



## Morphological support for placement of the Wing-banded Antbird *Myrmornis torquata* in the Thamnophilidae (Passeriformes: Furnariides)

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### Abstract

*Myrmornis torquata* has often been considered an intermediate form between the ground antbirds and the typical antbirds. Although molecular phylogenies have consistently placed *M. torquata* in the Thamnophilidae (typical antbirds), this species has not been the subject of a thorough anatomical study, and no phylogeny based on morphological characters has been published. We undertook a cladistic morphological analysis of *M. torquata* and representatives of all families in the infraorder Furnariides, to clarify the systematic affinities of this species. In a parsimony analysis of 66 osteological and syringeal characters, *Myrmornis* clustered with other thamnophilids with high support values, sharing with them five synapomorphies of unambiguous optimization in all most-parsimonious trees. Two synapomorphies are syringeal features exclusive to the family: (1) the presence of processes on the ventral surface of supporting A-elements of the syrinx cranial to the membrana tracheosyringalis, and (2) the division of the musculus sternotrachealis into two fasciculi near its insertion on the syrinx. A third syringeal synapomorphy (presence of the musculus vocalis ventralis) also occurs in the Dendrocolaptidae and Furnariidae as a homoplasy. Two unambiguous osteological synapomorphies were found: (1) the narrowing of the foramen orbitonasale, and (2) the confluence of the foramen obturatum and the fenestra ischiopubica, a reversal also found in the Furnariidae. Our results provide strong morphological support for the placement of *Myrmornis* in the Thamnophilidae.

**Key-words:** Morphological phylogeny, osteology, syrinx, suboscines, Furnarioidea, Thamnophilidae, Formicariidae, Grallariidae, Neotropics.

### Introduction

The infraorder Furnariides is one of the most important clades of New World birds. This group, which is endemic to the Neotropics, includes about 600 species and 130 genera (del Hoyo *et al.* 2003), and is characterized by highly diverse morphology, ecology, and behavior. The Furnariides contains nine families (Moyle *et al.* 2009): Thamnophilidae (antbirds), Conopophagidae (gnateaters), Melanopareiidae (crescent-chests), Grallariidae (antpittas), Rhinocryptidae (tapaculos), Formicariidae (antthrushes), Scleruridae (leaftossers and miners), Dendrocolaptidae (woodcreepers) and Furnariidae (ovenbirds). Previous phylogenetic hypotheses of systematic relationships within the Furnariides have been based exclusively on molecular data—DNA-DNA hybridization (Sibley & Ahlquist 1985) and nucleotide sequence data (Irestedt *et al.* 2001, 2002; Chesser 2004; Rice 2005a,b; Moyle *et al.* 2009). However, relationships among and within these families are still controversial. Even the application of cladistic principles to delimit families and to clarify their species composition in this group is a recent practice (Irestedt *et al.* 2002).

Until the 1980s, antbirds, antthrushes and antpittas were placed together in Formicariidae *sensu lato*, despite the recognition of two morphologically divergent subunits (the “typical antbirds” and the “ground antbirds,” which included the antpittas and antthrushes) on the basis of metasternal configuration (Heimerdinger & Ames 1967) and syringeal morphology (Ames 1971). Sibley & Ahlquist (1985) were the first to define a family for each of these subunits—Thamnophilidae, comprising the “typical antbirds” and Formicariidae, comprising the “ground antbirds”. Later studies based on nucleotide sequence data recognized that antpittas and antthrushes formed the separate and not closely related families Grallariidae and Formicariidae *sensu stricto*, respectively (Irestedt *et al.* 2002;