The Bittern Monitoring Programme will continue in 2010 as a joint project between Natural England and RSPB. RSPB field staff will be starting to monitor booming Bitterns from early March and will be contacting landowners, site managers and other contacts from February onwards. With reedbed creation throughout the UK and an expanding Bittern population, we are increasingly reliant on landowners, site managers, wardens and local birders to report booming to us. Please keep an ear out for them next spring, even at sites where they have not been heard for many years. To report an observation or for more information on the survey methods, please contact Simon Wotton on the contact details below.

Simon Wotton

Conservation Scientist

Species Monitoring & Research, RSPB, The Lodge, Sandy, Bedfordshire, SG19 2DL

simon.wotton@rspb.org.uk

Direct line: 01767 693396

Mobile: 07880 787035

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 Graham Catley, Ron McIntyre and Clive Nelson for generously providing the photographs in this report. The Bittern Monitoring Programme is 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.

