

SYRPHID FLIES OF THE GENUS *CHEILOSIA*, SUBGENUS
CHILOMYIA IN NORTH AMERICA (PART II)*

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This subgenus was erected by Shannon (Ins. Insc, Menst., 10: 121) to separate out those hairy-eyed species that have pile on the slopes of the face in addition to that on the facial strips. The antennal pits are separated by a distinct chitinized projection. Sometimes the pile of the face is not so conspicuous on the female, and may be entirely absent, as happens in *Cheilosia hirsuta* Hull and Fluke and apparently in *Cheilosia nigrovittata* Lov. These two species are very closely related and *hirsuta* may be only a variety. For this reason these two are included in the key to the species of *Chilomyia*. Other members of the genus are readily placed in this group, as far as we have observed. *C. occidentalis* Will. has been selected by Shannon as type of the subgenus.

Most of the species of *Chilomyia* occur in Western North America, only two so far being found along the Eastern sections of North America, namely: *primoveris* Shannon and *pontiaca* Shannon. In the higher altitudes of the Rockies they are quite common in midsummer. Since a few species are known to be of economic importance, a careful study of the group is necessary. They are difficult to determine but due to the relatively few species in this subgenus no particular trouble should arise in making determinations.

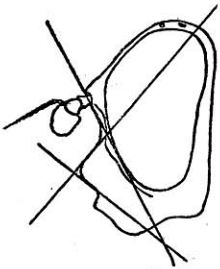
Both sexes are not always known and since the two differ so materially it will be a long time before all synonymy is cleared up. Collections of large series at the same time and place will help to associate the sexes. Even then difficulties may arise. When Lovett described his species *chintimini* he did not recog-

* Goffe, 1944, Ent. Mont. Mag. 80: 238. This important paper on generic synonymy was received after the manuscript was submitted for publication.

EXPLANATION OF FIGURES

All drawings were made with the aid of the camera lucida. Basal segment omitted on the antennal drawings.

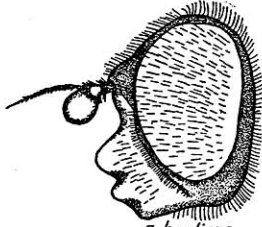
- FIG. 1—*Chilomyia variseta*, n. sp., profile of head of female with lines added to show tubercle angles.
- FIG. 2—*Chilomyia hoodiana* Bigot, antenna of male.
- FIG. 3—*Chilomyia hoodiana* Bigot, profile of head of female.
- FIG. 4—*Chilomyia yukonensis* Shannon, profile of head of male.
- FIG. 5—*Chilomyia variseta*, n. sp., profile of head of male.
- FIG. 6—*Chilomyia varipila*, n. sp., profile of head of male.
- FIG. 7—*Chilomyia pontiaca* Shannon, profile of head of female.
- FIG. 8—*Chilomyia burkei* Shannon, profile of head of female.
- FIG. 9—*Chilomyia burkei* Shannon, antenna of male.
- FIG. 10—*Chilomyia chintimini* Lovett, profile of head of male.
- FIG. 11—*Chilomyia fuma*, n. sp. profile of head of female.
- FIG. 12—*Chilomyia primoveris* Shannon, antenna of female.
- FIG. 13—*Chilomyia primoveris* Shannon, profile of head of male.
- FIG. 14—*Chilomyia coerulea*, n. sp., profile of head of female.
- FIG. 15—*Chilomyia coerulea*, n. sp., antenna of female.
- FIG. 16—*Chilomyia livida* Wehr, profile of head of male.
- FIG. 17—*Chilomyia occidentalis* Williston, profile of head of male.



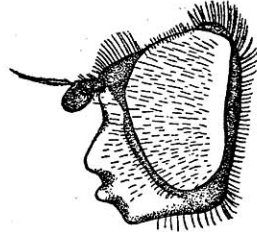
1. *variseta*



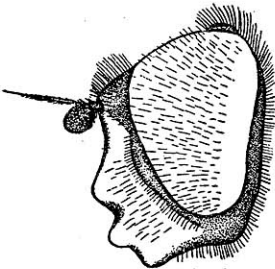
2. *hoodiana*



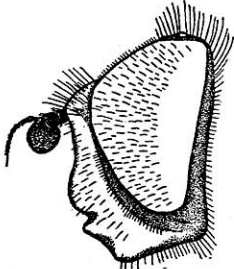
3. *hoodiana*



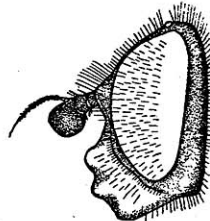
4. *yukonensis*



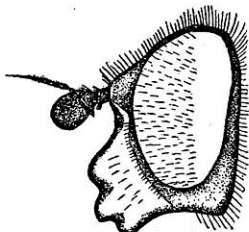
5. *variseta*



6. *varipila*



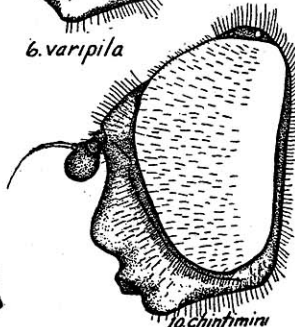
7. *pontiaca*



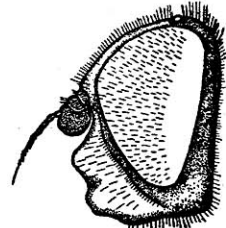
8. *burkei*



9. *burkei*



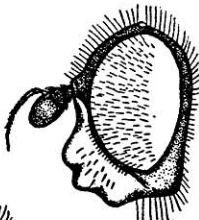
10. *chintimiru*



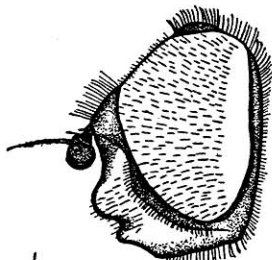
11. *fuma*



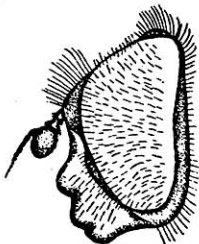
12. *primoveris*



14. *coerulea*



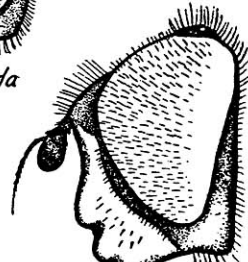
16. *livida*



13. *primoveris*



15. *coerulea*



17. *occidentalis*

nize the female, as a subsequent study of his material shows, even though he had it before him at the time.

