NAMES APPLIED TO BEES OF THE GENUS OSMIA, FOUND IN NORTH AMERICA.

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This list is prepared in the same manner as the paper on the genus _Nomada_, which appeared in these Proceedings, vol. 41, pp. 225-243. Our knowledge of _Osmia_ in America has very greatly increased in recent years, and in the absence of a catalogue it has been difficult to keep the numerous species in mind. Friese's revision of the Megachilidæ of the world, published in Das Tierreich, November, 1911, includes the Nearctic Osmiae, but unfortunately the manuscript was prepared ten years ago, and has not been brought up to date; it thus falls very far short of representing our present knowledge, although very valuable as far as it goes.

According to Titus,¹ the type of _Osmia_ Panzer is _O. rufa_ (Linnaeus). The only American species which he considers strictly congeneric with _rufa_ are _O. lignaria_ and _O. propingua_. The genus is here interpreted in a broader sense, in accordance with the more usual custom. Robertson divides _Osmia_ into a number of genera, but restricts the name _Osmia_ to such species as _O. brevis_, _pumila_, _cobaltina_, and _atransventris_, applying the name _Ceratosmia_ (Thomson 1872) to the _Osmia_, s. str. of Titus. Ashmead, however, recognized _Amblys_ Klug (type, _bicorns_ which = _rufa_) as a genus distinct from _Ceratosmia_; he considered _Helicosmia_ (the group of _O. aurulenta_, _bicolor_, etc.) to be identical with _Amblys_.

The genus _Osmia_ is very rich in species throughout the temperate portions of the Northern Hemisphere. The American forms are mostly blue or green, some very brilliant, while those of Europe average much darker, with a much larger proportion of actually black

² _Apis bicolor_ Schrank (= _Osmia bicolor_) and _Apis bicolor_ Fabricius (= _Megachile bicolor_) were both published in 1781; I do not know which has priority. Should Fabricius have priority, then _Osmia bicolor_ would become _Osmia rustica_ (_Apis rustica_ Fourcroy 1785), which would make _O. rustica_ Cresson a homonym.

insects. On the other hand, the pubescence of the Old World Osmia is often very brightly colored, *O. ferruginea* and *O. pseudoaurulenta* from North Africa being covered with deep-red hair. The European species not rarely have red hair on the abdomen, while in the American, if there is such hair, it is on the thorax, or mainly so (see *O. novomexicana*, *O. cerasi*).

A species of *Osmia*, agreeing with the description of *O. texana* Cresson, was taken by Prof. C. H. T. Townsend on the Rio Nautla, State of Vera Cruz, in the tropical part of Mexico.

**SUBGENERA AND SECTIONS.**

**Centrosmia** Robertson.
*Type.—*bucephala. Also includes *tarsata*.

**Xanthosmia** Robertson.
*Type.—*cordata. Mandibles of female quadridentate.

**Gnathosmia** Robertson.
*Type.—*georgica. Mandibles of female with a large basal tooth.

**Monilosmia** Robertson.
*Type.—*canadensis. Also includes *chlorops*. Male flagellum moniliform.

**Diceratosmia** Robertson.
*Type.—*quadridentata. This and *Nothosmia* have tridentate mandibles in the female.

**Leucosmia** Robertson.
*Type.—*albiventris. Also includes *nigrutula*.

The above six, and also *Ceratosmia*, are defined in Trans. Amer. Ent. Soc., 1903, pp. 165-166.

**Nothosmia** Ashmead.
*Type.—*distincta. Also includes *exigua*, according to Titus.

**Acanthosmioides** Ashmead.
*Type.—*odontogaster.

For the above two see Trans. Amer. Ent. Soc., 1899, pp. 75-76.

**Melanosmia** Schmiedeknecht 1884. To this group Titus has referred *O. grandior*.

**TABLES.**

7. Cockerell, Canadian Entomologist, April, 1909, p. 131. (Males with small joints of middle tarsi thickened.)
8. Cockerell, Entomological News, June, 1910, p. 273. (Females of medium size, of a deep blue or purplish color, with the hair either all black or black with a slight admixture, easily overlooked, of light.)
LIST OF SPECIES.

