

competition plays a major role in producing community patterns does not go much beyond demonstrating an agreement between observed and expected patterns. If these patterns can be produced by no process other than competition, such inferences are justified, but this is rarely the case." Wiens discusses in detail in a later chapter additional processes that can generate the patterns used as evidence in support of the importance of competition.

The bulk of volume 2 contains a synthetic discussion of spatial and temporal aspects of community variation. Wiens concludes that many processes contribute to such variation. From the outcome of individual life histories to the patterns of speciation and extinction over geological time, processes operating at multiple scales contribute to the exceeding complexity of local communities. This richness of structure makes simple, single-factor models of cause and effect very difficult to apply to bird communities. Throughout both volumes, Wiens presents diagrams of alternative processes that might result in observed patterns. He suggests that careful consideration of all alternative explanations is critical in the design, analysis, and interpretation of bird community studies.

Despite the complexity of the ecological systems that birds live in, patterns in assemblages of birds still exist. Species are different ecologically, and they often occur in nonrandom combinations. MacArthur's explanations for these patterns may have been too simple, but his approach to asking questions about communities revolutionized the field. The questions MacArthur asked injected a sense of excitement into community ecology. Because of this, MacArthur became the heart of the field. But if MacArthur was the heart, Wiens has been the conscience. History may remember MacArthur for his ability to ask interesting questions, but it is the less glamorous, methodical approach to looking for the answers advocated by Wiens that makes science work. The legacy of MacArthur was not in the answers he provided but in the questions he asked and how he asked them. Wiens simply suggests that the answers are far more interesting than we originally suspected.

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