

Osteological Comparison of the Scrub-birds, *Atrichornis*, and Lyrebirds, *Menura* (Passeriformes: Atrichornithidae and Menuridae)

P.V. RICH^a, A.R. McEVEY^b AND R.F. BAIRD^c

^aEarth Sciences Department, Zoology Department, Monash University, Clayton, Victoria 3168

^bMuseum of Victoria, Melbourne, Victoria 3000

^cEarth Sciences Department, Monash University, Clayton, Victoria 3168

ABSTRACT. Within *Atrichornis* the two species *A. clamosus* and *A. rufescens* are very similar overall, differing only in characters related to flightlessness, with *A. clamosus* appearing more volant than *A. rufescens*. Similarly, the two species within *Menura* are very similar overall, although *M. novaehollandiae* may be a stronger flyer than *M. alberti*. There are many differences between the genera *Atrichornis* and *Menura*, but the distribution of these character states across the order Passeriformes remains unstudied. What has been noted is that a suite of characters shared by *Menura* and *Atrichornis*, hitherto used to relate the Menurae to the Rhinocryptidae, are also shared by several other genera of birds from a variety of families. We suggest that these characters indicate convergence towards a terrestrial lifestyle and should not be used to indicate phylogenetic proximity.

RICH, P.V., A.R. McEVEY & R.F. BAIRD, 1985. Osteological comparison of the scrub-birds, *Atrichornis*, and lyrebirds, *Menura* (Passeriformes: Atrichornithidae and Menuridae). Records of the Australian Museum 37(3): 165–191.

KEYWORDS: *Atrichornis*, cursorial adaption, flightlessness, *Menura*, osteology, phylogeny, Rhinocryptidae, volancy.

Until comparatively recently, the relationships of the Australian scrub-birds (*Atrichornis*) and lyrebirds (*Menura*) seemed clear: both genera were closely allied and appeared to form a primitive group, sometimes given subordinal status (Menurae) within the order Passeriformes (Wetmore, 1960; Mayr & Amadon, 1951; Schodde, 1975, amongst others). Sibley (1974) reviewed the taxonomic history of this group and broke with tradition in suggesting that the lyrebirds and scrub-birds should be closely allied to the bowerbird/bird-of-paradise assemblage based on his studies of egg-white proteins. More recent work by Feduccia & Olson (1982) has challenged this view, by pointing out a significant number of osteological differences between the ptilonorhynchids and *Menura*. Work by Raikow (1985) on the appendicular myology of the Menurae and Ptilonorhynchidae/Paradisaeidae assemblage illustrates a number of other differences. Even though Sibley and Ahlquist's most recent work (in press), utilizing DNA × DNA hybridization technique, again closely allies the Menurae and the Ptilonorhynchidae (but no longer the Paradisaeidae), the diversity of opinions clearly indicates that a clear understanding of *Menura* and *Atrichornis*

relationships to other songbirds is in the future.

What is also clear from a survey of past and current literature on *Menura* and *Atrichornis* is that their close affinity, although claimed by many authors, is not as well documented as one might believe. Both *Atrichornis* and *Menura* have a relatively simple syrinx that lacks the complexity of muscles present in the oscines. Ames (1971) has suggested this condition is primitive within the Passeriformes. Both *Menura* and *Atrichornis* have, however, an oscine stapes with a flat footplate and a straight bony shaft, a condition also thought to be primitive within the Passeriformes (Feduccia, 1975a, b; Feduccia & Olson, 1982).

Feduccia & Olson (1982) further point out that, besides *Menura* and *Atrichornis*, only members of two other groups, the New Zealand 'wrens' (Acanthisittidae) and some tapaculos (Rhinocryptidae), lack the derived suboscine stapes and the derived oscine syrinx. Their comparisons of members of all these groups led them to conclude that the Menurae (including both *Atrichornis* and *Menura*) were more similar to the Rhinocryptidae than to any other passerine group that they examined, and that both retained a large number