[The asterisk (*) indicates that the species is in the collection of the United States National Museum. Certain few specimens sent to the Museum by Professor Cockerell and labeled "cotypes" are considered paratypes, as Professor Cockerell uses the name "cotype" in the sense which the Museum uses "paratype." A good many of the species in the collection are homotypes made by Titus, or were determined by Professor Cockerell. The Museum has a goodly lot of unworked material in this genus, and when this has been determined the number of species in its collection will be greatly increased. Of the 167 names in the following list, 60 are represented by specimens in the collection. Of these 60, 22 are types or paratypes.—S. A. Rohwer.]

In each case the type-locality and collector of the type is given, if known. There are also references to the tables, numbered as in the list above.

*abjecta* Cresson, 1878. Colorado (Ridings). Tab. 2.
A black species.

*abnormis* Cresson, 1878. Colorado (Ridings, Morrison).

Ventral scopa white.

*albolateralis* Cockerell, 1906. Florissant, Colorado (Cockerell). Tab. 2.
Possibly the female of *O. cyaneonitens*.

*amala* Cockerell, 1907. Florissant, Colorado, June (Rohwer). Tab. 7.
Additional characters; Canadian Entomologist, 1910. p. 312.

Visits *Pulsatilla*. Mr. S. A. Rohwer took it at Boulder, May 15, 1908, at flowers of *Besseya plantaginea*.
Paratype.—Cat. No. 11919, U.S.N.M.

*armaticeps* Cresson, 1878. Colorado (Ridings, Morrison). Tab. 1, 2.

*armaticeps sapellonis* Cockerell, 1901. Hill above Beulah, New Mexico (Cockerell).
Female with cheeks very strongly and quite closely punctured; mesothorax strongly and densely punctured. Length, 12 mm.

*ashmeadii* Titus, 1904. Dalles, Oregon.
Allied to *O. odontogaster*, but the male is larger, deeper colored, and has the antennae with the scape black, the flagellum pale testaceous, excepting a black tip to the flattened last joint.
Type.—Cat. No. 6359, U.S.N.M.

West to Boulder, Colorado (S. A. Rohwer). Allied to *O. coloradella*, but clearly distinct.

*atrocyanea* Cockerell, 1897. Olympia, Washington State, July (Kincaid). Tab. 5, 8.
Female with hair of pleura, sides of metathorax, and scutellum black, that on scutellum with a few pale hairs intermixed; head strongly blue.
Also in Ormsby County, Nevada (Baker).

*azteca* Cresson, 1878. Mexico (Sumichrast).
Black; ventral scopa yellow.

*basilissa* Cockerell, 1911. Claremont, California (Baker).
Magnificent deep purple; pubescence all black.

*bella* Cresson, 1878. Colorado (Morrison). Tab. 3.
Bright green.

*bennetse* Cockerell, 1907. Boulder, Colorado, May (Mrs. C. Bennett). Tab. 3.
Brilliant green. Also in California.


*bottitena* Cockerell, 1909. Lee County, Texas, April (Birkmann).
Ventral scopa yellowish-white. Allied to *O. sulfasciata*. 

*brevis* Cresson, 1864. Rocky Mountains, Colorado. Tab. 4. Supposed male; Proc. Acad. Nat. Sci. Phila., 1897, p. 345. In Tab. 4 the male would run to *pumila*, but is much larger, like *enena*, but cheeks with some black hairs.


**Type.**—Cat. No. 5806, U.S.N.M.

*bucconis* Say, 1837. Indiana. Same as *Ashmeadiella bucconis*.

*bucephala* Cresson, 1864. Great Slave Lake, British America. Tab. 4.

*californica* Cresson, 1864. Fort Crook, California (H. Ulke). Female “shaped like *O. lignaria*, but is at once distinguished from that species by the black pubescence and the shape of the clypeus.” The clypeus is rather deeply emarginate.