It has always been difficult to describe the facial tubercle, whether prominent or low, and the amount of the excavation above. Figure 1 has been drawn with lines to help in determining the angles made by the various shapes of the tubercle. It should be remembered that the two sexes often differ in the prominence of the tubercle but the general trends can be indicated by this method.

Those who have been of special aid in these studies were mentioned in Part I but for this Part we wish especially to thank Dr. H. A. Scullen of Oregon State College and Dr. C. H. Curran of the American Museum.

TABLE OF SPECIES—MALES

1. Dorsum of thorax entirely covered with dark brown or black pile, rarely a few pale hairs along the anterior margin2
- Dorsum of thorax with at least some pale, whitish brassy, or silvery pile visible, sometimes mixed with black or brown pile3
2. Thorax anteriorly with two obscure gray vittae, visible from behind (Western)*hoodiana* Big.
- Thorax non-vittate7
3. Thorax with a distinct band of black pile (Oregon)
.....*Cheilostia nigrovittata* Lov.
- Thorax not banded, though the black pile may be concentrated just before the scutellum4
4. Thick white pilose species5
- At least considerable black pile upon mesonotum or abdomen or hind legs; often predominantly brassy pilose6
5. Scutellum with black bristles on the margin, pile of front black (California)*pacifica* Hunt.
- Scutellum covered entirely with silky yellowish white pile, pile of front white (Colorado)*livida* Wehr.
6. Legs black, the bases of the tibia sometimes very dark brown (Alaska)*yukonensis* Shan.
- Legs with the bases of the tibia and their apices and the tarsi light in color or yellowish-red to reddish11
7. Pile along the lateral margins of the abdomen everywhere dense and long, black in color; sometimes with yellowish hair in the basal corners of the tergites8
- Pile of those areas chiefly pale; sometimes with a few black hairs on the margin of the fourth tergite and all black on the margins of the second tergite9
8. Downward projecting pile below the rim of the scutellum yellow in color, halteres brown (Oregon)*chintimini* Lov.
- This pile black, halteres yellow (Washington)*burkei* Shan.

9. Fourth tergite with thick, long, pale yellow pile; only the central part with black pile; thorax red-brown pollinose viewed from in front, a little pale pile mixed with the black along the anterior and posterior margins (Western) *variseta* n. sp.
Pile of the fourth tergite less dense, black in the middle and on the apical corners10
10. Pile on the scutellum white and black mixed, tip of arista black
..... *yukonensis* Shan.
Pile of the disk of the scutellum wholly black, tip of arista yellow (Alberta) *varipila* n. sp.
11. Rather large flies; the facial strips wide, densely pale pubescent, pale pilose; facial pile pale with some black hairs intermixed; sometimes largely black pilose, lighter areas of legs tending usually towards brown, stigma and veins brownish; apical and hypopygial pile black; pile of basal ventral half of hind femora golden (California) *occidentalis* Will.
Medium sized flies, the facial strips narrow, sparsely pubescent, apparently bare; facial pile chiefly pale; lighter areas of legs tending towards pale orange; stigma and the veins largely yellow; terminal pile of abdomen golden; femoral ventral pile black almost to base12
12. Mesonotum almost wholly pale yellow pilose including area before scutellum and disc of scutellum; middle and hind tarsi light yellow; abdominal pile pale yellow, antennae light brown to orange; wing base pale yellow brown (Maryland) *primoveris* Shan.
Mesonotum with some black pile mixed all over, especially before the scutellum, some on scutellar disc; antennae dark brown; wing base smoky (Western) *Cheilosia hirsuta* Hull and Fluke

TABLE OF SPECIES—FEMALES

1. Thorax with gray vittae upon the anterior half, seen from behind, third antennal segment bright orange2
Thorax non-vittate6
2. Pile of mesonotum mostly pale yellow or whitish; greenish black flies (Oregon) *hoodiana* Big.
Pile of mesonotum black3
3. Deep, shining blue in color, abdomen more robust, thoracic vittae obscure4
Shining bluish-black, pile of face white and black, abdomen more elongate; vittae median and distinct; thoracic pile quite appressed, wholly black except for pleura and sides of notopleura; subapical cross vein quite arcuate; third antennal segment bright orange (New Mexico)
..... *sonoriana* Shan.
4. Scutellar discal pile mostly white (Washington) *coerulea* n. sp.
Scutellar pile all black or nearly so5
5. Tibiae yellowish at base, antennae orange, wing veins yellow (New Hampshire) *pontiaca* Shan.
Legs darker, antennae darker, wing veins brownish yellow (Washington)
..... *burkei* Shan.
6. Pile of thorax quite flat, extremely appressed7

