

SHORT COMMUNICATIONS

GENETIC VARIABILITY AND TAXONOMIC STATUS OF THE NIHOA AND LAYSAN MILLERBIRDS

ROBERT C. FLEISCHER^{1,3}, BETH SLIKAS¹, JON BEADELL¹, COLM ATKINS¹, CARL E. McINTOSH¹, AND SHEILA CONANT²

¹*Center for Conservation and Evolutionary Genetics, National Zoological Park and National Museum of Natural History, Smithsonian Institution, 3001 Connecticut Ave., NW, Washington, DC 20008*

²*Department of Zoology, University of Hawaii at Manoa, Honolulu, HI 96822*

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³ E-mail: fleischerr@si.edu

Abstract. The Millerbird (*Acrocephalus familiaris*) is an endemic Northwestern Hawaiian Islands reed warbler that existed until about 1923 on Laysan Island (*A. f. familiaris*) and currently occurs in a small population on Nihoa Island (*A. f. kingi*). The two populations are described as separate subspecies or species on the basis of size and plumage differences. We assessed genetic variation in blood samples from 15 individuals in the modern Nihoa population using approximately 3000 base pairs (bp) of mitochondrial DNA (mtDNA) sequence and 14 microsatellite loci. We also obtained up to 1028 bp of mtDNA sequence from the fragmented DNA of museum specimens of three birds collected on Nihoa in 1923 and five birds collected on Laysan in 1902 and 1911 (ancient samples). Genetic variation in both marker types was extremely low in the modern Nihoa population (nucleotide diversity [π] = 0.00005 for mtDNA sequences; observed heterozygosity was 7.2% for the microsatellite loci). In contrast, we found three mtDNA haplotypes among the five Laysan individuals (π = 0.0023), indicating substantially greater genetic variation. The Nihoa and Laysan taxa differed by 1.7% uncorrected mtDNA sequence divergence, a magnitude that would support designation at the subspecies, and perhaps species, level relative to other closely related *Acrocephalus* species pairs. However, in light of strong ecological similarity between the two taxa, and a need to have additional populations to prevent extinction from stochastic effects and catastrophes, we believe these genetic differences should not deter a potential translocation of individuals from Nihoa to Laysan.

Key words: *Acrocephalus, genetic variation, Laysan, microsatellites, Millerbird, mitochondrial DNA, Nihoa.*