The astonishing diversity of avian movement patterns, reproductive tactics, and survival rates creates rich opportunities for study, but also presents enormous challenges for explaining variation among life-history traits and dispersal. Dispersal decisions shape the genetic structure of populations and thus can be of considerable importance in processes such as speciation. Moreover, a better understanding of dispersal and movement among populations remains fundamental for effective conservation strategies for a great many species. Factors affecting dynamics of highly mobile bird populations are particularly difficult to decipher because of varying environmental conditions and habitat changes among breeding, migration, and wintering areas. Depending on species, dispersal by individual birds involves movements of <0.1 to >1000 km (Greenwood and Harvey 1982). Therefore, hypotheses about survival, reproductive rates, population dynamics, and conservation actions must be addressed at much larger spatial scales than has typically been considered in the past, and in some instances should span entire continents or hemispheres.

Fortunately, there has been recent progress in both the conceptual development and application of techniques that have led to a better understanding of linkages between breeding and wintering grounds (Hobson 1999, Webster et al. 2002), and analytical methods for estimating movement, occupancy, and survival rates (Nichols and Kaiser 1999, Kendall and Nichols 2004). Furthermore, we anticipate exciting advances in the near future, as information about natal, breeding, or wintering locations of birds is integrated with information on subsequent dispersal decisions and demographic performance. These premonitions sparked our interest in hosting a special session on this topic at the 121st annual meeting of the AOU in Urbana-Champaign, Illinois, August 2003. We also sought to expand on ideas and studies presented by Walters (2000), by focusing on both new empirical evidence and ways of revealing dispersal patterns and processes at large spatial scales.

The ranges of distances reportedly dispersed by young birds between fledging and first nesting (i.e., natal dispersal; Greenwood and Harvey 1982) and by adult birds between breeding attempts (i.e., breeding dispersal) are obviously constrained by study-area size (Lambrechts et al. 1999) and detection methods (Koenig et al. 1996). Choice of correct scale for evaluating causes and consequences of natal dispersal would seem particularly important (Forero et al. 2002) in view of (1) longer distances typically moved by young or inexperienced birds and (2) potentially high mortality associated with postfledging movements, which could be counteracted by benefits of site familiarity. In a novel investigation of breeding dispersal by Tree Swallows (Tachycineta bicolor), Winkler et al. (2004) demonstrate that adults disperse less far than the detection limits of their large scale monitoring scheme in upstate New York, a system in which birds could be detected moving among widely spaced study units located up to 400 km apart. However, they also report frequent breeding dispersal by females with reproductive failure to sites beyond the boundaries of study units typical of most passerine study-area sizes.

Methods of estimating movement rates have been developing rapidly, with new models being developed...