Key to the Bumblebees of the Methow Watershed & Washington State

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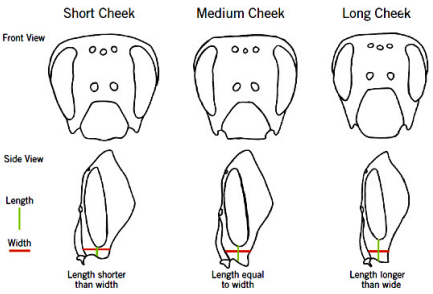
information & illustrations from *Bumble Bees of the Western States* (a pdf available online) & *Bumble Bees of North America* (a book)

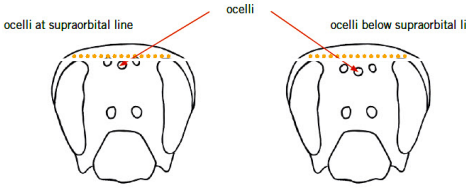
Sorting out the approximately 18 species of bumble bees in the Methow watershed and the 22 species in Washington is somewhat more challenging than their 'bar-coded' abdomens would suggest. The problem is the variation in coloration in some species across their range and even within a given area. For some species there is little or no variation in coloration, these are noted in the key and can be positively identified. Other species take more work or a grain of caution in their identification. Those that have considerable variation in coloration have at least two varieties illustrated. Ultimately, seeing and observing these attractive critically important pollinators is more valuable than a bombproof ID.

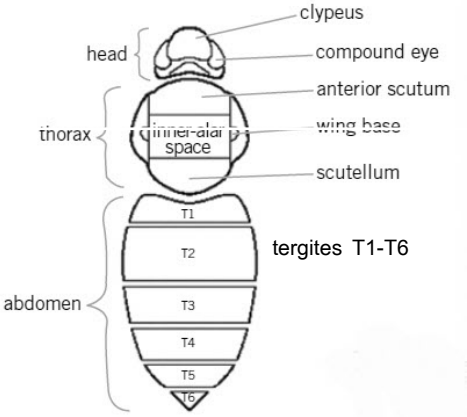
This key is only for queens (which are relatively large bumble bees) and workers (which are also females). Males, which are present only in late in the summer and into the fall, may have a different color pattern (or not) and are not keyed here. How to tell males from females: females have 10 segments to their antennae, and 6 divisions (tergites) visible in the abdomen; males have 11 antennal segments and 7 visible abdominal divisions.

The simplest way to use this key is to peruse the color images and pick out the one most similar to the bumble bee you are trying to identify. More refined keying requires that the bumble bee be incapacitated by chilling it (on ice, or in a refrigerator) so that the length of the 'cheek' (the area between the bottom of the eye and the base of the mandible, see drawing below) can be observed. Some bumblebees have a cheek area that is longer than wide, and others have a cheek that is wider than long. It is not hard to make the call if the bumble bee is immobilized. If you only have a short time to observe an active bee, note 1) the color of the facial hairs, 2) the hair color of the scutum (see drawing below for scutum & scutellum), 3) the hair color of the scutellum, and 4) the color pattern on the abdomen.

This is a 'dichotomous' key; there are always two choices, for example 2a or 2b, 3a or 3b, which then leads either to a species or another set of choices.



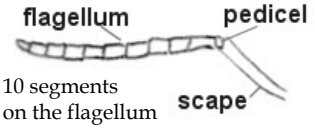




Key

1a. Females; antennae with 10 segments (called flagellomeres); abdomen with 6 visible tergites…2

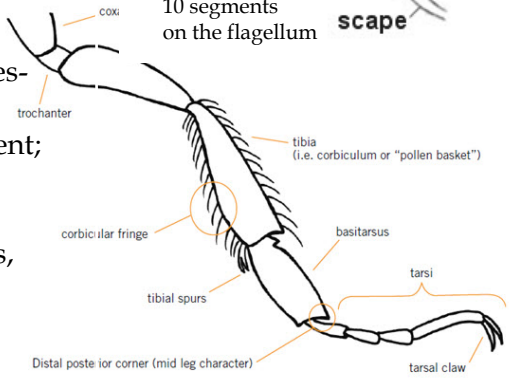
1b. Males; antennae with 11 segments; abdomen with 7 visible tergites…no key provided



