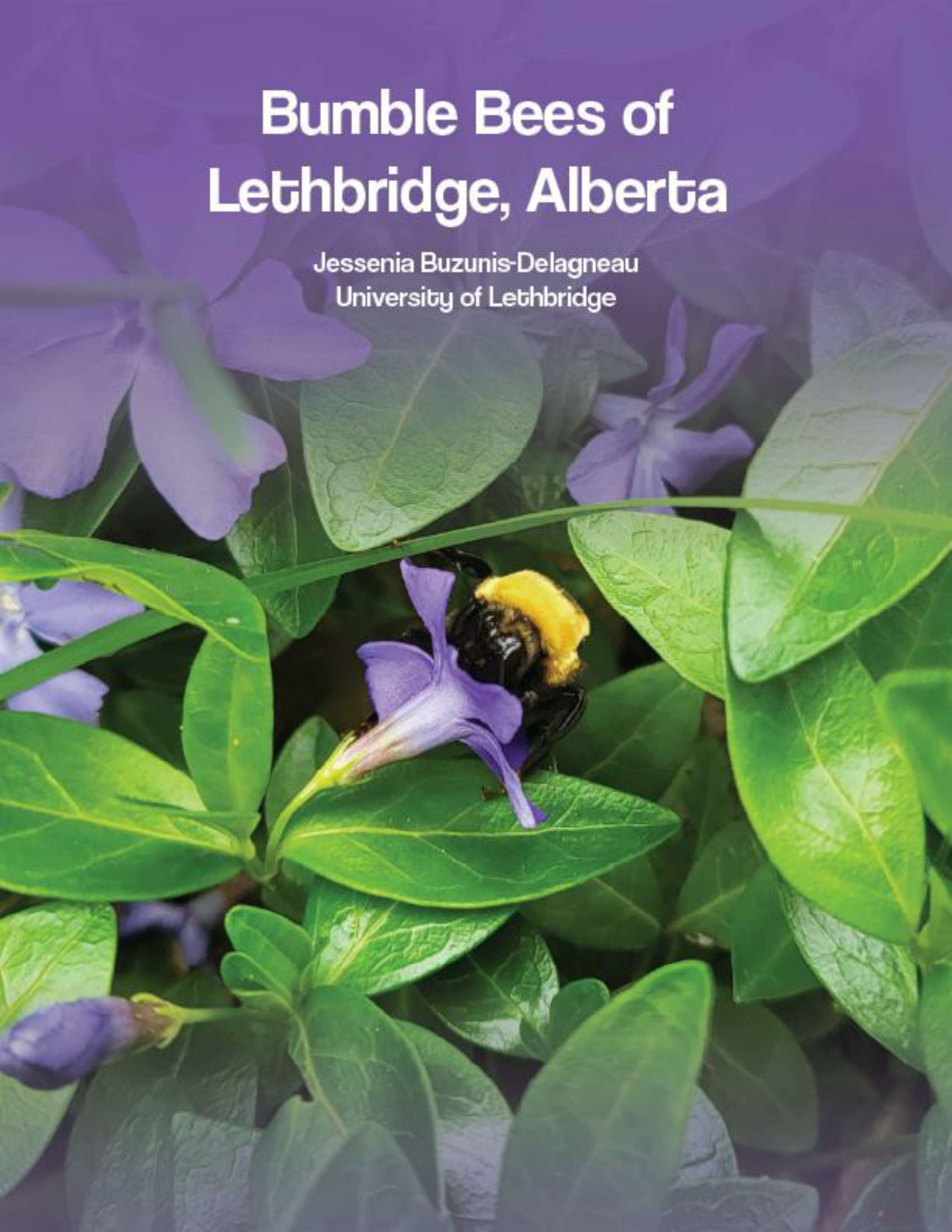


Bumble Bees of Lethbridge, Alberta

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Introduction

While they are not the only type of native bee present in Lethbridge, bumble bees (bees in the genus *Bombus*) may be the most well known, and perhaps the most beloved. The name *Bombus* comes from the Latin word for “booming”, “buzzing” or “humming” referring to the loud buzzing sound they produce while they fly (Merriam-Webster, n.d.). Many of us have come to know and love this familiar sound as the herald of an approaching bumble bee in our gardens or a field of flowers on a warm spring or summer day. Certainly, those who are fond of creatures with almost kitten-like fluff, beautiful bright colours, and the heartwarming mutualism of plant-pollinator interactions should find themselves to be fans of bumble bees.

Beyond physical appeal, bumble bees also provide plants and animals, including humans, with important pollination services. Bumble bees are one type of bee capable of “buzz pollination”, a unique type of pollination in which the bee buzzes at a particular frequency which stimulates the flower to release pollen (Cooley & Vallejo-Marín, 2021). This process is either required or greatly beneficial to the pollination of many plant species, including many crops (Cooley & Vallejo-Marín, 2021). Enjoyers of tomatoes, blueberries, eggplants, and more should all be thankful to bumble bees for their valuable role in production (Cooley & Vallejo-Marín, 2021).

However, there is some cause for concern in the bumble bee world. From personal experience, I have found that being out and about in parks and gardens with strange-looking bumble bee survey equipment invites conversations. Time and time again, I heard many fond bumble bee memories, and many concerns that people had been seeing fewer bumble bees in Lethbridge in recent years. Unfortunately, their concerns are not unfounded, as studies have shown that bumble bee numbers are indeed declining worldwide (Goulson, 2010). Further, it is difficult to fully understand the extent of these declines and their effects on particular species due to a lack of data on most species' abundances (Goulson, 2010). However, recent work has found that citizen science platforms such as iNaturalist (www.inaturalist.org) could be valuable for the monitoring of bees, especially large-bodied bees such as bumble bees, which are more frequently observed by civilian scientists (Pereira et al., 2024). Specifically for Canadian and U.S. bumble bees, the Bumble Bee Watch (<https://www.bumblebeewatch.org/>) project has been shown to complement traditional scientific observation methods by filling in data gaps and providing new information (MacPhail et al., 2024). In this way, submissions of bumble bee observations from civilian scientists on platforms such as iNaturalist or Bumble Bee Watch could prove valuable for bumble bee conservation as a complement to traditional scientific surveys. By contributing photo observations to these platforms, we can better understand

presences and declines of bumble bee species, particularly where traditional surveys are lacking, and especially where more civilian scientists take up this hobby and gain practice (Pereira et al., 2024).

