

Herefordshire's Sand Martins by Andrew Strong

This is a summary of the work that has been done over many years, ringing Sand Martins (*Riparia riparia*) at two breeding sites in Herefordshire, and illustrates some of the fascinating information we have obtained about our local birds. I also suggest how we can help preserve their future.

Background

The earliest computerised BTO record of a Sand Martin being ringed in Herefordshire is 1962. During the 1960's the colonial habits of Sand Martins provided excellent opportunities for ringing throughout Europe. Over 400,000 were ringed during this decade. This proved especially timely as during the winter of 1968 the population crashed. Numbers breeding in the UK declined by 80%. This was linked to a severe drought in their wintering grounds, limiting food availability (Sharrock 1977).

But it wasn't until the 1980's that ringing Sand Martins in Herefordshire began in earnest. The majority of the ringing between 1988 and 2005 was by Steve Dodd at a site in Stretton Sugwas. The birds were digging nest holes in the banks of a gravel extraction site. As the gravel extraction declined, so did the number of suitable 'faces' for nesting. No birds were ringed there after 2004. Fortunately, due to the temporary nature of their breeding sites, they are an opportunistic nester and the colony move accordingly.

In 1999 ringing had begun at a breeding site in the bank of the River Wye at Backney. Initially this involved the Severn Vale Ringing Group, and has continued to date with Dr Steph Tyler and Dan Webb.

There are also records of small numbers of Sand Martins being ringed or recaptured at various other sites in the County.

In total, over 4,500 Sand Martins have been ringed in Herefordshire.

Why Sand Martins?

This species is considered a priority species by the BTO. Although common in the UK and Europe there have been several large-scale population crashes since the 1960's, and populations have declined significantly over the past 50 years. Currently not enough information is being gathered about their current status across the country. There is insufficient coverage nationally to identify any population trend and inform conservation.

Lifestyle

Sand Martins are summer visitors to the UK, breeding in colonies in self excavated nest holes, dug out of vertical banks of rivers or gravel workings. The holes can be up to 1m long. They also use terraces of artificial nest chambers, if located in habitats within suitable distance of a plentiful food supply (small airborne invertebrates). Breeding sites are not necessarily associated with water, but suitable strata for nest digging normally is. Nesting can be several kilometres from the feeding area (Sharrock 1977).

Sand Martins are, on average, arriving in the UK three weeks earlier than they were in the 1960's (Newson *et al.* 2016) and appear in Herefordshire in mid-March (Davies 2018). However, 2018 saw Sand Martins, and other hirundines, arrive much later than usual. Also, various locations across the UK reported colonies being much smaller. Whilst the reason for this has yet to be established and could be due to factors at their wintering grounds or on their migration route, the data we are collecting will help show any local changes and effects.

Eggs are laid in early May, and incubation lasts about 14 days. Breeding is well synchronised within colonies. Some females will have two broods. If the first brood is successful they are less likely to have a second and this helps the adults maintain condition and increase their chances of overwintering survival.

Males are faithful to their breeding sites, returning to breed each year within the feeding area of their natal site. Females move away and will settle in a new area if breeding successfully (Cowley 2009). Ringing records have identified birds at least six years old, being recaptured at Backney six years after their initial ringing at the same site. In between they have travelled between here and Africa at least twelve times, flying a total distance of over 50,000 (fifty thousand) kilometres.

This is a fantastic age. Typical lifespan is only two years, and the maximum age identified by the BTO is 7yrs 9mths. It shows what a healthy place Herefordshire is to live!

Migration

After breeding, in August/September, the birds leave the UK to return to their wintering ground in the Sahel region of southern Africa (from Senegal eastwards).

The BTO hold details of locally ringed Sand Martins that have been recaptured outside of the County, including overseas. Although numbers are relatively small, if assumed to be broadly representative of our local birds it provides really interesting information about the movements of the birds once they leave their breeding site. Although absent from the breeding site by mid-August, local birds have been recaptured in the south of England into September. Many Sand Martins move south-east within the UK once they have left Herefordshire.

During their journey further south, there are records of birds from Herefordshire being recaptured in **France (9), Spain (2), Morocco (1), Algeria (1) and Senegal (4)**.

Also, there are records of birds being caught locally that were ringed in **France (10) and Senegal (3)**.

When young birds from the first brood leave their natal site they wander extensively, calling at other colonies. They are known to build up enormous roosts in reedbeds near water prior to their southern passage. One such roost in Norfolk in 1968 was estimated to contain two million birds (Flegg 2004). Juveniles move 100-300km at a time and stop regularly for up to two weeks as they cross Europe. Adult birds move more quickly only stopping for a few days (Elphick 2007).

