

Bombus of the tallgrass prairie region and greater Midwest

Key to females (gynes, queens, workers)

M. Arduser edited: October 2, 2020

Gynes, queens, workers.

1. Pollen-collecting species; hind tibia corbiculate (with a pollen basket, i.e., hind tibial surface without hairs except for marginal fringe); abdomen hairy throughout unless worn, integument not usually visible (traditional “*Bombus*”).....2
Social parasites, do not collect pollen; hind tibia without a pollen basket; abdomen with sparse hair, integument visible and usually shiny (traditional “*Psithyrus*”).....18
- 2(1) Malar space as long as broad, or longer.....3
Malar space shorter, width greater than length.....11
- 3(2) T2-T3 bright to pale orange, black interalar band present with posterior V-shaped portion extending onto medial portion of scutellum; hairs on face and vertex predominantly black usually with yellow intermixed, sometimes all black; northern TGP region
.....***ternarius*, in part**
[Note: *B. bifarius* is a western species that is very similar to *ternarius* and may be found rarely in MN and IA; see Williams et. al., p. 172, for distinguishing features. Another western species, *B. huntii*, occurs sporadically east to western MN and western IA, and is easily mistaken for *ternarius* or *bifarius*; however, the scutellum in *huntii* is all or nearly all yellow (black hairs few when present), the hairs on the face and vertex are predominantly yellowish with some black intermixed, and the malar space is slightly longer than that of *ternarius* or *bifarius*: see Williams, p. 172.]
T2-T3 never orange, either yellow or black or some combination of yellow and black; interalar band may be present or absent.....4
- 4(3) Ocelli large and located well below supraorbital line; T1 black, T2-T3 yellow, T4-T6 black; clypeus very finely, densely punctate; posterior margin of hind basitarsis very nearly straight; F1 about twice the length of F3; northern, central and Osage Plains portions of the TGP region...***auricomus*** (formerly considered a subspecies of *B. nevadensis*, see Note below)
[Note: *B. nevadensis*, primarily a western species, will key to this couplet, but has little to no black on the scutum, while *auricomus* typically has a distinct black interalar band. *B. nevadensis* and *B. auricomus*, which is primarily an eastern species, are sympatric on the western margins of the northern tallgrass prairie region (MN, ND, SD, NE).
Ocelli smaller, located slightly above or on supraorbital line; F1 at most only slightly longer than F3; other characters variable.....5
- 5(4) T1-T4 all yellow, scutellum yellow, and black interalar band present; species primarily of the northern TGP region.....6
T1-T4 some combination of black and yellow, never all yellow; scutellum may be yellow or black, interalar band may be present or absent, or only partially present...
.....7

- 6(5) Clypeus very shiny with few punctures; face usually with much yellow pubescence, vertex pubescence usually yellow as well.....**borealis**
 Clypeus distinctly punctate throughout; face with black pubescence, not yellow; vertex with black pubescence.....**fervidus**
- 7(5). T5 pubescence orange to brown to pinkish, rarely yellow; long-haired, somewhat shaggy high latitude species of possible occurrence in the extreme northern portions of the TGP region (northwest MN, Manitoba, Alberta):
a): scutum yellow anteriorly, black posteriorly; hairs on face mostly black.....**frigidus**
b): scutum hairs mixed: gray, black, and pale, without a clear separation between anterior and posterior hair color; hairs on face grayish to yellowish, also usually mixed.....**mixtus**
 T5 pubescence yellow or black, **if** orangeish then compare with *rufocinctus* (couplet 14, below), which has a shorter malar space than *frigidus* or *mixtus*.....8
- 8(7) Posterior half of scutum, and all or most of scutellum blackish; T1-T3 yellow (T1 occasionally with limited amount of black hair); pleura all (or nearly all) dark to blackish pubescent; throughout TGP region except far northern portions.....**pensylvanicus**
 Scutum and scutellum largely or entirely yellow; T3 black or mostly so (T1 yellow, T2 yellow or partly so); pleura usually yellow but may be blackish in one species (*perplexus*, see couplet 9, below).....9
- 9(8) Scutum and scutellum all yellow (scutum with a few dark hairs centrally at most) **and** pleura dark; gynes/queens with a pre-apical swelling on T6; northern TGP region and Prairie Peninsula.....**perplexus**
 Scutum with blackish hair patch or interalar band **and** pleura yellow; gynes/queens without a pre-apical swelling on T6.....10
- 10(9) T2 **entirely** yellow; northern, central and Prairie Peninsula portions of the TGP...**vagans**
 T2 usually yellow medially and black laterally, but sometimes with only a very limited amount of black pubescence laterally; throughout TGP region except southern portion**bimaculatus**
- 11(2) T2-T3 bright to faint orange **and** malar space almost or quite as long as broad; black interalar band present with posterior V-shaped portion extending onto medial portion of

