mortality in terms of the mortality relative to the proportion of growth completed, rather than as a chronological age-specific mortality. The weight of each pullus ringed is the best and most useful measurement to record.

The recording of habitat and weight should be obligatory (as far as is possible) for all wader pulli. These data would, as Yates points out, clearly be of value and it is perhaps hard to justify *not* collecting them as a matter of routine.

References

Jackson, R. & Jackson, J. 1980. A study of Lapwing breeding population changes in the New Forest, Hampshire. *Bird Study* 27: 27–34.

[Redfern, C.P.F. 1982. Lapwing nest sites and chick mobility in relation to habitat. *Bird Study* 29: 201–208.]

Yates, B.J. 1981. Estimating pre-fledging mortality from ringing data: a proposal. *Wader Study Group Bull.* 33: 11.

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B.J. Yates comments:

I agree with most of the comment, by C.P.F. Redfern, on my proposal. However, I still consider bill length to be most suitable in the Redshank Tringa totanus *(and probably most long billed birds) for assessing age. It shows no post-hatching decline, and is far less variable (therefore, more accurate) than weight. In estimating chronological age it is the physiological age that is estimated and which is then interpreted, for convenience, as time.*

Estimating pre-fledging survival rates: a request for information

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Yates (*Wader Study Group Bull.* 33: 11) suggested that pre-fledging survival rates of waders could be determined if pulli were measured when ringed so that their age could be estimated. The principle of the method is simple: a smaller proportion of chicks ringed soon after hatching would be expected to be recovered when full-grown than, say, of those ringed when half-grown, because of intervening mortality. In view of recent successful applications of this method in the Netherlands, I am investigating the feasibility of persuading British ringers to make measurements of wader pulli and of collecting the data efficiently.

Before such a scheme could begin the best set of measurements to make needs to be determined. Bill length, head-and-bill length, tarsus, wing and weight are all candidates. The method of measurement also needs to be specified, e.g. are measurements with rulers acceptable or must vernier callipers be used. The accuracy of the measurement for the determination of age is obviously important but there are other important considerations. To be successful the scheme would need to coax the vast majority of ringers to co-operate. Therefore measurements which are difficult to make or which require special instruments will be avoided (even vernier callipers may be "special instruments" to many). I would be very grateful for any comments on the relative merits of different measurements, or on other aspects of the scheme. Any ringers who are likely to catch wader pulli of known age in 1984 and who would be prepared to try out some measuring techniques on them are urged to contact me as soon as possible.