Our earliest ringing records from 1965/6 show birds ringed in Essex, Sussex and Kent in late July, Aug and early Sept (whilst migrating south) were caught at their breeding site in Herefordshire in subsequent years. The appearance in Herefordshire of birds ringed in Sussex occurs regularly over the next 50 years. Birds ringed here are also caught in late summer in Sussex and Kent, suggesting a well-established migration route to Africa via the south-east corner of England.

We have records of locally ringed birds recovered on the northern French channel coast (south of Calais and near Le Havre), which is likely to be part of this route, the birds having taken the shortest journey across the Channel. There are also recoveries in mainland France east of Paris as the birds continue south.

Our data also shows that some Sand Martins may use a different route south from Herefordshire. During the 1990's and right up to date, local birds were caught in Hampshire, Dorset and the Channel Isles in late August. This is complemented by several recoveries along the western Atlantic coast of France, both north and south of La Rochelle.

In mid-August 2015 there was a recovery of one Herefordshire ringed bird east of Paris and another on the French Atlantic coast south of La Rochelle, similar distances from Herefordshire but over 500km apart.

The fact that these recoveries in totally different parts of France are at similar times would suggest the weather is not responsible for the different routes. Weather can play a role in migration, detours may be deliberate to avoid bad weather, or the result of navigational errors in strong winds or poor visibility.

Birds ringed in Senegal, on the west coast of central Africa in January, February and March have been recaptured in Herefordshire. A bird ringed locally has also been caught in Senegal in November showing migration complete by that time.

Between Herefordshire and Africa, birds ringed here have been caught in northern Spain inland from Bilbao, as well as just north of Gibraltar, and in Morocco, following the Atlantic coast towards Senegal.

When the enormous amounts of data for the recoveries of all UK ringed Sand Martins have been analysed (Flegg 2004), they confirm the movements we have identified above; south across France and across Spain then down its east coast, crossing to Africa near Gibraltar. The birds follow the African Atlantic coast over the western edge of the Sahara to Senegal.

Return migration is on a much broader front and further east than the southerly route, initially across the bulk of the Sahara. The prevalent north wind means that birds which are not fully fed and in prime condition do not survive. There has only been one locally breeding bird caught in western Europe during its northern passage. This was in April in eastern Algeria which fits with the identified easterly return route.

The north African coast is crossed in a wide band east of Gibraltar. The birds travel faster, averaging five weeks for the northbound journey.

Factors affecting survival and productivity

A study by Robinson *et al.* (2008), including data from the ringing and recapture at Stretton Sugwas, identified a correlation between minimum monthly rainfall in the Sahel and survival rates. Increased rainfall leads to increased vegetation growth and more insects whereas lower rainfall reduces food availability on their wintering grounds, reducing survival.

However, Cowley & Siriwardena (2005) suggest the effects of summer rainfall at the breeding site over subsequent months are more critical for the survival of British Sand Martins than the effects of the degree of rainfall on their wintering grounds. Heavy summer rainfall in the UK suppresses flight by adult insects and reduces food supply. In these circumstances, birds are less fit to survive migration and overwintering.

Szep (1995) found a positive correlation between rainfall in the wintering grounds prior to their arrival and annual survival and abundance of Sand Martins in the following breeding season.

A local study of Pied Flycatchers, another African migrant, (Coker 2018) identified that birds overwintering in a wetter habitat have higher productivity the following summer.

Generally these factors are difficult to assess as birds breeding in different areas winter in different parts of Africa where rainfall may vary considerably, and there is limited long term information available to calculate the survival and productivity of colonies in the UK.

Changes in farming practices, the prevalence of intensive arable farming, and the use of insecticides can also reduce food availability and affect productivity and survival. The north-west to south-east declines in Sand Martins across the British Isles (Balmer *et al.* 2013) matches the gradient of increasing arable farming and pesticide use. In an area where a selective pesticide eradicated the most favoured species of insect eaten by House Martins, their average brood size reduced by one (Piersma 2014).

How we can help

Ringing these birds can provide important information about their movements, site fidelity and longevity. Populations continue to be very unstable. To combat this a multi brooding strategy is employed by Sand Martins so that the population increases quickly in 'good times' to offset significant losses (Cowley 2009). There must be suitable breeding sites available to accept the increased numbers at these times.

Modern changes in land use impacts on this, and legislation to protect nests has had a negative impact in some areas, as quarry owners are reluctant to leave suitable 'faces' for fear of falling foul of the legislation when they want to continue extraction.

An artificial bank of nest holes is a relatively inexpensive way of providing a permanent breeding site, and with the means of monitoring the local population. There is good potential for this locally. Once occupied, collecting nest recording data and ringing fledglings could help identify population trends and protect their future.

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