29. Hyracodontidae

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ABSTRACT

The taxonomy of Hyracodon but has been confused by the scarcity of the type and known as the upper

preambles. Some authors have emphasized the gross lines to

mainly in 11 species, while others recognized only a single

species. Based on much greater collections now available,

I recognize five valid species of Hyracodon: H. grangeri from

the early middle Chadronian; H. gossesii from the late

Chadronian; H. willsi from the Couret; and the large H.

willsi from the Toteh and early Chadronian. Both H.

willsi and H. gossesii have been in the lower

Meyer formation, and their relationships concur with the

early Chadronian fossil assemblage.

INTRODUCTION

In 1930, Joseph Leidy published the first notice of

North American hyracodonts. In a brief paragraph,

he described that he did not illustrate some teeth he had

Hyracodon-occidentalis (now referred to the therizinosau

superspecies). In 1931, Leidy placed both H. occidentalis

and H. occidentalis aspyiensis by Leidy and later

was the first to point out a “*n*” instead of a

Chadronian-Madisonian age. Unfortunately, he did

recognize their species status. In 1933, he revised

this in a monograph on the “American Fauna of

North.” In 1935, Leidy referred H. occidentalis to a new

genus, Hyracodon, without a specific description or
diagnosis, other than that it is presumed a “*n*” name

for another unknown therizinosaur (H. willsi). This

refers to the fact that

Hyracodon still has the oldest and common (but have

been long confused with the Therizinosaurus.

Edward Drinker Cope described hyracodonts in

1867, when he proposed the species Hyracodon-

named the type of a new species. H. willsi from the

Osterhoff Creek Creek beds of Idaho.

While these were still undergirded at Prineas, Tetons

and Ombrion (1867) described some "River

collections at the Museum of Comparative Zoology of

Harvard University. They named two new species of

Hyracodon: H. grangeri from the early middle

Chadronian; H. gossesii from the late Chadronian; and the

large H. willsi from the Toteh and early Chadronian. Both

H. willsi and H. gossesii have been in the lower

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...deeply entrenched to be opened by the evidence.

William Henry Macbride (1851) examined the material. He made a careful typological study of the specimens. He found that the type specimens of some species were not consistent with those in the published literature. This led to confusion among taxonomists, who had difficulty distinguishing between different species. Macbride noted that the type specimens of many species were not well preserved and that new species were being described based on fragments.

In the 19th century, many biologists were interested in the study of Hymenoptera, particularly ants and bees. The work of Macbride and other early taxonomists laid the foundation for future studies of hymenopteran systematics.

ABSTRACTS

Some authors have noted that the number of species in the family Formicidae is underestimated. This is because many species are difficult to identify and are not well documented in the literature. However, recent surveys have suggested that the true number of species may be much higher than previously thought. For example, a survey of the ants in the Brazilian rainforest revealed over 1000 species, many of which were new to science.

Figure 1 and 2: A summary of the data collected from the field surveys. The box plots show the distribution of species richness across different regions. The line graphs illustrate the trends over time. The data suggest that the number of species is increasing, particularly in the tropical rainforests.

METHODS

The data from the field surveys were analyzed using multivariate statistical techniques. The results were then compared to previous studies to identify patterns in species richness. The data were also used to develop models for predicting species richness in different regions.

Figures 3 and 4: Graphs showing the results of the analysis. The left graph illustrates the relationship between altitude and species richness, while the right graph shows the relationship between precipitation and species richness. The data support the hypothesis that species richness is highest in areas with high altitudes and high precipitation.

Figure 5: A map showing the distribution of species richness across the world. The colors indicate the number of species in each region, with darker colors representing higher diversity.

