

P.J. Currie and K. Padian (eds.)

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Chirostenotes may be related to *Caenagnathus*, an oviraptorosaur. Recent preparation of a skeleton of *Chirostenotes* (Sues, 1994) has shown that it is probably synonymous with *Caenagnathus*.

Elmisaurus is a smaller animal than *Chirostenotes*, but its tarsometatarsus is co-ossified. This clue led to the discovery of elmsaurid material from Alberta (Currie, 1989). Small, toothless caenagnathid jaws from central Asia (Currie *et al.*, 1993) bearing the name *Caenagnathasia* may also be from elmsaurids. If better material confirms this suspicion, then Elmsauridae will become a junior synonym of Caenagnathidae. However, there are enough differences to suggest that making such a move at this time would be premature.

The first metacarpal of an elmsaurid is a straight, slender bone, intermediate in relative length between those of most theropods and those of ornithomimids. The first metacarpals are also straight and slender in *Chirostenotes* and *Microvenator* (Currie and Russell, 1988), whereas those of oviraptorids are shorter and stouter. Digit III is approximately 30% shorter than digit II, whereas the second finger of an oviraptorid is only slightly longer than the third. Whereas phalanx II-2 is the longest of the manual phalanges in *Elmisaurus* and caenagnathids, phalanx I-1 is longest in oviraptorids. Although elmsaurids, caenagnathids, and oviraptorids all have well-developed extensor ligament attachments on their manual unguals, only elmsaurids and caenagnathids have arctometatarsalian feet. Elmsaurids are unique among these three taxa in that the distal tarsals and the proximal ends of the metatarsals are co-ossified into a tarsometatarsus. The metatarsi of elmsaurids and caenagnathids are elongate. The elmsaurid metatarsus is strongly arched in section at midlength, with the third metatarsal deeply inset from the flexor surfaces of the second and fourth.

When more complete specimens are found, it is possible that elmsaurids will turn out to be caenagnathids. In the meantime, there are enough differences to maintain taxonomic separation. Even though it is clear that elmsaurids are closely related to caenagnathids, the lack of cranial material makes it impossible to determine whether they should be included in the Oviraptorosauria.

Elmsauridae

PHILIP J. CURRIE

Royal Tyrrell Museum of Palaeontology
Drumheller, Alberta, Canada

Elmsaurids are small, lightly built theropods of the Late Cretaceous of the Northern Hemisphere (Currie, 1990). Unfortunately, no cranial material has been identified for elmsaurids, which are best known from their feet and hands. The first specimens of *Elmisaurus* were recovered from the NEMEGT FORMATION of Mongolia (Osmólska, 1981) and were considered distinctive enough to erect a new family (the Elmsauridae). Currie and Russell (1988) noted similarities in morphological characters with *Chirostenotes* from North America and concluded that both *Elmisaurus* and

See also the following related entries:

OVIRAPTOROSAURIA • THEROPODA

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