*calla* Cockerell, 1897. Olympia, Washington (Kincaid). Bright green; pubescence of male nowhere mixed with black.

**Paratype.**—Cat. No. 6866, U.S.N.M.

*canadensis* Cresson, 1864. Canada West (Wm. Saunders). Tab. 4.


*cerasi* Cockerell, 1897. Mesilla, New Mexico (Jessie E. Casad). Tab. 6. Female with hair of thorax above bright rust-red; tegula and ventral scopa black.

**Paratype.**—Cat. No. 3708, U.S.N.M. This specimen was determined by Cockerell but not designated as a type by him. Titus considers it as a paratype.

*chalybea* Smith, 1854. St. John’s Bluff, East Florida. Steel blue; margin of female clypeus lobed in middle, the apex of the lobe emarginate, margin on each side of lobe crenulated.

Occurs in Texas; see Univ. of Colorado Studies, vol. 5 (1907), p. 37.

*chlorops* Cockerell and Titus, 1902. Trout Spring, New Mexico (Cockerell). Tab. 2. Allied to *O. canadensis*.


**Type.**—Cat. No. 14480, U.S.N.M.

*clarescens* Cockerell, 1911. Claremont, California (Baker). Female with ventral scopa black; hair of pleura and metathorax white; legs metallic.

*cosaltina* Cresson, 1878. “Nevada, California (H. Edwards, Behrens).” Tab. 4. Brilliant deep blue or purple.

Baker has taken it at Claremont, California.


*collinsiae* Robertson, 1905. Illinois (Robertson). This is the insect earlier described by Robertson as the male of *O. major*.


Recent studies indicate that this is apparently a variety of *O. hesperella*.

*coloradensis* Cres~son, 1878. Colorado (Ridings, Morrison). “Ventral scopa white or yellow.” Apical margin of female clypeus coarsely crenulated. Also found in Ormsby County, Nevada (Baker), and at Peachland, British Columbia, Aug. 2 and 6, 1909 (J. B. Wallis). It is doubtful whether *O. hypochrysea rohweri* can be separated from this; specimens from Flagstaff, Arizona, are intermediate.
**conjecta** Cresson, 1864. Connecticut (E. Norton).

Punctures of female abdomen much stronger and less dense than in *O. albiventris.*

Ventral scopa white.

**coniunctoides** Robertson, 1893. Citrus County, Florida (Robertson).

Male resembles *conjecta,* having the same two tubercles, one above the other, on front; but lateral teeth of sixth segment broad and obtuse and produced downwards (acute in *conjecta*).

**copelandica** Cockerell, 1908. Copeland Park, Colorado (Rohwer).

Small black species with white scopa; abdomen slightly metallic. It is not unlike *O. abjecta,* but smaller, and easily separated by the scopa, which in *abjecta* is reddish-black. There is a superficial resemblance to *O. insularis* Schmku. from Mallorca.

**cordata** Robertson, 1902. Illinois (Robertson). Tab. 4.

"May be the male of *O. brevis*" (Robertson), but later Robertson found the female, which proves it to be quite distinct, the ventral scopa being yellowish. The male has the first ventral segment of abdomen emarginate.

**cressonii** Dalla Torre, 1896.

Same as *conjecta,* the name was proposed by Dalla Torre for *quadridentata* Cresson, not of Duméril, 1860. Duméril's insect was described under *Phyllothoma,* and appears to be of doubtful identity.

**cyanella** Cockerell, 1897. Olympia, Washington State, May (Kincaid).

Female about 9 mm. long, very broad, with large subquadrata head.

_Type._—Cat. No. 6364, U.S.N.M.

**cyanonitens** Cockerell, 1906. Florissant, Colorado (Rohwer). Tab. 1, 2.

A new locality is Durango, Colorado, June 7, 1898 (Osler).

**davidsoniella** Cockerell, 1905. Los Angeles, California (Davidson).

Male steel-blue, a little over 8 mm. long; antennae black.

