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#### A NEW APPROACH FOR RECOGNIZING TRACK MAKERS

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Ichnotaxa can be assigned to biological taxa only if they have shared derived characters (sdc's) of those taxa. Because tetrapod hand and foot specializations are often sdc's of biological monophyletic groups we find many of these characters in footprints. Some early Mesozoic tracks from eastern North America illustrating this approach are *Rhynchosauroides hyperbates*, *Batrachopus*, *Atreipus*, *Otozoum*, and *Ameghinichnus*.

An exquisitely preserved trackway of *Rhynchosauroides hyperbates* from the Carnian has both hand, foot, and body scale impressions. Although the individual animal could be recognized, its taxonomic identity is elusive because it has sdc's only of the Amniota. In contrast, the reduced pedal digit IV (4 phalanges) of *Batrachopus* (Norian-Jurassic), shows that it is in the Crocodylomorpha, within the Suchia. It has recently been argued on the basis of primitive characters that *Atreipus* from the Carnian and Norian is a "coelurosaur" not an ornithischian, or a member of an unknown ornithodiran group as I have postulated. That *Atreipus* cannot belong to any known group of theropods is shown by the small unguals on the manus. In all theropods, indeed all non-avian Saurischia, the manus has very large unguals. Among dinosaurs, only some Ornithischia have reduced manual unguals. Further refinement will not be possible until the primitive state for unguals in ornithischians and ornithodirans is known. The large Jurassic track *Otozoum* has a very reduced pedal digit V. With the primitive 5 phalanges in pedal digit IV it cannot be a crocodylian, but based only on the foot it could be a prosauropod or a non-crocodylian member of the Suchia. The manus would settle the question, but an unequivocal manus has not been found. *Ameghinichnus* is a small quadrupedal ichnite with a phalangeal formula of 2 3 3 3 3 in both manus and pes with a distinct calcaneal heel impression. The calcaneal heel is an sdc of the Cynodontia and the phalangeal formula is a sdc for the Eucynodontia (including mammals). In contrast to the well preserved examples discussed here, there really is no point in trying to assign to biological taxa poor tracks which lack sdc's. There is also no point in trying to refer to biological groups tracks that, although well preserved, have only primitive characters.