- File of thorax erect or suberect, not obviously appressed10
7. Scutellum with black bristles on margin8
 Scutellum without bristles, or if present, they are pale yellow in color ..9
8. Scutellar bristles quite short (Washington)*variseta* n. sp.
 Scutellar bristles long and slender (California)*pacifica* Hunt.
9. Third antennal segment wholly brownish black; front with at least as much black pile as pale pile; mesonotal pile quite short, brassy, black in the middle. Scutellar margin with a few quite short golden bristles (Washington)*variseta* n. sp.
 Third antennal segment reddish-brown, especially below, often rather light, its dorsal margin always blackish. Scutellar margin without any trace of short bristles (Alaska)*yukonensis* Shan.
10. Pile of hind tibia partly or wholly black, at least on outside11
 Pile of hind tibia wholly pale14
11. Small, blue-black species; third antennal segment bright orange; facial, frontal, mesonotal pile black (Eastern)*pontiaca* Shan.
 Usually larger; black aeneous or greenish-black species; this pile in part pale; third antennal segment dark brown or black on dorsal third or less12
12. Scutellar margin with pale bristle like hairs (Alberta)*varipila* n. sp.
 Scutellar margin with strong black bristles13
13. Front swollen, pile of thorax mostly pale in color, rather short; small to medium sized species (Oregon)*fuma* n. sp.
 Large, quite robust greenish or brassy-black flies, the front not swollen; front with a conspicuous shallow transverse impression in the lower portion; pile of thorax golden, with longer, fine black erect hairs intermixed (Oregon)*chintimini* Lov.
14. Scutellar bristles conspicuously differentiated from the golden discal pile, black in color; rather large, brassy-black flies15
 Scutellar bristles not well differentiated16
15. Pile of front and mesonotum yellowish, usually a few black hairs intermixed (California)*occidentalis* Will.
 Pile of front white, of mesonotum short and white, pile of abdomen white, short, dense and appressed except along the sides (California)
*pacifica* Hunt.
16. Pile of greater and terminal part of abdomen erect; all pile everywhere light yellow to brassy; small flies, the tibia and tarsi and wing veins extensively light orange; one or two black notopleural bristles17
 Pile of fourth segment flattened posteriorly; pile white; larger flies, the tibia and tarsi less conspicuously orange; wing veins brown, no black notopleural bristles (Colorado)*livida* Wehr.
17. Tubercle of face distinct, but broad and low in profile. Front flattened and microrugulose (Maryland)*primoveris* Shan.
 Tubercle small and short, (abrupt above and below) front trisulcate
*primoveris* var.

Cheilosia (Chilomyia) hoodiana (Bigot)

Figures 2 and 3

Cartosyrphus hoodiana Bigot, 1883, Ann. Soc. Ent. France, No. 32, part 23, p. 552.

Chilosia petulca Williston, 1886, Bul. U. S. Natl. Mus. No. 31, p. 39.

Chilosia hoodiensis Williston, *Ibid.*, p. 292.

Chilosia hoodiana Shannon, 1922, Ins. Insc. Menst., 10: 131, 138.

A dark species with a pair of gray almost white pollinose vittae on the anterior half of the mesonotum, best seen from behind. Antennae of the male rather dark, somewhat reddish brown below, of the female characteristically yellowish. Pile of the mesonotum on the male black and erect; on the female partly appressed, mostly pale except for a setigerous black patch just above the wing base. Scutellum of the female with strong black bristles. Length 9 to 10 mm.

Distribution: OREGON (Type in Brit. Mus.)

Material reviewed: IDAHO—Craig Mts. 1 male July 8, 1918 (Melander); Moscow Mt. 3 females July 4-5, 1919 (Melander), 2 females July 10, 1920 (Shannon). OREGON—Ashland, Dead Indian Road 2 females July 19, 1943 (Scullen); Corvallis 1 male April 6, 1936 (Rieder); Mt. Hood 1 male July 29, 1921 (Downes), 2 females July 18, 1933 (Wilcox). WASHINGTON—Mt. Rainier 1 female July 14, 1914 (Fox), 1 male and 7 females July 7, 1926, 1 female July 17, 1926 (Darlington), 2 females August 14, 1932 (Baker), 1 male and 1 female July 25, 1936 (Baker); Paradise Inn 5 females July 19, 1931.

Records of others: British Columbia, Colorado, New Hampshire (error), New Mexico and Wisconsin.

Cheilosia (Chilomyia) sonoriana Shannon

Chilosia sonoriana Shannon, 1922, Ins. Insc. Menst., 10: 136.

A shining blue black species; pile of the face short, white below the tubercle, black next to the facial strips; tubercle prominent; antennae nearly round, bright orange (female). Mesonotum with short appressed black pile which is longer on the sides, a small tuft of black pile on the upper edge of the mesopleura; disc of the mesonotum with a pair of white vittae on the anterior half; in this respect quite similar to *hoodiana*. Scutellum with strong black bristles on the rim, pile on the disc white.

Distribution: NEW MEXICO (Type, a female in the U. S. National Museum).

Material reviewed: A single female from Moscow Mountains IDAHO (Hull Collection).

This specimen agrees in all essential details with the type except for the more whitish squamae and somewhat paler halteres.

Cheilosia (Chilomyia) yukonensis Shan.

Figure 4

Chilosia yukonensis Shannon, 1922, Ins. Insc. Menst., 10: 129.

Dark aeneous species with black and white pile. Scutellum with no prominent, strong bristles. Length 10 to 11 mm.

MALE:—Face shining, lightly pubescent, more heavily so below the antennae and along the facial strips. The pile on the sides of the face black, on the cheeks and facial strips white. Front somewhat inflated with a deep sulcus, pubescence white and confined mostly to the ocular border; the pile all black, the arch above the antennae shining orange colored. Antennae dark orange, first two segments almost brownish and the upper third of the third segment brown, sometimes nearly all brown; the arista brownish and pubescent. The ocellar tringle shiny black with long, black pile; the occiput shiny, white pubescence on lower half next to the eyes; the upper cilia black with a few white hairs near the vertex; pile on the lower half white. Pile of the eyes moderately heavy, whitish below becoming light brown above.