As part of my undergraduate thesis, I spent the summer of 2024 identifying and documenting the different species of bumble bees present in Lethbridge. In this work, I will share what I have learned about the species present, their relative abundances, floral associations, and tips on how to identify the 12 different bumble bee species I observed in Lethbridge. Whether you care for bumble bees out of a simple love for them, a desire to know the little gardeners who help plants make your produce, or a wish to contribute to citizen science and perhaps aid in bumble bee conservation, I hope that this report and guide will be useful to you in better understanding our little Lethbridge local bumble bees.

The Bumble Bee Season

The first step to finding and identifying bumble bees is to know when you can find them. The first recorded observation of a bumble bee in Lethbridge in 2024 across iNaturalist and personal communications was my own observation of a *Bombus huntii* queen foraging on a dandelion (likely *Taraxacum officinale*) on April 22, 2024. The last time a bumble bee was recorded on iNaturalist in 2024 was a *Bombus huntii* queen foraging on some marigolds (*Tagetes erecta*) on October 9, 2024 (Johnson, 2024). This would put the bumble bee season in Lethbridge at roughly 6 months long, beginning in mid-late April and ending in early to mid October.

To see whether this was consistent across recent years, or if 2024 represented an anomaly, I checked for the first and last iNaturalist observations of bumble bees in Lethbridge over the last 5 years (Table 1). I have included only observations from between 2020-2024, as before 2020, iNaturalist observations become few and far between (there were only two observations of bumble bees in Lethbridge in 2019, and only one in 2018). From this data across the last five years, it seems relatively safe to say that bumble fans in Lethbridge should keep their eyes out from April to October, and that the bumble bee season in Lethbridge is relatively consistently about 6 months long.

Table 1. Summary of the first and last observation dates of bumble bees in Lethbridge from iNaturalist observations.

Year	Date of First Observation	Date of Last Observation
2024	April 22	October 9
2023	April 27	September 12
2022	May 4	September 14
2021	April 30	September 16
2020	April 29	August 20

Bumble Bee Identification

This report should not serve as a definitive guide for bumble bee identification, however it will serve as a good introduction to the bumble bees in the Lethbridge region. This guide will focus primarily on morphological traits and colouration, which are easily seen in photos and in living specimens but are not the best for definitive identification. Particularly with male bumble bees, identification based on colouration can be particularly difficult, and often requires the identifier to capture and kill the bee. Those looking to identify Lethbridge bumble bees with more certainty and/or for research purposes may need to destructively sample specimens to view microscopic characteristics or look at male genitalia and should refer to other more detailed guides such as Williams *et al.'s Bumble Bees of North America* (2014). Additionally, *Bumble Bees of Calgary* (Neame et al., 2023) served as another very useful guide for my work and while writing this report. *Bumble Bees of Calgary* also focuses on coloration patterns, and only addresses the identification of females, but is regardless a very useful and user-friendly guide to refer to where this guide is insufficient.

Bumble Bee Anatomy

To identify a bumble bee, it is important to understand the terms used when describing bumble bee ID traits. Figure 1 shows a diagram of a bumble bee focusing on the terms and structures referenced in this guide.

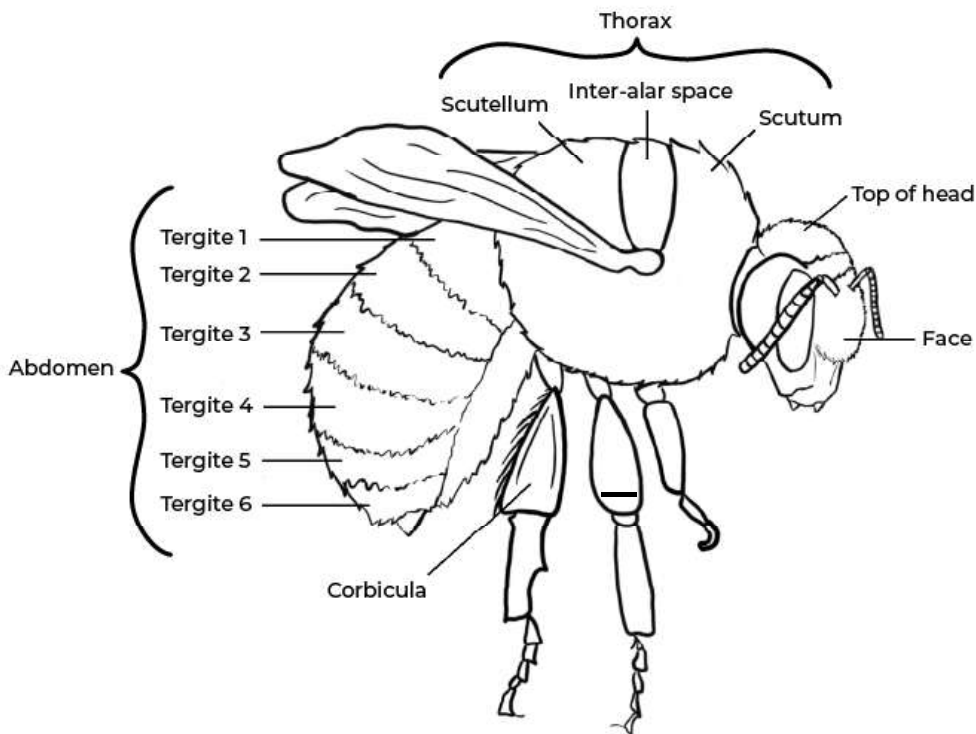


Figure 1. General anatomy of a female, non-cuckoo bumble bee. Females of the subgenus *Psithyrus* (cuckoo bumble bees) and all males differ in that they lack a corbicula. Male bumble bees differ in that they have an 7th tergite, giving their abdomen in general a longer and often pointier appearance. Males also have an additional segment to their antennae, which in some species gives the appearance of longer antennae. Tergites are abbreviated as T1-7 in the guide.