scutellum; ocelli normal (i.e., small) and located on supraorbital line; hind basitarsi with posterior margin convex in profile; northern TGP region.....**ternarius**, *in part*
 [Note: *B. bifarius* is a western species that is very similar to *ternarius* and may be found rarely in MN and IA; see Williams et. al., p. 172, for distinguishing features. Another western species, *B. huntii*, occurs sporadically east to western MN and western IA, and is easily mistaken for *ternarius* or *bifarius*; however, the scutellum in *huntii* is all or nearly all yellow (black hairs few when present), the hairs on the face and vertex are predominantly yellowish with some black intermixed, and the malar space is slightly longer than that of *ternarius* or *bifarius*: see Williams, p. 172.]

T2-T3 almost always yellowish, brownish, or black [**if** T2-T3 orangeish **then** malar space short (width greater than length), scutellum entirely yellow without central black portion, ocelli usually large and slightly below supraorbital line, and hind basitarsi with posterior margin straight, not convex; *rufocinctus*, see couplet 14]
12

12(11) T1 yellow, T2-T6 all black, rarely with small isolated patches of yellow; most of TGP region except far north.....**impatiens**
 At least T2 (and often T3, rarely T4 and T5) yellow to brownish-yellow (rarely partly orangeish).....13

13(12) Anterior portion of scutum yellow, posterior portion of scutum, scutellum and pleura all black or largely so; T3 usually all yellow; rare and local in northern TGP**terricola**
 Most of scutum, scutellum and pleura yellow (black interalar band may be present); T3 variable.....14

14(13) T3-T5 some combination of black/yellow/orangeish, never predominantly all black; hind basitarsi with posterior margin straight, not convex; northern TGP, Prairie Peninsula.....**rufocinctus**
 T3-T5 black or largely so; hind basitarsi with posterior margin variable.....15

15(14) Scutum with distinct black interalar band, bordered anteriorly and posteriorly by yellow; ocelli large and below supraorbital line; upper genae shiny with sparse, fine punctures; pubescence short, neat, trim; southern half of TGP region (MO-NE south to TX-LA).....**fraternus**
 Scutum usually with some blackish hairs centrally, but rarely with complete interalar band; but **if** so, **then** ocelli on supraorbital line, upper genae with punctures very close, and overall pubescence long and shaggy, not neat, short and trim; ocelli size variable16

16(15) Ocelli located slightly below supraorbital line, ocelli usually large (diameter of lateral ocellus usually no more than twice the distance between ocellus and eye margin); T2 mostly brownish-yellow or yellow with a cinnamon wash, sometimes all yellow in

- queen, with blackish hairs laterally and often along posterior margin, hairs relatively short; common throughout TGP region.....**griseocollis**
 Ocelli located on or slightly above supraorbital line, ocelli smaller (diameter of lateral ocellus usually 2.5 times the distance between ocellus and eye margin); T2 hairs yellow (rarely suffused with orangeish or brownish-orange), without black hairs on lateral or posterior portions of T2; rare species in our area.....17
- 17(16) Clypeus depressed on apical portion, and densely and completely punctate; pubescence of body short, T2 hairs often suffused with orangeish or brownish-orange, (usually all yellow in gynes/queens) often with a small indentation or notch in the pubescence apico-medially; hind basitarsi with posterior margin weakly convex; very local in MN, IA, northern IL.....**affinis**
 Clypeus not depressed on apical portion, punctures sparse; pubescence comparatively long and shaggy, T2 hairs yellow, never orangeish or brownish-orange, pubescence entire across apical margin, without a very small apico-medial notch; hind basitarsi with posterior margin straight; extreme northern portions of TGP region..... **sandersoni**
- 18(1) Vertex mostly black, T4 pale yellow; hind basitarsi only slightly more than twice as long as wide; northern TGP, Prairie Peninsula, rare.....**bohemicus** (formerly *ashtoni*)
 Vertex mostly yellow, T4 variable; hind basitarsi slightly longer and narrower, at least 2.5 times as long as wide.....19
- 19(18) Most of pleura blackish, tergites blackish, shiny; very rare, same distribution as *B. pennsylvanicus*, its apparent sole host.....**variabilis**
 Pleura largely yellow.....20
- 20(19) T4 usually yellow; T6 strongly curled under the abdomen, its apex pointing anteriorly; extreme northern TGP.....**flavidus** (formerly *fernaldae*)
 T4 mostly black, T6 oriented ventrally, not anteriorly.....21
- 21(20) Scutum with black interalar band; rare species in our area, northern TGP.....**insularis**
 Scutum all or nearly all yellow, a limited number of black hairs may be present in center of scutum; northern, central TGP, Prairie Peninsula.....**citrinus**

end 10/2/2020