



Reedbed management for bitterns



HABITAT MANAGEMENT INFORMATION

This leaflet summarises recent findings on the habitat requirements of bitterns, and the management needed to provide them. Habitat management for bitterns is a practical target alongside the commercial use of reedbeds and this provides real hope for the future of bitterns in the UK.





Introduction

Bitterns are rare in the United Kingdom and have declined alarmingly in numbers and range – in 1993 there were only 17 males at 11 sites. The RSPB is very concerned about their future in the UK and, with other conservation bodies, is taking urgent action to reverse this decline. The next decade is critical if we are to retain bitterns as a British breeding bird.

Description

Bitterns are shy and secretive birds, more often heard than seen. Estimating their numbers has always been difficult; the usual method has been to count 'booming' males. The males 'boom' in spring, a distinctive sound which carries up to 5 km. However, 'booming' is often sporadic, and individual birds may have several 'booming' sites. It has now been found that individual males can be recognised by the characteristics of their 'boom' with a sound spectrograph. This has allowed more detailed study of their numbers and survival from year to year – most British bitterns are now recorded annually, with the co-operation of the reedbed owners.

They nest in lowland marshes dominated by common reed (*Phragmites australis*), generally big reedbeds, and prefer to feed in small pools at the edge of

naturally encroaching reed, but also in areas of cut reedbed where water levels remain high in spring. Eels are the major food of bitterns in the UK, although amphibians and invertebrates are probably also important.

The 'heartlands', where most breeding birds are found, are in coastal Norfolk, the Broads, Suffolk and Lancashire. Eighty-five per cent of the birds breed on nature reserves where nature conservation is a primary aim. However, since bitterns prefer managed wet reedbed, there is a high chance of re-establishing them in reedbed restored for commercial use.

Bittern egg-laying takes place from early April to June. The nest, of dead reeds, is just above water level in dense reed in areas where the water is about 10 cm deep. Males may be polygamous but as females do not boom or display it is difficult to know how many are associated with each male.

In winter they are more widespread and may be encountered in a wide variety of places where there is reed and open water. Between 30 and 190 birds are recorded each winter. Continental birds fly in to escape severe weather, increasing the UK population. Some wintering birds are young British ones dispersing, and these may be crucial to the expansion of the population. So reedbeds too small for breeding but large enough for overwintering may still be vital. Most will be visited by a wintering bittern from time to time.