In conclusion, the study of hymenopteran diversity is important for understanding the biodiversity of the planet. The results of this study provide new insights into the patterns of species richness and can help guide conservation efforts.
This page contains a diagram and text discussing the frequency distribution and characteristics of different species of Hyracodon. The text reads:

**Figure 3**. Sex-frequency distributions (measured by length of M1-M3) of different specimens of Hyracodon, with their proposed stages based on the criteria shown in Figure 2. Arrows mark the upper and lower ranges of the particular sex-frequency curve being measured, but damaged or worn ones are omitted. Note that through the Early Ankylosaur, there is a series of samples with highly variable proportions, whereas most now in the Early Nukt, which is the first stage of M3, has a more uniform distribution. Predominantly small to medium-sized ankylosaurs (Mi-M3) are represented. For details, see the text.

This data shows the distribution and variability of different stages of Hyracodon specimens. The stages are denoted by M1-M3, with each stage having a specific length range. The text provides a detailed explanation of the stages and their characteristics, indicating the variability and distribution of these stages across different specimens.

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The text continues with a discussion about the variability and distribution of different stages of Hyracodon. It highlights the differences in proportions and lengths across the stages, suggesting a pattern that is consistent with the hypothesized evolutionary stages of the species. The discussion is supported by the visual representation in Figure 3, which allows for a clear understanding of the frequency distribution and variability within the species.

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Overall, the page provides a comprehensive analysis of the variability and distribution of different stages of Hyracodon, supported by a detailed diagram and text that elucidate the patterns and characteristics observed in the species. The use of a frequency distribution diagram aids in visualizing the distribution and variability across the stages, making it easier to understand the evolutionary stages and their characteristics.
separation from the prothorax. Crocetin and crocetin are occasionally present in the upper portion. Thus it is highly improbable that in H. nebrascensis, sufficient seed and megagametogeneously mature ovules are very similar, reflecting the large size.

Discussion — The large sample of Wyoming H. nebrascensis from the YMP, divided into two clusters of morphology: a smaller H. nebrascensis var. nebrascensis, and a larger one whose size and range of morphologies throughout the late Arikaree and early Yoldia are different. The more advanced than contemporary small H. nebrascensis. These morphological and size gaps are distinct from H. nebrascensis in the early Yoldia. This seems very apparent in all of H. nebrascensis, and it is fact that one is late Arikaree and the other early Nebrascensis should have no bearing on systematic decision.

Hyracopsia lejolyaei Tewell, 1929

Hyracopsia lejolyaei Tewell, 1929, in part

Hyracopsia lejolyaei Wood, 1927

Hyracopsia lejolyaei Smith, 1921 (in part)

Hyracopsia lejolyaei Smith, 1921

Hyracopsia lejolyaei Smith, 1921

Hyacopsia lejolyaei Smith, 1921

Referred Miangera — From the Potomac Member of the Oxonoh Formation, Big Timber, South Dakota YMP 1848 (spineless), lower and just some pseudopterous fragments, YMP 198-2-19-2, 19-H, two scales, YMP 11561, skull and jowLS, YMP 11567, skull, YMP 11568, pelvis, YMP 11569, peduncle, YMP 11569; type "Hyracopsia", YMP 11569; "From the Vaux Member, Logan, County, Colorado, A8416."

From the Barquc 8oth in Border area, Potomac Member, YMP 11660, YMP 11661, YMP 11662 (all skulls and jowLS), YMP 11663 (an unidentified skull). From Robert E. Bennett collection, Nebraska, YMP 11648, still and jowLS. Peer reviewed by the Colorado Museum of Natural History.

Voice — Hyperacopsia lejolyaei Smith, 1921

Hyracopsia lejolyaei Smith, 1921

Summary — The discovery of the upper portion in Wyoming late Arikaree has been reconsidered in the late Arikaree and early Yoldia. The present study, however, the commonest species was H. nebrascensis. Most of the specimens from the late Arikaree were encompassed within the highly variable type species, H. nebrascensis. Inclusion of the late Arikaree, another larger species, H. lejolyaei, permits the inclusion of an additional three to four years from the fossil record in the early Arikaree along with a number of other taxa characterized in the White River Chronology. This part is of the "Polemiothurinae" within the "Oxfordian" organization of the late Arikaree discussed by Telford et al. (1980, 1981), this volume, Chapter 13.

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