



Phylogeny-based species delimitation of southern Philippines bent-toed geckos and a new species of *Cyrtodactylus* (Squamata: Gekkonidae) from western Mindanao and the Sulu Archipelago

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Abstract

Using a combination of fixed morphological character differences, mitochondrial DNA sequence data, and an estimate of phylogeny as our guide, we describe a new species of bent-toed gekkonid lizard (Genus: *Cyrtodactylus*) from southwestern Mindanao Island, and northeastern portions of the Sulu Archipelago, southern Philippines. The new species resembles *C. annulatus*, but differs from this and all other congeners by characteristics of external morphology, color pattern, and body size. In addition, the new species is distinguished from congeners by marked genetic divergence and reciprocal monophyly of mitochondrial DNA sequences. The new species is common in pristine, low elevation gallery forests throughout Pasonanca Natural Park, Zamboanga Peninsula, southwestern Mindanao Island, and the northeastern portions of the Sulu Archipelago.

Key words: New species; *Cyrtodactylus*; geckos; Mindanao; Pasonanca Natural Park; Philippines; Zamboanga

Introduction

Philippine lizards of the family Gekkonidae include 10 genera and 40 or 41 species: *Gehyra* (1), *Gekko* (11 when the doubtful record of *G. hokouensis* is excluded; Ota *et al.* 1989; Brown *et al.* 2008, 2009; Roesler *et al.* 2006), *Hemidactylus* (5), *Hemiphyrodactylus* (1), *Lepidodactylus* (6), *Luperosaurus* (6), *Ptychozoon* (1), *Pseudogekko* (4), and *Cyrtodactylus* (5), (Taylor 1922a, b; Brown & Alcalá 1978; Brown *et al.* 2007; Gaulke *et al.* 2007; Welton *et al.* 2009). A single record from Mindanao for *Perochirus ateles* (Duméril 1856; Boulenger 1885; Taylor 1922a; Brown & Alcalá 1978) has not been confirmed in the last 150 years, but so little work has been conducted in western Mindanao, that it is currently impossible to evaluate the status of this species in the Philippines.

New species of *Cyrtodactylus* are being described regularly (Bauer 2003; Batuwita & Bahir 2005; Grismer 2005; Grismer & Leong 2005; Grismer & Norhayarti 2008; Grismer *et al.* 2008; Hayden *et al.* 2008; Kraus 2008; Linkem *et al.* 2008; Tri *et al.* 2008; Welton *et al.* 2009). To date, approximately 115 species have been described (TIGR Reptile database 2009), five of which constitute the assemblage of endemic Philippine *Cyrtodactylus* (i.e., *Cyrtodactylus annulatus*, *C. agusanensis*, *C. philippinicus*, *C. redimiculus*, and a recently described species, *C. tautbatorum*, from southern Palawan; Welton *et al.* 2009).

Cyrtodactylus annulatus (Taylor) and *C. philippinicus* (Steindachner) are considered “widely distributed” on numerous islands throughout the archipelago (Brown & Alcalá 1978), whereas *C. agusanensis* (Taylor) and *C. redimiculus* King are endemic to the southeastern (Samar, Leyte and eastern Mindanao islands) and southwestern (Palawan Island) portions of the archipelago, respectively. Currently, several additional morphologically distinct species of Philippine *Cyrtodactylus* await description (RMB and CDS, unpublished