Thorax:—Mostly shiny, somewhat dulled on the disc of the mesonotum. Pile of the mesonotum is black and white mixed, mostly black on the notopleura; pile of the pleura mostly whitish with black hairs on the upper edges of the mesopleura and the pteropleura. Scutellum shiny with long yellow and black hairs on the discs and margins, shorter white hairs intermixed; the ventral fringe long and white. Legs dark brown, somewhat reddish brown on the tibiae; pile mostly black, a few white hairs at the base and outer sides of the femora; there are some exceptionally long hairs both black and white on the outer surfaces of the femora. Wings hyaline with light brownish tinge, the veins dark brown, stigma yellowish. Squamae whitish with yellowish border; plumule yellowish; halteres dark brown, the stalks light brown.

Abdomen:—Shining aeneous, opaque on the discs of the second and third tergites; the pile is mostly yellowish white and erect, except on the discs where they are partly black and flat. There are two or three black hairs on the anterior corners of the second tergite. Ventral hairs white.

FEMALE:—Mostly shining; hairs on the lower half of the front mostly pale, almost whitish; on the upper half of the front the white hairs are intermixed with black hairs, becoming all black around the ocelli. Just above the arch is a flat, shiny, slightly depressed area; there is also a shallow depression on the sides near the eye borders; on each side of the front a sulcus. The pile of the face is shorter and practically all white. Pile of mesonotum appressed and nearly all black, whitish along the sides. Pile of scutellum whitish sometimes with a few longer black hairs on the sides near the edge. There are about three or four black bristles on the postalar callosities, one on the notopleura, and four or five short ones just above the wing base. Legs lighter in color at the knees, the pile much shorter and paler in color. Pile of the abdomen mostly appressed beyond the second tergite.

Distribution: Type ALASKA. This species was named by Shannon but he gave no description and did not designate any types but a recent letter from Washington states that he did label a holotype.

Material reviewed: ALASKA—Firth to Lat. 69, June 27, 1920 (Jessup). COLORADO—Cameron Pass, 10 males, 7 females, (10,500 feet), July 7, 1931; Pingree Park, 13 females (9,000 feet), July 9, 1931; North Park, 1 male, 2 females, July 1, 1932; Creede, 1 male, 6 females, June 24, 1926 (E. G. Anderson); Westcliffe, 2 males, June 12, 1926 (E. G. Anderson); Sargent, 1 male, June 24, 1929, (E. G. Anderson); Granite Peaks Camp, Bayfield, 2 females, July, 1928, (Bequaert); Rainbow Lakes, Boulder Co., 1 female June 15, 1936, (Rodeck); Long's Peak, 1 female, June 19, 1922; Grand Mesa, 1 female, July 8, 1938, (Rodeck); Lake City, 4 females, August 8-21, 1938, (Fluke). ALBERTA, Can.—Nordegg 2 males June 10, 1921 (McDunnough); Waterton 4 females June 24, 1923 (Seamans). BRITISH COLUMBIA—Hedley 3 males and 1 female July 3, 1923 (Garrett); Kootapnic Valley 1 female July 1, 1925 (MacDougall); Lilloet 1 female July 1, 1924 (MacDougall), 1 male July 10, 1916 (Phair), 1 fe-

male July 28, 1933 (McDunnough), 1 male July 12, 1926 (Buckell); Mt. Lolo, Kamloops 1 male June 2, 1938 (Jacob); Revels-lake Mt. (6000 ft.) 1 female August 12, 1923 (Vroom).

Cheilosia (Chilomyia) variseta n. sp.

Figures 1 and 5

Shining black, the mesonotum of the male with faint brownish vittae. Scutellum of the male with long black bristle-like hairs on the margins; on the female the bristles are very short and nearly all black, occasionally a pale one. Length 10 to 11 mm.

MALE:—Front, face and cheeks shining black, very lightly whitish pollinose on the ocular borders of the front, below the antennae, below the tubercle, and on the cheeks. Facial pile black, more whitish near the mouth and white on the cheeks; facial strips with white pile. There is a prominent patch of whitish pollen next to the eyes on the cheeks. Front shining with black pile; rather strongly inflated, but with a very deep median sulcus. Ocellar triangle semi-shining black with black pile. Occiput black and with black pubescence except very narrowly gray next to the eyes below; the pile all black above becoming yellowish on the lower third. Antennae dark reddish-brown, the arista black with short pubescence. Eyes brownish pilose becoming almost whitish on the lower half.

Thorax:—Mesonotum, scutellum and pleura shining black, with three faint brownish vittae which are seen best from the sides; the pile all black with a few whitish hairs near the scutellum. Pile of the pleura black, a few yellowish hairs on the sternopleura, and all white just above the front coxae. Pile of the scutellum rather long and mostly black with a few white hairs along the fore margin, the bristles of the edge not very strong; ventral fringe long and yellowish white.

Legs:—Dark reddish-brown to black, the tibiae slightly less darkened than the femora; the pile mostly black with the exception of a few white hairs at the base and outer sides of the femora, a few at the base of the coxae and golden on the undersides of the posterior metatarsi. Wings translucent, slightly yellowish on the anterior half, stigma yellow; squamae yellowish, the fringe long and yellow on the lower lobe, shorter and black on the upper lobe; plumule light brown; the halteres dark brown.

Abdomen:—Shining, very broadly opaque on the discs of the

first three tergites and rather expanding on the posterior border of the second and third tergites. Pile entirely yellowish along the sides, but flat and black on the opaque areas; a patch of rather long black hairs at the basal corners of the first and second segments. Venter shining with pale pile.