Queen and worker bumble bees have a specialized structure called a corbicula (plural corbiculae) that allows them to pack and carry pollen back to the nest (Goulson, 2010). Often referred to simply as pollen baskets, the corbiculae are smooth, concave areas fringed with hairs located on the tibia (the second segment from the top) of the hind legs. Assessing the presence or absence of this structure can be useful in identifying bumble bees, as it is absent in all male bumble bees, as well as females in the subgenus *Psithyrus* (Neame et al., 2023). The subgenus *Psithyrus* includes the cuckoo bumble bees, who do not follow the typical lifestyle of the other *Bombus* subgenera. *Psithyrus* species do not have a worker caste, only reproductive females and males (Goulson, 2010). Rather than starting their own nest, foraging for their own young, and producing workers to continue foraging for subsequent broods, *Psithyrus* species are social parasites - females forage only for themselves until they find an established nest of another bumble bee species, take over

the nest, and lay their own eggs to be cared for by the workers of the original queen (Goulson, 2010). Because *Psithyrus* species do not forage for their young, they do not need corbiculae to carry pollen to their nest. Although the ancestors of present-day cuckoo bees did have corbicula, they have lost this structure over the course of evolution. Figure 2 shows the hindleg of a non-parasitic species (Figure 2a) and a parasitic species (Figure 2b), showcasing the presence and absence of the corbicula, respectively.

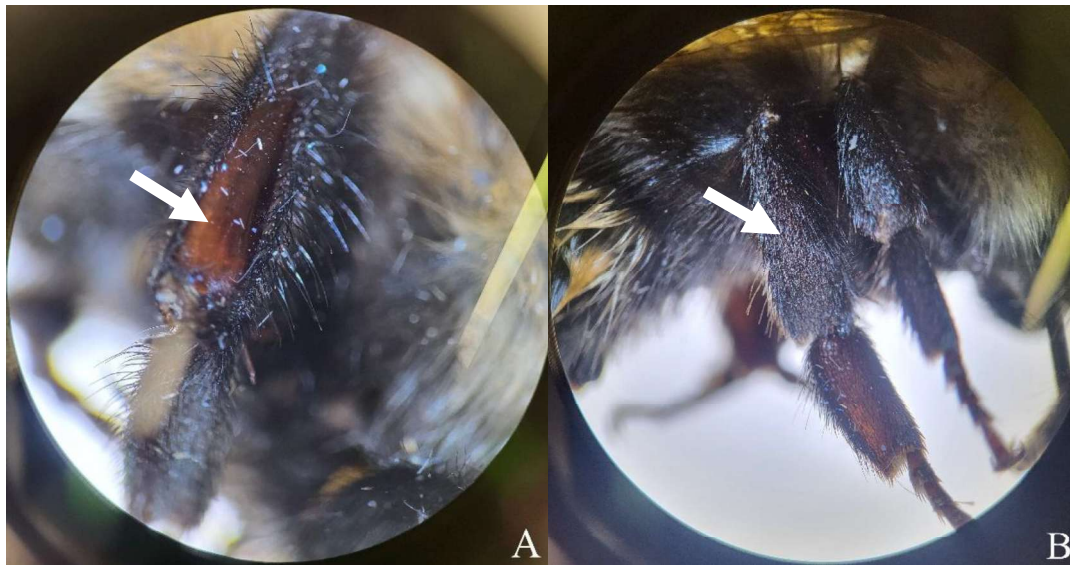


Figure 2. Photographs of the hind legs of pinned bumble bee specimens under a dissecting microscope. 2a shows the hindleg of *Bombus fervidus*, a non-parasitic bumble bee species, showcasing the corbicula (highlighted by the white arrow). 2b shows the hindleg of *Bombus suckleyi*, a socially parasitic cuckoo bumble bee in the subgenus *Psithyrus*, lacking a corbicula (the white arrow highlighting the tibia, where a corbicula would be if it were present).

Photographing Bumble Bees for Identification

To make identification easier, it is my recommendation to attempt to photograph the bumble bee you wish to identify so that you can refer to your photos in case the bumble bee flies away before you are able to make your identification. Taking photos of bumble bees can also enable you to post those photos to citizen science platforms such as iNaturalist or Bumble Bee Watch, where others can help you identify your bumble bee. When photographing bumble bees for identification, it is most important to get good photos that show the coloration of the dorsal (back) side of the thorax and abdomen, and the head and face. Although difficult, it would additionally be helpful to get a photograph of

the side of the face that allows you to see the cheek, and a photo of a hind-leg that allows you to assess the presence of corbiculae. Bumble bees can move around quite quickly, so I find that it is easiest to take short videos of the bee from which you can capture many frames and view the best frames individually.

The Guide

The following guide lists the common and scientific names, and the sub-genus, of each of the bumble bee species I observed in Lethbridge in the summer of 2024. I also make note of species listed as at-risk by the IUCN (International Union for Conservation of Nature) or COSEWIC (Committee on the Status of Endangered Wildlife in Canada). I visited 20 50 x 50m sites three times throughout the summer (once in Late May/Early June, again in Mid July, and once more in Mid-Late August) and conducted a 15-minute survey searching for bumble bees and recording which flower species they were visiting. Each time I observed a bumble bee on a flower, I took a photo and recorded and classified each of these as a floral interaction. Throughout this experiment, I observed a total of 364 bumble bee floral interactions. At the end of each page, I list the flower species associated with that bumble bee species. For species with many floral interactions such that not all of them would fit onto the page, "Most common floral associations" are listed. For all other species, all "Observed floral interactions" were listed in order of frequency. I classified bumble bee species as relatively common if I observed the species in more than 10 floral interactions, uncommon if I observed it in fewer than 10 but greater than 3 floral interactions, and rare if I observed it in fewer than 3 floral interactions. I attempted to put species that are most likely to be confused for one another near one another in this guide, to make it easier to flip between pages to compare when looking at a bumble bee. All photos were taken by me in 2024, except where otherwise indicated.

