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An overlooked threatened species of eagle: Legge's Hawk Eagle *Nisaetus kelaarti* (Aves: Accipitriformes)

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Abstract

Species delimitation is fundamental to many areas of biology, and in cases where taxonomic status has not been sufficiently clarified the ramifications can be as serious as extinction due to the failure to implement conservation measures. Since 1931, the Mountain Hawk Eagle *Nisaetus* (*Spizaetus*) *nipalensis* Hodgson has included the allopatric Sri Lankan and southern Indian taxon *N. kelaarti* (Legge) as a subspecies, and its taxonomic status has not been re-evaluated. We found that *N. kelaarti* differs considerably from *N. nipalensis* in its relatively much larger bill and claws and short primary projection, and that it also differs consistently in numerous plumage characters and other mensural characters. Its vocalizations differ distinctly, and an earlier study found a moderate degree of genetic differentiation (4.4% in cyt b and 3.1% in CR) from *N. nipalensis*. The available evidence thus strongly and unambiguously supports the specific distinctness of *N. kelaarti*.

Key words: taxonomy, phylogeography, vocalization, *Spizaetus nipalensis*, Mountain Hawk Eagle, India, Sri Lanka

Introduction

Species delimitation is essential to biogeography, ecology, macroevolution, and conservation biology (Brown *et al.* 1996; Blackburn & Gaston 1998; Barraclough & Nee 2001; Rasmussen 2005; Agapow *et al.* 2004). Regardless of which species concept is applied, assigning specific status to allopatric taxa will inevitably remain somewhat arbitrary. Under the Biological Species Concept (BSC) there have been only vague guidelines as to how allopatric populations should be treated (Mayr & Ashlock 1991). Recently, Helbig *et al.* (2002) worked out more detailed guidelines for assigning species rank. According to their criteria, allopatric taxa should be considered species if they are fully diagnosable in each of several discrete or continuously varying characters related to different functional contexts, e.g. structural features, plumage colours, vocalizations, or DNA sequences, or some combination of these, and when the sum of the character differences corresponds to or exceeds the level of divergence seen in related species that exist in sympatry.

When the first large hawk-eagle specimen was taken in Sri Lanka, it was considered identical to the Mountain Hawk Eagle *Nisaetus nipalensis* of the Himalayas by all authors, few of whom had actually examined the specimen (Jerdon 1862; Blyth 1866; Holdsworth 1872; Sharpe 1874). Only when three additional specimens became available was it apparent that the Sri Lankan form was distinctive, and Legge then named it as a new species *N. kelaarti* (Legge 1878). Subsequently, Peters (1931) treated *N. kelaarti* as a subspecies of

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