



## Review

**Mulvihill, R.S., Leberman, R.C. & Leppard, A.J.** (2004) Relationships among body mass, fat, wing length, age, and sex for 170 species of birds banded at Powdermill Nature Reserve. 184 pages. Eastern Bird Banding Association Monograph no 1. Ring-bound, \$15.00, available from Elaine Mease, 2366 Springtown Hill Road, Hellertown, PA 18055, USA. ISBN 0-9749063-0-1.

How many of us have notebooks full of wing and weight measurements dating back many years, that we have never done anything with? This monograph is a compilation of data from over 275,000 birds caught during 1974-2000 at Powdermill Nature Reserve in Pennsylvania, USA. The workers there have handled half a million birds since 1961, with almost all of the data collected by just two people over those years, and all others carefully calibrated against them. The method of data collection has been stable for over 40 years: with great foresight, wing lengths have been measured to the nearest half a millimetre, and the visible subcutaneous fat assessed for every bird, both relatively recent innovations for many European ringers.

The core of the book is the tables of body mass, analysed for each fat score class, and statistical tests for correlations among age, sex, wing length, body mass and fat score, given for the 100 species (91 of them passerines) for which a sample of over 100 birds was available. In all, this monograph contains data for 170 species (129 of them passerines), with large sample sizes for many of them – 57 species are represented by over 1,000 birds, and 18 of them over 5,000 – so the statistical power is high. There are few European species, but many of the North American ones have occurred in Europe as vagrants, and at least 30 of them have been ringed in Britain & Ireland.

The book also summarises wing length data, separated by age and sex where possible, with histograms plotted for the 100 commoner species. Wings are measured using the unflattened (minimum chord) method, as is normal in North American banding, so anyone wishing to

compare wing lengths will have to learn this method, but my experience on recent visits to Powdermill is that it is not difficult to pick up this technique. A little niggle is that there has obviously been a slight tendency to record wing lengths as '.0' rather than '.5', giving an unfortunate jagged appearance to many of the plots, but this does not detract from their value and utility in allowing many birds to be sexed by size, and some of the larger, more northerly, races to be tentatively identified.

The challenge, of course, is not just to collect the data, then analyse them, but also to interpret them. This book provides the material for much further work. The correlations of weight and fat score clearly shed further light on different species' migration strategies, with the long-hop migrants showing high levels of fat deposition. It would be fascinating to compare these data with those from a range of sites across the American continent – providing that the measurement techniques are calibrated – as was done for Europe and Africa in the European Science Foundation Migration Network. For instance, clinal variation in size could be explored, helping to link breeding, migratory and wintering areas for different populations, while examining the proportions of fat scores at a variety of sites could reveal the most significant areas for pre-migratory fattening.

This monograph should surely be close at hand for anyone who might catch a North American bird. It sets the standard and serves as a model for what can be done with long-term datasets. How about a similar compilation from the British and Irish observatories network?

**David Norman**