Where possible, I attempted to include photos that showed relevant identification traits, and both females (queens/workers) and males. Bees with some orange hairs come first in this guide (pages 7-10), followed by bees without any orange coloration (pages 11-15). Finally, I highlight some rare species that I only saw 2 or fewer times in the summer of 2024 (page 16) and two at risk species that may live in Lethbridge, although I did not encounter them (page 17).

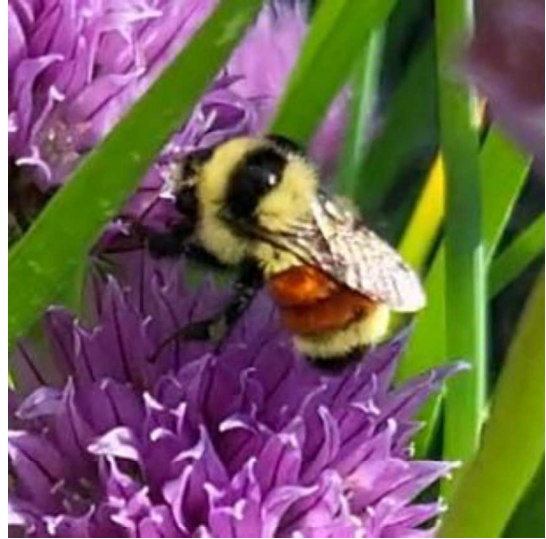
Hunt's Bumble Bee - *Bombus huntii*

Pyrobombus

B. huntii was the most common bumble bee species in Lethbridge in 2024 and represented 222 of the 364 observed bumble bee floral interactions.

For workers and queens, T1 is yellow, T2 and 3 are orange, T4 is yellow, and T5 and 6 are black. The thorax is yellow with a black inter-alar band in the inter-alar space, and the head and face are yellow (Neame et al., 2023; Williams et al., 2014). This species can be distinguished from the similar species, *Bombus ternarius* by the coloration of the face, head, and inter-alar space (Neame et al., 2023; Williams et al., 2014). The face and head of *B. huntii* is yellow, while the face of *B. ternarius* is blacker, although the face of *B. ternarius* sometimes has some yellow hairs. A more concrete way to differentiate the two is by the inter-alar band. The band in *B. ternarius* extends posteriorly, almost or completely bisecting the scutellum, while the inter-alar band of *B. huntii* does not (Neame et al., 2023; Williams et al., 2014). Additionally, *B. huntii* was far more common in Lethbridge in 2024 than *B. ternarius*.

B. huntii males are similar in appearance to females; T1 is yellow, T2 and 3 are orange, T4, 5, and 6 are yellow, and T6 and 7 are black; and the face and head are yellow (Williams et al., 2014). The thorax is yellow with a black band across the inter-alar space, although for males of *B. huntii* there are sometimes yellow hairs intermixed into this band (Williams et al., 2014).



Most common floral associations:

- 🍯 Yellow sweet clover - *Melilotus officinalis*
- 🍯 Anise hyssop - *Agastache foeniculum*
- 🍯 Dotted gayfeather - *Liatris punctata*
- 🍯 Squash flowers - *Cucurbita* sp.
- 🍯 Common sunflower - *Helianthus annuus*
- 🍯 White sweet clover - *Melilotus alba*
- 🍯 Sweet Joe-Pye-weed - *Eutrochium purpureum*
- 🍯 Russian sage - *Salvia yangii*
- 🍯 Mexican marigold - *Tagetes erecta*

Tri-coloured Bumble Bee - *Bombus ternarius*

Pyrobombus



B. ternarius was uncommon in Lethbridge in 2024 and represented only 5 of the 364 observed bumble bee floral interactions.

In *B. ternarius* workers and queens, T1 is yellow, T2 and 3 are orange, T4 is yellow, and T5 and 6 are black (Neame et al., 2023; Williams et al., 2014). The head and face of *B. ternarius* are typically more black than *B. huntii*, although there are sometimes yellow hairs intermixed (Neame et al., 2023; Williams et al., 2014). Additionally, as is case in photo 2 on the right, when a bee is photographed while it was foraging, sometimes pollen on the head and face can make the hairs appear more yellow than they really are. Therefore, it is preferable to use the inter-alar band to differentiate this species from *B. huntii*. Although sometimes the inter-alar band of *B. huntii* extends into a slight point into the scutellum, the point extending posteriorly in *B. ternarius* is distinct, completely bisects the scutellum (Neame et al., 2023; Williams et al., 2014), and the band itself is often much wider than in *B. huntii*. Additionally, this species was observed far less in Lethbridge in 2024 than *B. huntii*, and iNaturalist records from previous years indicate that this species is consistently uncommon in Lethbridge.

The coat coloration of males of *B. ternarius* is similar to females, although the black bisection of the scutellum is less obvious in males (Williams et al., 2014). However, *B. ternarius* can still be distinguished from *B. huntii*, as T6 is usually at least partially black in *B. ternarius*, while in *B. huntii* it is typically yellow (Williams et al., 2014).

Observed floral associations:

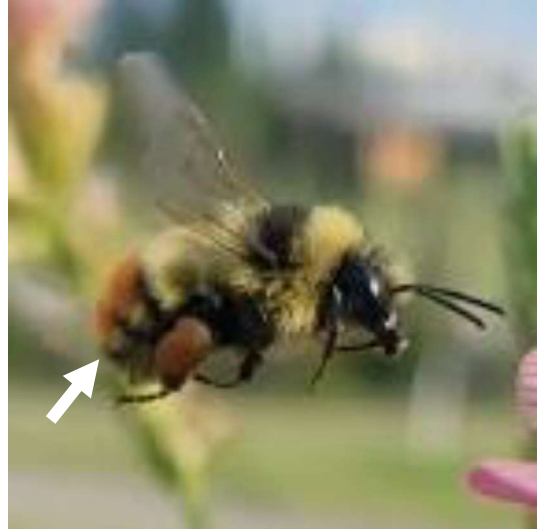
- 🐝 Anise hyssop - *Agastache foeniculum*
- 🐝 Huisache daisy - *Amblyolepis setigera*
- 🐝 Common sunflower - *Helianthus annuus*
- 🐝 Woolly groundsel - *Packera cana*
- 🐝 Roses - *Rosa* sp.



