

## Introduction

This ongoing study surveyed terrestrial insect diversity at Ft. Leonard Wood over the course of two years (2021-2022) and will continue into the near future. It is estimated that Missouri has some 25,000 insect species, some of major conservation concern<sup>1</sup>, but as a result of human activity, insect populations have declined dramatically. Over the course of this ongoing study, approximately 2,400 specimens were collected and processed in order to survey the effects of anthropogenic activity on insect populations at Ft. Leonard Wood. The general effects of human activity on these insects is yet unclear, but collection and processing of data remains ongoing.

## Methods

Specimens were collected using the following methods: light sheet trapping at night, UV bucket trapping, hand and net collection, funnel trapping, pitfall trapping, malaise trapping, leaf litter sampling, pheromone trapping, and pan trapping. Specimens were sorted by location of collection and method of collection, then pinned using museum standards for insect display. Once pinned, insects were identified and sorted according to family, genus, and species for display.



# Terrestrial Insect Diversity at Fort Leonard Wood

Sage Wood, Rhys Timpe, Arrie Gamble, and Dr. Robin Verble



Left: Mason bee collected 2022 (*Osmia* spp.)



Right: Leafhopper collected 2022 (Cicadellidae spp.)

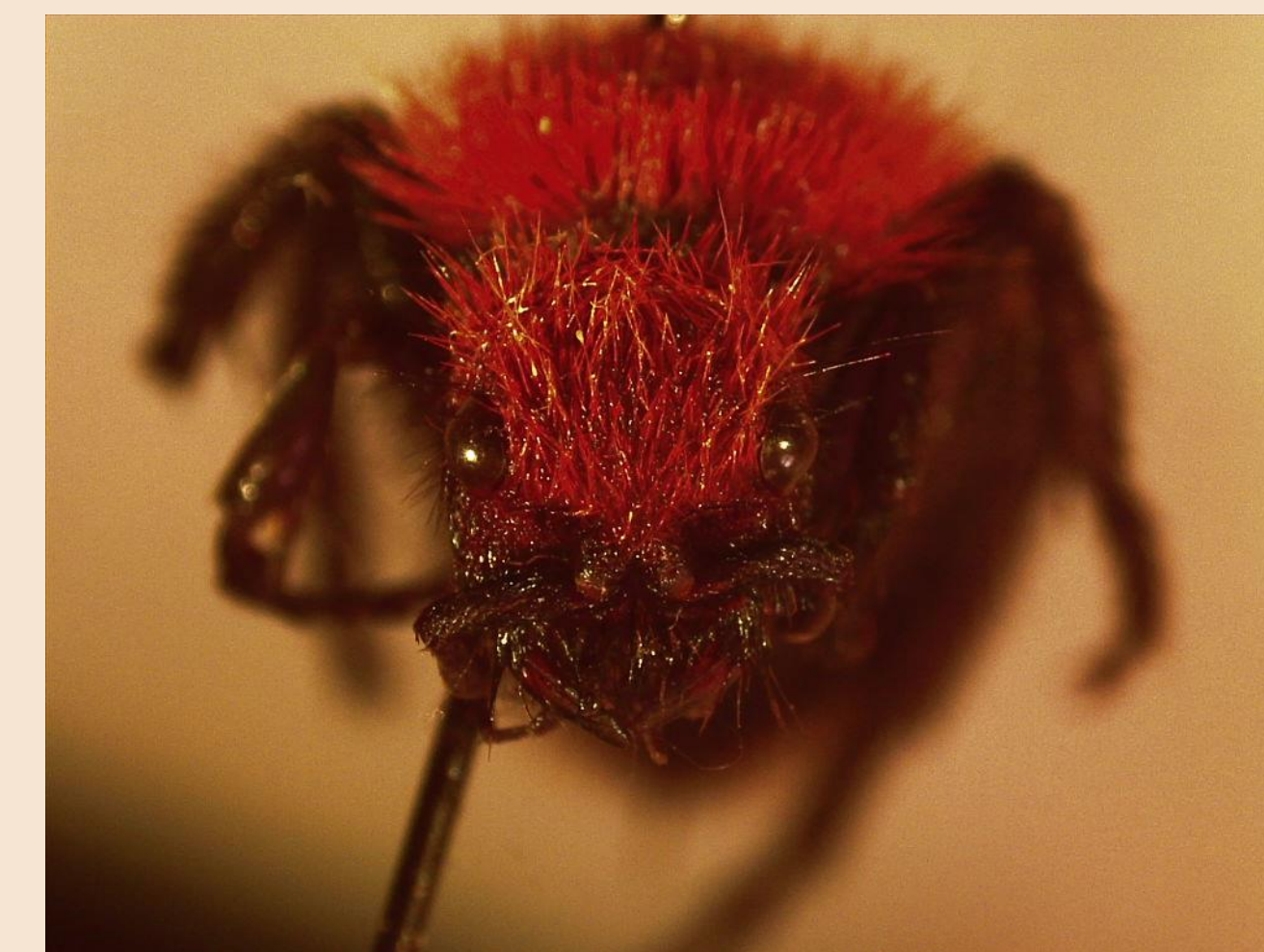


Square headed wasp collected 2022 (*Crossocerus* spp.)

Right: Dragonfly collected 2021 (*Libellula incesta*)



Below: Click beetle collected 2022 (Elateridae spp.)



