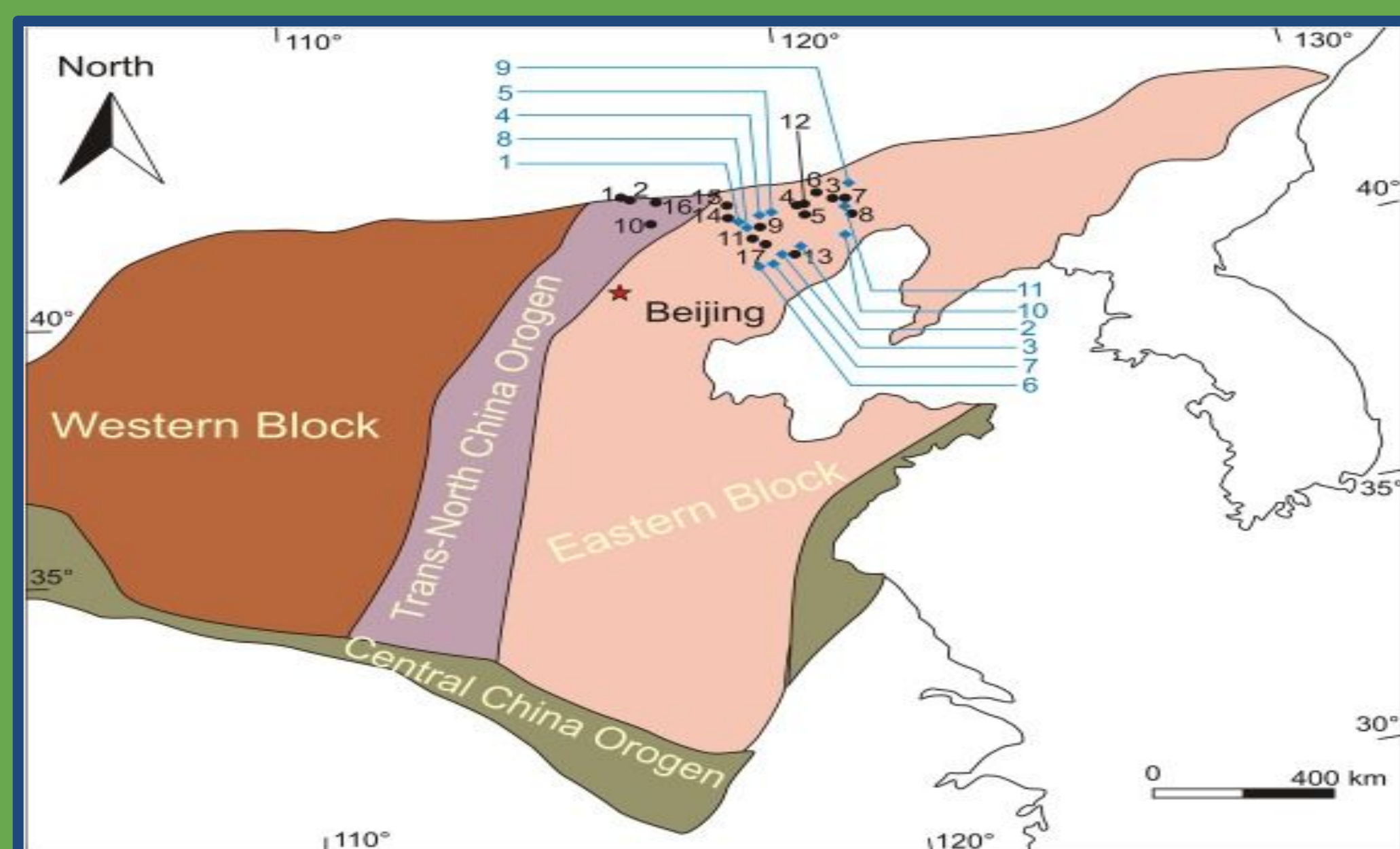


The Yanliao Biota: a Glimpse into Bird Origins and Other Oddballs of Jurassic China

What is the Yanliao Biota?

The Yanliao Biota is a collection of organisms from northeast China that is dated from the middle-late Jurassic Period, 160 Ma, that's famous for preserving animals of important evolutionary significance¹. The environment would have been cool and wet with seasonal changes and many plants while mountain-building events, or Orogenies, are going on in the background¹. Below are the sites associated with this Biota dotted in blue¹.