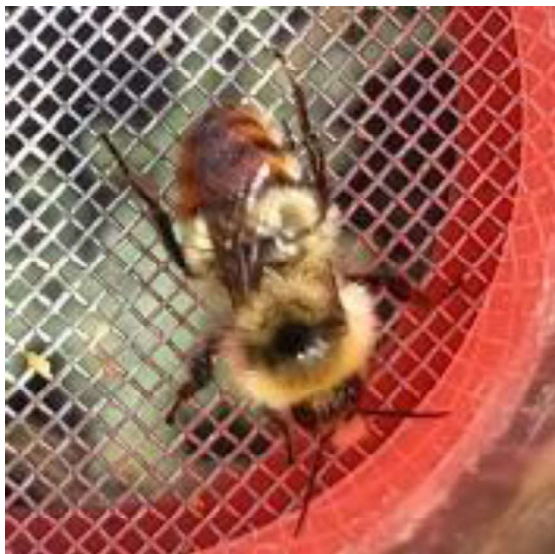
Great Basin Bumble Bee – *Bombus centralis* *Pyrobombus*

B. centralis was the second most common bumble bee in Lethbridge in 2024 and represented 71 of the 364 observed bumble bee floral interactions.

For queens and workers T1 and T2 are mostly yellow, often with some black in the centre, T3 and T4 are orange, and T5 and T6 are black (Neame et al., 2023; Williams et al., 2014). There is a black band in the inter-alar space, and the face and head are mostly yellow (Neame et al., 2023; Williams et al., 2014). Males of this species are similar in appearance to females (Williams et al., 2014). Of those *B. centralis* males I observed in 2024, T1 and T2 were yellow, often with some black in the center, T3, T4, and T5 were orange, often with a yellow line along the lateral edge, and T6 and T7 were black.



Any difficulty associated with identifying this species in Lethbridge (once one is clear on the differences between the abdomen of this species and *B. huntii*) is likely to come from confusion with *B. rufocinctus*, which has a color morph very similar to the coloration of *B. centralis*. However, *B. centralis* has a longer cheek than *B. rufocinctus* (Neame et al., 2023; Williams et al., 2014), and additionally *B. centralis* often has a yellow line along the lateral edge of the orange tergites (shown by the white arrow in the top photo), which *B. rufocinctus* does not (Joel Neylon, personal communication, June 8, 2024).



Most common floral associations:

- 🐝 Boreal sweet vetch - *Hedysarum boreale*
- 🐝 Caucasian stonecrop - *Phedimus spurius*
- 🐝 Japanese meadowsweet - *Spiraea japonica*
- 🐝 Woodland sage - *Salvia nemorosa*
- 🐝 Spiked speedwell - *Veronica spicata*
- 🐝 Anise hyssop - *Agastache foeniculum*
- 🐝 Common sunflower - *Helianthus annuus*
- 🐝 Lamb's ear - *Stachys byzantina*

Red-Belted Bumble Bee - *Bombus rufocinctus*

Cullumanobombus



B. rufocinctus was uncommon in Lethbridge in 2024 and represented only 8 of the 364 observed bumble bee floral interactions.

B. rufocinctus is probably the most difficult bumble bee to identify that is present in Lethbridge. This species is a Müllerian mimic of many other bumble bees (Neame et al., 2023). Within this species, and even within a nest, there is a large degree of inconsistency in colour patterns, and coat colors of this species often resemble other bumble bee species (Neame et al., 2023). Indeed, despite its common name, the red-belted bumble bee does not even have red or orange coloration in all colour morphs (Neame et al., 2023; Williams et al., 2014). As such, it is very difficult to reliably identify *B. rufocinctus* based on coat coloration. However, as a member of the subgenus *Cullumanobombus*, *B. rufocinctus* has a cheek that is distinctively shorter than broad while other similar species generally have a cheek that is either equally as long as broad, or distinctively longer than broad (Neame et al., 2023; Williams et al., 2014). This gives *B. rufocinctus* the appearance of having a 'squished' face compared to other bumble bees. Additionally, the eyes of males of *B. rufocinctus* are enlarged compared to females (Williams et al., 2014). Therefore, if you are able to get a good look or snap a photo of the cheek and face of the bumble bee you wish to identify, that should be the easiest way to tell whether or not you are looking at *B. rufocinctus*.

Observed floral interactions:

- 🐝 Yellow sweet clover - *Melilotus officinalis*
- 🐝 Sweet Joe-Pye-weed - *Eutrochium purpureum*
- 🐝 Dotted gayfeather - *Liatris punctata*
- 🐝 White sweet clover - *Melilotus alba*
- 🐝 Velvet goldenrod - *Solidago mollis*
- 🐝 Garden speedwell - *Veronica longifolia*
- 🐝 Clovers - *Trifolium* sp.



Confusing Bumble Bee - *Bombus perplexus*

Pyrobombus

B. perplexus was uncommon in Lethbridge in 2024 and made up only 4 of the 364 observed bumble bee floral interactions.

For both males and females, any black spot or line in the inter-alar space has yellow hairs mixed in throughout (Neame et al., 2023; Williams et al., 2014) giving the spot or line a sort of muddy appearance unlike the crisper patterns of the other species found in Lethbridge. The face is typically black, although there are occasionally yellow hairs intermixed (Neame et al., 2023; Williams et al., 2014), and sometimes the head and face are entirely yellow in males (Williams et al., 2014). In both males and females, T1 is typically yellow, T2 is at least partially yellow, and T3 may be partially yellow (Neame et al., 2023; Williams et al., 2014). In males, the abdomen may be almost entirely yellow, although typically T4-T7 are black (Williams et al., 2014). Queens and workers may have some white on T5 and T6 (Neame et al., 2023; Williams et al., 2014), although I did not observe this in Lethbridge and typically T3 and T4 are black (Neame et al., 2023).