Velvet ant collected 2022 (*Pseudomethoca simillima*)

Right: Juvenile mantid submerged in ethanol for storage.



Left: Funnel trap used to collect specimens.

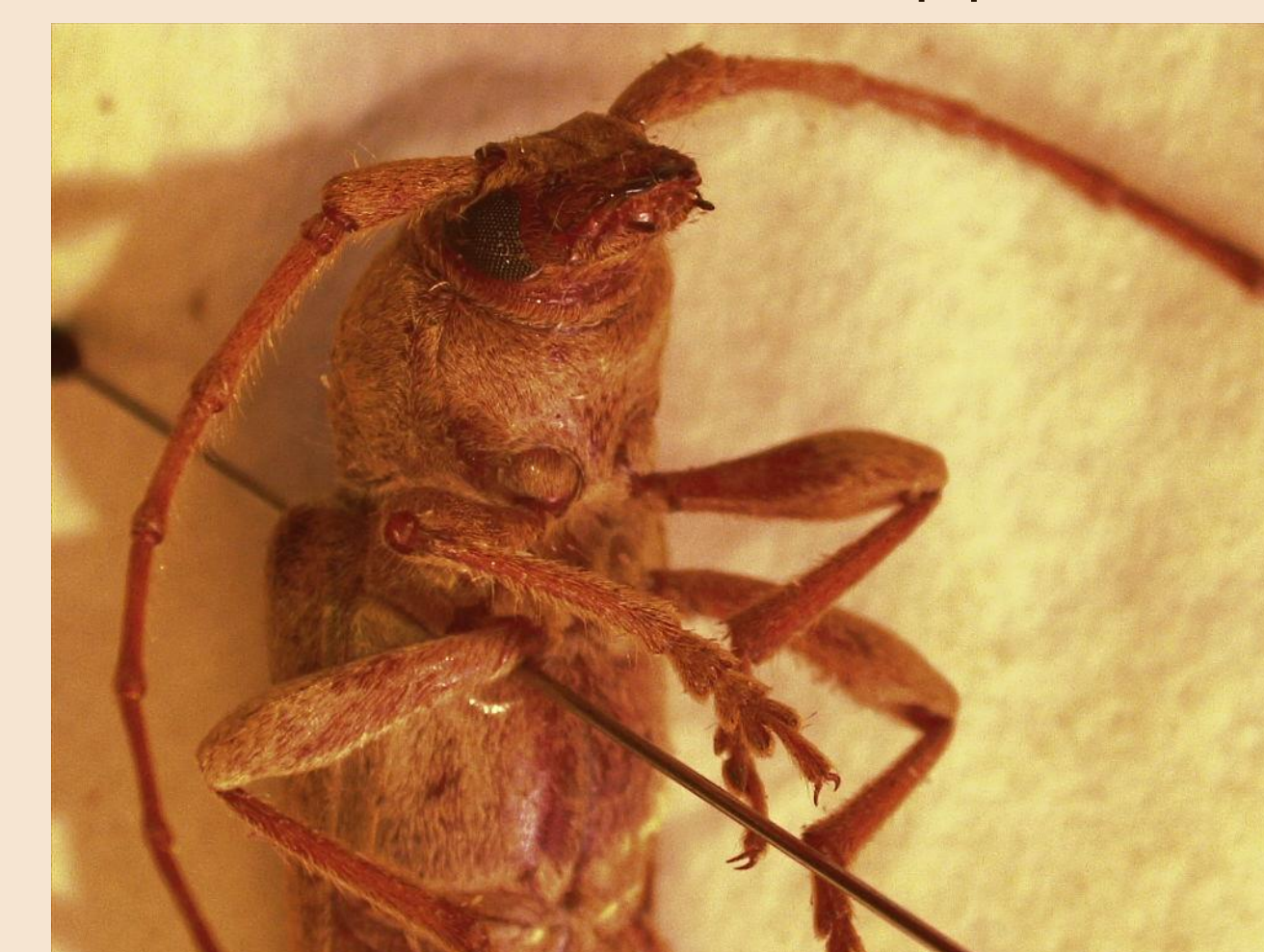
Below: Pinned specimens awaiting identification and further processing.



Carpenter moth collected 2021 (*Prionoxystus macmurtrei*)



Weevils collected 2022 (Curculionidae spp.)



Longhorn beetle collected 2021 (Cerambycidae spp.)

## Results

As the survey is still ongoing, any results are preliminary and subject to change. However, current data suggests extremely high levels of terrestrial insect diversity at Ft. Leonard Wood, with a myriad of specimens from many orders, including Hymenoptera (ants, bees, and wasps), Coleoptera (beetles), Lepidoptera (butterflies and moths), and Odonata (dragonflies). About one third of all specimens processed during the 2022 period were hymenopterans (nearly five hundred), with a close second in coleopterans (of which there were almost three hundred). This is consistent with general terrestrial insect diversity<sup>2</sup> and may be suggestive of minimal human impact on insect populations in the area.

## References

- (1) *Insects in Need*. (n.d.). Missouri Department of Conservation. Retrieved April 7, 2023, from <https://mdc.mo.gov/insects-need>
- (2) Forbes, A.A., Bagley, R.K., Beer, M.A. *et al.* Quantifying the unquantifiable: why Hymenoptera, not Coleoptera, is the most speciose animal order. *BMC Ecol* **18**, 21 (2018). <https://doi.org/10.1186/s12898-018-0176-x>