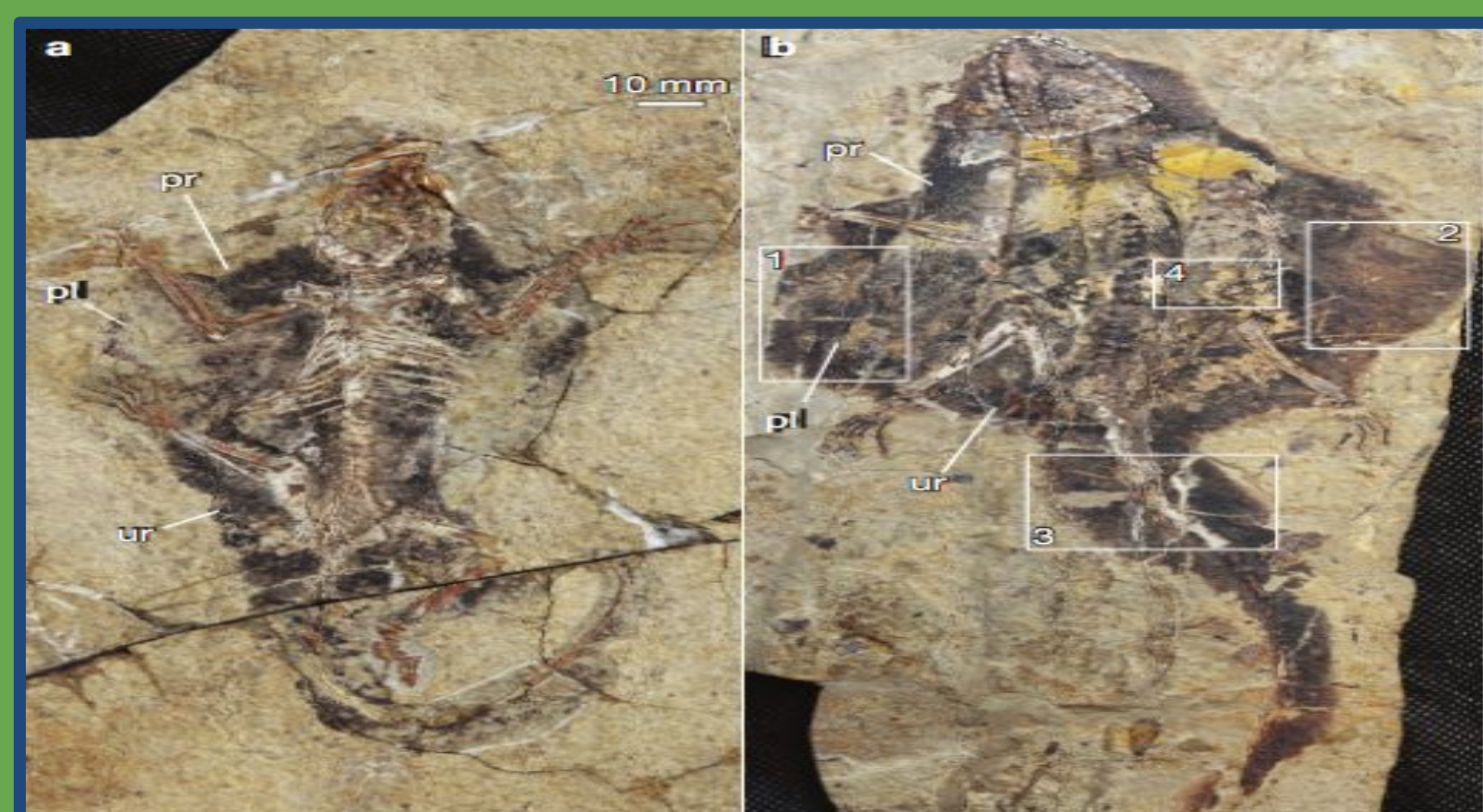
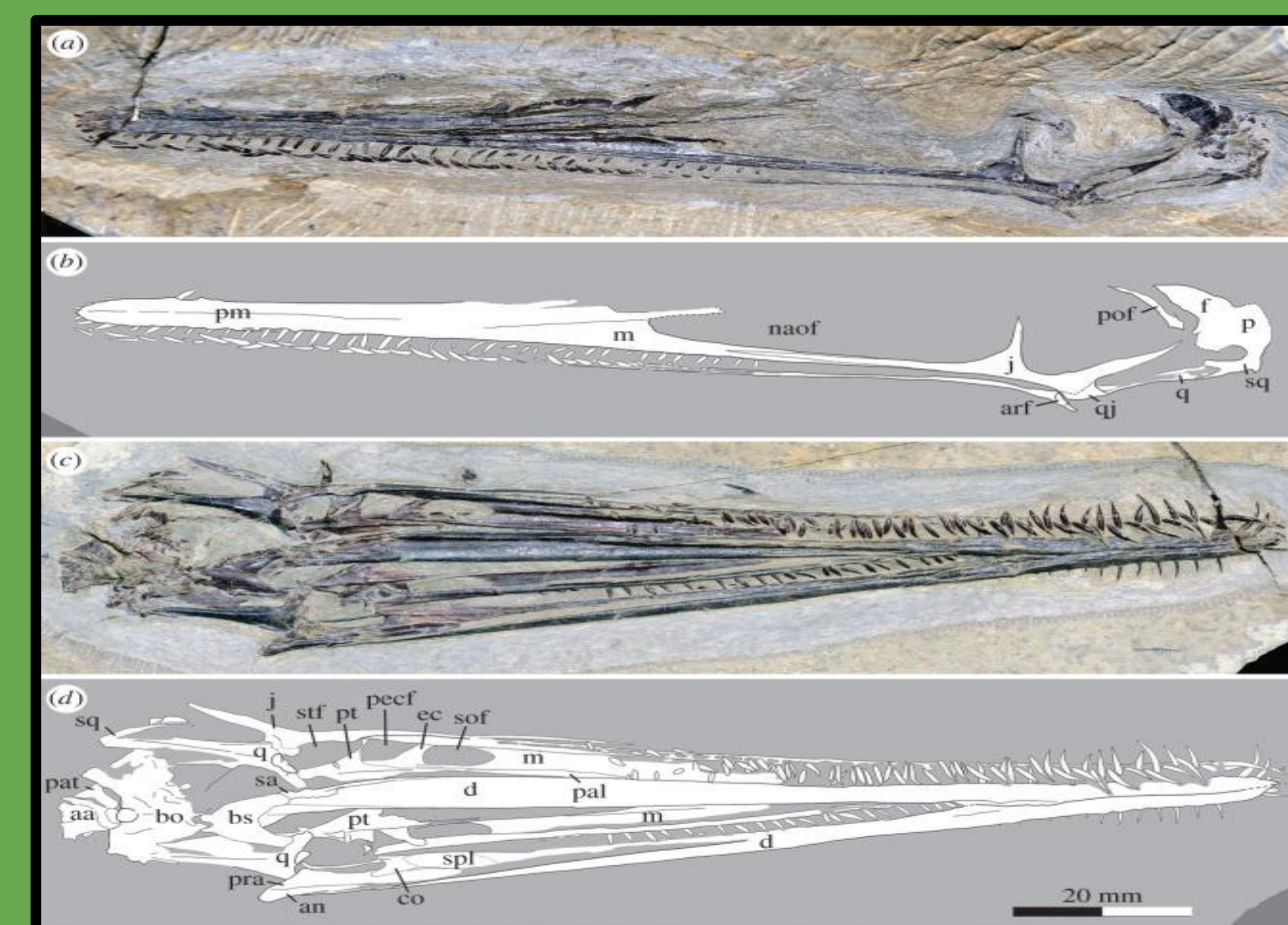
The Ancestors of Birds and their Color:

This collection is best known for having what is considered the ancestor of birds which are dinosaurs similar to raptors called Anchiornithines². They are so well preserved that some have the proteins that determine color still on them³. On top is one, *Anchiornis*, restored in actual color³ and on bottom is *Caihong*, one that shows evidence for iridescence, or shiny feathers⁴.



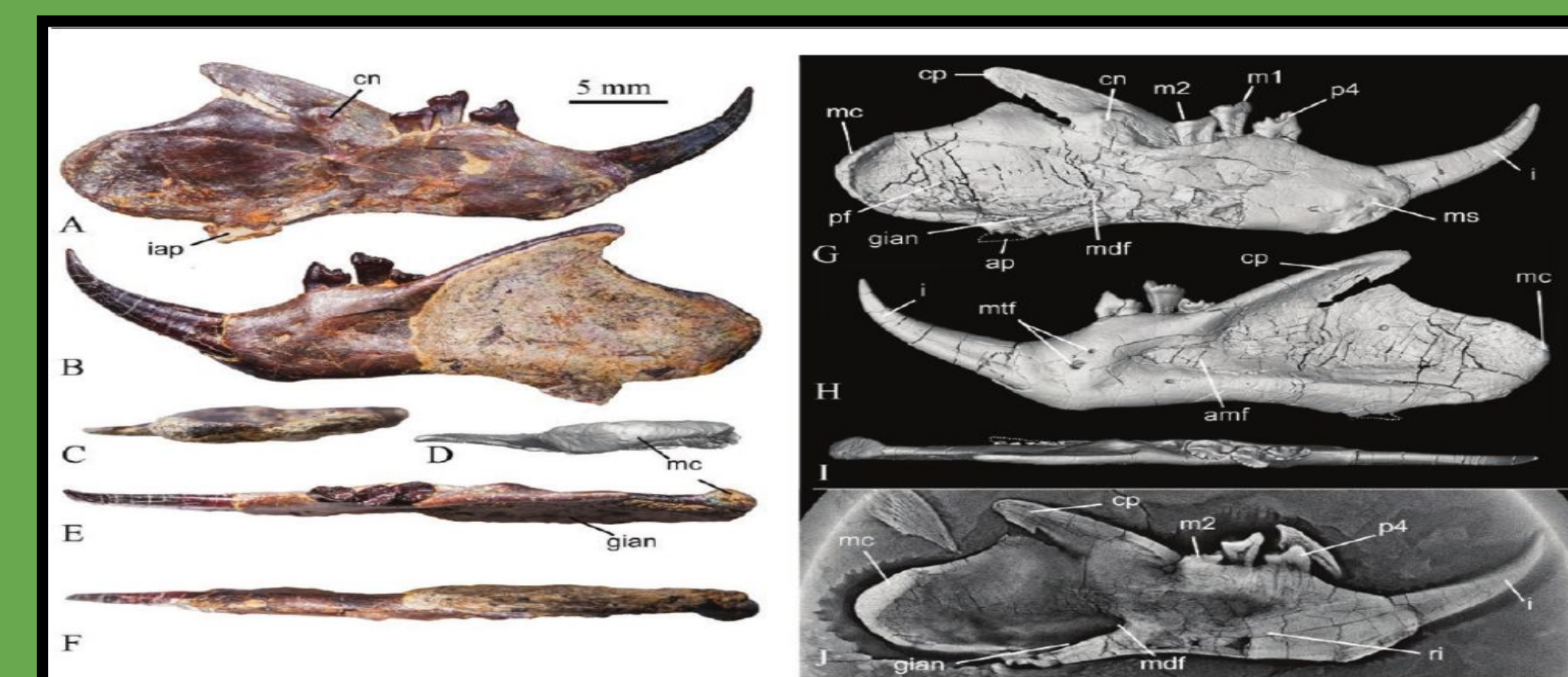
Filter feeding Pterosaurs

One of the many organisms found in the Yanliao Biota were Pterosaurs, specifically filter-feeding pterosaurs which have not been previously known from the Tiaojishan Formation nor earlier beds elsewhere⁷. Close study of the fossils of these pterosaurs shows that the teeth, as shown below, are closely spaced to form a 'comb dentition', a filter-feeding specialization⁷. The significance of this finding is that this is the earliest record of a filter feeding pterosaur, which marks the initial step of eco-morphological diversification of pterodactyloids from insectivorous/piscivorous to a variety of feeding adaptations⁷.



Prehistoric Mammals from the Yanliao Biota

Among the collection of organisms found were mammals, mainly haramiyidian and euharamiyidians. Paleontologists have managed to recover many fossils that provide information on these mammals' skeletal structure, particularly their skull shapes, tooth and jaws, and auditory bones. Figure 1 (left) is of *A. allinhopsoni* which shows the skeletal structure and impressions of body fur.⁵ Figure 2 (right) offers information on the tooth and jaw structure of a newly discovered haramiyidian mammal from the site.⁶



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