

Key Identification Traits for Wisconsin's Bumble Bee Species

Created by Judy Cardin



**Key ID Characteristics:
Hair Color Patterns**

- ❖ Face: Hair color on front of face
- ❖ Vertex: Hair color on top of head and nape of neck
- ❖ Thorax Patch: The size, shape and color of the patch between the wing pads
- ❖ Abdominal Sections: the color pattern of the ab sections, which are called terga, T1-6

Common eastern Bumble Bee (*Bombus impatiens*) Female



Photo: Judy Cardin and Bob Plamann

- large keyhole shaped thorax patch on back that is usually intermixed yellow and black
- first abdominal section yellow, rest of abdomen black
- dark face, sometimes with a very few intermixed yellow hairs
- yellow to intermixed vertex (top of head)
- Short even hair

Brownbelted Bumble Bee (*Bombus griseocollis*) Female



Photo: Judy Cardin and Bob Plamann

- dark face and top of head
- small thorax dot on back
- T1 (first abdominal section) usually yellow
- dark wings
- T2 brown half moon bordered by black on the bottom
- T3-6 black
- stinger point on T6
- corbicula for carrying pollen
- short even hair

Twospotted Bumble Bee (*Bombus bimaculatus*) Female



Photo: Judy Cardin and Bob Plamann

- yellow vertex (top of head)
- black thorax patch on back, can be large or small
- First abdominal section (T1) yellow
- T2 abdominal section centrally yellow, frequently in a W shape
- T3-6 black
- long uneven hair

Yellow Bumble Bee (*Bombus fervidus*) Female



Photo: Judy Cardin and Bob Plamann

- dark long face
- dark vertex (top of head)
- narrow black thorax band on back
- sides of thorax usually yellow
- T1-4 yellow
- T5-6 black
- medium length even hair

Half-black Bumble Bee (*B. vagans*) Female



Photo: Judy Cardin and Bob Plamann

- long dark face
- centrally yellow vertex
- arrowhead shaped thorax patch on back pointing towards head
- sides of thorax yellow
- T1 (first abdominal section) yellow
- T2 yellow fully at side edges of section
- T3-6 black
- long hair
- corbicula on hind legs for pollen

Black and gold Bumble Bee (*Bombus auricomus*)
Female

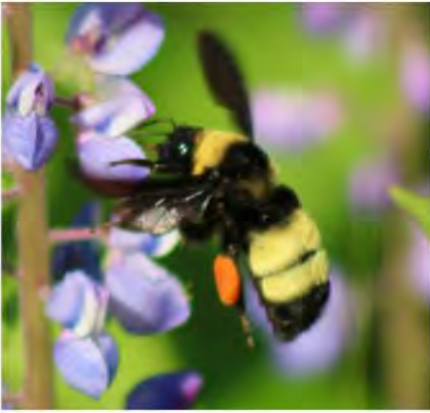


Photo: Judy Cardin and Bob Plamann

- long dark face
- vertex yellow, ranging from small faint yellow eyebrows to full yellow.
- short even hair
- broad thorax band on back, may extend to abdomen
- T₁(first abdominal section) black. Can be yellow on side edges, with yellow decreasing centrally
- T₂₋₃ yellow
- T₄₋₆ black

American Bumble Bee (*B. pensylvanicus*)



Photo: Judy Cardin and Bob Plamann

- **Black vertex**
- Thorax band extends completely to abdomen
- **T₁ yellow on bottom half, yellow increases centrally**
- T₂₋₃ yellow
- T₄₋₆ black, stinger point on T₆



Photo: Judy Cardin & Bob Plamann

Yellowbanded Bumble Bee (*B. terricola*)

- ❖ Short usually black face- can be intermixed
- ❖ Usually dark vertex, can be lightly intermixed
- ❖ Hair short and even
- ❖ Broad thorax band that extends down thorax sides. Band can be entirely black to abdomen, or sometimes have a strip of yellow before abdomen.
- ❖ T₁(first abdominal section)black
- ❖ T₂₋₃ yellow, yellow or brown
- ❖ T₄₋₆ black, or with a yellow or brown "skirt" on T₅ or T₄₋₅
- ❖ Medium sized bee
- ❖ Light colored wings

