

Wild Warwickshire

Assessment of suitable nest box locations for Barn Owls (*Tyto alba*) in Warwickshire

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SUMMARY

The Barn Owl (Tyto alba) has shown a marked increase in Warwickshire and the county seems set to hit its target of gaining 100 breeding pairs by 2020. The Local Biodiversity Action Plan for the species has focused on habitat improvement and awareness as a way of facilitating the improvement of this species in the county. This short document illustrates an assessment method to highlight areas within the county that have an opportunity for the further spread of Barn Owls and places where nest boxes could be beneficial. The information is displayed in a series of GIS maps designed to focus efforts and suggests possible ways to support action plan target SM1.

INTRODUCTION

The Barn Owl is a specialised small mammal hunter that is active from dusk until dawn. After a significant population crash in Warwickshire the Barn Owl is steadily increasing in number with an estimated 60 pairs in 2004.

The habitat of the Barn Owl is exclusively agricultural with a strong preference for a mosaic of permanent grassland with linear features such as field margins and hedges.

A key factor in Barn Owl distribution is the availability of nest site. Barn Owls are traditional building nesters, taking up residence, as the name suggests, in old barns. With the loss of many of these rural locations due to development and conversions the pressure on suitable sites has very much restricted the spread of this species. It is hoped that by simple landscape analysis the provision of nest boxes could be more focused on the needs throughout the county.

METHODOLOGY

It has already been acknowledged that Countryside Stewardship land management not only increase the habitat suitability for

hunting Barn Owls but also represents areas within the county where landowners would be favourable for the erection of a nest box on their land. Therefore by analysing certain species and landscape metrics it is possible to create a series of GIS maps that highlight suitable areas for focused effort.

SPECIES AND LANDSCAPE METRICS

Using evidence from a wide range of literature sources it is possible to draw up a range of species specific metrics.

HABITAT PREFERENCE

Barn Owls prefer open permanent grassland and will only use woodland edges. Therefore Natural England GIS datasets for Environmental Stewardship Land, Woodland and Urban Areas build up a basic picture of suitable and unsuitable habitat areas.

HOME RANGE/TERRITORY SIZE

It is estimated that Barn Owls will forage up to 2km from a nest site and that a pair's territory will usually be between 1 and 3 km in size. In estimating the overlap of species it is possible to plot a buffer area around sightings to illustrate territories therefore ensuring nest boxes are not going to encourage intra-specific competition from existing pairs.

HUNTING PATTERNS AND ROADS

Barn Owls typically hunt at a height of only 1.5-4.5m from the ground typically 1-2 hours before and after sunrise. This makes them highly vulnerable to vehicles. Up to 45% of barn Owl deaths are a result of car collisions. This has led to it being suggested that no nest box be erected within 500m or a major road. This data was used to create a GIS layer with a buffer of 500m around every A-road and motorway in the county.

RECORDED PRESENCE

Using data collected from West Midland Bird Club Annual reports it was possible to map the location of all sightings listed in these publications between 2002 and 2006. This data whilst not immediately up to date and subject to editorial inclusion does help to highlight locations where Barn Owls are already known to frequent and given the 5 year time period perhaps illustrate hot spots and cold spots. Due to the scale of information given and the sensitivity of the species the location of individuals is plotted at the 1km scale.

RESULTS

The metrics outlined in the methodology were used to create three county maps. The first, Figure 1, illustrates habitat suitability. It shows in red the major road barriers these areas are unsuitable for nest box erection. It also shows in yellow the areas of land currently (2009) that are part of Higher Level Stewardship, Entry Level Stewardship or Organic Entry Level stewardship schemes. These locations are deemed to be more favourable for Barn Owls and nest box locations. Finally urban areas and woodlands are shown. Both of these are unsuitable habitats although woodland margins are can be an important hunting territory and have

suitability for nest boxes. This information is supplemented with records of sightings of Barn Owl in the county.