The decline of the bittern population

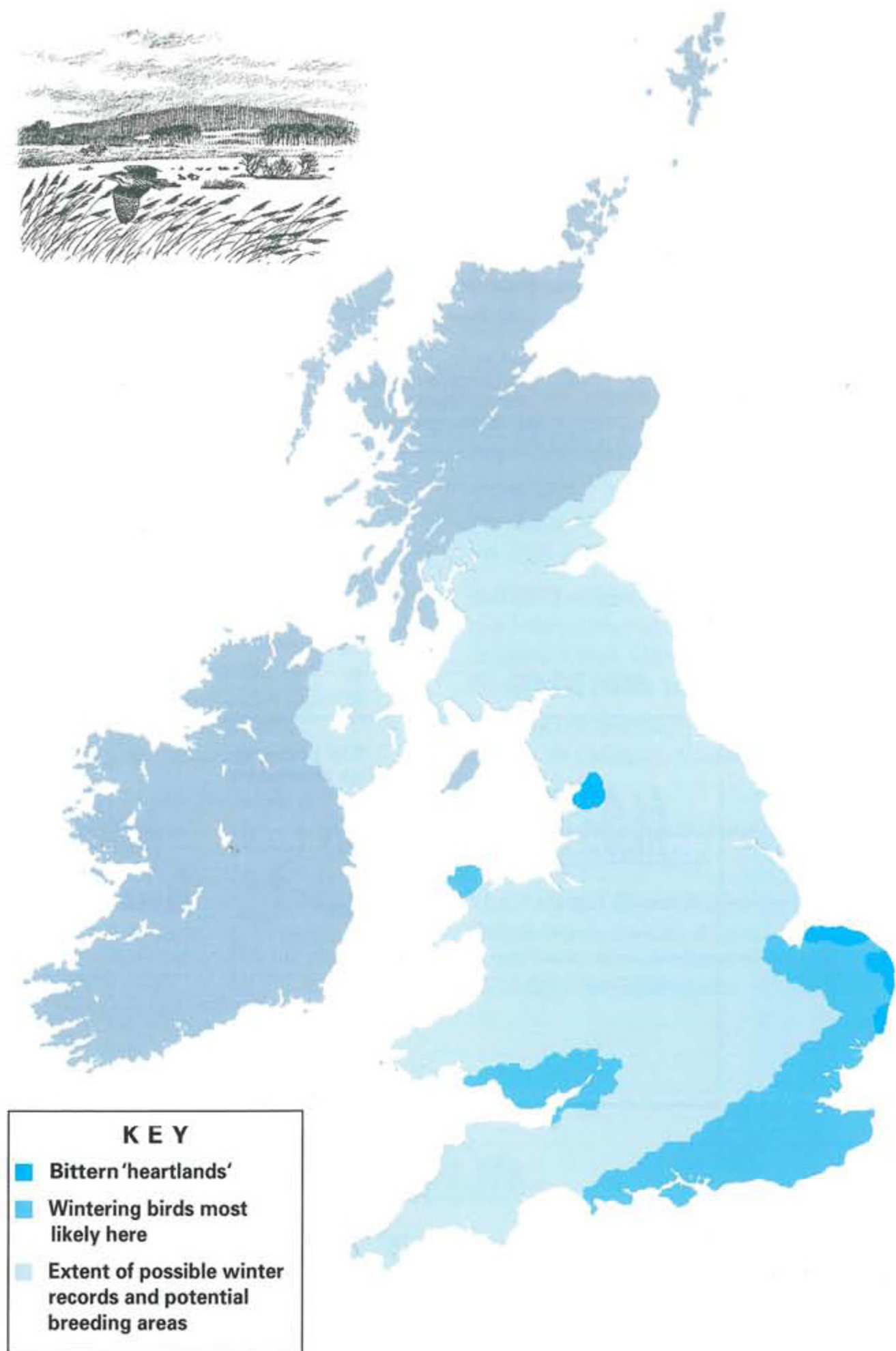
Bitterns were once quite common in Britain, but wetland drainage and then sport and trophy hunting drove them to extinction as a breeding bird in the late 19th century. Breeding was first recorded again in 1911 and in 1954 it was estimated that there were about 80 'boomers'. Soon after this they started to decline again, probably largely as a result of deterioration in their habitat. The small size of the population makes the bittern very vulnerable and the main threat it faces is habitat deterioration. Bitterns are also declining on the Continent, and as this has probably been a source of colonising birds in the past, the UK will become more

dependent on its 'home-grown' birds for an expansion in the population.

What bitterns need

- Freshwater systems in relatively flat low-lying areas. Tidal reedbeds may be used for feeding but not usually for breeding.
- 20-25 ha of reedbed (pure reed, with dykes, no scrub) for breeding, although they may use smaller reedbeds which are part of a group (sites with more than one booming male are all bigger than 40 ha). Small sites are still important as they may be used for feeding or by wintering birds.
- A network of dykes and pools making up at least 20% of the reedbed to promote good fish populations (radio-tagged bitterns have been found to feed mostly less than 15 m from the water's edge and reed that is more than 30 m from open water may not be used).
- A water depth within the reedbed fluctuating between 10-25 cm to allow bitterns to feed over a larger area of reedbed. This is particularly important in the breeding period.





KEY

- Bittern 'heartlands'
- Wintering birds most likely here
- Extent of possible winter records and potential breeding areas

Distribution of bitterns in the British Isles

- Good water quality, promoting fish and amphibian populations, especially eels (the ideal eel is 3-4 years old or less, and smaller than 35 cm, weighing approximately 100 gm).
- No significant saline intrusion, although reedbeds isolated hydrologically may also be cut off from eel runs as elvers need a slight freshwater flow during their migrations in April and May. Access sluices can be provided.

Action for bitterns

It is important to remember that while the basic habitat preferences of bitterns are understood, ideal management techniques may not yet be known. Management for breeding bitterns may be incompatible with that for other species – seek advice if necessary, especially on smaller sites.

Even if bitterns are unlikely to breed on a site it might still be used by wintering birds and will be of great value. Consult widely if you are planning to convert herbaceous fen of conservation value to reedbed. Changes in SSSI (Site of Special Scientific Interest) management will require consultation with the appropriate statutory body.

Hydrological management

This is the single most important factor in the provision of suitable reedbed.

- Provide water 0.1-0.3 m deep across the reedbed for nesting and feeding. This will necessitate adequate water level controls, particularly through early summer.