_Type._—14479, U.S.N.M.

**densa** Cresson, 1864. Pikes Peak, Colorado. Tab. 1, 5.

The color of the female abdomen resembles that of *hendersoni,* but hair of pleura is white (black in *hendersoni*).


**distincta** Cresson, 1864. Connecticut (E. Norton).

Ventral scopa white; female broader and more robust than *albiventris* or *conjecta.*

**dubia** Cresson, 1864. Pikes Peak, Colorado.

Resembles *O. atriventris.* Ventral scopa black.

The fossil "*Osmia* dubia" Germar 1849, was described as *Apiaria dubia,* and the reference to *Osmia* by Giebel (1856) is probably erroneous. Hence I think Cresson's name for our species may remain.


**ena** Cockerell, 1907. Florissant, Colorado, June 23 (Rohwer).

Male resembles *O. mertensi,* but antennae longer, legs not metallic, abdomen narrower and less shining, etc.

**eutrichosa** Cockerell, 1910. Steamboat Springs, Colorado (Cockerell).

Male with no black hair anywhere.

**exigua** Cresson, 1878. California (Henry Edwards).

Very small. "This is our smallest species" (Cresson, 1878).

Titus refers this to *Nothosmia,* and states that *Herauda glaucum* Fowler is a synonym.

**faceta** Cresson, 1878. "Can., N. Y., Ga." Tab. 5.

Allied to *O. chalybea.*


Ventral scopa black, but white hair on lateral margins of abdomen. Feder, Texas (Birkmann).

Kerrville, Texas, at flowers of *Marrubium vulgare,* Apr. 12, 1907 (F. C. Pratt).
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Allied to *O. densa*.

florissantica Cockerell, 1906. Florissant, Colorado (Cockerell). Tab. 2.

daliarum Cockerell, 1906. Florissant, Colorado (Cockerell). Tab. 2.

foxi Cameron, 1901. "Sta. Fe Mts, New Mexico," but really Mexican.

Male 8 mm., said to be allied to *texana* and *subfasciata*; legs largely metallic.

frigida Smith, 1834. Hudson Bay.

A black species, the female with a very large head; ventral scopa black.


*fulgida* Cresson, 1864. Rocky Mountains, Colorado. Tab. 1.

A bright green species.


New localities are Ouray, Colorado (H. F. Wickham), Denver, Colorado (Oslar), and South Park, Colorado (Oslar.).

gabriellis Cockerell, 1910. San Gabriel Mountains, California, 3,000 feet. (Grinnell). Tab. 8.


Visits *Galardiæ* in July. Ventral scopa black.

*gaudiosa* Cockerell, 1907. Boulder, Colorado, April (Edna Baker). Tab. 3

Brilliant golden green. Also at Florissant; see Ann. and Mag. Nat. Hist., Oct., 1908, p. 330. The male type had the vertex, front, and thorax above with a strong suffusion of coppery-red or almost crimson; after four years, although the specimen was kept in the dark, this has faded to golden.

georgica Cresson, 1878. Georgia (Morrison). Tab. 4.

Female with clypeus carinate and mandibles tuberculate; ventral scopa yellowish.

galiarum Cockerell, 1906. Florissant, Colorado (Rohwer). Tab. 2.

*globosa* Cresson, 1864. Great Slave Lake, British America.

A small robust black species.


Male entirely black with white pubescence.

*grandior* Cockerell, 1897. Olympia, Washington State, May (Kincaid).

Resembles *O. pascoensis*; clypeus dull and roughened (in *pascoensis* shiny, with well-separated punctures).

*Paratype.*—Cat. No. 6869, U.S.N.M.

granulosa Cockerell, 1911. Mountains near Claremont, California (Baker).


grinnelli Cockerell, 1910. Strawberry Valley, San Jacinto Mountains, California (Grinnell).

hendersoni Cockerell, 1907. Arapahoe Peak, Colorado (Rohwer). Tab. 1.

