

The flightless Mancallinae (Aves, Pan-Alcidae) from the Pacific Ocean are represented by one of the richest fossil records among Charadriiformes. A detailed review of previously published and previously undescribed fossils referred to Mancallinae resulted in taxonomic revision of the clade and the identification of three new species from the Miocene and Pliocene of California, USA. This monograph includes descriptions of new Mancallinae species and provides the first species-level phylogenetic hypothesis of Mancallinae relationships. Phylogenetic hypotheses were generated through the combined analysis of molecular sequence data and newly identified morphological character data for extant and extinct charadriiforms. The results of the combined phylogenetic analysis places hypotheses regarding the ethology and morphological convergence of Mancallinae to other flightless wing-propelled divers in phylogenetic context and facilitates comparisons between alcid paleodiversity and paleoclimatic events that have been hypothesized as drivers of alcid evolution.

## TAXONOMIC REVISION AND PHYLOGENETIC ANALYSIS OF THE FLIGHTLESS MANCALLINAE (AVES, PAN-ALCIDAE)

N. ADAM SMITH



*Mancallinae* Brodkorb, 1967

ZooKeys 91 ♦ 2011  
Special Issue

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