Reed management

Good management for commercial use can also create suitable conditions for bitterns. Management for bitterns really is a practical target alongside commercial use and will be of great importance to the future of the species in the UK.

The frequency and area of cutting will vary between reedbeds.

- The commercial use of reedbeds can provide good conditions for bitterns if large areas are not cut and if plenty of dykes are present. Bitterns 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.





- It may be possible to leave patches on a longer rotation if labour is available for non-commercial purposes, although the size and number needed have not been investigated. Leave areas which are difficult to cut, or leave dyke edges on a longer rotation (commercial reedbeds will have fringes of non-commercial reed).

Reedbed rehabilitation

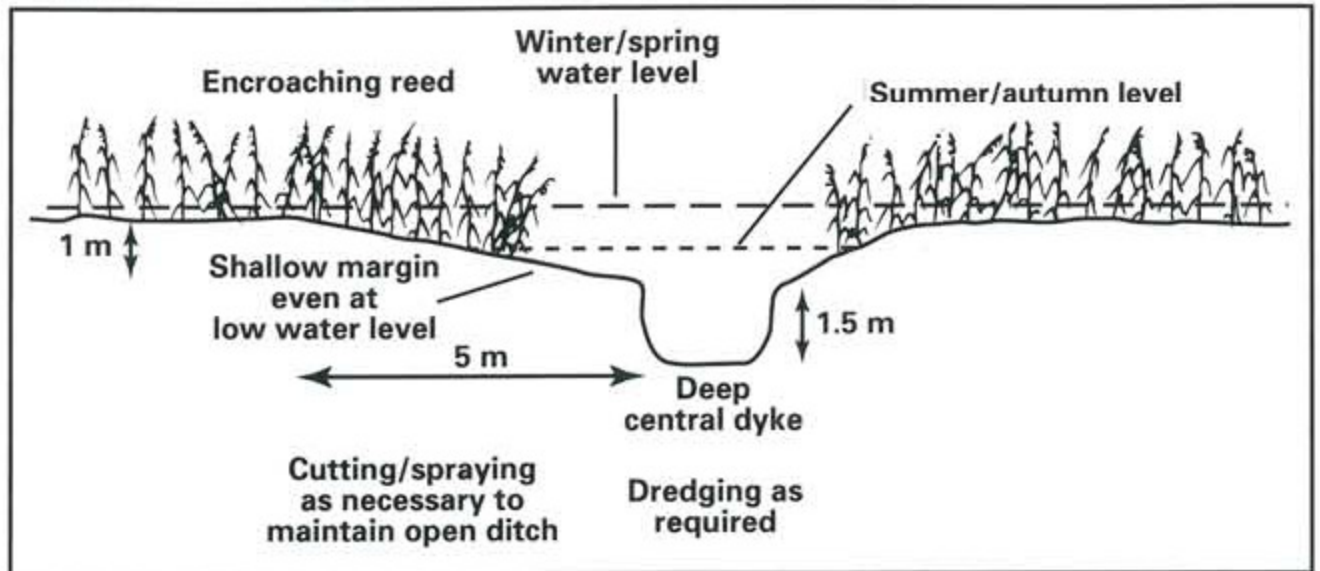
- Seriously dried-out reedbed can be dug out if it does not already have any conservation interest, eg for invertebrates. This is drastic and expensive but sets back succession for considerable periods. Remove up to 25-30 cm of accumulated debris – this is easiest in late summer.
- Deeper pools could be dug which take decades to re-colonise, but supply encroaching reed edge over a long period.

