Biodiversity of Sweat Bees (Hymenoptera: Halictidae) Occurring in the Texas High Plains

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Background

In the Texas High Plains, collections of bees have been conducted from different studies since 2015, focusing on agricultural landscapes. Funding from the Texas Parks and Wildlife Department has supported work to curate (i.e., mount, label, and identify) these specimens to transfer to long-term storage in the Invertebrate Zoology Collection at the Natural Science Research Laboratory of the Museum of Texas Tech.

About Sweat Bees:

- ❑ Halictidae is 1 of 7 families of bees within the order Hymenoptera
- ❑ Small to medium in size: 4 to 11 mm
- ❑ Coloration ranges from black to metallic green
- ❑ Found on temperate and tropical regions in 6 of the 7 continents
- ❑ Nests are usually built in the ground during spring
- ❑ Feed on nectar, pollen, and sweat from humans

Collection, Curation and Identification

- ❑ Common collecting methods include:
  - Bee bowls, sweep nets, or aspirator
- ❑ Proper specimen curation steps:

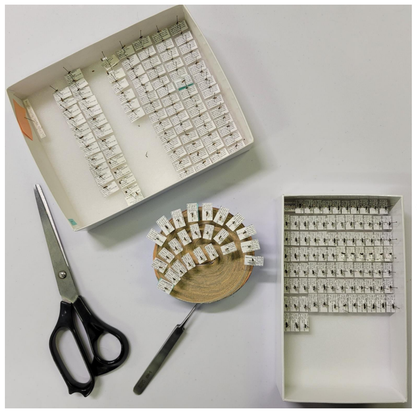
1. Obtain specimen
2. Kill sample using either a kill jar or by freezing for at least 3 days
3. If needed, rinse and dry sample. Be careful to make sure the wings and legs remain intact.
4. Pin sample using standard stainless steel insect pins. Make sure to pin through the thorax, just to the right of the midline.
5. Attach a label with information including: locality, date of collection, collection method, and collectors' name.
6. Place the curated sample into a unit tray.

- ❑ Common characteristics that are used for sweat bee species determination include:
  - Color, shape, and size of the bee
  - Location where the bee was caught

Genus/Species	Number of specimens
Agapostemon	1171
Agapostemon angelicus	391
Agapostemon melliventris	2
Agapostemon tyleri	4
Agapostemon splendens	4
Agapostomen angelicus/texanus	265
Agapostemon texanus	36
Halictus rubicundus	34
Halictus confusus	103
Halictus tripartitus	66
Halictus ligatus	471
Lasioglossum	1771
Lasioglossum hudsoniellum	946
Lasioglossum tegulare	114
Augochlorella	184
Augochloropsis metallica	75
Augochloropsis sumptuosa	110

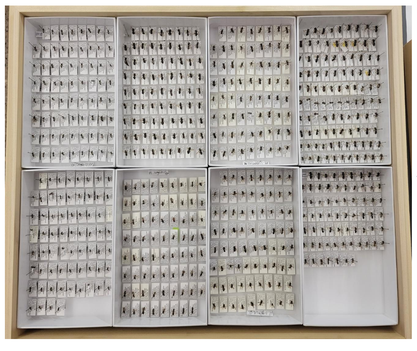
Collect, mount, and label specimen

***Agapostemon* sp. ♀**
TTU-Z_289790



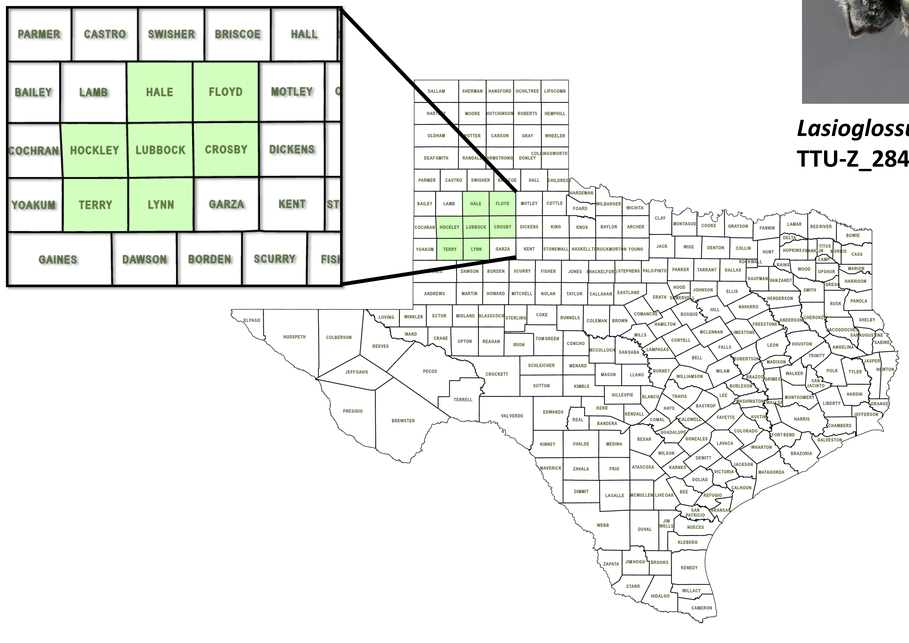
Identify based on morphological features

***Agapostemon angelicus* ♂**
TTU-Z_288937



Enter information into spreadsheets to transfer to Ecdysis

Lasioglossum hudsoniellum
TTU-Z_284776



Current Data

- ❑ Over 7,500 Halictidae specimens across seven Texas counties have been databased
- ❑ Specimens collected from July 2015 to October 2016
- ❑ Most common location – Lubbock, TX
- ❑ Most common genus - *Lasioglossum*
- ❑ Most common identified species - *Lasioglossum hudsoniellum*
- ❑ Least common genus: *Halictus*
- ❑ Least common species: *Agapostemon tyleri*

Project Status

As of April 2024, there are over 4,800 Halictidae specimens entered into Ecdysis. We expect to have around 9,500 Halictidae specimens in the Longing Lab identified and digitized by the end of 2024.

Overall, about 56% of bee specimens have been identified to genus and 44% have been identified to species.

The Longing Lab currently houses 5 of the 7 bee families:

- Andrenidae
- Apidae
- Colletidae
- Halictidae
- Megachilidae

Efforts Toward Conservation

- ❑ As one of the most abundant native bee families in the region, information on the biodiversity of the Halictidae will provide important background information to support future studies and conservation in agricultural landscapes.
- ❑ Digitally accessible biodiversity information can be used by other researchers to support broader statewide and national assessments of native bee biodiversity, aiding the preservation of bee or plant species under conservation protection.

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Discover Life

Invertebrate Zoology Collection

Ecdysis

References

https://animaldiversity.org/accounts/Halictidae/
https://bugguide.net/node/128