10 segments on the flagellum

2a. Outer surface of hind tibia concave and shiny (Pollen baskets present; social species)…3

2b. Outer surface of hind tibia convex and hairy (Pollen baskets absent; 3 parasitic species)…26

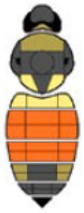


3a. T2 (tergite #2 on the abdomen) and T3 with red or orange hairs, sometimes with yellow hairs intermixed at least medially…4

3b. T2 and/or T3 with yellow or black hair…8

4a. Scutum (see drawing above right) anterior to (in front of) wing bases with yellow and black hairs intermixed, giving cloudy appearance (see page 16)...***B. melanopygus*- Black-tailed bb** (One of the more common bumble bees in our area, it also has a no-orange color morph that shows up later in the key at 25a)

4b. Scutum anterior to wing bases with predominantly yellow or pale yellow hairs...5



B. melanopygus

5a. Cheek length (see drawing on page 1) distinctly shorter than width; face with predominantly black hairs...***B. rufocinctus*- Red-belted bb (**Also common and highly variable, also with a non-orange color morph shown at 20b)
5b. Cheek length equal to width; face with yellow hairs, at least centrally...6


B. rufocinctus

6a. Scutellum with yellow hairs only...***B. huntii*- Hunter bumble bee** (common, no color variation)
6b. Scutellum with yellow or pale yellow patches of hair divided by a black posteriorly directed triangle...7


B. huntii

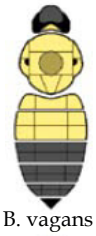
7a. T5 with yellow hairs on the lateral margins; face with yellow hairs centrally...***B. sylvicola*- Forest bb (**never found in our area but possible)
7b. T5 with completely black hairs... ***B. bifarius* ssp. *bifarius*- Black-notched bb** (has black form as well, ssp. nearcticus, see 25b below)


B. sylvicola


B. bifarius spp bifarius

8a. Cheek length longer than width (see drawing page 1)...9
8b. Cheek length as long as or shorter than width...18

9a. Face with pale white or yellow hairs, sometimes with black hairs intermixed, giving cloudy appearance...10
9b. Face with predominantly black hairs...***B. vagans*- Half-black bb** (common, minor color variation)


B. vagans


B. appositus

10a. Anterior scutum with dull yellow or whitish hairs; T1-4 with all yellow or brownish hairs...***B. appositus*- White-shouldered bb** (has a morph with an orange abdomen, still has 'white shoulders')
10b. Anterior scutum with yellow hairs, sometimes with black hairs intermixed; T1-4 with different combinations of hair color...11


B. vandylei


B. caliginosus

11a. Scutellum and T1-2 with black hairs...12
11b. Scutellum and T1-2 with yellow hairs...13

12a. T3 with yellow band of hairs; T4 usually with black hairs...***B. vandykei*- Vandyke bb** (little color variation, mostly coastal)
12b. T3 with black hairs only; T4 with yellow band of hairs...***B. caliginosus*- Obscure bb** (uncommon and coastal, little color variation)


B. sitkensis

13a. T5-6 with pale white hairs...***B. sitkensis*- Sitka bb** (common, no color variation)
13b. T5-6 with black hairs...14


B. flavifrons dimidiatus


B. flavifrons flavifrons

14a. T3-4 with black hairs...***B. flavifrons* subsp. *dimidiatus*- Yellow-headed bb** (common)
14b. T3-4 with orange hairs...15

15a. Anterior scutum with black and yellow hairs intermixed, giving cloudy appearance (see page 16)...***B. flavifrons*- Yellow-headed bb**
15b. Anterior scutum with predominantly yellow hairs...***B. centralis*- Central bb** (common, no color variation)


B. centralis


B. vagans

16a. T3 completely with black hairs...***B. vagans*- Half-black bb**
16b. T3 with yellow hairs at least medially...17

17a. Scutum strongly banded with black hairs between wing bases...21
17b. Scutum not strongly banded, predominantly with yellow hairs...***B. nevadensis*- Nevada bb** (common, minor color variation as shown)

18a. Ocelli below supraorbital line (see drawing on page 1)...19
18b. Ocelli at supraorbital line...22

19a. More yellow than black on the abodomen...20
19b. Abdomen more black or equal black & yellow...21

20a. Yellow hairs under wings...***B. fervidus*- Yellow bb** (common)
20b. Black hairs under wings...***B. morrisoni*- Morrison bb** (common)