Among the queen and workers that I observed, they consistently had this sort of w shaped golden pattern on the posterior side of the yellow section of the abdomen (shown by the white arrow on the bottom photo). Although I only saw a few individuals of this species, I did not see any without this pattern. Additionally, the yellow on those *B. perplexus* I observed was consistently a very rich, golden color. However, all 4 of the *B. perplexus* individuals I saw were at one site, so it is possible that they may have all come from the same nest, which could explain their similar appearances.

Observed floral interactions:

- 🐝 Coral honeysuckle - *Lonicera sempervirens*
- 🐝 Ohio buckeye - *Aesculus glabra*
- 🐝 Japanese meadowsweet - *Spiraea japonica*

Nevada Bumble Bee – *Bombus nevadensis*

Bombias



B. nevadensis was relatively common in Lethbridge in 2024 and represented 14 of the 364 observed bumble bee floral interactions.

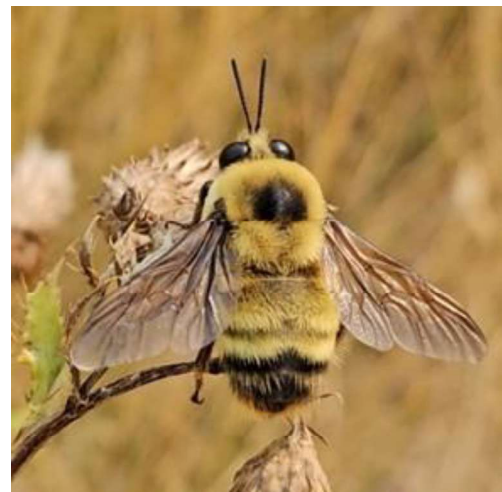
I find that this species is the most easily identified among the species found in Lethbridge. *B. nevadensis* is the largest species in Lethbridge, and a keen ear may be able to identify queens by sound alone, as they produce a loud and distinctive booming buzz when they fly. A bee truly worthy of the name *Bombus*. Additionally, bees of this species have a short and even coat (Williams et al., 2014), giving them a distinctive almost velvet-like appearance, rather than the fluffier appearance of the other Lethbridge bumble bees.

Queens and workers of this species usually have a round black dot on the dorsal side of their thorax in the inter-alar space, although sometimes this is replaced by a black stripe (Neame et al., 2023; Williams et al., 2014). T1, T2 and T3 are yellow, and T4, T5, and T6 are black (Neame et al., 2023; Williams et al., 2014). The face and head are usually black, and the wings have a dark tint (Neame et al., 2023; Williams et al., 2014).

B. nevadensis males are distinctive and rather dissimilar in appearance to females (Williams et al., 2014). *B. nevadensis* males have very large eyes and short antennae (Neame et al., 2023; Williams et al., 2014). The only other bumble bee in Lethbridge which similarly large eyes is the very uncommon male *B. griseocollis*, which has longer antennae, and can also be distinguished from *B. nevadensis* based on coat color. *B. nevadensis* males have a coat colour pattern similar to queens and workers, although T6 and T7 are typically orange (Williams et al., 2014).

Observed floral associations:

- 🐝 Narrowleaf milkvetch - *Astragalus pectinatus*
- 🐝 Dotted gayfeather - *Liatris punctata*
- 🐝 Two-grooved milkvetch - *Astragalus bisulcatus*
- 🐝 Creeping thistle - *Cirsium arvense*



Yellow Bumble Bee - *Bombus fervidus*

Fervidobombus

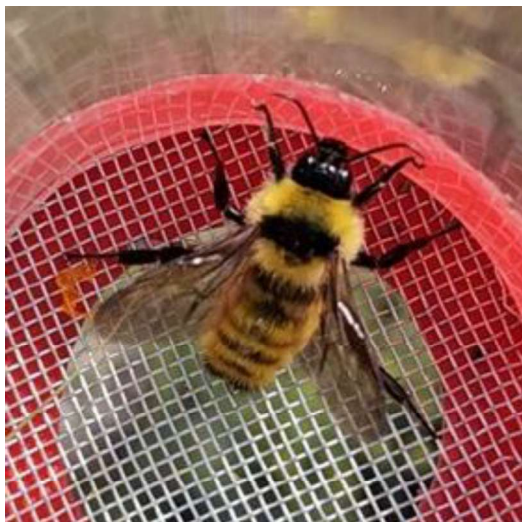
Listed as vulnerable by the IUCN

(Hatfield et al., 2015).

B. fervidus was relatively common in Lethbridge in 2024 and made up 18 of the 364 observed bumble bee floral interactions.

There is debate in the literature regarding whether *B. fervidus* is the same species as the closely related, and nearly morphologically identical species *Bombus californicus* (Koch et al., 2018; Williams et al., 2014). However, in this work, since the two species are so similar in appearance, I will continue to refer to the designation of Williams *et al.* (2014) and group them both together under the designation *B. fervidus*.

Queens, workers, and males of this species are similar in appearance in that the head and face are black, there is usually a black band in the inter-alar space, the most posterior tergite is black, and everything else is yellow (Neame et al., 2023; Williams et al., 2014). This species can be distinguished from the similar species *Bombus borealis* by the black head and face, as the head and face of *B. borealis* are yellow (Neame et al., 2023; Williams et al., 2014). The cheek of this bee is quite long (Williams et al., 2014), and therefore difficult to confuse with *B. rufocinctus* when one is able to get a good look at or photo of the face.