Figure 2 focuses on the distribution of Barn Owls in the county and relates territory size to illustrate vacant regions and areas where there is considerable overlap.

The final map, Figure 3, combines all this information to specifically highlight areas that are optimum for nest box locations when the following assumptions are made:

- Nest boxes should be on managed land.
- Nest boxes should not be in urban areas or woodlands.
- Nest boxes should not be within 500m of any major road or motorway.
- That the nest boxes should be introduced in areas without a large number of established Barn Owl territories. To encourage new pairs.

DISCUSSION

Despite any limitations in the use of the West Midland Bird Club Annual Report data set it is clear from Figure 1 that there are definitely avenues of opportunity to encourage the continued spread of the Barn Owl in the county.

Barn Owl numbers are highly reliant on nest site availability and the first map shows that in theory there is plenty of potential habitat right across the county. The Environmental Stewardship land cannot be taken as being totally suitable for nest box locations as the Natural England data set does not differentiate between arable and pasture land. Intensely cultured arable land is of course much lower in value than rough grassland. The benefit would however be seen where the Stewardship scheme on these

Figure 1

Map illustrating suitable Barn Owl nest box locations in relation to urban areas, major roads and estimated Barn Owl Distribution

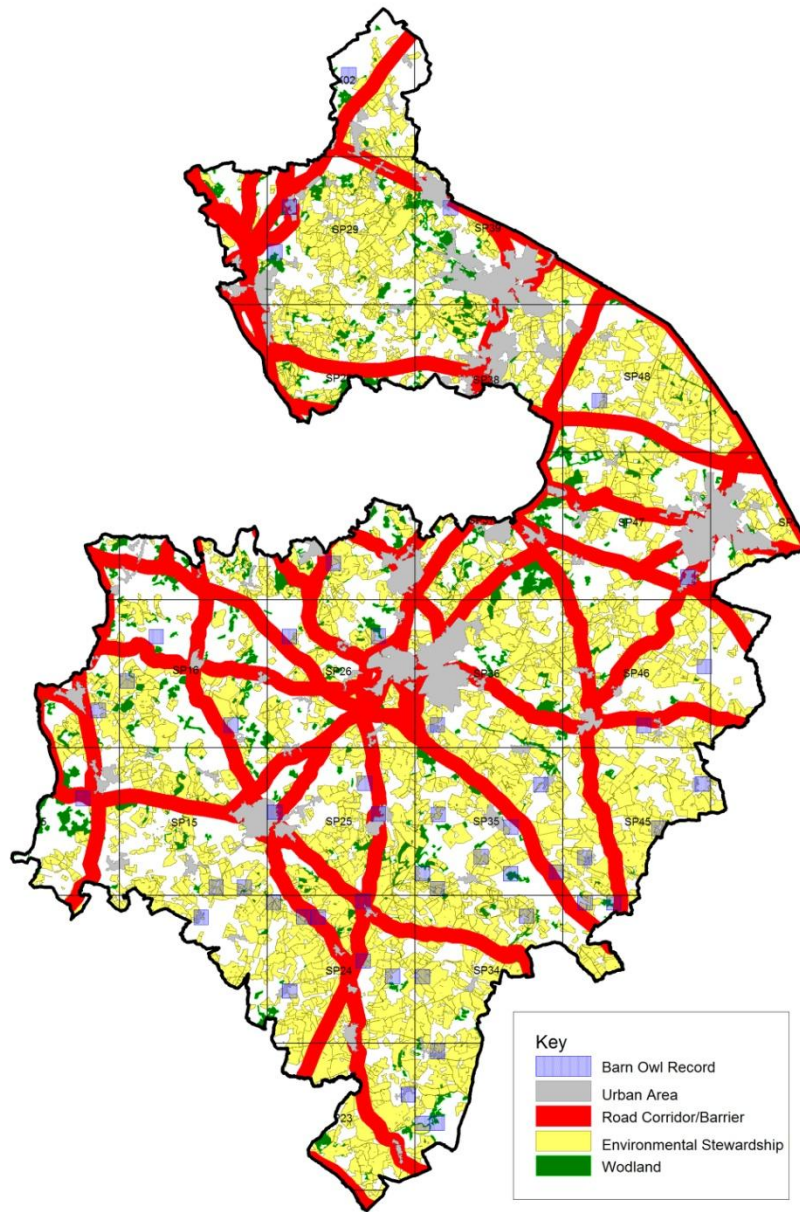


Figure 2

Map showing the overlap of Barn Owl Homeranges in Warwickshire based on a maximum territory size of 3km

