

Andrena (Mining Bee Group) [86 species]

Common and, at times, dominant bees, that occur in all habitats, but reach their peak abundance in the spring with a few species emerging in the fall and a very few species out in mid-summer.

Field Marks: ♀♂ Thorax and abdomen integument entirely black, with varying degrees of white to ochre hair (usually dense and long on thorax). ♀ Face, **shallow depression (fovea)** covered with minute hairs that reflect a dull (white to black) color making the fovea relatively visible in the field; fovea roughly oval, though shapes vary, and runs from the top of the head between the ocelli and the eye down and usually narrows beyond the gap between the antennae socket and eye. Note that the foveae are usually surrounded by longer hairs. Note: 2 very rare summer/fall females have yellow patches on their lower faces all other species have black. ♂ Face, with long pale hairs; hair usually particularly dense below antennae and overhanging, **beard-like**, the clypeus rim. Face, clypeus (and at times to the sides of clypeus) in **some species with bright yellow** marks. Body and head relatively wide compared to similar genera. A few species with reddish/orangish lower legs.

Flight Season: Abundant in the spring, nearly absent in summer, regular in the fall

Size Relative to Honey Bee: 0.5 - 1.5X

Position of Wings Feeding on Flowers: Held slightly to sides or completely overlapping on back though the less common fall species regularly hold their wings out to the side.

Location of Pollen Carrying Hairs: Hind femur, tibia, back sides of thorax (propodeal corbicula)

Similar Genera: Large hair-filled foveae are unique to *Andrena*. *Halictus* - Abdomen, segments, rim with crisp, thin, narrow bands of small, prone, white, hairs along the rim of the abdominal segments (tergites); *Andrena* species can also have hair bands, but they are *usually* incomplete and not on every segment. ♂ Head longer than wide, yellow in patches on legs. *Melitta* - (very rare group) ♀ Face, without foveae. Legs, carries pollen on tibia and basitarsus only, does NOT carry pollen on side of thorax or on femur. ♂ Approximately Honey Bee-sized and may not be separable from *Andrena* in the field. *Colletes* - Face, distance between inner edges of eyes strongly decreases from top of head to mandible.

Nest: Ground, often in open bare soil, but can be underneath leaves.

Flowers: Almost any flower. Many species are specialists on individual plant genera.



A. arabis - Male



A. banksi - Male



A. carlini - Female



A. fenningeri - Female



A. hilaris - Female



A. hirticincta - Female



A. nida - Female



A. nivalis - Male



A. nubecula - Female



A. nuda - Female



A. robertsonii - Female



A. ziziaformis - Male

Calliopsis andreniformis (Little Black Bee Group)
[1 species]

Commonly found in urban and other heavily used landscapes. Attracted to the hard-packed dirt open soil of playing fields, construction sites, and borrow pits. Common and usually forages close to the ground, where it collects pollen and nectar from weedy legumes.

Field Marks: ♀♂Face, **clypeus jutting/mounded** outward, particularly noticeable in profile. Abdomen, edge of segments (tergites) with **narrow band** of pale hair. Eyes unusually light colored. ♀Face, below the level of the antennae, has 3 sets of parallel and linear white markings (looks like **3 white-stripes**); two stripes along the inside of the compound eyes and one down the center. ♂Face (From about one-third of the way down) and legs entirely **bright fluorescent yellow**.

Flight Season: Active from about May to the end of the season.

Size Relative to Honey Bee: 0.5X

Position of Wings Feeding on Flowers: Completely overlapping

Location of Pollen Carrying Hairs: Tibia

Similar Genera: No similar genera, markings and shape of face are unique.

Nest: Ground, open bare soil, fond of piles of construction dirt.

Flowers: Mostly clover, sweetclover, verbena.



C. andreniformis – Female



C. andreniformis – Female



C. andreniformis - Female

Panurginus (Little Black Bee Group) [3 species]

Small, overlooked, and rarely detected spring species; but likely more commonly detected if people looked for nest sites and observed bees at each species' favorite food plants.

Field Marks: ♀♂ **Tiny** size. Hair, largely absent. Wings, while often difficult to see, these species have only 2 submarginal cells. Abdomen, **no pale hair bands**/patches or pale markings of any kind. ♀ Integument, including face, **entirely black**. Note: face has narrow slits (foveae) above antennae parallel to compound eye, but these are difficult to see without a microscope or high-res photograph. ♂ **Clypeus bright yellow** or mostly bright yellow, remainder of bee all black, with the exception of the ends of the legs (tarsal segments) and portions of front tibia with pale markings.