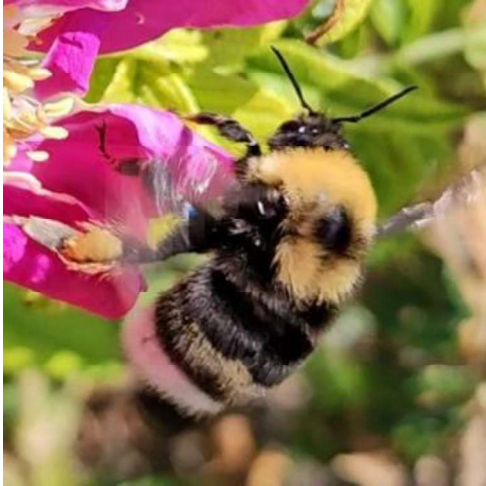


Most common floral associations:

- ☞ Boreal sweet-vetch - *Hedysarum boreale*
- ☞ Caucasian stonecrop - *Phedimus spurius*
- ☞ Japanese meadowsweet - *Spiraea japonica*
- ☞ Woodland sage - *Salvia nemorosa*
- ☞ Spiked speedwell - *Veronica spicata*
- ☞ Anise hyssop - *Agastache foeniculum*
- ☞ Common sunflower - *Helianthus annuus*
- ☞ Lamb's ear - *Stachys byzantina*

Western Bumble Bee - *Bombus occidentalis*

Bombus



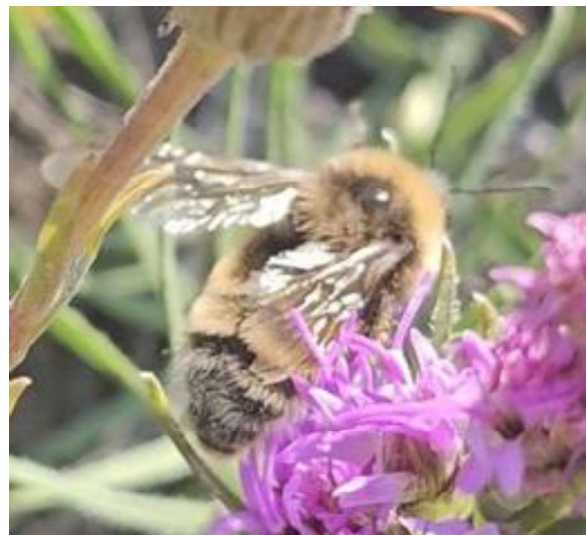
Listed as Threatened by COSEWIC (COSEWIC, 2014).

B. occidentalis was relatively common in Lethbridge in 2024 and made up 14 of the 364 observed bumble bee floral interactions.

B. occidentalis has a short cheek, giving it the appearance of a small, squished face. However, *B. occidentalis* always has a distinct white (or at least, pale yellow) patch on the posterior-most tergites (Williams et al., 2014) that make it stand out amongst other bumble bees on the landscape. Queens and workers have a black head and face, although there may be some light hairs intermixed, and males may occasionally have a yellow face (Williams et al., 2014). For all members of this species, T1 is black, T2 is usually black, although it may be yellow in males and workers, T3 may be black or yellow or a combination, and T4 may be black, yellow, white, or a combination (Williams et al., 2014). In queens, T5 is always at least partially white, while it may be white or black in workers, and is generally at least partially white or pale yellow in males and T6 and T7 are always white or pale yellow (Williams et al., 2014). For males and females, the scutum is always yellow (Neame et al., 2023; Williams et al., 2014). The interalar space is at least partially black, and typically the lateral edge of the thorax under the base of the wings is black (Neame et al., 2023; Williams et al., 2014). The scutellum may be black or yellow (Williams et al., 2014).

Observed floral interactions:

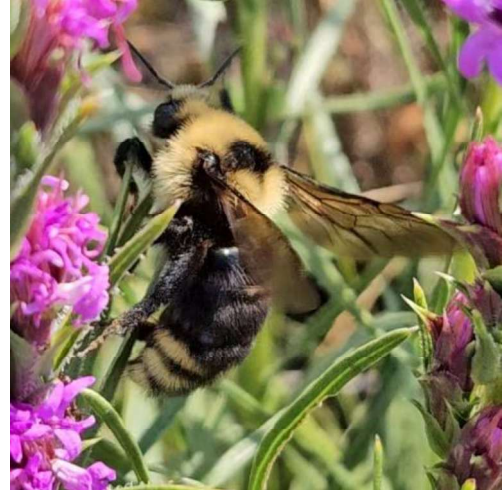
- 🐝 Purple coneflower - *Echinacea purpurea*
- 🐝 Garden speedwell - *Veronica longifolia*
- 🐝 Squash flowers - *Cucurbita* sp.
- 🐝 Russian sage - *Salvia yangii*
- 🐝 Dill - *Anethum graveolens*
- 🐝 Tomatillo - *Physalis philadelphica*
- 🐝 Old fashioned weigela - *Weigela florida*



Indiscriminate Cuckoo Bumble Bee - *Bombus insularis* *Psithyrus*

B. insularis was uncommon in Lethbridge in 2024 and represented only 3 of the 364 observed bumble bee floral interactions. However, this may be due to the lack of worker bees in the *Psithyrus* subgenus.

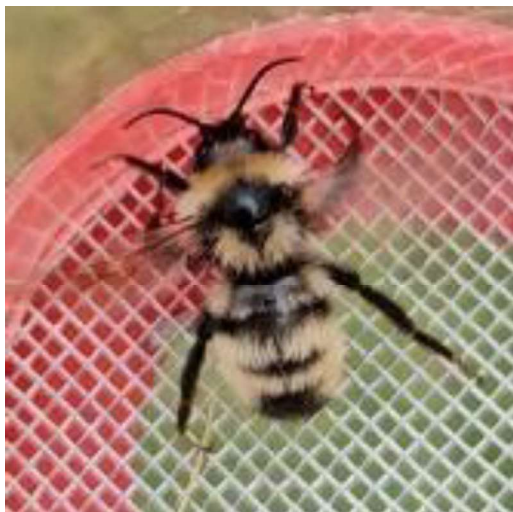
Females of *Bombus insularis* typically have a unique yellow patterning on only the lateral edges of the posterior-most tergites (Williams et al., 2014), appearing as though the back of abdomen has yellow sideburns. The top of the head is always yellow, although the face is typically black and females lack corbiculae (Neame et al., 2023; Williams et al., 2014).



