

### Ground-nesters

soil tunnels or  
under thatch  
~75% species U.S.

### Cavity-nesters

rock crevices,  
logs, twigs, stems  
~25% species U.S.

### Above & Below Ground

various species  
in the family



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### Sociality - species nesting behavior

**Solitary:** Single female builds a nest & provides for her brood ~90% spp.

**Communal:** Females share entrance, each provides her brood chambers

**Social:** Queen builds her nest & daughters help provide for her brood

### Photos

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Winkler  
Family  
Foundation



# Native Bees of Texas

## ID Guide



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Laurel Treviño Murphy  
& Shalene Jha

[https://w3.biosci.utexas.edu/jha/  
landowners-naturalists](https://w3.biosci.utexas.edu/jha/landowners-naturalists)

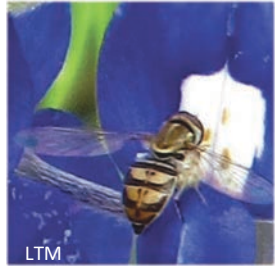


The University of Texas at Austin

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# Key Native Pollinators



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Syrphid hover fly

## ORDER DIPTERA

### Flies

Two wings  
Bristles or fine hair  
Short stubby antennae  
Indistinct body regions  
Eat nectar & detritus  
Mostly solitary



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Bombyliid bee fly



Alejandro Santillana

Mexican honey wasp

## ORDER HYMENOPTERA

### Wasps

Four membranous wings  
Scant fine hair  
Tapered antennae  
Distinct body regions  
Svelte body & waist  
Eat nectar & insects  
Mostly social



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Flower wasp

### Bees (Apoidea)

Four membranous wings  
Feather-branched hairs carry pollen loads:  
*scopa* leg/abdomen brushes hold dry pollen  
*corbicula* hind leg baskets hold moist pollen  
Long elbowed antennae  
Full-body: distinct head, thorax, abdomen  
Forage on nectar, gather pollen, some oils  
*Oligolectic*: get pollen from few plant groups  
*Polylectic*: get pollen from many plant groups  
Most are solitary generalists, few specialists



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## Striped Abdomen Mining Bees

Andrenidae

**Size:** tiny to large. **Shape/form:** medium, andreniform  
**Color:** dark body, gray-striped abdomen  
**Hair:** sparse, concentrated on hind legs  
**Behavior:** oligolectic (Asteraceae, Rosaceae)  
**Nesting:** solitary, ground nesters



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40



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## Striped Abdomen Plasterer Bees

Colletidae

**Size:** small to large. **Shape/form:** medium, andreniform  
**Color:** silver-white-striped abdomen, may be pointy  
**Hair:** thorax, may have flattened hair (stripes) on abdomen  
**Behavior:** oligolectic (Asteraceae, Rosaceae, Solanaceae)  
**Nesting:** solitary, ground or cavity nesters



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## Striped Abdomen Oil-collecting Bees

Melittidae

**Size:** small to medium. **Shape/form:** medium, andreniform  
**Color:** yellow and black striped abdomen  
**Hair:** hairy body carries pollen  
**Behavior:** eat/collect nectar, pollen, and plant oils; polylectic  
**Nesting:** semi-social, ground or cavity nesters



