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## New Bees of the Genus *Osmia* from California

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New Bees of the Genus *Osmia* from California.

BY T. D. A. COCKERELL.

***Osmia gabrielis* sp. nov.**

♀. Length about  $13\frac{1}{2}$  mm., width of the rather long and nearly parallel-sided abdomen about 4 mm.; color a fine dark indigo blue, brilliant on the abdomen, suffused with purplish on the face, and with greenish on the anterior part of the mesothorax; *pubescence all black*, except on inner side of anterior tarsi, where it has a coppery tint; in some lights there is an appearance of pale hair here and there, owing to reflection from the surface of the coarse black bristles; head and thorax very densely punctured, the punctures on the mesothorax conspicuously finer than those on the vertex; head rather large, the cheeks broad; mandibles with the two apical teeth well developed, but the others nearly obsolete; clypeus simple, its lower margin black; antennæ black; tegulæ black; wings fuliginous, broadly more or less hyaline along the veins, especially the outer ones; first r. n. entering, second s. m. nearly twice as far from base as second from apex; legs black, the femora strongly tinged with blue; second abdominal segment purplish basally.

A very distinct and beautiful species, having the general form and appearance of *O. armaticeps* Cresson, but without the cephalic peculiarities of that insect.

*Hab.*—San Gabriel Mountains, California, alt. 3000 ft., June 16, 1909 (*F. Grinnell, Jr.*). At the same time and place, Mr. Grinnell took *O. quadriceps* Cresson.

***Osmia grinnelli* sp. nov.**

♀. Length about 10 mm., rather robust, with a short abdomen; head and thorax black, with feeble metallic tints, strongest at sides of face, where the greenish contrasts with the black of the clypeus; abdomen dark bluish, the first two segments partly brassy; hair of head and thorax inconspicuous, black mixed with shining white; a tuft of white hair behind the wings, but that on sides of metathorax and on pleura black; hair of abdomen black, even on first segment, but some white hairs forming a little tuft at sides of first segment near hind margin; legs black, with black hair, that on inner side of anterior tarsi copper-red; tegulæ dark; wings hyaline, more or less stained along the nervures, b. n. exactly meeting t. m.; second s. m. low, receiving first r. n. only a little more remote from base than second from apex; antennæ black; mandibles with only the two apical teeth well developed, these far apart; clypeus with very large punctures, smaller and extremely dense toward lower margin, next to which is a median broad shining pit or depression.

A very ordinary looking species, easily known from *O. nigrifrons*, *wilmattae*, *pikoi*, etc., by the disc of the mesothorax, which has large well separated punctures, with extremely small punctures between them. It is related to *O. leonis* Ckll., but that is larger and has the clypeus much more densely punctured.

*Hab.*—Strawberry Valley, San Jacinto Mts., California, 6000 feet, July 16 (*F. Grinnell, Jr.*).

***Osmia sanctæ-rosæ* sp. nov.**

♀. Length about  $8\frac{1}{2}$  mm., moderately robust, *fine deep indigo blue*, the abdomen brilliant and shining, though not equal to that of *O. cobaltina*; pubescence black, including inner side of front tarsi and tuft behind wings, but a little short glittering white hair on hinder part of disc of thorax, and a quite conspicuous little pale patch on each side of first abdominal segment, along the hind margin; *mandibles evenly tridentate*, the teeth all strong; clypeus normal, two little tufts of orange hair beneath lower edge; punctures of head and thorax small and very dense; antennæ black; *tegulae shining blue*; wings dilute fuscous, paler along the veins; second s. m. receiving first r. n. at least twice as far from base as second from apex; legs black, femora blue behind; beneath the femora have large concave smooth and shining areas for the reception of the tibiae; scopa black.

Related to *O. tristella* Ckll., but with no white tuft behind the wings, legs partly metallic, and venation different. The less brilliant colors separated from *O. cobaltina* Cresson.

*Hab.*—Santa Rosa Mountains, California, 7500 ft., June 26 (*F. Grinnell, Jr.*) *O. cobaltina* was taken by Mr. Grinnell on Mt. Wilson, California, June 5, 1909. The male has the same parallel-sided form as the female.

***Osmia pogonigera* sp. nov.**

♀. Superficially like *O. wilmattae*, with which I at first confused it, but readily separable as follows: abdomen narrower and bluer, less closely punctured; wings redder; hair of under side of prothorax white; face with much glistening white hair, though coarse black hairs are intermixed; pleura denuded in type, but with some short white hairs, especially behind; cheeks beneath with some white hair, but also with *long curled black bristles, forming a conspicuous beard*. The last character is absolutely distinctive. Length about 10 mm.; legs black; sides of metathorax with white hair; ventral scopa black; tegulae partly blue.

*Hab.*—Strawberry Valley, San Jacinto Mountains, California, 6000 ft., July 17 (*F. Grinnell, Jr.*). *O. wilmattae* Ckll. (A variety with hair on inner side of hind tarsi; dark) was taken by Mr. Grinnell in the San Gabriel Mountains, California, at 3000 ft., June 16, 1909.

***Osmia pasadenæ* sp. nov.**

♂. Length a little over 8 mm., *olive-green*, the mesothorax more bluish-green; head and thorax with abundant long pale hair, which is dorsally pale ochreous, lighter laterally, and white ventrally; no dark hairs on head or thorax; hair of abdomen and legs also all pale, without any black, forming distinct through thin bands on segments 3 to 5; hair on inner side of hind basitarsus pale orange; antennæ black, the *flagellum slender, not at all moniliform*; head and thorax very densely punctured; tegulæ shining black; wings dilute fuscous; second s. m. long and low, receiving first r. n. not twice as far from base as second from apex; legs (except hind coxæ) not metallic; tarsi ordinary, except that *hind basitarsus has a small tooth* as in the subgenus *Ceratostomia* (to which the insect is not otherwise closely allied); abdomen rather narrow; sixth segment somewhat reflexed, and feebly emarginate; seventh bidentate, the teeth rather short and far apart; first ventral segment obtusely triangularly produced at apex; margin of third ventral undulate.

In general appearance similar to *O. inurbana* Cresson, but smaller, with a narrower abdomen, and readily distinguishable by several structural characters above described.

*Hab.*—Pasadena, California, April 2, 1909 (*F. Grinnell, Jr.*). *O. olivacea* Ckll. also has the tooth on the hind basitarsus, and must be closely allied, but it is easily separated by the black hair on the abdomen, etc.

Also at Pasadena, April 8, 1909, Mr. Grinnell took *O. benettae* Ckll., new to California.