Furtive mating in female chimpanzees. 
However, Mongolia was characterized in the Late Cretaceous by extensive lakes, possibly with marine connections, and by the Campanian it would perhaps be most accurate to describe it as a desert, as in South Africa, with a swampy inland delta. Small, possibly volant hesperornithiforms and Presbyornis, a widespread wader with webbed feet, have been found at nearby sites of about the same age. I consider Apsaravis to have little to contribute to our understanding of avian evolution, and its lack of a clear relationship with any kind of modern bird makes its significance ambiguous. If Apsaravis is not related to any modern ornithurome, how can it tell us anything important about the evolutionary questions raised by Norell and Clarke?

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No related Aves, he invokes taxa such as ichthyornithiforms and ornithuromorphs, which are problematic and underscore the subjective definition (taxa other than those that are not 'modern' enough to be ornithurome). Feduccia's 'Ornithurome' is predicated on the existence of a 'Sauriurae' or the paraphyetic group that contains these primitive taxa. The fact that Apsaravis and our analyses add to the mounting evidence against saurian monophyly has been overlooked in Feduccia's estimation of the importance of Apsaravis.

Other specimens that we did not consider are problematic and underscore the importance of well preserved and phylogenetically placed taxa such as Apsaravis. Feduccia did not include the fragmentary Otovernis, Amblinopsis and Gansus in his analyses. Although he claims that Chaoyanxia possesses a "toothed skull", the holotype actually consists only of a torso and partial hindlimbs. The "toothed skull" belongs to a species once referred to as Chaoyanxia but later identified as the holotype of Songilongis linghensis. This specimen cannot be referred to Chaoyanxia (as indeed it has not been) as no element known from the holotype is also represented in the referred specimen.

Although we did not comment on the implications of Apsaravis for the timing of the origin of Aves, Feduccia's conjecture that it cannot inform our understanding of this origin (because it is not part of an "extant lineage") is incompatible with his own arguments. In recounting the origin of Aves, he invokes taxa such as icthyornithiforms and hesperornithiforms, which are not parts of extant lineages. Furthermore, it has been argued that gap analyses may be consistent with Cretaceous or Tertiary diversification of avian lineages, depending on what model of diversification rate and recovery potential is considered realistic.

Reasoning derived from phylogenetic analysis is a powerful way to test hypotheses of relationships or the evolution of morphology (for example, enantiornithine monophyly and novelties in the flight apparatus). We used a phylogenetic test to assess the idea that transitional 'shore birds' gave rise to all extant birds through an ecological bottleneck. If such a bottleneck occurred, then when ecology is bracketed phylogenetically for living birds, 'shore bird' morphology and ecology should be basal to the crown clade, as well as in its nearest sister taxa. However, virtually all molecular and morphological evidence places 'land birds' (titanous, ratite, galliforms and anseriforms, for example) at the base of Aves. Charadriiformes, the extant lineage referred to as shore birds, are placed as derived forms within Aves. Thus, if the ecologies that are basal to the crown clade are bracketed, no support is found for such a bottleneck.

Apsaravis, because of its phylogenetic placement, constrains the inference of the ecologies of the most recent common ancestor of the avian crown clade. We do not understand how an ornithurome with no 'shore bird' morphologies, from a dune-field, can be interpreted as compatible with Feduccia's idea of ecological restriction of these taxa to shorelines and marine environments. If Apsaravis can simply be assumed, without consideration of phylogenetic tests, to have flown from an unknown nearby lake, then we do not see how Feduccia's hypothesis is testable.

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