

Reed Warblers returning to the Wicken Reedbed

This analysis looks at the site-fidelity of returning adult Reed Warblers to the Wicken Reedbed in 2010 and 2011.

Numbers ringed

In 2010, 679 'new' Reed Warblers were captured on the whole Fen – 147 as adults (age 4), 528 as pulli or juveniles (1CY or ages 1 or 3), and four as controls (all as adults previously ringed elsewhere). The totals were higher in 2011: 685 juveniles, 175 adults, and seven controls, a total of 867 birds. Most Reed warblers are caught at the WFG's FR and K net-sites (subsequently = the Reedbed), where all the net-rides are within 200-300m of each other. There is, however, good Reed Warbler habitat up to 2km in every direction from the core Reedbed netting sites; this wider population may comprise over a hundred pairs. Most Wicken pulli are ringed some distance from the Reedbed proper, along the Lodes.

Returning adults

Across both years 2010 and 2011, at the Reedbed (only), 95 different individuals were caught which had been *previously* ringed at the Reedbed, either as known juveniles (43) or as adults of unknown age (52). It is these 95 birds which are the subject of this analysis.

The statistical chances of recapturing any Reed Warbler will depend as much on local geography as on mortality. The very compact Reedbed ringing site, which fringes the main reedbed and pools area, is obviously used by a large population of birds. It may be that Reed Warblers breeding or based outside the close-in Reedbed area (as defined) forage quite widely and only visit the catching area irregularly; and the chances of them doing so when the nets are up are not high. Reed Warblers have only tiny territories adjacent to their nests (of 300-400m²), and do not defend a feeding area, instead ranging some distance into nearby sedge, reed and willow scrub to feed. Despite 30-40 ringing sessions each year, many breeding birds clearly avoid getting caught for the whole season, or get caught surprisingly infrequently. A case in point might be V834273, first caught as a juvenile in July 2008. This clearly has been on the Fen every year since, but has only been caught *just the once each year* (August 2009, May 2010, August 2011, May 2012).

The Reed Warbler season

Reed Warblers arrive at Wicken from mid-April. As a rule, the majority arrive in the third week; in 2010 the first multiple catch of birds was 25 April, and in 2011 this was 19 April. Breeding gets underway immediately on arrival.

The adult birds have pretty much all left by the third week of August; individual late-staying or passage Reedbed adults were caught in 2010 on 25 August (2), one on 29 August, and, exceptionally one on 5 September. In 2011 the last individual adults were on the 24 and 27 August. In contrast, juvenile birds continue to be caught for a further six weeks or so; the last juveniles were caught in each of the years on 5 October. 168 of the juveniles in 2010, and 236 of them in 2011 (about a third of the juveniles for the year) were caught after 20 August – that is, after nearly all the adults had gone.

Breeding and staging

Self-evidently, adult Reed Warblers captured at Wicken after their first calendar year will either be birds breeding at Wicken that year, or birds staging through Wicken either before or after the breeding season. Some of these birds will have been born at Wicken; others elsewhere. Similarly, the juvenile birds-of-the-year caught in their first year may or may not come from Wicken. There is evidence that young birds move off in almost all directions (including due North...) very soon after fledging. This random dispersal may be to seek out less crowded pre-migration habitat, or to explore potential future breeding areas.

Recapture histories

The somewhat unscientific analysis which follows looks at the recapture histories of the 95 individuals returning in 2010 and 2011 to see if it can shed any light on whether these are 'Wicken birds' or birds from elsewhere just using the Reedbed on passage.

At the very least the analysis shows that adult Reed Warblers do return year on year to this same small area; and that many young birds are back, probably breeding, at their probable birthplace in their first year after fledging.

To do the analysis, the Reed Warbler season was divided into three periods:

- an Early (E) period, before 15 May, of about three weeks, as birds arrive and pass through or stay to breed.
- a Breeding Season (B) period of two months, 15 May to 15 July inclusive
- and a Late (L) period, after 15 July. Adults will be starting to leave and most will be gone in a month. Juveniles will be around for another two months.

It would seem likely that birds caught within the middle period (B) would be more likely to be breeding at Wicken (adults, age 4 birds) or to have been born there (juveniles in their first year, age 3 birds).

The tables (see separate document *Reed Warblers returning Tables*) show the recapture histories: the first part is of birds first ringed as pulli or free-flying juveniles (age 3 birds); the second shows birds first ringed as adults (age 4 birds). The first column shows the period in which the bird was first ringed, and subsequent columns show the recapture history, by period.

It should be noted that the first captures in the first column combine data from several years. The latest capture year shown will always, however, be either 2010 or 2011. Thus the second adult in the table X078415 was first ringed in early July 2009 (B) and only recaptured once, in early May 2010 (E). The next bird adult R428908 was first ringed in June 2004 (B) and has been caught several times, most recently in late July 2010 (L).

The rate of recapture is, of course, primarily dictated by the survival (mortality rate), although once past their 1CY Reed Warblers can be notably long-lived. It is also affected by the open nature of the Wicken ringing operation. The Reedbed ringing operation obviously samples only several hundred breeding and passage birds from a huge pool of birds using good Reed Warbler habitat extending in all directions, in a fenland context where almost every ditch may hold breeding Reed Warblers.

Recaptures of birds first ringed as 1CY

(age 3, pulli or juvenile birds-of-the-year)

Some broad inferences may be possible.

1. Of five returning pulli, two birds were back in the following B period, and two in the following L period. The fifth bird wasn't caught in 2CY but reappeared in L CY3.
2. Of seven free-flying juveniles caught 15 May to 15 July, and thus less likely to be passage juveniles, all seven (100%) have been recaptured in a subsequent B period, even though four weren't actually caught in their 2CY.
3. The 24 juveniles caught after 15 July (L period) seem to fall into two possible groups, Wicken bred/breeders, and birds using Wicken on passage.
 - a. Wicken bred/breeders? Fourteen were back straightaway in their 2CY B period; another three in 3CY, and one in 4CY.
 - b. Wicken users? Another nine have only subsequently been captured in another L period.

Recaptures of birds first ringed as adults

(age 4, 2CY or older)

1. Of 28 birds first caught in the mid B period, twelve have been back in a B period at some stage. And, as a mirror of that, of 24 birds first caught in the late L period, fourteen have been subsequently caught in a mid B period at some stage. This suggests that Wicken breeders are as likely to be captured, or to evade capture, within each period. They are possibly moving around more 15 July to end August, before they leave.
2. Nine of the Late (L) period birds have only ever been caught in a Late period. One was caught only in two successive L periods; and four only after a gap of one or more years. These birds, again, may be regular Wicken users rather than breeders.

The Early (E) period

Quite a few Reed warblers are caught in the Spring passage period (E) prior to 15 May, but this period provides very few subsequent recaptures. There is no pattern of repeated E captures; and very little crossover between early E birds and birds staying on into B. Only two juvenile birds have been recorded in a subsequent E period.

Does this suggest that passage-fidelity (migrants staging through Wicken year on year) is more marked in autumn, perhaps as a good fattening-up area; or simply that birds stay around longer and are more likely to be caught?

Comments welcome.

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