FEMALE:—Front shining aeneous, pile black with shorter yellowish hairs intermixed; the usual depressed area above the shining arch and along the sides next to the eyes; pile of the face white. The median sulcus practically absent although present just below the median ocellus. Pile of the mesonotum flat, appressed and mostly all black, a few yellowish hairs both anteriorly and posteriorly; short black bristles all along the sides. Pile of the scutellum flattish, mostly yellow, but with short setous hairs bordering the rim, which are all black; the bristles on the rim are short and usually black in color although on some specimens a pale bristle or two appears. Pile of the abdomen nearly all appressed, more erect anteriorly and in the corners of the segments, pale whitish along the sides, practically all black on the opaque areas of the discs. The fringe of hairs on the upper lobe of the squamae are yellow and the halteres are often yellowish brown.

Types:—Holotype, male, Mt. Rainier, Wash., Sunrise, 6,318 ft., VII-24-1932, (J. Wilcox). Allotype, female (same date as Holotype), collected VII-27-1932, (6,318 ft.). Paratypes, *males*: one, Mt. Rainier, Wash., Sunrise, 6,380 ft., VII-23-1932, (J. Wilcox); one, Mt. Rainier, Wash., Sunrise, 6,400 ft., VII-29-1933, (J. Wilcox); one, Mt. Rainier, Wash., Shadow Lake, 6,200 ft., VII-25-1932; one, Mt. Tallac, Tahoe, Calif., VII-19-1916, (E. P. Van Duzee). *Females*: two, Mt. Rainier, Wash., Sunrise, 6,380 ft., VII-27-1932, (J. Wilcox); one, Mt. Rainier, Wash., Sunrise, 6,380 ft., VII-31-1932, (S. E. Crumb); one, Mt. Rainier, Wash., Sunrise, 6,400 ft., VII-30-1933, (C. H. Martin); one, Mt. Rainier, Wash., Tipsoo Lake, 5,400 ft., VII-30-1927, (M. C. Lane); one, Toppenish, Wash., V-10-1927, (M. C. Lane); one, Mt. Rainier, VII-7-1926; two, Grand Mesa, Colo., VII-8-1928, (Lanham), VII-10-1938, (Bauer); Holotype in the American Museum.

There is considerable variation in the females, especially as to the amount and length of the bristles on the scutellum and the amount of black pile on the front. The antennae of the Colorado specimens are also more orange. The males, however, are fairly

homogeneous, while the amount of brown pollen on the mesonotum constitutes the principal variable.

It is possible that this species will grade into *yukonensis* which according to our understanding of the female does not have black bristles on the rim of the scutellum. It is possible that specimens from Alaska may be found that will come within the scope of *variseta*. The males of the two species appear to be quite uniformly distinct.

Cheilosia (Chilomyia) varipila n. sp.

Figure 6

Similar to *variseta*; the mesonotum of the male less densely brown pollinose and the pile is more generally black especially on the mesonotum, scutellum, and fourth abdominal tergite. The female is more readily separated on the erect pile of the mesonotum and all pale bristles on the scutellum. Tips of the aristaes of both sexes yellow. Length 9 to 9.5 mm.

MALE:—Head shining reddish-brown to black, a reddish spot on the lower oral angles and almost yellowish on the cheeks. Pile on the front, face, ocellar triangle, lower strips, and occiput black; on the cheeks, upper four-fifths of the facial strips, and eyes yellow. Pubescence very sparse, heavier on the strips, in the corners by the antennae, and very narrowly next to the eyes on the occiput. Antennae dark brown, the first two segments shining black; the aristaes brown, pubescent, the extreme tips yellow.

Thorax:—Shining black, dorsum of the mesonotum lightly brownish pollinose on the disc; pile all dark brown to black; scutellar pile all black, the marginal hairs longer and stouter; downward hanging hairs yellow. Legs dark brown to black, the pile all black except for a few yellow hairs on the femora and the usual cushion of yellow hairs on the underside of the hind tibiae and tarsi. Wings tinged with yellow, the stigma light brown, the veins brown. Squamae yellow, lower fringe yellow, upper shorter and black. Plumule yellow, halteres black.

Abdomen:—Shining black, dulled on the discs of the second and third tergites; pile yellow along the sides but nearly all black on the sides of the first and second tergites and posterior corners of the fourth tergite; black and yellow down the middle of the abdomen; pile black on the genitalia. Venter shining with yellow pile.

FEMALE:—Facial pile white; frontal pile black with numerous shorter yellow hairs; antennae larger and partly orange. Mesonotal pile shaggy, almost erect, covered with longer black and shorter yellow hairs; pile of the pleura pale, a patch of bristle-like hairs on the upper edges of the mesopleura and pteropleura; pile of the scutellum appressed, all yellow including the short bristle-like hairs on the margin. Squamae white with yellow fringe, halteres yellow. Abdominal pile closely appressed beyond the second tergite, white to yellow along the sides, black down the middle.

Types:—Holotype, male and allotype, female, Laggan, Alberta, Lake Agnes, 6,800 feet, July 10, 1925 (O. Bryant), (Hull collection). Paratype *Male*, Waterton Lakes, Alberta, June 24, 1923 (J. McDunnough) in Can. Nat. Mus.

This species is closely related to both *yukonensis* and *variseta* but may be told from both of these by the yellow tips on the aristae, more pronounced on the female.

Cheilosia (Chilomyia) chintimini Lovett

Figure 10

Chilosia chintimini Lovett, 1921, Proc. Calif. Acad. Sci., 11: 277.

A large, generally shining black species; pile of the male mostly black, of the female mostly yellowish brown; legs black; rim of scutellum of female with black bristles. Length 10.6 to 12 mm.

