

In the case of Belthoff and Ritchison's (1989) paper, it would have been more appropriate to have used either the original terminology of Greenwood (1980; gross dispersal); or make use of one of the alternative terms available which are more applicable to the work carried out rather than attempting to redefine proper and accepted terminology.

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NATAL DISPERSAL: GREENWOOD (1980) REVISITED

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Howard (1960) defined dispersal as "the movement the animal makes from its point of origin to the place where it reproduces or would have reproduced if it had survived and found a mate." Greenwood (1980) reasoned that this movement referred only to juveniles undergoing a permanent movement from birth place to first breeding site or potential breeding site and could more correctly be termed "natal dispersal." Greenwood (1980) further observed that this definition of natal dispersal did not specify that the dispersal be reproductively successful. To make this distinction, Greenwood (1980) suggested that natal dispersal could be classified as either gross (the permanent movement of individuals to a new location irrespective of whether or not they reproduce after dispersing) or effective (an individual reproduces following dispersal). Belthoff and Ritchison (1989) examined the movements of juvenile

Eastern Screech-Owls (*Otus asio*) from their birth sites and referred to such movements as natal dispersal. Belthoff and Ritchison (1989, p. 254) defined natal dispersal operationally as "the permanent movement of individuals to a new location irrespective of whether or not they reproduced after dispersal" and noted that their definition of natal dispersal matched one of Greenwood's (1980) definitions of natal dispersal, i.e., gross dispersal.

Warkentin and James (1990) believe it is incorrect to use natal dispersal as a synonym of gross dispersal while it is correct to use natal dispersal as a synonym for effective dispersal. As described above, we felt that Greenwood's (1980) definition of natal dispersal encompassed both gross dispersal and effective dispersal. Thus, although we may have misinterpreted Greenwood (1980), it was not our intention, as Warkentin and James (1990) accused, to "redefine proper and accepted terminology."

Warkentin and James (1990) also observed that Belthoff and Ritchison (1989) defined natal dispersal as a "permanent movement" but failed to define the term "permanent." As noted above, we used the original language of Greenwood (1980) in our working definition of natal dispersal, and Greenwood (1980) also failed to define "permanent." However, we assumed that (1) Greenwood (1980) used the term to indicate that once young leave their natal territories they never return and, (2) therefore, no definition was needed. We

felt it unlikely that, as suggested by Warkentin and James (1990), Greenwood (1980) used permanent in the other sense, i.e., young move to new sites and never leave those sites.

Finally, Warkentin and James (1990) suggested that our paper is confusing and misleading because many of the birds we studied did not "carry out the full extent of natal dispersal as it is commonly defined." If one accepts that gross dispersal is synonymous with natal dispersal (in the spirit of Greenwood, 1980), then this criticism is irrelevant.

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