



Phylogenetic relationships of Mesoamerican species of the genus *Sciurus* (Rodentia: Sciuridae)

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Abstract

The phylogenetic relationships of *Sciurus* species present in Mesoamerica are addressed using a morphological analysis under Maximum Parsimony. Our results recovered the existence of two clades: one comprising *S. aureogaster*, *S. colli-aei*, *S. variegatoides* and *Syntheosciurus brochus* and the other clade composed by *S. richmondi*, *S. granatensis*, *S. deppei*, *S. yucatanensis* and *Microsciurus alfari*. The taxonomic status of the genera *Microsciurus* and *Syntheosciurus* is discussed as well the biogeographic implications of these findings.

Key words: *Sciurus*, phylogenetics, Central America, biogeography

Introduction

Sciurus Linnaeus altogether with the genera *Syntheosciurus* Bangs, *Microsciurus* Allen, *Sciurrillus* Thomas and *Tamiasciurus* Trouessart constitute the tribe Sciurini *sensu* Black (1963). Currently, *Sciurus* is subdivided in 7 subgenera with 28 species (Table 1), being the most widespread and diverse genus within the Sciurini (Wilson & Reader 1993). The most recent and comprehensive review of the Sciurini was made by Moore (1959). In his classification based on the analysis of qualitative cranium characters, Moore placed the genus *Sciurus* in the subtribe Sciurina together with *Reinthrosciurus* Gray and *Guerlinguetus* Gray. However, *Guerlinguetus* is currently considered by Hall (1981) as a subgenus of *Sciurus*.

The phylogenetic relationships within *Sciurus* have been explored using only few species; *S. vulgaris* Linnaeus and *S. lis* Temminck from Europe and Asia and *S. carolinensis* Gmelin and *S. niger* Linnaeus from North America. (Oshida & Masuda 2000, Wettstein *et al.* 1995). Oshida & Masuda using cytochrome B sequences demonstrated the monophyletic nature of *S. vulgaris* and *S. lis* as well as the close relationship between the North American species.

The genus *Microsciurus* Allen currently is composed by four species: *M. alfari* Allen, *M. mimulus* Thomas, *M. flaviventer* Gray and *M. santandarensis* Hernandez-Camacho. They are distributed mainly in lower Central America and Northern South America. The genus originally was described as a *Sciurus* subgenus (Allen 1895) and later to full generic rank (Goldman 1912). The phylogenetic relationships among *Microsciurus* species has not been addressed comprehensively. Izoenzimatic data (Hafner *et al.* 1994) suggested inclusion of *Microsciurus flaviventer* within *Sciurus*

The genus *Syntheosciurus* Bangs presents only one species with two subspecies *S. brochus poaensis* and *S. brochus brochus*. The only phylogenetic study to date using molecular data (Mercer & Roth 2003), placed *Syntheosciurus* as the sister species of *Microsciurus*, in close relationship with *Sciurus*. However, when more