Management of dykes

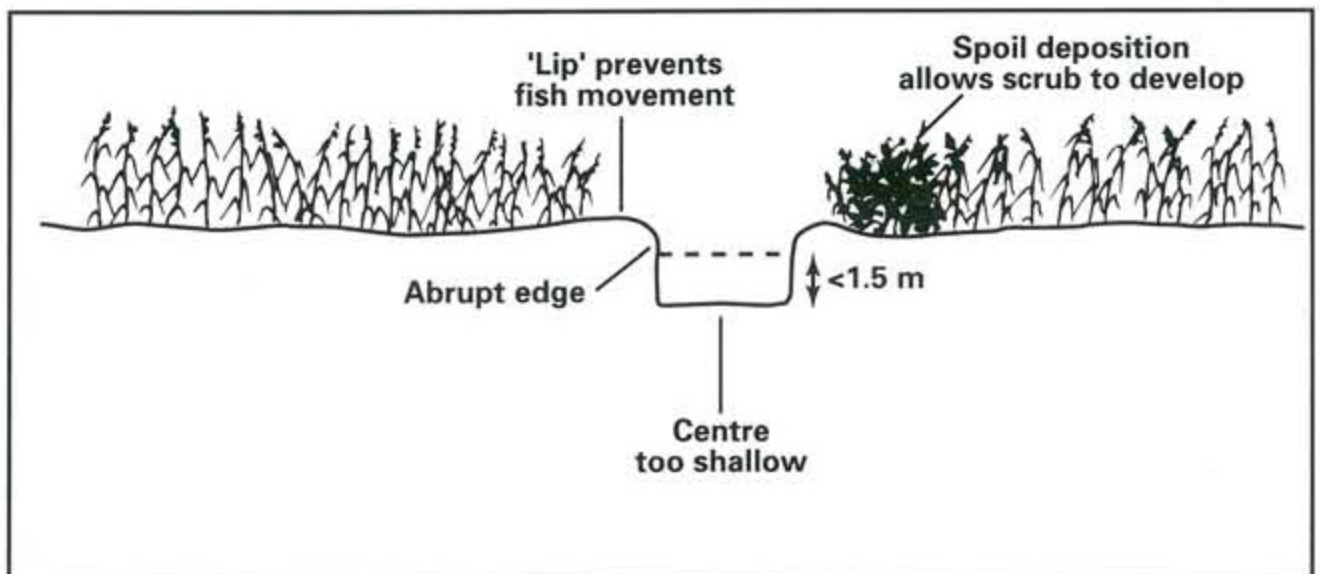
Bitterns feed mostly near natural reed edge, especially if water levels are low in the reedbed. These edges provide suitable access to fish and amphibians.

- Manage growth within dykes bi-annually on rotation, by mowing and raking, to keep dykes open and allow an increase in fish numbers. Great care must be taken in disposal of dredgings to prevent raising and subsequent drying-out of areas next to dykes. Ideally remove the spoil from the site but otherwise put in a flattened heap on one side away from the edge as an access ride. Avoid creation of a spoil 'lip' which prevents fish entering the reedbed and may block foot drains.
- Mud-pumping avoids the risk of forming a lip, but dyke invertebrate numbers may be reduced. Nutrient-rich material is deposited over a wide area which may reduce reed harvest value and endanger nature conservation interest.
- The centre of the dyke should approach 1.5 m depth to reduce reed re-invasion, with at least one side battered (sloped) to extend feeding areas. Dykes should be at least 2 m wide to allow light access.
- Try to avoid creating 'hard' edges – slope with machinery to produce graded edges, which provide flooded reed areas if water levels drop across the reedbed.
- If cutting is not an option to retain open water, reed can be sprayed in late July or August (to avoid the breeding season) every 2-4 years. Dead reed must be cut and removed to prevent depletion of oxygen when it decays. Spraying in England requires the consent of The National Rivers Authority (NRA) who can advise on choice of chemical.

Suggested ditch profile with required management



Poor ditch profile



Severe weather

Severe winters may cause local extinctions. Under these conditions only, it may be possible to save birds by artificial measures such as supplementary feeding, but these are not appropriate on a regular basis. Seek advice from your RSPB regional office.





Further reading

- 1 Batten et al (1990) *Red Data Birds in Britain*. Poyser, London.
- 2 Bibby, C J (1981) Wintering bitterns in Britain. *British Birds* 74:1- 10.
- 3 Burgess, N D and Evans, C E (1989) *The management of reedbeds for birds*. RSPB Management case study.
- 4 Cramp, S ed (1977) *Handbook of the birds of Europe, the Middle East and North Africa: the birds of the Western Palearctic*. Volume 1, ostrich to ducks. Oxford University Press, Oxford.
- 5 McGregor, P K and Byle, P (1992) Individually distinctive bittern booms: potential as a censusing tool. *Bioacoustics* 4: 93-109
- 6 *Reedbeds for Wildlife*. Proceedings of a conference on creating and managing reedbeds with value to wildlife 15 November 1991 RSPB/Bristol University.
- 7 Voisin, C (1991) *The herons of Europe*. Poyser, London.

Further information

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The Royal Society for the Protection of Birds is the charity that takes action for wild birds and the environment. It has joined with bird and habitat conservation organisations worldwide to form a global partnership called BirdLife International.



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