Northern amber Bumble Bee (*B. borealis*)
Female



Photo: Judy Cardin & Bob Plamann

- yellow face and vertex(top of head)
- broad black thorax band on back that extends down the sides of the thorax
- T₁₋₄ abdominal sections yellow- occasionally yellow on lower abdominal sections
- amber hair color typical



Photo: Ryan Brady

Confusing Bumble Bee (*B. perplexus*)

- ❖ Medium length face can be intermixed or black
- ❖ Vertex yellow
- ❖ Thorax very yellowed over on back- very small or no black thorax patch
- ❖ Often black behind wings on the sides of thorax
- ❖ Abdominal pattern can vary. A common pattern for a worker is T₁₋₂ yellow and T₃ centrally yellow. Intermixed brown, like the bee in the photo, occurs
- ❖ Long hair that can be bright or medium yellow
- ❖ Medium sized bee



Photo: Judy Cardin and Bob Plamann

Tricolored bumble bee (*Bombus ternarius*)

- Dark face with yellow intermixing
- Large triangular thorax band pointing towards abdomen
- T₁ yellow
- T₂₋₃ orange
- T₄ yellow
- T₅₋₆ black
- Short even hair

Key ID Traits

Red Morph Redbelted bumble bee



Photos Judy Cardin and Bob Plamann

- oval shaped thorax band or patch on back
- T1 yellow
- T2 centrally yellow often with orange sides, bottom
- T3-5 varying combinations of yellow, orange and black

Redbelted (*Bombus rufocinctus*) Dark Morph



Photo: Judy Cardin and Bob Plamann

- ❖ short face
- ❖ yellow, black or intermixed face.
- ❖ yellow or intermixed vertex(top of head)
- ❖ short and even or long and shaggy hair.
- ❖ oval shaped thorax patch or band
- ❖ side of thorax yellow
- ❖ T1 abdominal section yellow
- ❖ T2 centrally yellow. Commonly the yellow in T2 decreases as it reaches the edge of the section.
- ❖ T3-6 black. Some dark morphs have yellow on T4-5.

Queen Rusty-patched Bumble Bee (*B. affinis*)



Photo: Judy Cardin and Bob Plamann

- ❖ Short dark face
- ❖ Dark vertex(top of head), occasionally small yellow eyebrows
- ❖ Small reverse teardrop shaped thorax patch on back
- ❖ Black behind wings
- ❖ T1-T2 abdominal sections fully yellow. Very rarely a light rusty patch on T2
- ❖ Even length hair
- ❖ Very large bee

Rusty patched Bumble Bee (*Bombus affinis*)



Photo: Judy Cardin and Bob Plamann

- thumbtack thorax bar on back pointing down towards abdomen
- black behind wing pads
- T1(first abdominal section) yellow
- T2 yellow with rusty patch bordered by yellow on sides and bottom
- T3-6 black
- Short dark face
- Dark vertex(top of head)
- stinger point on T6
- long even hair

Frigid bumble bee (*B. frigidus*)



The Frigid bumble bee (*B. frigidus*) is a rare northern bee, and has only been reported a few times to Wisconsin Bumble Bee Brigade.

Photos Jay Watson

- ❖ Face black or intermixed
- ❖ Vertex yellow or intermixed
- ❖ Large thorax band
- ❖ Thorax sides usually yellow
- ❖ T1-2 abdominal sections yellow
- ❖ T3 black
- ❖ T4-5 orange. Top half of T4 may be black
- ❖ T6 black
- ❖ Medium sized bee with long hair

Sanderson bumble bee (*B. sandersoni*)



The Sanderson bumble bee is uncommon, and has been reported in northern counties.

