

POINTS OF VIEW – PUNTOS DE VISTA – PONTOS DE VISTA

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THE WEIGHTS OF NEOTROPICAL BIRDS

François Vuilleumier

Department of Ornithology, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024-5192, USA.

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Scattered in the ornithological literature, often in journals that are difficult to obtain and hence to consult, even in rich libraries (as is the one at the American Museum of Natural History), one can find papers chiefly consisting of lists of genera and species of Neotropical birds with some raw data on their body mass (weights). A very incomplete list of such papers includes the following: Cavalcanti & Marini (1993), Marini *et al.* (1997), and Oniki (1980, 1990) for some Brazilian birds; Fiora (1933, 1934), Contreras (1975, 1979, 1983a, 1983b, 1983c), Contreras & Davis (1980), and Salvador (1988, 1990) for birds from Argentina; Karr *et al.* (1978) for some birds from Central America; Peris (1990) for some birds from the Paraguayan chaco; Olson & Angle (1977) and Steadman *et al.* (1980) for some West Indian birds; Sanft (1970, 1973) for a number of birds from Venezuela, Peru, and Brazil. Many other publications dealing with various aspects of the Neotropical avifauna have included data on body mass. Examples are Fry (1980) for birds from the cerrado of Brazil and Belton (1984, 1985) for the birds of Rio Grande do Sul.

Knowledge of avian body mass can be used for a variety of purposes (see the classic

paper by Nice 1938; see also, e.g., Clark 1979), but, unfortunately, all too few reliable and usable data on body masses of Neotropical birds exist. Thus, about fifteen years ago, during our comparative study of bird communities living in Mediterranean-type bioclimates, including central Chile, we (Blondel *et al.* 1984) had difficulty finding adequate weight data to include in our multivariate statistical analyses.

The fact that a number of papers list body masses of many Neotropical species should not be construed to mean that our knowledge of avian body mass in this region is adequate. Indeed, interesting and valuable as papers like the ones cited herein are, I have reached the conclusion that the data they contain are, unfortunately, probably useless for most general studies. This sad conclusion is due to the fact that the circumstances of capture are often not given, the sample sizes are very small (often the body masses of single birds are cited), and, in general, there is little in the way of comparisons or analysis. By contrast, such papers as that of Clench & Leberman (1978) give an analysis by month, age, and sex, that allows one to investigate further the significance of body mass as a biological vari-

able.

Body mass, and its variability, both intra- and interspecific, is widely acknowledged to represent certain physiological states during the life of birds, and is hence an important variable to consider in studies of avian biology in the Neotropics. But to be truly useful, weight (mass) data should be exhaustive, wholly comparative, and given with full information about the circumstances during which body masses were recorded. This information should include, but is not restricted to, molt stages, body (subcutaneous) fat level, parasite load, age, sex, whether the body mass data correspond to the breeding period or the migration period, and whether they are taken from birds that have recently bred or laid eggs. In addition, body mass data of Neotropical birds should be accompanied by precise information about the instruments used to record these data, and their relative degree of precision. Some authors, for example Marini *et al.* (1997) do give this information. Otherwise, I fear that these published lists of body masses, useful as they may appear at first sight, will actually remain in the category of "unanalyzable raw data."

In order to move ahead in the study of body mass of Neotropical birds, I suggest a two-step process. First, an ornithologist who has an interest in, and knowledge of, body mass information and its potential relevance to avian biology in the Neotropics should undertake a thorough and critical review of the disparate information that is now available in this scattered literature, using the bibliography below as a starting point. Once this review is done, actual research on body mass should be pursued by ornithologists in the Neotropics who have access to such data, not simply on an anecdotal level, but, most importantly, on a scale such that statistical analysis of the raw data can be presented. Such studies could be carried out on a single species or on an assemblage of species. But

what is now needed is information about body mass that is fully integrated into a biological framework. The lists which started the ball rolling have now outlived their usefulness and must be supplanted by biologically meaningful studies. If lists of raw data of body masses of Neotropical birds are still deemed worthy of publication, then, at the very least, an analysis of the significance of the lists of weights must be presented.

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