45



46



47

## Green Sweat Bees

Halictidae

**Size:** medium. **Shape/form:** slender, andreniform

**Color:** metallic green, males – yellow-black striped abdomen

**Hair:** females' hind leg *scopa* carry dry pollen

**Behavior:** fast flying, darting, attracted to sweat, polylectic

**Nesting:** solitary/semi-social, ground nesters or wood cavity



## Striped Sweat Bees & Tiny Dark Bees

Halictidae

**Size:** tiny, small, medium. **Shape/form:** slender, andreniform

**Color:** dark, shiny metallic, light abdominal white/gray stripes

**Hair:** females' hind leg *scopa* carry dry pollen

**Behavior:** crawl in flower, fast jagged darting flight, polylectic

**Nesting:** solitary to semi-social, ground nesters



## Cuckoo Bees - Kleptoparasites

Except Andrenidae

**Size:** small. **Shape/form:** slender, epeoliform

**Color:** dark with white abdominal stripes

**Hair:** sparse or bare thorax & abdomen, lack *corbicula/scopa*

**Behavior:** drink nectar but don't collect pollen for brood

**Nesting:** lay eggs in other bees' nests, don't tend to the young



## Native Bee Form & Size



Bombiform

Euceriform

Megachiliform

Apiform



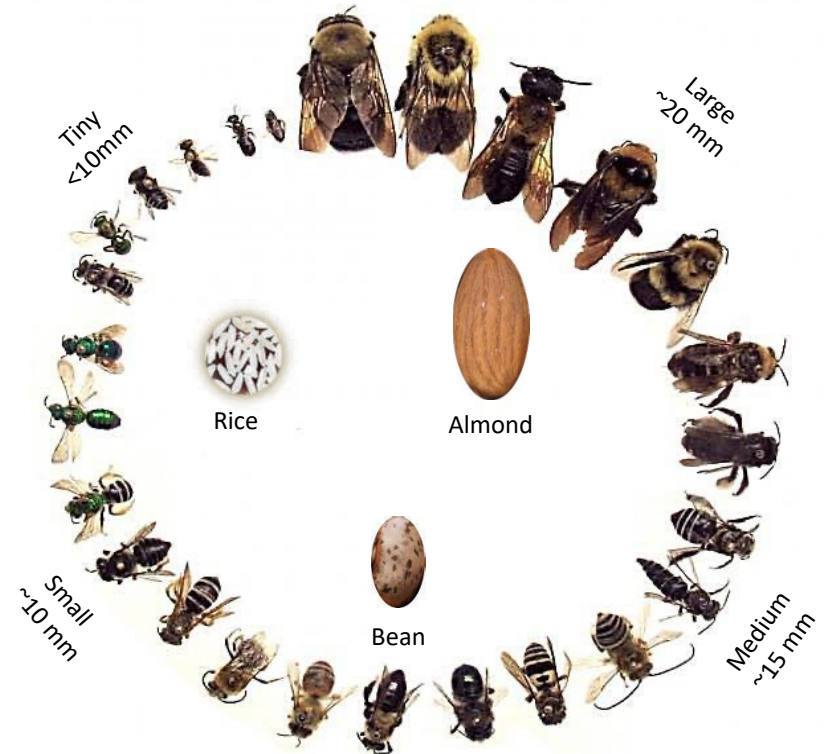
Hylaeiform



Andreniform



Epeoliform



Bee Ring  
(CC-BY) T'ai H. Roulston  
[www.virginia.edu/blandy](http://www.virginia.edu/blandy)

  
European Honeybee

Bee Forms  
Size References  
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## Bumble Bees

*Bombus*, Apidae

**Size:** large to very large. **Shape:** robust, bombiform  
**Color:** black & wide yellow bands on abdomen, yellow thorax  
**Hair:** covers entire body; hind leg *corbicula* carry moist pollen  
**Behavior:** slow flight with low buzzing sound, polylectic  
**Nesting:** social, ground nesters, spring queen - annual colony



Brown belt



American



Southern

## Hairy-legged, Digger, Chimney, Longhorn Bees

Apidae

**Size:** small-medium-large. **Shape:** robust, rounded, euceriform  
**Color:** striped abdomen. **Other:** males may have long antennae  
**Hair:** short, dense, velvety body, dry pollen on hind leg *scopa*  
**Behavior:** fly quickly and smoothly, oligolectic to polylectic  
**Nesting:** solitary to communal ground nesters



Digger



Chimney



Longhorn

## Large Carpenter Bees

*Xylocopa*, Apidae

**Size:** very large. **Shape:** robust, bombiform  
**Color:** shiny black to dark blue, mostly hairless abdomen  
**Hair:** hairy thorax/bald spot, hind leg *scopa* carry moist pollen  
**Behavior:** territorial males buzz around intruders, polylectic  
**Nesting:** solitary cavity nesters, bore into soft wood



Southern



Eastern



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Horsefly-like

## Hairy-belly striped, Leafcutter/Carder Bees

Megachilidae

**Size:** small to medium. **Shape:** slender to robust, megachiliform  
**Color:** black & white stripes on abdomen, with silvery fine hairs  
**Hair:** female, stiff hairbrush *scopa* under abdomen for dry pollen  
**Behavior:** may raise abdomen if foraging for nectar, polylectic  
**Nesting:** solitary cavity nesters, line nest with leaves/plant hairs



Leafcutters



13



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Carder

## Small Carpenter/Tiny Dark Bees

*Ceratina*, Apidae

**Size:** tiny. **Shape:** slender, hylaeiform  
**Color:** metallic dark black-blue, males may have face marking  
**Hair:** hairless except fem. hind-leg *scopa* that carry dry pollen  
**Behavior:** fast jagged flight, polylectic  
**Nesting:** solitary to semi-social, cavity nesters



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7



8

Carve stem pith

## Hairy-belly metallic, Orchard/Mason

*Osmia*, Megachilidae

**Size:** small to medium. **Shape:** stout, rounded, megachiliform  
**Color:** metallic green, blue, or blue-black  
**Hair:** female, stiff hairbrush *scopa* under abdomen for dry pollen  
**Behavior:** spring to early summer, polylectic  
**Nesting:** solitary gregarious cavity nesters



Green



Blue

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Masonry nest