Photo Ryan Brady

- ❖ Short black face
- ❖ Black or intermixed vertex(top of head)
- ❖ Large thorax patch/band on back
- ❖ T1-2 abdominal sections yellow
- ❖ T5 often yellow skirt
- ❖ Hair short
- ❖ Small size



FERNALD CUCKOO BUMBLE BEE (*B. FLAVIDUS*)

- ❖ Dark face
- ❖ Yellow vertex
- ❖ Large thorax patch
- ❖ T1 yellow, black or black with intermixed side
- ❖ T2-3 black
- ❖ T4 yellow, dark at front center of T4
- ❖ No corbicula



Photo: Ben Blaylock

INDISCRIMINATE CUCKOO BEE (*B. INSULARIS*)

- ❖ Face black with dense patch of yellow above antenna base
- ❖ Yellow vertex (top of head)
- ❖ Large thorax patch on back
- ❖ Yellow on sides of T4-5 abdominal sections
- ❖ T6 black
- ❖ No corbicula



Photo Jay Watson



Photo Jay Watson

Photo Judy Cardin

LEMON CUCKOO BUMBLE BEE (*B. CITRINUS*)

- ❖ Dark face
- ❖ Yellow vertex
- ❖ Small thorax patch, sometimes yellowed over
- ❖ Abdominal pattern varies:
 - T1 black or yellow, if black often shiny
 - T2 black, sometimes with yellow on sides
 - T3 yellow on sides or across entire section
 - T4 black, sometimes with yellow on sides
 - T5-6 black
- ❖ Short hair
- ❖ Medium sized bee
- ❖ No corbicula
- ❖ Light brown wings



Lemon Cuckoo Bumble Bee (*Bombus citrinus*) Female

- dark face
- yellow vertex
- small thorax patch, often in a vertical line shape
- T1 black or yellow, if black often shiny
- T2 black, sometimes with yellow on sides
- T3 yellow on sides or across entire section
- T4 black, sometimes with yellow on sides
- T5-6 black
- short hair
- no corbicula
- light brown wings



Photo Judy Cardin and Bob Plamann

Southern plains Bumble Bee (*B. fraternus*)

- ❖ Short black face
- ❖ Black vertex
- ❖ Thorax band
- ❖ Usually dark on sides of thorax under wing
- ❖ T1-2 yellow
- ❖ T3-6 black
- ❖ Abdomen has flattened rectangular appearance
- ❖ Hair very short and even
- ❖ Large size



Photo: Ben Grady

Rusty patched Queen

- Very large queen
- Short black face
- Black vertex
- Small thorax patch pointing towards abdomen
- Sides of thorax behind wing black
- T2 fully yellow to side edges



Photo: Judy Cardin and Bob Plamann

Redbelted Dark Morph Queen

- Small queen
- Short often yellow or intermixed face
- Yellow or intermixed vertex
- Large oval thorax patch or band
- Sides of thorax usually yellow
- T2 is usually not fully yellow to side edges



Rusty patched Queen

- Very large queen
- Short black face
- Black vertex
- Small thorax patch that usually points towards the abdomen
- Sides of thorax black behind the wing



Photo: Judy Cardin and Bob Plamann

Half-black Queen

- Medium sized queen
- Long black face
- Vertex centrally yellow
- Small thorax patch usually with an arrowhead shape that points towards the head
- Sides of thorax fully yellow



This is the Half black:

- Yellow vertex
- Small arrowhead shaped thorax patch
- Fully yellow T2



This is the Sanderson

- Black vertex
- Larger thorax patch/band
- T2 intermixed black hairs
- Yellow skirt on T5



Key ID Trait Differences

Sanderson (*B. Sandersoni*)



Photo Ryan Brady

Half black (*B. vagans*)



Photo Judy Cardin and Bob Plamann

Distinguishing a Sanderson female worker from the much more common Half black female worker is a challenge. Their differences and similarities- high lighted traits are key differences

- **Size:** Sanderson small, Half black medium
- **Face length:** Sanderson shorter, Half black longer- key ID difference
- **Face color:** Sanderson has black face, Half black has black or intermixed
- **Vertex:** Workers of both species can have an intermixed vertex. A black vertex indicates Sanderson, and centrally yellow Half black
- **Thorax patch/bar:** Sanderson usually a larger black vertex bar or patch. Half Black can rarely have a large bar/patch, but usually arrow head shaped
- **T1:** Both species yellow
- **T2:** Both species yellow T2, but Sanderson often has more scattered intermixed black hairs at sides and front of T2
- **T3-4:** Both species black. Half black rarely has yellow on side edges of T3-5
- **T5:** Both species can have yellow/brown T5 skirt, but much more common on Sanderson
- **Hair length:** Sanderson short even, and Half Black longer, uneven