A high alpine species.


Ventral scopa yellowish-white. Allied to *O. albiventris*.

I have taken it at flowers of *Cirsium*, June 26.

hudsonica Cresson, 1864. Hudson Bay Territory.

A black species.

hypochrysea Cockerell, 1906. Florissant, Colorado (Rohwer). Tab. 2.

Ventral scopa pale orange; anterior margin of clypeus (female) with a median tridentate elevation.

Also at Claremont, California, where it is variable (Baker).


Larger, with the mesothorax more sparsely punctured.

Also at Flagstaff, Arizona, at flowers of *Iris*, June 11, 1909 (F. C. Pratt).

Very close to *O. coloradensis* (which also occurs at Boulder, collected by W. P. Cockerell), but the mesothorax is shining steel blue (blue-black and dull in *coloradensis*), and sparsely punctured about the middle.

The two species are very doubtfully distinct.

   Looks like Monumella. The male, discovered by Oslar at Durango, Colorado, shows that this species must be referred to Alcidamea.


   Perhaps a subspecies of O. pentastemonis, which occurs at higher altitudes.

illinoensis Robertson—Male of cobaltina, according to Robertson; see Ent. News, 1902, p. 79.

   In spite of Robertson's decision, I can hardly believe this is cobaltina, which is a species of the Pacific coast region.

   Male entirely bright green, 8 mm. long; pubescence "white below, especially on clypeus, where it is also dense, above slightly tinged with ochraceous; on abdomen short and appearing subfuscous."

imermis Zetterstedt, 1838. A species of northern and central Europe, said by Friese (1908) to occur in Labrador. Female 9½, male 8 to 9 mm.; black; thorax and first abdominal segment of female with fulvous hair above.

inspergens Lovell and Cockerell, 1907. Maine (Lovell).

   Ventral scopal silvery-white, black at apex; lower part of female clypeus covered with very dark brown pubescence. Also in Massachusetts.

integra Cresson, 1878. Colorado (Morrison).

   Male steel-blue. Also in New Mexico.

   At Claremont, California, Baker has taken a variety of the male with the hair of cheeks (except above) and of anterior legs black.


   Possibly a variety of O. universitatis.

*inurbana Cresson, 1878. Colorado (Ridings, Morrison).

   Dark brassy green (male).


iridis Cockerell and Titus. Trout Spring, New Mexico (Cockerell).

   Male with first ventral segment of abdomen emarginate; sixth dorsal entire.


juxta Cresson, 1864. Rocky Mountains, Colorado.

   Allied to O. longula.

*kincaii Cockerell, 1897. Olympia, Washington State (Kincaid).

   Brilliant peacock-green.

Paratype.—Cat. No. 6567, U.S.N.M.

*latitarsis Cresson, 1864. "New York, Virginia."

   Same as bucephala.


*lignaria Say, 1837. Tab. 4, 6.

   Extends southwest to New Mexico.

lignaria lignariella Cockerell, 1906. Romeroville, New Mexico (W. Porter).

   Female 9½ mm. long; pale hair on abdomen practically confined to first segment.

   Perhaps a distinct species.

lignicola Provancher, 1882. Cap Rouge.

   Same as bucephala.

lignivora Packard, 1867. "From cells in maple."

   Female about 13 mm. long; hair of face below antennae dark chocolate; ventral scopal largely reddish. See Univ. of Colorado Studies, vol. 5 (1907), p. 37.

longula Cresson, 1864. Rocky Mountains, Colorado.

   Resembles O. florissanticola. Mr. S. A. Johnson took it at Sapinero, Colorado, July 20, 1908.

major Robertson, 1902. Illinois (Robertson). Tab. 4.
Near to atriventris, but larger; female 11, male 10 mm.

Superficially like O. wilmatte, but thorax above with much more black hair, ocelli larger; face with tufts of white hair.

*mandibularis Cresson, 1878. Colorado (Morrison).
Female with nodose process on mandibles.

marginipennis Cresson, 1878. Colorado (Morrison).
"May be the male either of longula or juxta" (Cresson).

