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Thyreophoran tracks of presumed stegosaurian affinity from the Early Cretaceous, Xingjiang, China

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Although widely distributed in the Jurassic and earliest Cretaceous of Europe, with sparse representation in the Jurassic of North America, the thyreophoran or presumed stegosaurian track *Deltapodus* is largely represented by morphologically-suboptimal material. In particular the manus tracks are poorly defined in almost all previously reported cases, possibly due to preservational factors. Nonetheless two ichnospecies *D. brodericki* and *D. ibericus* have been defined based on European material. We herein report the first examples of *Deltapodus* from the Cretaceous Tugulu Group of the Wuerhe district, Xingjiang Uyghur Autonomous Region, China. This is the largest sample of *Deltapodus* reported from Asia based on 35 measurable tracks (Fig. 1), and arguably it is the first sample of the ichnogenus that has been identified with confidence

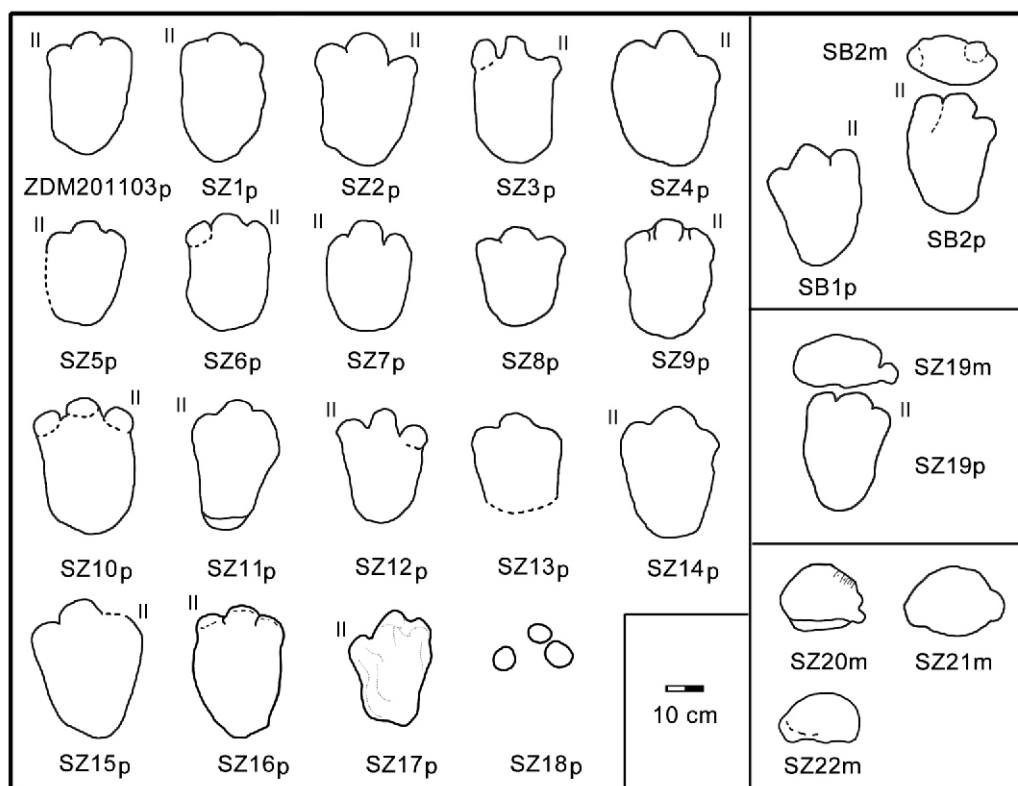


Figure 1. Presumed stegosaurian (thyreophoran) tracks from the Tugulu Group, Lower Cretaceous, Xingjiang, China are referred to *Deltapodus* and represent the largest sample hitherto reported from Asia or from the Cretaceous.

Previous reports of *Deltapodus* from Asia have been based on very limited material of dubious value. For example, before *Deltapodus* was formally named, by Whyte and Romano (2001), Mohabey (1986) described and illustrated a single *Deltapodus*-like track from the uppermost Cretaceous of India. However, his interpretation that it represents a sauropod manus is dubious, and our suggestion that the track can be assigned to *Deltapodus*, on the basis of morphology is only tentative. More recently Zhang et al (2012) have reported cf. *Deltapodus* from the Tuchengzi Formation, near the Jurassic–Cretaceous boundary in the vicinity of Beijing, China. These tracks occur as manus pes sets in partial trackway segments, but the preservation is suboptimal and the assignment to cf. *Deltapodus* is also tentative. Indeed the ichnotaxonomy of thyreophoran tracks is still a developing field that requires more work.

By contrast the sample of *Deltapodus* from the Lower Cretaceous Tugulu Group of Xingjiang Uyghur Autonomous Region, is large and based on morphologically informative material including trackways (Fig. 2) and isolated manus and pes tracks that show diagnostic digit traces. The pes has three short blunt digit traces, corresponding to digits II–IV. These traces are almost equidimensional. The manus consistently shows traces of digits I and II, in contrast to the European ichnospecies *D. brodericki* and *D. ibericus* which rarely show any clear, separate traces of these digits.

The inference that the Xingjiang tracks are of stegosaurian affinity is consistent with the interpretation of *Deltapodus* in other regions, and is further supported by the occurrence of stegosaurian body fossils in coeval deposits. For example, *Wuerhosaurus homheni*, also referred to *Stegosaurus homheni*, is the only stegosaur from Wuerhe district (Maidment et al., 2008). Although *Stegosaurus* is thought to have gone extinct in the Late Jurassic in North America, it evidently continued into the Early Cretaceous in Asia (Maidment et al., 2008).

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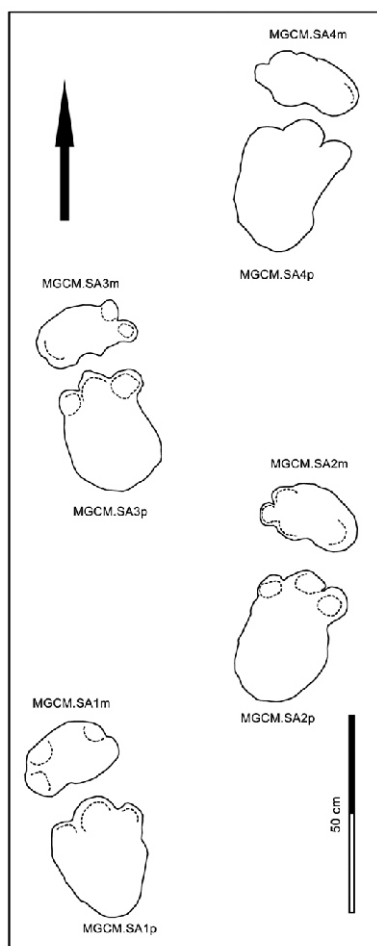


Fig. 2.
A trackway of *Deltapodus* from the Early Cretaceous of Xingjiang China.

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