MALE:—Lovett did not mention the hairs on the face which are numerous and black, otherwise his description is quite complete. Pile of the facial strips yellow. The arista is pubescent almost to the end; the squamae are whitish with golden fringe, the plumule golden; some specimens are almost entirely black pilose on the abdomen but others have patches of yellow pile on the basal corners of the third and fourth tergites.

FEMALE:—Quite similar to the male in body color but the pile is yellow to golden on the face, cheeks, anterior corners of the mesonotum, pleura, sides of the abdomen except the apical corners of the third and following tergites, and generally on the femora; the antennae are larger and orange except the upper fourth which is brown; front shining with a definite transverse depression just above the antennae and a longitudinal sulcus on each side; mesonotal pile mostly black and all erect, a few black

bristles on the notopleura, calli, and just above the wings; 4 to 8 black bristles on the edge of the scutellum, pile on the disk golden with a few longer black hairs, pile underneath golden; about 4 or 5 black bristles on the upper edge of the mesoplura. Tibiae paler basally. Halteres yellow. Pile on the discs of the abdominal tergites black and appressed, becoming all black except the basal corners on the fourth tergite, otherwise yellowish to golden.

Allotype, by present designation, female, Vernonia, Ore., April 13, 1936 on willow (K. Gray and J. Schuh).

Distribution: OREGON (Type in Calif. Acad. Sci. Coll.).

Material reviewed: OREGON—Vernonia 9 males and 7 females April 13-21, 1936, April 1, 1938, and April 17, 1937 (Gray and Schuh); Astoria 1 female April 14, 1936 (Gray and Schuh); Mary's Peak 3 females April 19 (Lovett) and 1 female April 20, 1941 (Rieder).

Specimens from Vernonia were compared with the type and we have also had the privilege of studying a paratype.

Cheilosia (Chilomyia) burkei Shannon

Figures 8 and 9

Chilosia burkei Shannon, 1922, *Ins. Insc. Menst.*, 10: 141.

Chilosia alaskensis coquillett, (Not Hunter) 1905, *Bur. Ent. Cir.* 61.

A dark blue species with black pile and orange antennae. The facial strips are very narrow. This is one of the few species in which the male has black pile on the underside of the scutellum.

Distribution: WASHINGTON (Type in U.S. Natl. Mus. Coll.)

Material reviewed: COLORADO—Grand Mesa 1 female July 7, 1938 (R. Bauer); Snow Mass, Pitkin Co., 11,200 ft., 1 female July 1, 1941, (F. M. Brown). OREGON—Florence 1 female April 14, 1931, (J. Wilcox). WASHINGTON—Dewatto 1 female June 7, 1906 (Aldrich). BRITISH COLUMBIA—Vancouver 1 male May, 1913 (Hopping). Records by others: Moscow, Idaho.

This is the species reared from Western Hemlock and causing a diseased condition called "Black Check." The female may be confused with *pontiaca* Shan. as there is very little general difference between them, but *burkei* is darker; wing veins, antennae, legs. The male of *pontiaca* is as yet unknown.

Cheilosia (Chilomyia) pontiaca Shan.

Figure 7

Chilosia pontiaca Shannon 1922, Ins. Insc. Menst., 10: 142.

Entirely like *burkei* Shan. except for paler wing veins, legs and antennae. Shannon has compared the head widths and heights but we are unable to note any differences. The geographical range will separate the two. It is possible that these two may prove to be the same. The male is unknown as the species was described from three females taken on Mount Washington, New Hampshire. Through the courtesy of the Museum of Comparative Zoology we have had the privilege of studying one of the paratypes.

Distribution: NEW HAMPSHIRE (Type female in Mus. of Comp. Zool. Cambridge).

Material reviewed: NEW HAMPSHIRE paratype female. QUEBEC, Laniel (P.Q.) 1 female June 11, 1937 (Atwood).

Cheilosia (Chilomyia) fuma n. sp.

Figure 11

A dark species with white erect pale pile on the mesonotum. Frontal pile white below and black near the ocelli. Scutellar bristles long and black. Abdominal pile mostly appressed, black on the discs of the tergites, yellow along the sides. Length 9 mm.

FEMALE. *Head*:—Eyes sparsely yellowish pilose; front somewhat protuberant, rather wide, the sides not parallel, shining brassy black; there is on either side subocularly a longitudinal furrow, quite shallow, which is roughened and in which the pile seems to be somewhat thicker. There is a shallow pit before the antennae. Pile of front on lower half wholly light yellow, largely but not entirely fine and black upon the upper half and between the ocelli. Behind the ocelli are several, quite long, fine, black hairs and behind these the golden fringe of the occipital pile consisting of sparse long hair and more abundant shorter ones. Face black, highly shining; the tubercle small but prominent, deeply concave above; the pile on the sides of the face rather sparse, pale brassy in color, the pubescence on the face limited to the middle area on either side of the tubercle and between the epistoma and the eyes. The facial strips are of moderate width, apparently bare, their pile apparently consisting of a single row of brassy hairs. Antennae of moderate size, almost

orbicular, slightly pointed at the apex, the first segment black, the second dark red, wholly pubescent and black pilose; the third rather thickened, brownish red with the outer margin blackish dorsally and apically. Arista short, dark brown, rather strongly thickened on the basal third, noticeably pubescent.

Thorax:—Strongly shining brassy, the pile short, erect, chiefly pale yellow. Over the middle of the mesonotum are a few scattered fine black hairs and posteriorly a few longer ones. On the notopleura, which is yellow pilose, is a single stiff black bristle; there are two to three bristles above the wing and two short ones and two much longer ones on the post calli. Pleura pale brassy pilose, two black bristles on the upper part of the mesopleura. Scutellum concolorous; the erect discal pile brassy; there are two slender black bristles (pairs) on the margin, basally a single long pale one and some shorter pale ones.

