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A synoptic review of the genus *Stagmomantis* (Mantodea: Mantidae)

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Abstract

Stagmomantis is a remarkable genus within the Mantodea, being relatively species-rich and geographically widespread. Yet, the number of species within the genus remains curiously unresolved. The present synoptic review surveys the literature on *Stagmomantis* to identify named species for which scientific consensus exists, as well as to summarize basic biological information for each species, including geographic distribution, morphological features, and sex-specific biometric data. The review identifies 23 consensus taxa within *Stagmomantis:* 22 separate species, with one of these species, *S. montana,* split into two subspecies *(S. m. montana* and *S. m. sinaloae).* The review indicates morphological features that may prove to be diagnostic for a given species, particularly when examined in conjunction with male genitalia. Such features include dark spots on the anterior femur *(S. amazonica, S. centralis, S. marginata, S. nahua, S. venusta, S. vicina),* spines or denticulations on the anterior coxa *(S. colorata, S. montana montana, S. parvidentata, S. theophila),* and dark bands on abdominal tergites *(S. californica, S. colorata, S. domingensis).* Color variation of certain features with respect to body coloration, such as stigma coloration and body and leg markings, requires more attention. Information on life history, reproduction, and ecology are summarized, particularly for temperate populations of *S. carolina* and *S. limbata.* While the 23 consensus taxa represent a robust appraisal of the existing literature, some taxonomic uncertainties remain. The status of two species are somewhat unclear *(S. marginata* and *S. tolteca),* calling for taxonomic evaluation. Furthermore, proposed within-genus groupings deserve examination, as do possible subdivisions within some species (e.g., *S. limbata, S. parvidentata).* Information on basic morphology and biometry remains incomplete for nearly all species. Extreme examples are *S. amazonica, S. costalis,* and *S. paraensis*, for which females have not been described. Live animal research on life history, behavior, and ecology is needed for all species, with the possible exceptions of *S. carolina* and *S. limbata.* By reconciling species assignments and consolidating biological information for the 23 consensus taxa, this synoptic review promises to guide subsequent systematic and phylogenetic investigations of the genus *Stagmomantis.*

Key words: mantis, Neotropical, taxonomy, morphology, biometry, male genitalia

Introduction

Stagmomantis is a remarkable genus within the Mantodea, being relatively species-rich and geographically widespread (Ehrmann 2002). *Stagmomantis* has also been the subject of considerable morphological and ecological study, rivaling the research histories of other mantodean genera such as *Mantis* and *Tenodera* (e.g., Rau and Rau 1913; Levereault 1936, 1938; Roberts 1937; Maxwell 1998; Fagan *et al.* 2002; Maxwell *et al.* 2010a,b). Yet, despite this biogeographic diversity and history of research, the number of species within the genus remains curiously unresolved, as pointed out recently by Rivera (2010). The present synoptic review surveys the literature on *Stagmomantis* to identify named species for which scientific consensus exists, as well as to summarize basic biological data for each species. By constructing such a list of consensus species, this review is expected to guide and direct subsequent systematic investigations of the genus.

Stagmomantis is placed in the Tribe Stagmomantini within the Subfamily Stagmomantinae, Family Mantidae (Ehrmann 2002). Modern taxonomic treatments identify 19 to 27 separate species within the genus (Terra 1995; Ehrmann 2002; Otte and Spearman 2005; Agudelo *et al.* 2007). Even with this range in species number, *Stagmomantis* ranks among the most taxon-rich mantodean genera in the Neotropical region, according to Ehrmann (2002). *Acontista* (formerly *Acontiothespis,* see Roy 2004) contains 25 taxa, with *Coptopteryx* and

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biometric data, with larger sample sizes and more attention to location, time of year, and actual year. Similarly, better documentation of color variation within each species is needed. The variation of other features with regard to body coloration, such as stigma coloration and body and leg markings, requires documentation as well. The interesting question of color change within a life stage, particularly within adults, remains unanswered. Live animal research on life history, behavior, and ecology is needed for all species, with the possible exceptions of *S. carolina* and *S. limbata.* By reconciling species assignments and consolidating biological information for the consensus taxa, this synoptic review promises to guide and direct subsequent systematic and phylogenetic investigations of the genus *Stagmomantis.*

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