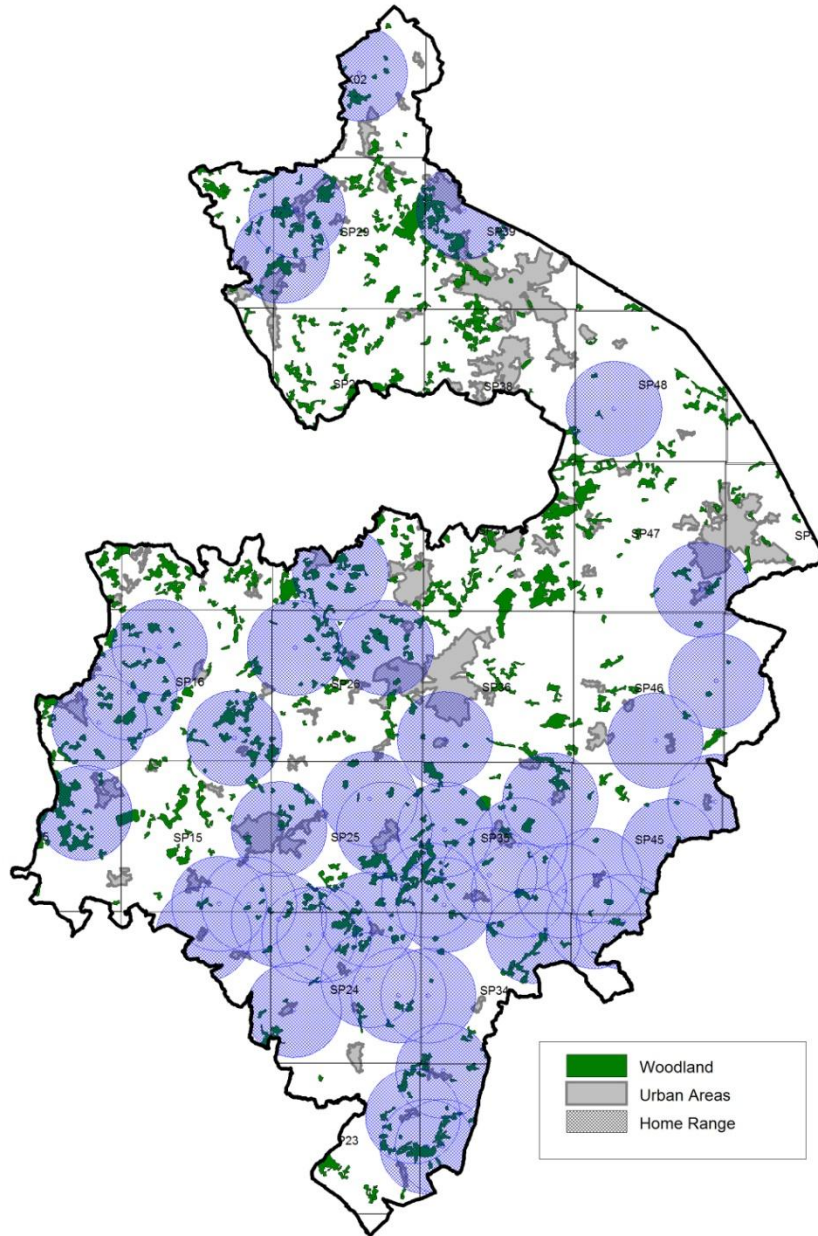