20a. Integument (equivalent of skin) of T1 and T2 dull; scutum and scutellum almost obscured with yellow hairs...21
20b. Integument of T1 and T2 shiny; scutum and scutellum not completely obscured, much black hair between the wing bases...***B. rufocinctus*- Red-belted bb** (common, many color variations)

21a. T3 with hairs all black...***B. griseocollis*- Brown-belted bb** (common)
21b. T3 with yellow hairs at least basiomedially...***B. morrisoni***

22a. Cheek length distinctly shorter than width, T2 with black hairs at least basally; broadly distributed in western United States...***B. occidentalis*- Western bb** (uncommon, some color variation, queen always has white butt)
22b. Cheek length as long as width...23

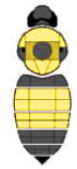
23a. T1 with completely black hairs...***B. vosnesenskii*- Vosnesenskii bb** (very common on the coast, rare inland, no color variation)
23b. T1 with completely yellow hairs...24

24a. T2 with predominantly black hairs...25
24b. T2 with predominantly yellow hairs...***B. mixtus*- Fuzzy-horned bb** (common; scutum with black and yellow hairs intermixed, giving cloudy appearance; broadly distributed in western United States; two distinct color morphs shown)

25a. T5 with lots of yellow hairs on the lateral margins...***B. melanopygus*- Black-tail bb**
25b. T5 with predominantly black hairs on the lateral margins...***B. bifarius nearcticus*- Two-form bb**

26a. (from #2) The posterior of the head with predominantly black hairs...***B. suckleyi*- Suckley cuckoo bb** (uncommon, minor color variation)
26b. The posterior of the head with predominantly yellow hairs...27

27a. Face with predominantly black hairs around bases of antennae... ***B. fernaldae*- Fernald cuckoo bb** (uncommon, minor color variation)
27b. Face with predominantly yellow hairs around bases of antennae...***B. insularis*- Indiscriminate cuckoo bb** (common, no color variation)


B. nevadensis


B. nevadensis


B. fervidus


B. morrisoni


B. rufocinctus


B. griseocollis


B. morrisoni


B. occidentalis

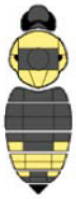

B. vosnesenskii


B. mixtus


B. mixtus


B. melanopygus


B. bifarius nearcticus


B. suckleyi


B. fernaldae


B. insularis

There are 46 species of BB in North America and about 22 species in Washington. The greatest diversity on the continent occurs in and around the western mountain ranges. They will fly up to 6 miles from the nest to forage, although that distance is the exception.

Bumblebees of Washington
Bombus appositus—White-shouldered bumble bee- has considerable color variation- common
Bombus bifarius—Two-form bumble bee- color variation- very common
Bombus caliginosus—Obscure bumble bee- very little color variation- coastal- uncommon
Bombus centralis—Central bumble bee- no color variation- common
Bombus fervidus—Yellow bumble bee- color variation- common
Bombus flavifrons—Yellow-head bumble bee- color variation- common
Bombus griseocollis—Brown-belted bumble bee- color variation- common
Bombus huntii- Hunt bumble bee- no color variation- common
Bombus melanopygus—Black-tail bumble bee- color variation- common
Bombus mixtus-Fuzzy-horned bumble bee- color variation- common
Bombus morrisoni—Morrison bumble bee- minor color variation- common
Bombus nevadensis—Nevada bumble bee- minor color variation- common
Bombus occidentalis—Western bumble bee- color variation- uncommon
Bombus rufocinctus-Red-belted bumble bee- color variation- common
Bombus sitkensis—Sitka bumble bee- no color variation- common
Bombus sylvicola—Forest bumblebee- color variation—not documented in E. Wa but possible
Bombus vagans—Half-black bumble bee- minor color variation- common
Bombus vandykei—Van Dyke bumble bee- minorcolor variation- uncommon
Bombus vosnesenskii—Vosnesensky bumble bee- no color variation coastal- very common

Cuckoo Bumble Bees
Bombus insularis—Indiscriminate cuckoo bumble bee- no color variation- common
Bombus suckleyi—Suckley cuckoo bumble bee- color variation- uncommon
Bombus flavidus (fernaldae)—Fernald cuckoo bumble bee- color variation- uncommon