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NOTES

WING LENGTHS OF CLAMOROUS REED WARBLERS *Acrocephalus stentoreus* IN ISRAEL

John Howard Morgan

ABSTRACT

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Wing length measurements taken from first-year, pre- and post-moulting (annual, complete) Clamorous Reed Warblers were recorded at a site in northern Israel. The resulting data set was examined using a time-series of residuals (CUSUM). Results from this analysis can explain the reported heterogeneity found in a comparable data set by Merom *et al.* (1999). Further observations made in their paper are rebutted: (1) an implied assumption that Reed Warbler (*Acrocephalus scirpaceus*) spring migration in Israel ends by 1 May is contrary to other publications; (2) the late autumn occurence in N Israel of longer-winged 1st cal. yr. Reed Warblers, unconvincingly explained as either delayed migration by larger individuals or post fledging feather growth, is most likely due to birds from different provenances origins moving at different seasons; (3) growth during adulthood in Reed Warbler is not a new discovery, though presented as such.

J.H. Morgan, Chemin de Laval, Cabrespine, F-11160, France,
E-mail: john_howard_morgan@yahoo.co.uk

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In a paper on age-related growth in Reed Warbler *Acrocephalus scirpaceus* and Clamorous Reed Warbler, Merom *et al.* (1999) observed that wing length measurements from one particular age class of Clamorous Reed Warbler in late summer and autumn form a heterogeneous group. First-year birds measured in September had significantly shorter wings than those measured during the period October to December. In their paper, Merom *et al.* (1999) offer no suggestion as to why this should be so.

During the autumn of 1999, as part of a larger ringing study, I trapped, examined and measured individuals of this species at a location in the Bet She'an Valley.

This is one of the several sites used previously by Merom *et al.* (1999). From my data, I was able to determine the reason for the heterogeneity they reported.

In any twelve-month period, all age classes of Clamorous Reed Warbler have minimal wing lengths in late summer. At this time, first calendar year birds – labelled *0* by Merom *et al.* (1999) – are carrying juvenile remiges. Of these the longest primary, at least, is known to be significantly shorter than the same feather in subsequent plumages for a number of passerines (Alatalo *et al.* 1984). Adult birds – labelled *1*, *2*, *etc.* by Merom *et al.* (1999) – are carrying remiges which have undergone ten months of abrasion and show signs of extreme and irregular wear (pers. observ.).

In September both groups moult completely (Cramp 1992). Adult birds replace worn (= shortened) feathers, and first year birds replace juvenile feathers. This moult ends at the beginning of October, with juveniles apparently slightly later than adults (pers. observ.).

Taken as standard values (Ginn and Melville 1983), primary scores progressed from an average of 4.5 in the first week of September, through 15 in mid-September, to 38 in the last week of September, when some individuals were already complete. After the end of the second week of October only very occasional birds had their outermost (distal) primaries still growing.

I recorded the wing length for all first trap and return birds, and for those repeats showing replaced remiges. When measuring wing length I was particularly careful not to include any birds having actively growing primary feathers 4-6 (numbered ascendantly, proximal = 10), these being the remiges that form the wing tip.

To confirm a strong suspicion that moult was the cause of the observed heterogeneity, cumulative residuals from the total sample mean (CUSUM) were examined *versus* the date, using wing length data collected over the moulting period. This time series indicated a period during which average wing length increased from its lowest value to a maximum; approximately 28 September to 15 October.

First-year Clamorous Reed Warblers, from late summer through the autumn, may be divided into two subsets using easily recognised plumage characteristics. Wing length means and variances from these have potentially significant differences. They are: (1) juvenile birds with short wings, probably the least variable; (2) moulted birds of the first year, with wings longer than juveniles, but expected to have wings shorter and perhaps less variable than adults. Heterogeneity might be expected if these subsets are combined.

Adult birds can also be divided into two at this season, using the extent of plumage wear: (1) unmoulted adults with short but very variable wings; (2) moulted adults with the longest wings, the variance including components due to age (Merom *et al.* 1999) and sex (Cramp 1992). For both first year and adults there can also be birds with partly grown primaries 4-6. These could incautiously be included in a sample, but should not have had their wing length measured in the first place.

It is clear from the above that any collection of wing lengths taken across a moulting period cannot be expected to be anything other than heterogeneous,

even when classified by age and/or sex. Had Merom *et al.*(1999) divided their Clamorous Reed Warbler data into annual groups split at the end of September instead of May (or December?), discarding any moulting individuals, their analysis might have been even more revealing. Whatever method Merom *et al.* (1999) actually used to divide their data, no matter whether it be according to that described in *Methods* (May to May), or according to the legend below *Fig. 1* (calendar year classes), it unfortunately pools wing length measurements from primary feathers acquired in two different moults one year apart.

Furthermore, assuming the statement of methods (Merom *et al.* 1999) applies to both the species studied, as seemingly implied, the effect on the data of averaging wing lengths of Clamorous Reed Warblers recaptured within the year as specified (May to May) is unfathomable. Repeats of longer than six months duration would have replaced their remiges and two different wings would therefore have been averaged. Even if divided at the moult, as suggested here, the data will contain measurements from a range of wings showing worn through new primaries. The method of averaging the set of measurements from individuals that Merom *et al.* (1999) describe is hardly an ideal solution to the problem, which can be better addressed using a regression analysis of wing length on date.

Also rather worrying is the unsubstantiated statement by Merom *et al.* (1999) concerning the numbers and subspecific identity of spring passage Reed Warblers in Israel. The suggestion that few if any migrants pass after 1 May, and that those that do will belong only to *A. s. fuscus,* contradicts other published material on this subject (Paz 1986, Shirihai 1996, Morgan and Shirihai 1997). At Eilat, the fourth quartile of cumulative capture total by ringing date for spring passage only begins on 9 May, and 10% of the total passage takes place after 19 May (Morgan and Shirihai 1997). Few of these May birds could be attributed to *A. s. fuscus* on plumage (Shirihai pers. comm.).

Merom *et al.* (1999) should have been alerted to the possibility of many "transients" in their "residents", and probably *vice versa,* from the results presented in their *Table 2*. In particular, the wing length variance among returns in the "transient" group is significantly smaller than that for non-returning birds (var ratio = 1.79, $F_{0.05,24.74} = 1.68$). The effect of this seemingly erroneous assumption cannot be known, but it is unlikely to negate the main result concerning growth with age.

However, their puzzlement over the longer wings and heavier body mass of late autumn juveniles is easily solved, as Merom *et al.* (1999) overlook a simple and parsimonious explanation. These birds are from a larger bodied provenance. In Eilat, southern Israel, the ringing station records of the International Birdwatching Centre show that Reed Warblers migrating at different periods during spring and autumn have varying wing length means (unpubl. data).

It is worth noting here that confounding of separable age classes also appears in the analysis by Yom-Tov and Ben-Shahar (1995) of Reed Warbler wing lengths taken at En Feshka (northern end of the Dead Sea). The large seasonal differences found were attributed by the authors solely to feather abrasion, but it seems a com-

bination of causes, such as the occurance of birds from multiple provenances and occasional failure by field workers to correctly distinguish different age classes, as well as feather abrasion, led to this (Perlman pers. comm.).

This note does not challenge the findings reported by Merom *et al.* (1999) concerning the growth of adult warblers. Indeed, their report that wing length in Reed Warbler increases with age is not new, though the authors imply that it is. It was first recorded at Wicken Fen, Cambs. (UK) some twenty-seven years ago (Thorne 1975).

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