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Abstracts

FEATURE ARTICLES

BIOGEOGRAPHY OF EASTERN POLYNESIAN MONARCHS (POMAREA): AN ENDEMIC GENUS CLOSE TO EXTINCTION

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Abstract. The passerine genus *Pomarea* (monarchs, Monarchidae) is endemic to eastern Polynesia, where it is distributed on high volcanic islands of the Cook, Society, and Marquesas archipelagos. Recent extinctions of these birds have been documented on several islands, and most of the remaining forms are threatened by introducted rats (*Rattus rattus*) and habitat loss. We used mitochondrial DNA markers to develop a phylogeny of the entire genus Pomarea, including extinct taxa. This phylogeny was compared to geological data of the eastern Polynesian islands, with emphasis on the Marquesas archipelago where Pomarea has undergone its most extensive diversification. The phylogeny of Pomarea monarchs is consistent with the sequential appearance of the Marquesas islands. We approximated the ages of the lineages using molecular-clock and Bayesian methods that incorporate geological data. Both analyses showed differences of 1 to 2 million years between the ages of most islands and the ages of the nodes. We suggest that these differences are due to a latent period during which the islands were emergent but not successully colonized by Pomarea taxa. Phylogenetic hypotheses suggest that several species are polyphyletic. We outline the taxonomic consequences of our tree as well as implications for the evolution of sexual dimorphism in monarchs.

Key words: cytochrome b, extinction, Marquesas islands, molecular phylogeny, monarchs, *Pomarea*.