# Article information:

Life habits and evolutionary biology of new two-winged long-proboscid scorpionflies from mid-Cretaceous Myanmar amber | Nature Communications
<https://www.nature.com/articles/s41467-019-09236-4>

# Article summary:

1. The article discusses the evolutionary history and life habits of long-proboscid scorpionflies, a group of insects that interacted with plants during the late Permian to mid-Cretaceous period.

2. The study provides evidence from Middle Jurassic compression deposits in China and mid-Cretaceous amber from Myanmar, revealing the phylogenetic position of these scorpionflies within the Mecoptera order.

3. The researchers establish a new family called Dualulidae, which possesses unique mouthparts not found in any other known long-proboscid group, and describe the feeding mechanisms and association with gymnosperm hosts based on mouthpart structure and adjacent pollen.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article titled "Life habits and evolutionary biology of new two-winged long-proboscid scorpionflies from mid-Cretaceous Myanmar amber" published in Nature Communications discusses the discovery of new scorpionfly species from Myanmar amber and their evolutionary history. While the article provides valuable information about these ancient insects, there are several potential biases and limitations that should be considered.

One potential bias in the article is the focus on the positive aspects of the findings without adequately addressing any limitations or uncertainties. The authors present their phylogenetic analysis as providing clear results, but they do not discuss any potential sources of error or alternative interpretations. This lack of discussion leaves room for interpretation and raises questions about the robustness of their conclusions.

Additionally, the article does not provide a balanced view by presenting counterarguments or alternative hypotheses. The authors state that Mecoptera is a paraphyletic group, but they do not explore other possible explanations for this pattern or discuss any conflicting evidence. This one-sided reporting limits the reader's ability to critically evaluate the findings and consider alternative interpretations.

Furthermore, there are unsupported claims made throughout the article. For example, the authors claim that their study provides evidence for documenting transformation of mecopteran hind wings into haltere-like structures based on comparisons to Drosophila. However, they do not provide detailed evidence or experimental data to support this claim. Without further evidence, this claim remains speculative and should be treated with caution.

The article also lacks discussion of potential risks or implications of the findings. While it is interesting to learn about ancient scorpionflies and their evolutionary history, it is important to consider how this knowledge can inform our understanding of modern ecosystems or contribute to conservation efforts. Without addressing these broader implications, the article feels somewhat disconnected from larger scientific and ecological contexts.

In terms of missing evidence, there are several gaps in our understanding that could have been addressed in the article. For example, while the authors discuss the morphology and evolutionary history of scorpionflies, they do not provide information about their behavior, ecology, or interactions with other organisms. This missing information limits our ability to fully understand the life habits and ecological roles of these ancient insects.

Overall, while the article provides interesting insights into the evolutionary biology of scorpionflies, it is important to approach the findings with caution due to potential biases, unsupported claims, and missing evidence. Further research and critical evaluation are needed to fully understand the significance of these discoveries and their implications for our understanding of ancient ecosystems.

# Topics for further research:

* Scorpionfly behavior and ecology
* Interactions between scorpionflies and other organisms
* Conservation implications of scorpionfly evolutionary history
* Alternative explanations for the paraphyletic nature of Mecoptera
* Experimental evidence for transformation of mecopteran hind wings into haltere-like structures
* Modern ecosystems and the role of ancient scorpionflies

# Report location:

<https://www.fullpicture.app/item/82d9fccd6ff19059131c283d61e24f7e>