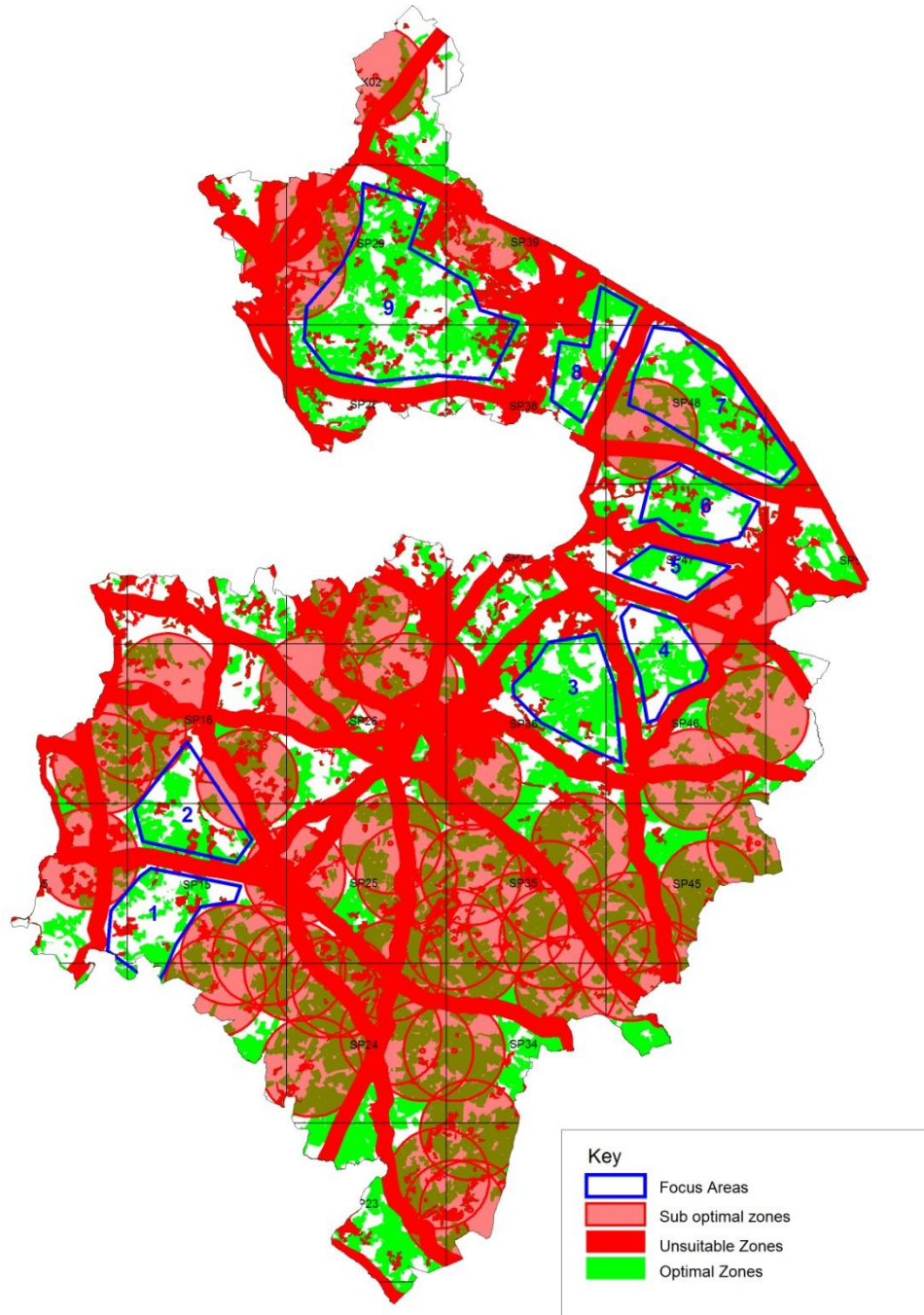