Legs:—Dark brown, almost black, the femoral apices very narrowly lighter brown. Tibiae likewise quite dark, their bases indistinctly brown on approximately the basal third, but dark. The apices of the tibia are also somewhat paler. All of the tarsi are black or very dark brown, their dorsal pile is black. Pile of the hind femora thick, abundant, golden on the basal and lateral halves; there are some long golden hairs reaching almost to the apex of the dorsum, the short black setate hairs confined to the ventral apical half. Pile of hind tibiae golden over the greater part of the inner surface, becoming black dorsally and entirely on the outer lateral surface.

Wings:—Somewhat obscured by poor preservation but uniformly light brown, the base of the subcostal and marginal cells paler, the stigma brown. Postical and subapical cross veins each gently sinuous, each heavily spurred, the latter making a right angle with the curvature of the third longitudinal vein.

Abdomen:—Long and slender but still much shorter than the wings, shining brassy black, the pile pale golden, erect on the sides of the second tergite, and in at least almost all of the third tergite; elsewhere it is at least subappressed. There are broad triangles located posteriorly in the middle of the second, third and fourth tergites of flat appressed black pile. Pile of fifth tergite almost wholly pale.

Holotype:—Female, Vernonia, Oregon; April 17, 1937, (on willow) (K. Gray and J. Schuh), in the American Museum.

The erect pile on the mesonotum relates this species to *varipila* and *livida*, the bristles on the rim of the scutellum will help to separate it.

Cheilosia (Chilomyia) coerulea n. sp.

Figures 14 and 15

A small shining aeneous species with four faint gray vittae on the anterior half of the mesonotum. Pile of the front and mesonotum black, appressed on the mesonotum. Antennae orange yellow with the narrow upper edge dark. Front very wide. Length 6.5 mm.

FEMALE. Head:—Eyes sparsely white pilose, the front broad and not quite parallel, with a strong sharp impression that does not quite reach the ocelli, through the middle of this impression from eye to eye runs a shallow transverse depression. On either side upon the end of the depression and adjacent to the eye is a silvery pubescent semi-circular area which does not connect with the pubescence below the antennae. Color of front black with a faint bluish cast, moderately shining, its pile almost wholly black, erect and abundant. There is a little pale hair on the lower part of the front; vertical and upper occipital hair black. Face shining black with a bluish cast, highly polished, the knob large, rounded but not conspicuous; practically bare of pubescence but with sparse white pile. Facial strips narrow, pubescent, the pile white and apparently confined to a narrow band of at most one or two hairs in width. Antennae of moderate size, the first segment dark brown, the second light brown, the third pale orange with a very narrow black dorsal border; arista black, thickened on the basal half, noticeably pubescent.

Thorax:—Mesonotum polished shining blue black; viewed posteriorly there are four gray pollinose vittae, the middle pair close together, shorter than the outer pair and pointed posteriorly. Mesonotal pile quite short, subappressed, chiefly black; some pale pile lies across the anterior margin. Notopleural pile somewhat longer, black and pale, a few of the hairs longer and stiffer. On the post calli there is both black and white pile and one long bristle. Scutellum concolorous with short whitish pile appressed towards the center; on the margin are two pairs of long slender black bristles and three or four small short ones.

Legs:—Dark brown, shining, the apices quite narrowly light-

er brown; the narrow base of the hind tibiae, basal two-fifths of middle and anterior tibiae light brown; all of the tarsi brownish-black, the middle basi tarsi lighter along the sides; all dorsal basi tarsal pile black. Pile of hind femora rather short, pale along the sides except near the apex; black pile ventrally limited to the apical half; pile of hind tibiae almost wholly black, both inner and outer lateral surfaces largely silvery pubescent; hind femora similarly silvery pubescent.

Wings:—Pale brown, the veins light brown, the stigma yellow; the postical cross vein straight, the subapical cross vein gently sinuous, both with strong spurs. The subapical cross vein joins the third vein acutely with not over a 67 degree angle.

Abdomen:—Robust, a little wider than thorax; short, shining bluish black; the pile exceedingly short, white except in the center of the second and third tergites where along the posterior region are triangles of appressed short black pile. The pile of the fourth tergite is much more sparse and, except on the posterior margin, is nearly erect.

Holotype:—Female, Mt. Rainier, Washington, July 16, 1935, White River Camp, (J. Wilcox), in the American Museum.

Cheilosia (Chilomyia) primoveris Shan.

Figures 12 and 13

Chilosia primoveris Shannon 1915. Proc. Ent. Soc. Wash., 17: 168.

An Eastern *Chilomyia* which is easily distinguished from *pontiaca*, the only other known species in the east, by its brassy yellow pile on the mesonotum and abdomen. The antennae are yellowish orange; the tibiae bicolored; pile on the front of the male black, on the female yellow. Length 8 to 10 mm. The two females from Utah are identical with the eastern specimens.

Distribution: MARYLAND (Type in U. S. Nat'l. Mus. Coll.)

Material reviewed: MARYLAND—Cabin John 1 male April 14, 1916 (Shannon). MASSACHUSETTS—Hyde Park 1 female May 6, 1905. NEW YORK—Paterson 1 female April 21, 1939 (Dietrich). OHIO—Columbus 1 female May 9, 1925 (Painter). UTAH—Logan 1 female August 4, 1915; Salt Lake City 1 female. VIRGINIA—Fairfax Co. 4 females April 4 (Davidson); Great Falls 1 male April 15.

Cheilosia (Chilomyia) occidentalis Williston

Figure 17

Chilosia occidentalis Williston, 1882, Proc. Amer. Phyl. Soc. 20: 305; 1886, Bull. U. S. Natl. Mus. No. 31, p. 41.