Entirely deep black, with black hair.

megacephala Cresson, 1884. Rocky Mountains, Colorado.
Resembles O. bucephala.

Resembles O. atriventris. Also in Colorado.

mertensii Cockerell, 1907. Florissant, Colorado, June (Rohwer).
Visits Mertensia.

Visits Ribes pumilum.

*montana Cresson, 1864. Pike's Peak, Colorado.
Male with wings purely hyaline.

*nanula Cockerell, 1897. Seattle, Washington, April and May (Kincaid).


Paratype.—Cat. No. 13439, U.S.N.M.

*nifoata Cockerell, 1909. Troublesome, Colorado, June (Rohwer).
Abdomen of male with a ventral tooth. Allied to O. odontogaster and O. ashmeadii, the three forming the subgenus Acanthosmioides.

Paratype.—Cat. No. 14432 U.S.N.M.

*nigrifrons Cresson, 1878. Colorado (Morrison). Tab. 1.5.
Hair of pleura black, of scutellum light, with at most a few dark hairs intermixed.
Extends to Washington.

A new locality is Durango, Colorado, May 26, 1899 (Osler).

nigrifrons subaustralis Cockerell, 1900. Beulah, New Mexico (W. Porter).
Female 10 mm.; anterior margin of clypeus with a broad shallow emargination.

nigritula Friese, 1902.

Also in Colorado. Related to O. grandior.

Type.—Cat. No. 6362 U.S.N.M.

oblonga Provancher, 1882. = Monometha albifrons.
First described as a Megachile, and name preoccupied.

*odontogaster Cockerell, 1897. Olympia, Washington (Kincaid).
Resembles O. inurbana; second ventral abdominal segment of male toothed.

Paratype.—Cat. No. 3709, U.S.N.M.

Male with hind basitarsus toothed.

A variety of the male (variety a) with the thorax above without black hairs, was taken by Mr. S. A. Rohwer at Boulder, April 14, 1907, at flowers of Ribes pumilum.

parva Provancher, 1882. Canada.

Same as nigritula.
parvula Dalla Torre, 1896. (Name preoccupied.)
Same as nigritula.

pasadenæ Cockerell, 1910. Pasadena, California (Grinnell).
Female about 15 mm.; hair of head entirely black, except a yellowish-white fringe on occipital margin.
Paratype.—Cat. No. 6868, U.S.N.M. Not labeled as a paratype by Cockerell, but determined by him.

pentstemonis Cockerell, 1906. Florissant, Colorado (Rohwer). Tab. 1. 2.
Visits Pentstemon.

Also in New Mexico. Female about 14 mm. long, hair of head and thorax above very bright fox red.

phenaex Cockerell, 1897. Mesilla, New Mexico, April (Jessie E. Casad). Tab. 6.
Ventral scopa pale fulvo-ochreous; tegulae shining rufotestaceous.

physariae Cockerell, 1907. Florissant, Colorado, June 1 (Rohwer).
Male with sixth dorsal segment entire; flagellum very strongly crenulate beneath.

pikei Cockerell, 1907. Halfway House, Pike’s Peak, Colorado (Cockerell). Tab. 1. 3.
Visits Salix at end of May.

platyura Cockerell, 1911. Mountains near Claremont, California (Baker).

pogenigera Cockerell, 1910. Strawberry Valley, San Jacinto Mountains, California (Grinnell).
*propinqua Cresson, 1864. Fort Crook, California (H. Ulke). Tab. 1.
Allied to O. lignaria. Specimens from Claremont, California, are in the Baker collection.

*proxima Cresson, 1864. “Maine and Fort Good Hope, Mackenzie River.” Tab. 1. 4.
Same as atriventris.

*prunorum Cockerell, 1897. Mesilla Park, New Mexico, April (Cockerell). Tab. 6.
Ventral scopa black in middle and yellowish-white at sides.
Paratype.—Cat. No. 4344, U.S.N.M.

pseudamala Cockerell, 1910. Steamboat Springs, Colorado (Cockerell).

