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Genetic differentiation in the Mexican endemic Rufous-backed Robin, *Turdus rufopalliatu*s (Passeriformes: Turdidae)

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Abstract

The Rufous-backed Robin (*Turdus rufopalliatu*s) is endemic to deciduous and semideciduous tropical forests of western Mexico. Of the currently recognized subspecies, *T. r. graysoni*, from the Tres Mariás Islands and nearby coastal Nayarit, has been considered a separate species; however, this treatment has been challenged due to an apparent contact zone on the mainland, although no hybrids have ever been recorded. Here, we use mitochondrial DNA sequences from individuals sampled across the species' range to assess their phylogeographic relationships. We found reciprocal monophyly between Tres Mariás Islands and mainland populations, which share no haplotypes between them. Evolutionary divergence detected within *T. rufopalliatu*s suggests that mainland and island populations have been isolated from each other, and divergence decreases if insular populations are excluded. Demographic parameters suggest that populations are in the process of a rapid expansion from ancestral populations with a lower population size. These results are consistent with morphometric and plumage differences that have been used to recognize the Tres Mariás Islands populations from the mainland ones, thus suggesting species status of the island form.

Key words: birds, Mexico, mitochondrial DNA, phylogeography, population genetics, Tres Mariás Islands

Introduction

Mexico is known for its wide range of habitats and high biological diversity (Ramamoorthy *et al.* 1998). Of these habitats, the deciduous and semideciduous forests that occur along the Pacific Slope and the Balsas Basin (Challenger & Soberón 2008) are of special interest, as this region in western Mexico houses the highest richness of avian endemism, constituting a hotspot for diversification of Mesoamerican birds (Escalante *et al.* 1993; Peterson & Navarro-Sigüenza 2000; García-Trejo & Navarro 2004).

When compared to mainland settings, Mexican islands exhibit a relatively low number of endemic species (Escalante *et al.* 1993; Peterson & Navarro-Sigüenza 2000); however, endemism increases in these islands when alternative taxonomic viewpoints (species concepts) are employed (Peterson & Navarro-Sigüenza 2000; Navarro-Sigüenza & Peterson 2004). In general, the combination of geographic isolation and age of many islands in the world have produced an array of biotas sometimes well differentiated from those on the nearby mainland due to the action of different evolutionary processes (Losos & Ricklefs 2009). Thus, islands are natural areas of research for the study of diversification and speciation, and since the early mid-19th century, scientists such as Darwin (1859) and Wallace (1880), have traditionally considered island birds as extremely valuable for studies in evolutionary biology.

The Tres Mariás archipelago includes four main islands located about 100 km offshore from the western Mexican state of Nayarit. Studies of vertebrate taxa from this archipelago have revealed high levels of endemism in reptiles (Ochoa-Ochoa & Flores Vilella 2006), mammals (López-Forment *et al.* 1996), and birds (Navarro &