

## ABSTRACTS FOR ISSUE 103(1) FEBRUARY 2001

### FEATURE ARTICLES

#### COMPARATIVE PHYLOGEOGRAPHY OF SOME ARIDLAND BIRD SPECIES<sup>1</sup>

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*Abstract.* We compared mitochondrial DNA sequences for six species distributed across the aridlands of North America to document phylogeographic patterns and assess levels of congruence. The Curve-billed Thrasher (*Toxostoma curvirostre*) and Canyon Towhee (*Pipilo fuscus*) show genetic divisions between the Sonoran and Chihuahuan Deserts, whereas the Cactus Wren (*Campylorhynchus brunneicapillus*), Black-tailed Gnatcatcher (*Polioptila melanura*), and Verdin (*Auriparus flaviceps*) do not. Most likely, species without phylogeographic structure only recently colonized their entire current range. Therefore, although these species are today part of a widespread avifauna, species' distributions were historically different from today. In Baja California, the Cactus Wren and the Verdin show phylogeographic breaks at 28°–30°N, consistent with a division previously described in the LeConte's Thrasher (*Toxostoma lecontei*) and in some members of the herpetofauna. These genetic divisions were likely caused by isolation resulting from a mid-peninsular seaway that existed one million years ago. Hence, these species appear to have been broadly sympatric for at least one million years. In contrast, the California Gnatcatcher (*Polioptila californica*) lacks such a phylogeographic division, and apparently only recently expanded into the northern part of its current range. Thus, not all species in Baja California have had similar histories, although further sampling might reveal a general pattern. Comparative phylogeography therefore provides an indirect method of evaluating the long-term stability of faunas via assessment of levels of phylogeographic congruence, and can show whether particular species are likely to have had a long period of co-association.

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