

Lovette, I. J., and E. Bermingham. 1999. Explosive speciation in the New World *Dendroica* warblers. *Proceedings of the Royal Society of London: Biological Sciences* 266, 1629-1636.

Abstract: The 27 species of *Dendroica* wood-warblers represent North America's most spectacular avian adaptive radiation. *Dendroica* species exhibit high levels of local sympatry and differ in plumage and song, but the group contrasts with other well-known avian adaptive radiations such as the Hawaiian Honeycreepers and Galapagos finches in that *Dendroica* species have differentiated modestly in morphometric traits related to foraging. Instead, sympatric *Dendroica* tend to partition resources behaviorally, and they have become a widely cited example of competitive exclusion. We explored the temporal structure of *Dendroica* diversification via a phylogeny based on 3639 nucleotides of protein-coding mitochondrial DNA. Taxa sampled included 60 individuals representing 24 *Dendroica* species and a variety of other paruline warbler and outgroup species. Mitochondrial divergences among *Dendroica* species were generally large (mean pairwise interspecific distances = 10.0%), and many species were rooted in a basal polytomy. The prevalence of long terminal branches indicates that these species have evolved efficient isolating mechanisms that have prevented mtDNA introgression despite the many opportunities for hybridization resulting from local sympatry. Comparisons with a null model of random bifurcation/extinction demonstrate that cladogenesis in *Dendroica* has been clustered nonrandomly with respect to time, with a significant burst of speciation occurring early in the history of the genus, possibly as long ago as the late Miocene or early Pliocene. Although this nonrandom clustering of speciation is consistent with the pattern expected of an adaptive radiation, the age of the *Dendroica* radiation suggests it is an "ancient species flock" in which most extant species represent lineages that have long been evolutionarily independent.