This is the Yellow:

- Black face and vertex
- Yellow on thorax side under wing



This is the Northern amber:

- Yellow face and vertex
- Broad thorax band that extends down thorax side



Photos: Jay Watson

Key ID Trait Differences

Northern amber (*B. borealis*)

- Yellow face and vertex
- Broad black thorax band
- Sides of thorax black under wings
- T1-T4 yellow. Sometimes yellow on T5-6



Photo: Judy Cardin and Bob Plamann

Yellow (*B. fervidus*)

- Dark face and vertex
- Narrow black thorax band
- Sides of thorax usually yellow under wings
- T1-4 yellow



Key ID Trait Differences

Rusty patched bumble bee

- Thumbtack shaped thorax band on back
- Abdominal pattern:
 - T1 (first abdominal section) yellow
 - T2 yellow, with a central rusty patch
 - The patch is bordered by yellow on the bottom



Brownbelted bumble bee

- Small thorax dot/patch on back
- Abdominal pattern:
 - T1 (first abdominal section) yellow
 - T2 usually a brown half moon, bordered by black on the bottom



Photos Judy Cardin and Bob Plamann

Rusty-patched Bumble Bee

- Thumbtack shaped thorax band on back
- Abdominal pattern:
 - T1 (first abdominal section) yellow
 - T2 yellow, with a central rust or brown central patch. The patch is surrounded by yellow
 - T3-6 black



Photos: Judy Cardin and Bob Plamann

Tricolored Bumble Bee

- Large triangular thorax band on back pointing towards abdomen
- Consistent abdominal pattern color pattern:
 - T1 (first abdominal section) yellow
 - T2 orange
 - T3 orange
 - T4 yellow
 - T5-6 black



Key ID Trait Differences

American(Pensylvanicus)

- ❖ Black vertex
- ❖ Black thorax band commonly extends to abdomen
- ❖ T1 partial yellow increases centrally



Photo: Judy Cardin and Bob Plamann

Black and gold(Auricomus)

- ❖ Yellow vertex
- ❖ Black thorax band more commonly bordered by yellow on bottom
- ❖ T1 partial yellow decreases centrally



Key ID Trait Differences

American(Pensylvanicus) face

- ❖ Ocelli located between the eyes at the top edge of eyes
- ❖ Black vertex



Photo: Judy Cardin and Bob Plamann

Black and gold(Auricomus) face

- ❖ Ocelli located below the top of eyes
- ❖ Yellow vertex. Yellow "eyebrows" can be very faint"



Key ID Trait Differences

Dark Morph Redbelted bumble bee

- short face
- large oval shaped thorax band or patch.
- yellow on T2 usually does not fully reach the side edge of the section. In this example the yellow on T2 is an arc, and tapers off as it nears the side edge



Half black bumble bee

- long face
- small thorax patch that is not oval, but is often arrowhead shaped, pointing towards the head
- T2 abdominal section usually fully yellow at the side edge



Photos Judy Cardin and Bob Plamann

Key ID Trait Differences

Red Morph Redbelted bumble bee

- oval shaped thorax band or patch
- T1 yellow
- T2 centrally yellow often with orange sides, bottom
- T3-5 varying combinations of yellow, orange and black
- abdominal color pattern does not match the ternarius pattern



Photos: Judy Cardin and Bob Plamann

Tricolored bumble bee

- Large triangular thorax band pointing towards abdomen
- Consistent abdominal pattern color pattern:
 - T1 yellow
 - T2 orange
 - T3 orange
 - T4 yellow
 - T5-6 black



Key ID Trait Differences

Yellow banded (*B. terricola*)

- ❖ Dark or lightly intermixed face and vertex
- ❖ Short face
- ❖ Medium sized bee
- ❖ Light colored wings
- ❖ Often a yellow skirt on T₅

Black and gold (*B. auricomus*)

- ❖ Dark face and yellow vertex
- ❖ Long face
- ❖ Very large bee
- ❖ Black wings on a fresh bee
- ❖ T₄-6 black



Photos Judy Cardin and Bob Plamann