

A Review of the Australian Fossil Storks of the Genus *Ciconia* (Aves: Ciconiidae), With the Description of a New Species

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ABSTRACT. Only a single species of stork, the Black-necked Stork *Ephippiorhynchus* (= *Xenorhynchus*) *asiaticus*, occurs in Australia today, and is known from several fossil localities from the Early Pliocene. Two species of smaller fossil storks are also known, one previously named and one described here. The former, found in the Darling Downs, southeastern Queensland, was named *Xenorhynchus nanus* De Vis, 1888. Some later authors suggested that this species should be transferred to the living genus *Ciconia*; this decision is confirmed here, the name for this species becoming *Ciconia nana*. The second species of small stork comes from several Late Oligocene and Early Miocene sites at Riversleigh, northwestern Queensland. This taxon is referred to the genus *Ciconia* and distinguished as a new species, *C. louisebolesae*. It constitutes the earliest record of the Ciconiidae from Australia.

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The classification of living storks (Ciconiidae) by Kahl (1979) admitted 17 species in six genera in three tribes, whereas that of Hancock *et al.* (1992) recognized 19 species in six genera in two tribes. The family is represented in Australia by a single living species, the Black-necked Stork, or Jabiru, *Ephippiorhynchus* (= *Xenorhynchus* auct.) *asiaticus* (Latham, 1790).

Storks are rather well represented in the world fossil record, although no comprehensive review of them has been attempted. The earliest records come from the Late Eocene of Egypt (Ciconiidae gen. and sp. indet. and *Leptoptilos* sp. indet.) (Miller *et al.*, 1997). After taxa incorrectly referred to this family were removed (Olson, 1985), the earliest named species became *Palaeoephippiorhynchus dietrichi* Lambrecht, 1930 (Late Oligocene; Egypt). The identity of

the older *Eociconia sangequanensis* Hou, 1989 (Middle Eocene; China) as a stork needs to be confirmed (Unwin, 1993). Other Tertiary-aged storks are known from North America, Europe and Asia (references in Olson, 1985; Bickart, 1990). Quaternary-aged palaeospecies are known for several extant genera.

The fossil record of this family in Australia has not been studied in detail. Much of the Australian fossil stork material is comparable in size and morphology to *E. asiaticus*. Specimens assigned to this species are known from Pliocene and Pleistocene localities in northeastern and southeastern Queensland and northeastern South Australia (Archer, 1976; Baird, 1991a; Boles & Mackness, 1994; Molnar & Kurz, 1997; Vickers-Rich, 1991).