Flight Season: Spring

Size Relative to Honey Bee: 0.5X

Position of Wings Feeding on Flowers: Completely overlapping

Location of Pollen Carrying Hairs: Hind tibia and basitarsus

Similar Genera: *Hylaeus* - ♀ Face, yellow/white markings between eye and clypeus. Carries no external pollen. ♂ Face, entire lower face often yellow/pale-white. *Calliopsis* - Markings quite different. *Pseudopanurgus* and *Perdita* - Flight periods do not overlap, out only in the fall. *Most of the Other Genera that are Small Black Bees* - Have 3 submarginal cells and noticeable, though possibly restricted, patches/bands of pale hairs.

Nest: Ground, flat, open bare soil. *P. polytrichus* and *P. potentillae* are known to aggregate their nests.

Flowers: Forbs and low shrubs



P. potentilla – Male



P. potentilla – Male



P. potentilla – Male

Perdita (Little Black Bee Group) [7 species]

Tiny and uncommon. However in the right sandy habitats, with the right native composites; particularly dune areas, sand mines, or other sparse areas of deep sand, some sand *Perdita* species can occur in high numbers.

Field Marks: ♀♂ **Tiny** size, body hairs very sparse (except for *P. bequaerti*, which is only moderately hairy). **Hairs never forming bands** or dense enough to be noticeable in the field. Wings, 2 submarginal cells. Wing, marginal cell **super short** (its length along the edge of the wing is equal to or less than the length of the adjacent dark stigma) with the end clearly squared off rather than pointed. ♀ Integument black to slightly metallic blue or green, almost always with some light-colored markings on face. Abdomen markings vary from none to stripes, often forming small blotches on the sides. Markings tending to be **white to light yellow** not bright yellow. Clypeus, scape (large antennal segment next to head), and area to sides of clypeus almost always with light-colored markings dissected by dark areas. Hind legs, pollen carrying hairs, all species except *P. bequaerti*, **sparse and hardly noticeable** thus the females often appear male-like. ♂ **Face below antennae**, all or primarily white to light yellow in most species. Face noticeably wider-than-long and squarish. **Antennae short**, not noticeably longer than female.

Flight Season: Late summer/fall for sandy soil species

Size Relative to Honey Bee: 0.3 - 0.5X

Position of Wings Feeding on Flowers: Completely overlapping

Location of Pollen Carrying Hairs: Hind tibia and basitarsus

Similar Genera: *Hylaeus* - ♀ Has yellow/white markings on face only between eye and clypeus, carries no external pollen. ♂ Entire lower face often yellow/pale-white, but body dark black and legs with some yellow/white markings on them. *Calliopsis* - Face, markings quite different, has pale hair bands on abdomen. *Panurginus* - Flight periods do not overlap, spring species. *Pseudopanurgus* - ♂ Clypeus bright yellow. Body black. Legs with yellow markings. Head less wide, less square. ♀ Entirely dark black. *Most of the Other Genera that are Small Black Bees* - 3 submarginal cells. Hair, patches/bands of pale hair. ♂ Longer antennae

Nest: Ground, open bare sandy soil

Flowers: Sand species are found on fall composites, two rare species are found on Maleberry (*Lyonia ligustrina*) and False Foxglove (*Agalinus* spp.).

Notes: Two very rare species (*P. gerardiae* and *P. novaeangliae*) are not associated with deep sand.



P. bequaerti – Female



P. bishoppi – Female



P. bishoppi – Female



P. bishoppi - Female



P. octomaculata - Female



P. octomaculata - Female



P. octomaculata – Female



P. octomaculata -Female

Pseudopanurgus (Little Black Bee Group) [6 species]

Small, overlooked, and rarely detected primarily fall species.

Field Marks: ♀♂ **Tiny** size, without noticeable body hair. Wings, 2 submarginal cells. Abdomen with no noticeable pale hair bands/patches or pale markings of any kind. ♀ Body, including face, **entirely black**. ♂ **Clypeus bright yellow** or mostly bright yellow, remainder of bee all black with the exceptions a dot of yellow on the **pronotal lobe** on the thorax near the head and yellow on the ends of legs, which often extends to parts of the tibia.

Flight Season: Fall

Size Relative to Honey Bee: 0.5X

Position of Wings Feeding on Flowers: Completely overlapping

Location of Pollen Carrying Hairs: Hind tibia and basitarsus

Similar Genera: *Hylaeus* - ♀ Has yellow/white markings on face between eye and clypeus; carries no external pollen. ♂ Entire lower face often yellow/off-white. *Calliopsis* - Markings quite different. *Perdita* - Most common species are restricted to sandy locations and contain light-colored marks on the abdomen. *Panurginus* - Spring species, flight period does not overlap. *Most of the Other Genera that are Small Black Bees* - Have 3 submarginal cells and noticeable, though possibly restricted, patches/bands of pale hairs.

Nest: Ground, flat, open bare soil

Flowers: Most species are composite specialists



P. labrosiformis – Female



P. labrosiformis – Female



P. labrosiformis - Female