Figure 3 – See Table in text for key to Focus Areas



arable areas include wide field margins, beetle banks and other measures designed to increase insect biodiversity that in turn increase rodent populations.

Warwickshire is renowned for the number of motorways passing through it but despite this the distribution of major road corridors leaves some significant areas untouched. These road corridors should not be considered as an impermeable barrier to Barn Owl dispersal but more as an indication of a zone in which the risk of mortality is considerably higher. Likewise a chance encounter with a vehicle could occur on any road and in fact some B-roads such as the Fosse Way can be remarkable busy however the frequency of encounters between a vehicle and an owl on these roads should be considered significantly lower.

In terms of natal dispersal, which can be up to 39.6 km, only major urban areas and dense woodland would offer any serious barriers to movement. This suggests that the limitation of the Barn Owl to spread across the county is perhaps more a function of nest availability and prey availability. This concept that there is a viable sink population from which new individuals can be encouraged to spread across the county is reinforced in figure 2. Whilst it uses a maximum territory size of 3km it is known that territories are not always vigorously defended especially where prey availability is sufficient to support multiple pairs.

The map suggests the south of the county is the heartlands and that there are significant regions where either the Barn Owl is either substantially absent or severely under reported.

The final map tries to tie all the metrics and the assumptions made in the previous maps to try and highlight regions in which extra

effort would be both beneficial and able to yield greater success. By ignoring areas with established records of Barn Owls it is possible to identify 9 such regions. These regions are shown in the table below showing the Parishes in which they fall.

Focus Area	Parishes
1	Aston Cantlow Kinwarton Henley
2	Bardon Bidford and Salford Welford
3	Cubbington Radford Semele Long Itchington
4	Dunchurch and Knightlow Leam Valley
5	Earl Craven and Wolston Lawford and Kings Newnham
6	Lawford and Kings Newnham Avon and Swift Fosse
7	Fosse Wolvey
8	Wolvey Bulkington
9	Fillongly Arbury Arley and Whitacre Baddesley and Grendon Hurley and Woodend Curdworth

Currently efforts have been the erection of nest boxes have been focused on the Tame Valley in the north of the county and the Leam Valley in the central region. Both of these are good locations to encourage Barn Owls but it would be of even more benefit to attempt to erect at least one nest box in each of the aforementioned parishes. By working on the parish level the action could be linked into Parish Habitat Action Planning and utilise local knowledge and goodwill.

The provision of nest boxes will obviously incur costs and funding may need to be sought with nest boxes retailing at between £45 and £60. Onsite support should be gained from the Hawk and Owl Trust who can advise on the specific site of any nest boxes taking into consideration prevailing winds, tree size and disturbance factors etc.

One possible funding stream is the idea of sponsorship. Local estate agents or housing developers could be approached to pay for a number of nest boxes. In return they would receive beneficial press coverage.

BIBLIOGRAPHY

- Brown, A and Grice, P. (2005) *Birds in England. English Nature. T & A.D Poyser. London.*
- Kirby, J; Drewitt, A; Chivers, L and Saunders, R (2000) *Key Habitat Attributes and Bird Assemblages in England. English Nature Research Report No. 359.*
- Snow, D.W and Perrins, C.M (1998) *The Birds of the Western Palearctic Concise Edition. Oxford University Press.*
- Toms, M.P; Crick, H.Q.P and Shawyer, C.R (2001) *The status of breeding Barn Owls *Tyto alba* in the United Kingdom 1995-96. *Bird Study* **48**, 23-37*
- Wernham, C; Mike, T; Marchant, J; Clark, J; Siriwardena, G and Baillie, S (2002) *The Migration Atlas: Movements of the Birds of Britain and Ireland. BTO. T & A.D Poyser. London.*

West Midland Bird Club (WMBC) 1988 - 2006

The Birds of Staffordshire, Warwickshire, Worcestershire and the West Midlands. WMBC Annual Reports No. 55-73.

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