Visits Pulsatilla.

pumila Cresson, 1864. Pennsylvania. Tab. 4.

purpurascens Smith, 1849. Mistakenly supposed to be British.
Same as lignaria.

purpurea Cresson, 1864. “Conn., Penn., N. Jersey.”
Distinguished (female) by the dark purple color and narrow whitish hair-bands of abdomen; ventral scopa black.

*pusilla Cresson, 1864. Pikes Peak, Colorado.
Also in New Mexico.

putata Cockerell, 1910. Mountains near Claremont, California (Baker). Tab. 8.

Resembles O. armaticeps, but head (female) not armed beneath, and the pubescence is entirely black.

Male abdomen quadridentate, the two outer teeth being on sixth segment; front in both sexes with two tubercles, one above the other; ventral scopa white. This is considered to be the male of conjuncta.

Ventral scopa orange. Appears to be a variety of O. hesperella.

regulina Cockerell, 1911. Claremont, California (Baker).

*ribifloris Cockerell, 1900. Romeroville, New Mexico, April 29 (W. Porter).
Tab. 8.
Female 11 mm., dark shining blue, pubescence all black, legs blue.
Allied to O. cobaltina, but much darker. Specimens in the Baker collection were obtained by Oskar at Santa Fe, New Mexico, and Thumb Butte, Phoenix, Prescott, and Copper Basin, in Arizona. A species from Arizona, named by Titus in manuscript after Biedermann, differs in being green, but is probably only a race. It has a broader abdomen than normal ribifloris.

Paratype.—Cat. no. 14473 U.S.N.M.


Said to be a variety of O. albiventris; the male has the hair of thorax above bright rust-red.

sancterosæ Cockerell, 1910. Santa Rosa Mountains, California, 7,500 feet (Grinnell).

seneciophila Cockerell, 1907. Florissant, Colorado (Rohwer).
Also in New Mexico, at 11,000 feet. Third ventral abdominal segment of male with a semicircle of long pale orange hairs in the median emargination.


*sericea Cresson, 1864. Rocky Mountains, Colorado.

"Somewhat resembles O. purpurea (male), but the punctuation of the abdomen is finer, and the segments have no appearance of an apical whitish fringe" (Cresson).
Abdomen black, faintly tinged with blue and purple.

*simillima Smith, 1854. "Nova Scotia; United States (Lieut. Redman)."
Closely resembles O. cserulescens of Europe and Asia.
See Trans. Amer. Ent. Society, 1905, p. 332, for notes on supposed type, which, however, does not accord well with Smith's description.

spoliata Provancher, 1888.
Same as Andronicus cylindricus.

Female in Tab. 4 runs to O. major; it is very like simillima, but differs by the broader face and absence of black hair on vertex and clypeus. Middle tooth of mandibles is much nearer to the outer than the inner tooth, as in O. major.

*subfasciata Cresson, 1872. Texas (Belfrage).

"Ventral scopa pale ochraceous;" but white in supposed type. See Univ. of Colorado Studies, Dec. 1907, p. 37.
Birkmann has taken it in Lee County, Texas, at flowers of Phacelia.
Six females from Terrell, Texas (F. C. Bishopp), are peculiar for their olive-green color, and seem to represent a local race.

Paratype.—Cat. No. 1770, U.S.N.M.

*subornata Cockerell, 1897. Olympia, Washington, June (Kincaid).
Female 14 mm. long, pure black; hair of thoracic dorsum black on disk with a pale band before and behind.

Paratype.—Cat. No. 6879, U.S.N.M.

*subpurpurea Cockerell, 1897. Olympia, Washington, May (Kincaid).
Female about 14 mm. long, dark steel blue; hind margins of abdominal segments 2 to 5 each, with a thin and narrow, but evident, white hair-band.

Paratype.—Cat. No. 6873, U.S.N.M.


tarsata Provancher, 1888. Cap Rouge.