Of those individuals I have seen (including pinned specimens at the Lethbridge Research Centre), there is often a diamond or almost heart shape center to the black inter-alar band.

B. insularis males often share the same pointed shape of the inter-alar band with females. The face is black with yellow on the top of the head (Williams et al., 2014). Males vary between black and yellow in T1-3 and T5-6, but T4 is always yellow laterally with black in the center, and T7 is always black (Williams et al., 2014).

B. insularis is very similar to the closely related species *Bombus suckleyi*. Females of *B. suckleyi* have black hairs on the top of the head where *B. insularis* has yellow, and males of *B. suckleyi* do not have the same distinct black patch in the center of their yellow T4 that is found in males of *B. insularis* (Williams et al., 2014). *B. suckleyi* was not recorded in Lethbridge in 2024, and the last documented occurrence in Lethbridge (that I am aware of)



was in 2000. *B. suckleyi* is now listed by COSEWIC as threatened (COSEWIC 2019), so bumble bee and parasite fans alike should keep their eyes out for this rare species.

Observed floral interactions:

- 🐝 Common blanketflower - *Gaillardia aristata*
- 🐝 Velvety goldenrod - *Solidago mollis*
- 🐝 Squash flowers - *Cucurbita* sp.
- 🐝 Dotted gayfeather - *Liatris punctata*

Rare Bumble Bees

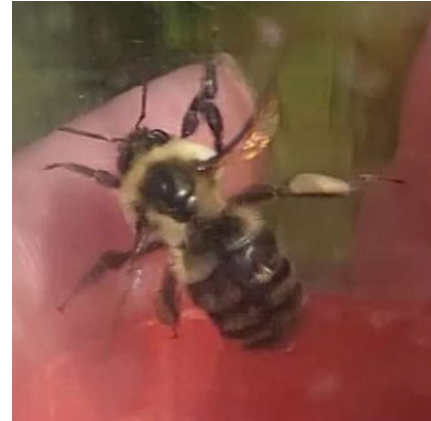
The following species were very rare in Lethbridge in 2024, and made up 2 or fewer of the 364 observed bumble bee floral interactions:

Common Eastern Bumble Bee - *Bombus impatiens*:

Pyrobombus

I observed only 2 workers of this species in 2024. This species is the only non-native bumble bee I observed in Lethbridge. It is native to Eastern North America and is frequently used for pollination in greenhouses. Its range is expanding into Western North America, and escapees have naturalized in BC, although established feral colonies have not been documented in Alberta (Williams et al., 2014). The individuals I observed were near a greenhouse, so they may have simply been individual escapees.

Floral association: Japanese meadowsweet (*Spiraea japonica*).



Golden Northern Bumble Bee - *Bombus borealis*:

Subterraneobombus

I observed only 1 male of this species, and no females in 2024. This species is very similar in appearance to the more common *B. fervidus*, although *B. borealis* generally has a yellow face while the face of *B. fervidus* is black (Neame et al., 2023; Williams et al., 2014).

Floral association: Mexican marigold (*Tagetes erecta*).

Brown Belted Bumble Bee - *Bombus griseocollis*:

Cullumanobombus

I observed only 1 male of this species, and no females in 2024. Males of this species have large eyes, almost as large as those of *B. nevadensis* males, but they have longer antennae (Williams et al., 2014). For males and females, T1 is yellow, and T2 is often yellow in queens, but brown in males and workers (Williams et al., 2014). The rest of the tergites are typically black (Williams et al., 2014).

Floral association: Alfalfa (*Medicago sativa*).



Bumble Bees to Look Out For

The following species were not observed in Lethbridge in 2024, but readers should keep an eye out for:



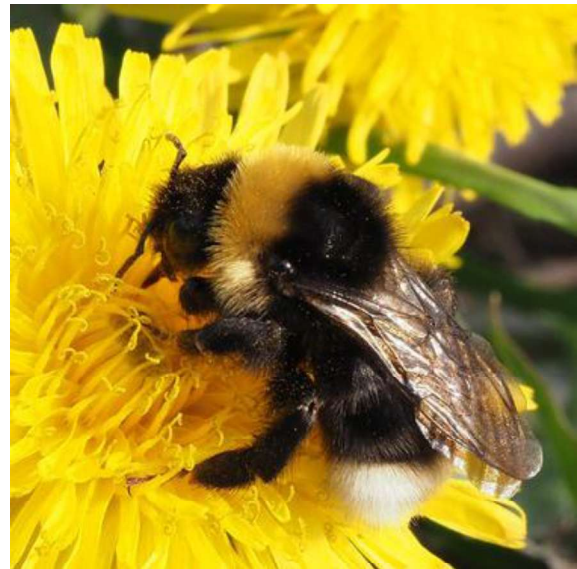
Suckley's Cuckoo Bumble Bee - *Bombus suckleyi*: *Psithyrus*

To my knowledge, *B. suckleyi* was not recorded in Lethbridge in 2024, however, it has lived in Lethbridge at least as recently as 2000, when a specimen of this species was added to the University of Lethbridge insect collection by B. Clark. However, it is now listed by COSEWIC as threatened (COSEWIC, 2019). This bumble bee is very similar in appearance to *B. insularis*, except that the top of the head is black instead of yellow (Williams et al., 2014).

Bohemian Cuckoo Bumble Bee - *Bombus bohemicus* (also known as Ashton's Cuckoo Bumble Bee - *Bombus ashtoni*): *Psithyrus*

Photo credit: © Timofey Levchenko

B. bohemicus was not recorded in Lethbridge in 2024, and it is currently listed by COSEWIC as endangered (COSEWIC 2019). *B. bohemicus* may look similar to *B. occidentalis*, but because *B. bohemicus* is a cuckoo bumble bee, females do not possess corbiculae. *B. bohemicus* can be distinguished from other Lethbridge cuckoo bumble bees in that it will always have some white hairs on the abdomen while *B. suckleyi* and *B. insularis* will not.



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