A dark aeneous species. Male with the pile of the mesonotum long and mixed black and yellow; the hairs of the face quite long and black and yellow; entire face rather conspicuously pollinose; pile of the scutellum very long and black on the apical margin and almost bristle like, whiter at the base; pile of the pleura all yellowish, except for a large patch of black hairs on the mesopleura; the antennae dark brown to black. On the female the mesonotal pile is mostly whitish and on the abdomen erect, yellowish-white and appressed only on the discs of the segments; the scutellum with about eight bristles, some of which may be pale and some black; the antennae are mostly orange-yellow, darkened on the upper third.

Distribution: CALIFORNIA (Type in U. S. Nat'l. Mus.).

Material reviewed: CALIFORNIA—Berkeley 1 male and 2 females July 6, 1904, 1 male August 24, 1915 (Van Duzee), 1 female April 10, 1933 (Casier), 3 males March 12, 1936; San Francisco 1 male March, 1893; Walnut Creek 7 males and 6 females March and April, 1936 (Davidson). COLORADO—Grand Mesa 2 males July 7, 1938 (Lanham).

Records by others: Alaska, British Columbia, New Hampshire (error), New Mexico and South Dakota.

Cheilosia (Chilomyia) livida Wehr.

Figure 16

Chilosia livida Wehr 1922, Univ. Studies, Lincoln, Nebr., 22: 24.

A shining dark aeneous species with thick white to yellowish pile; scutellum without bristles; antennae orange colored, with the upper edge darkened, lighter on the female. Apparently related to *pacifica* Hunter. Length about 9 mm.

MALE. *Head*:—Face shiny, somewhat pubescent, the central knob bare, knob rather prominent and broad, semi-flat on apex; the oral edge less prominent; lower sides of the mouth devoid of pubescence and pile; pile of front, face, and cheeks is silky white. Front puffed with a medium sulcus, rather heavily pubescent, the arch above the antennae shining black; facial

strips very broad almost bare of pubescence except near the eyes, the pile silky white. Antennae orange, the first two segments and upper fourth of the third darker; arista dark in color and very short pubescent, basal segment thickened. Ocellar triangle shiny with long white pile. Occiput gray pubescent, the pile everywhere whitish. Eyes white pilose below, yellowish above.

Thorax:—Everywhere shining aeneous, the pile everywhere white and erect. Scutellum with long silky white pile, without bristles. About four or five black bristles just above the wing base. Legs shining black with yellow areas as follows: the femora very briefly at the tips, the tibiae with their basal halves and apical fifths, basal three segments of the four front tarsi; the trochanters are somewhat reddish, especially on the fore margins; pile mostly whitish, a few black hairs on the outer apex of the hind femora and all black on the four hind tarsi. On the outer edge of the tarsi are numerous small black bristles; they are also quite prominent as a circlet at the tips of the four hind tibiae. Wings hyaline, the veins yellowish to brownish, stigma light yellow. Squamae white with light yellowish edge, plumule yellowish white, halteres light brownish.

Abdomen:—Shining aeneous, opaque on the disc of the second and third tergites; the pile whitish except broadly black on the dorsum of the second, third and fourth tergites, pile erect on the sides, flattened on the discs.

FEMALE:—Very similar in all respects, antennae slightly larger and more orange colored; front broad and shining; the tiny bristles on the under side of the metatarsus of the middle legs very strong; abdominal pile mostly erect, somewhat flattened on the discs of the segments both above and below.

Allotype:—By present designation, female, Lake City, Colorado, Aug. 8 to 21, 1938, 9,000 ft. elevation (Fluke); in the American Museum.

Distribution: COLORADO (Type in Univ. Nebraska).

Material reviewed: COLORADO—Cameron Pass 1 male, 1 female, July 7, 1931, Camp Creek R. Sta. 1 male June 19, 1920 (8700 ft.); Lake City 3 females August 8 to 21, 1938 (Fluke); Powderhorn 1 female June 23, 1926 (Anderson); Snow Mass Lake, Pitkin Co. 1 male July, 1941 (11,206 feet, Brown). ORE-

GON—Corvallis 1 female April 12, 1936 (Ferguson). WASHINGTON—Roy 1 female April 29, 1932 (Latta). ALBERTA—Medicine Hat 1 male May 2, 1925 (Carr).

We have examined two of the male paratypes and our male specimens are identical. The white pile of this species should easily identify it. The lack of black bristles on the scutellum will separate it from *pacifica* Hunter. It is much larger but more slender than the eastern pale pilose species, *primoveris*.

C. livida var. *lincea* n. var. differs from typical *livida* in the yellowish pile on the mesonotum. Holotype, male, Aspen, Colo., July 24-27, 1919 in the American Museum; paratype, male, Boulder, Colo., May 29, 1922 in the Hull collection.

Cheilosia (Chilomyia) pacifica Hunter

Chilosia pacifica Hunter, 1897, Can. Ent., 29: 127.

Extensively white pilose, the scutellum with black marginal bristles on both sexes. Front of the male black pilose, of the female white.

We have been unable to recognize this species and also unable to locate the types. They are not at the University of Nebraska collection. It has been placed in the keys from the descriptions; the female in two sections as we are unable to determine whether the mesonotal pile is erect or appressed. Hunter's description mentions the depressed pile on the abdomen which would indicate that the pile on the thorax is generally erect. If this is true the female should be compared with *occidentalis* Will., otherwise it appears to be related to *livida* Wehr, a species which does not have black scutellar bristles. The females of *pacifica* and *occidentalis* may be difficult to separate but the pile of *pacifica* is whitish and undoubtedly shorter than on *occidentalis*. The latter species usually has a few black hairs intermixed in the heavy yellow matt on the front; described as short and white on *pacifica*. The "short appressed pile" on the abdomen is not at all characteristic of *occidentalis*.

Distribution: CALIFORNIA (Types not located).

Material reviewed: None.