Belongs to Centrommia, according to Titus, who redescribes the male; Proc. Ent. Soc. Wash., vol. 7, 1906, p. 158. It is 9 mm. long, blue-black, abdomen shining blue, tarsi of middle legs deformed much as in bucephala.

texana Cresson, 1872. Texas (Belfrage).
Male dark green or blue-green, with pale pubescence; legs black.
BEES OF THE GENUS OSMIA—COCKERELL.

*titusi* Cockerell, 1905. Los Angeles, California (Davidson).
Ventral scopula white. Also at Las Cruces, New Mexico (C. H. T. Townsend).
Type.—Cat. No. 14431, U.S.N.M.

trevoris Cockerell, 1897. Seattle, Washington, May (Kincaid).
Female 8 mm.; hair of face long, all black, of thoracic dorsum orange-fulvous.

*tristella* Cockerell, 1897. Olympia, Washington (Kincaid).
Pubescence of face, vertex, thoracic dorsum, and ventral scopula wholly black.
Type.—Cat. No. 3863, U.S.N.M.


vallicolor Cockerell, 1907. Florissant, Colorado, June (Rohwer).
Visits Ribes. Superficially like *O. mertensii*; male flagellum wholly dark; legs strongly metallic.

*vicina* Cresson, 1864. Virginia.
Same as *pumila*.

viridimicans Cockerell, 1897. Olympia, Washington (Kincaid).
Female brilliant peacock-green, with the pubescence entirely black; abdomen somewhat elongate and nearly parallel sided.

Allied to *O. marginipennis*.
Also from Chimney Gulch, Colorado, May 9, 1899 (Osler).

viridis Cresson, 1864. Rocky Mountains, Colorado.
Same as *fulgida*, or possibly a distinct but very closely-related form.

Tab. 1.

Also at Georgetown, Colorado, in the Baker collection.

watsoni Cockerell, 1911. Albuquerque, New Mexico (J. R. Watson).
Male antenna with last joint flattened, more or less discoid, shining black.

*wheeleri* Cockerell, 1906. Florissant, Colorado (Rohwer). Tab. 1, 2.
The male has the hind basitarsus toothed.

Allied to *O. brevis*. Typical *wilmatte* has a good deal of black hair mixed with the white on scutellum. The two following are regarded as varieties of *wilmatte* (female), but are possibly distinct:
Variety *a*. Hair of scutellum white; mesothorax shining green; face rather narrower; hair of face and vertex coarse and dark, a little white on occiput; hind margins of abdominal segments shining olive-green. Florissant, Colorado, June 21 (S. A. Rohwer).

Variety *b*. Hair of scutellum at least nearly all white; mesothorax dull blue-black; hair of face and vertex coarse and black, a little white on occiput; hind margins of abdominal segments dark purple. Copeland Park, Boulder County, Colorado, Sept. 1907 (Hitte).

The following species are only known in the male sex: *Osmia abnormis, amala, aprilina, chlorops, collinsix, conjunctoides, cyanconiten, davidsoniella, enena, eutrachosa, exigua, fozi, integra, integrella, inurbana, iridis, marginipennis, mertensii, metitia, montana, nigritula, pasadenx, physarix, pseudamala, pulsatilla, pulsa, rustica, seneciophila, serico, tarsa, texana, universitatis, vallicolor, viridior, watsoni, and wheeleri.*

The following, with black ventral scopula, are only known in the female sex: *armaticeps, atrocyanea, brevihirta, californica, cara, casta, cerasi, cyanella, florissanticola, gabiellis, gaillardix, gilavum, grandior, grindelx, grinnelli, henderonii, hypoleuca, juxta, leonis, lignariella, longula, malina, megacephala, nasso, nigritos, nigritos subaurabalis, novomexicana, pascocenis, permocatan, pikei, pogonigera, putata, quadriceps, sancte-rose, senior, stasima, subtrervoris, trevoris, tristella, wardiana, and wilmatte.*

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