

Nest box provision to provide additional nesting sites for bearded tits *Panurus biarmicus* at Leighton Moss RSPB Reserve, Lancashire, England

Wilson J.

Royal Society for the Protection of Birds, The Lodge, Sandy, Bedfordshire SG19 2DL, UK

SUMMARY

At Leighton Moss RSPB Reserve, northwest England, bearded tit *Panurus biarmicus* nest boxes were designed and installed. Over 42% of the nest boxes have been occupied over the eight years of their use. Nest boxes placed over water are more likely to be used.

BACKGROUND

The bearded tit *Panurus biarmicus* (or bearded reedling) is a local bird in the UK confined to wetland habitat dominated by reed *Phragmites australis*. At Leighton Moss RSPB Reserve, Lancashire, northwest England, water levels have been raised in spring and summer both to provide suitable conditions for breeding bittern *Botaurus stellaris* and to reduce the rate of reedbed succession and invasion of willow *Salix* spp. and alder *Alnus glutinosa*. There was concern that this would reduce the availability of suitable nesting areas for bearded tits. Bearded tit nest boxes were therefore designed and installed to provide additional potential nest sites.

ACTION

Bearded tit nest box construction: Nest boxes are best made in early autumn, when the reed (used in their construction) is more



Photo 1. Completed bearded tit nest boxes.

flexible. Completed boxes are then kept under cover until early February when they can be installed. Figure 1 illustrates a bearded tit nest box and Photo 1 shows the completed nest boxes.

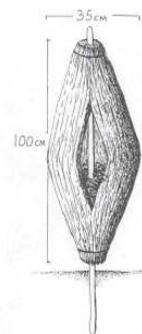


Figure 1. Bearded tit nest box.

The construction materials comprise a broom handle (a wooden pole approx. 30-35 mm diameter by about 1.5 m in height), some good quality reed with the shorter stems selected out, and baler twine (plastic string). Assuming the reed is about 2 m long, the next step is to select a bundle about half the thickness required for the cone. Judging this comes with experience. Cut it in half using a cross cut saw, and mix into one bundle. Using baler twine, tie the bundle as tightly as possible about 60 cm from one end. Position the bundle vertically with the tied end at the bottom. At the top end, pull the bundle open and force the pole through the tied part of the reed bundle. Then, tie the bottom of the reed bundle in a similar way to the top. Hold the assembly vertically with the top downward. While forcing the reed bundle downwards with one hand, use the other hand to gradually tease out the centre of the reed bundle into the diamond shape illustrated. Turning the assembly the correct way up, open the reeds to provide an entrance hole about 7 cm wide, and stuff a ball of broken reeds inside the bottom. This holds the shape of the nest box, prevents the entrance

from closing, and provides a base for the bearded tit nest.

Nest box siting: The nest box is sited in the reedbed (usually about 10 m from the edge) by pressing the pole into the mud so that the base of the box is just above the water surface or reed litter. If the site is liable to flood, the nest box can be constructed with a short length of pole protruding at the top. This allows it to be raised above the water by grasping the pole above the nest box, pulling the pole partly out of the mud whilst ensuring that it is still stable and will not fall over.

To avoid possible disturbance to bittern *Botaurus stellaris* and marsh harrier *Circus aeruginosus* (two rare and local breeding birds in the UK), and to enable ease of observation, sites easily accessible from existing paths and reed cut areas were selected. To aid relocation, it is advisable to mark the site of the nest box with a marker pole placed a short distance away.

Number of nest boxes erected: A total of 454 nest boxes were erected from 1997 to 2004. The number of nest boxes erected in each of the years is given in Table 1.

CONSEQUENCES

Nest box occupancy: Overall occupancy of the nest boxes was on average 42%, ranging from 66% in 2000 to 13% in 2001. The low occupancy in 2001 was due to a bearded tit population crash following a prolonged high water level and a spell of deep snow (these two factors inducing poor foraging opportunities and hence high mortality). Prior to this crash, several nest boxes were used more than once in

Table 1. Number of nest boxes installed and nest boxes occupied 1997- 2004.

Year	Number of nest boxes	Number occupied	Nests monitored
1997	51	20	20
1998	78	45	57
1999	62	36	46
2000	73	48	62
2001	70	9	9
2002	40	10	10
2003	40	12	12
2004	40	19	19

Note. The difference between the number occupied and monitored is that some boxes are used twice. Colour ringing showed that it was not always the same pair that used the box a second time.

a single breeding season. Through colour-ring observations it was apparent that it was not always the same bearded tit pairs that used the same box (see 'Ringing studies', below). Nest box occupancy in each of the eight years is summarised in Table 1.

Placement of nest boxes: Most success has been obtained by placing nest boxes in the wet areas of the reedbed where there is little or no reed litter. Only limited success has been obtained in drier areas where there is a lot of reed litter (Table 2).

Ringing studies: In 2000, colour-ringing produced the following results. Ten pairs, which succeeded in producing successful first broods, produced second clutches. Of these, two nested in the same box and four nested in the next available box involving movements of 30, 90, and 110 m. Four pairs moved distances of 150, 160, 210, and 680 m for their second attempt. In these four cases unoccupied boxes were available closer to their first successful attempt.

Table 2. Occupancy of bearded tit nest boxes at Leighton Moss in 1997 and 1998.

Area	Number of boxes	Number occupied	% occupied	Comments
1997				
Wet	24	14	58	Water 10-15 cm, little reed litter
Damp	18	3	17	Water under 5 cm. moderate litter
Dry	9	0	0	No standing water dense litter
<i>Total</i>	51	17	33	
1998				
Wet	43	32	74	Water 10-15 cm, little reed litter
Damp	21	5	24	Water under 5 cm. moderate litter
Dry	14	0	0	No standing water dense litter
<i>Total</i>	78	37	46	

Conclusions: The double use of boxes by different pairs in some years prior to the population crash in 2001, suggests that suitable nesting sites were in short supply, at least early in the season. There has been no double use since the population crash in 2001, but presumably if the population returns to pre-

crash levels double use may be expected again. This nest box design is both cheap and relatively easy to construct, and with on average 42% of boxes occupied (deemed to be a high rate of occupancy) over the eight years of their use to date, these boxes have proved very successful at Leighton Moss.

Conservation Evidence is an open-access online journal devoted to publishing the evidence on the effectiveness of management interventions. The pdf is free to circulate or add to other websites. The other papers from Conservation Evidence are available from the website www.ConservationEvidence.com