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The New Mexico Bees of the Genus *Cœlioxys*

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Recommended Citation

Cockerell, T. D. A., "The New Mexico Bees of the Genus *Cœlioxys*" (1900). *Ca*. Paper 290.
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THE NEW MEXICO BEES OF THE GENUS *CÆLIOXYS*.

BY T. D. A. COCKERELL, EAST LAS VEGAS, N. MEX.

Table to separate the females :

- Legs red 1.
Legs black, or only tarsi red 4.
1. Anterior edge of clypeus deeply emarginate. *Sayi*, Rob.
Anterior edge of clypeus not emarginate. 2.
2. Ventral apical plate of abdomen broad ; dorsal abdominal seg-
ments closely punctured in the middle. *deplanata*, Cress.
Ventral apical plate of abdomen narrow. 3.
3. Base of abdomen black ; dorsal abdominal segments rather
closely punctured in middle. *octodentata*, Say.
Base of abdomen red ; dorsal abdominal segments very sparsely
punctured in middle. *menthae*, Ckll.
4. Apical dorsal plate prominently angled at sides. *rufitarsis*, Smith.
Apical dorsal plate not angled at sides. 5.
5. Apical ventral plate long and narrow, notched at sides near end. 6.
Apical ventral plate broad, suboval, more or less hairy at sides. 7.
6. Lateral teeth of scutellum short and blunt ; tegulae black ; length
about 9 mm. *maesta*, Cress.
Lateral teeth of scutellum longer and sharper ; tegulae dark
reddish ; length about 12 mm. *Porterae*, Ckll.
7. Apex of ventral plate with a very small projection ; apex of
dorsal plate curved upwards. *Gilensis*, Ckll.
Apex of ventral plate with a large projection ; apex of dorsal
plate not curved upwards. 8.
Apex of ventral plate without a projection ; apex of dorsal plate
not curved upwards. *Apacheorum*, Ckll.
8. Lateral teeth of scutellum long, somewhat curved
inwards. *grindeliae*, Ckll.
Lateral teeth of scutellum shorter, slender, straight ... *ribis*, Ckll.

Cælioxys Sayi, Robertson, 1897.

Las Cruces, June 12. Resembles *octodentata*, but easily separated
by the clypeus.

Cælioxys deplanata, Cresson, 1878.

Mesilla, June 30 ; Mesilla Park, October 14.

Cælioxys octodentata, Say, 1824, (*altilis*, Cress.).

Santa Fé, July 6, at flowers of *Rudbeckia laciniata* ; July 27 ;
Albuquerque ; Las Vegas, August 11, taken by Miss S. L. Mize, on

October, 1900.

flowers of *Grindelia squarrosa*; West Fork Gila River, taken by Townsend, July 12. A male from flowers of *Aster spinosus* at Mesilla, July 25, is inseparable from males of *octodentata*.

Cælioxys menthæ, Ckll., 1897.

♂. Deming. ♀. Las Cruces, August 11 and August 23, the last at flowers of *Chrysopsis villosa*; both taken by C. H. T. Townsend. The ♀ is about 12 mm. long; the apical plates of the abdomen are of the same general type as those of *octodentata*, but longer, and the dorsal plate does not fall much short of the ventral. The bands of pubescence along the front of the mesothorax, and in the scutello-mesothoracic suture, are of a light warm ochreous colour. The abdominal bands are entire and regular.

Cælioxys rufitarsis, Smith, 1854.

♀. Rio Ruidoso, about 7,500 feet, August 3, at flowers of *Verbena Macdougalii*. This specimen, collected by Townsend, differs from Smith's description by the black nervures, and tegulæ not testaceous in the middle, but it accords herein with *rufitarsis* as understood by Cresson. The tarsi are red. What I regard as the ♂ of this occurred at Las Vegas, July 11, at flowers of *Cleome serrulata*. It is larger than *C. Gilensis*.

Cælioxys mæsta, Cresson, 1864.

Beulah, end of August.

Cælioxys (lucrosa var. ?) *Porteræ*, n. sp.

♀. Harvey's Ranch, near Las Vegas, 9,600 feet, August 22, 1899. (Wilmatte Porter.) Length about 12 mm. Pubescence white; short but rather dense on cheeks; short and mostly appressed on face; abundant on sides of thorax and on metathorax; erect, scanty and inconspicuous on vertex, mesothorax and scutellum; no band on anterior margin of mesothorax, and only a very slight one at scutello-mesothoracic suture; legs, except coxæ, scarcely pubescent, four hind tarsi clothed with fulvous hair on inner side; abdominal bands narrow, not very conspicuous, inclined to be more or less interrupted in the middle; antennæ and mandibles entirely black; tegulæ dark reddish-brown; wings brownish; punctures of vertex, mesothorax and scutellum dense, large and deep, scutellum becoming cancellate; edge of scutellum only gently convex, with no central nodule, lateral teeth moderate, straight; abdomen shining, punctures sparse on greater part of segments 2 to 4; segments 2 and 3 with a transverse groove; ventral surface with distinct,

rather close punctures; penultimate ventral segment minutely roughened with dense punctures of two sizes; apical plates much as in *lucrosa*, but the dorsal plate has the narrowing nearer the base, and its keel is distinct; the ventral plate appears to be rather more produced. Close to *lucrosa* and *mæsta*, but probably a distinct species.

Cælioxys Gilensis, Ckll., 1898.

Length: ♂, 9-10 mm.; ♀, 11 mm. The discovery of the female shows that this species is very close to *C. modesta*, Smith, but differs in the colour of the legs and the entire abdominal bands. ♀. Gallinas River at La Cueva, at flowers of *Psaralea tenuiflora*, August 6 (Ckll.); Rio Ruidoso, at flowers of *Vicia* aff. *pulchella*, about 6,700 feet, July 29 (Townsend). ♂. Rio Ruidoso, with the ♀s just cited, also at flowers of *Rhus glabra*, about 6,500 feet, July 19 (Townsend); Gila River (Townsend); Santa Fé, July 6 (Ckll.). The males resemble *rufitarsis*, but are uniformly smaller.

Cælioxys Apacheorum, n. sp.

Mescalero, July 20 (C. M. Barber). ♀. Somewhat related to *C. alternata*, Say, as interpreted by Cresson. Length 11 mm., narrow, with the shape of *C. Gilensis*; pubescence dull white; face quite densely pubescent; anterior border of mesothorax with the band of pubescence divided behind into three teeth, the lateral ones the most distinct; scutellum with hind edge strongly convex, without a central nodule; lateral teeth long and almost straight; antennæ and mandibles black; legs black, including tarsi; spurs dark ferruginous; punctures of mesothorax and scutellum large and deep; wings strongly suffused with brown; nervures black, stigma ferruginous; tegulæ ferruginous, piceous at base; abdomen shining dorsally, with strong but sparse punctures; abdominal bands regular and entire; additional bands of hair at the sides of the segments, marking the transverse depressions, which, however, entirely fail broadly in the middle of the dorsum; ventral surface strongly and rather closely punctured, the penultimate segment with small punctures interspersed between the large ones; apical dorsal segment ending in a point at an angle of perhaps 80°, the longitudinal keel wanting, or slightly indicated at the tip; apical ventral segment not greatly produced beyond the dorsal, rounded, its margins hairy.

This species is peculiar for the absence of a keel or raised line on the last dorsal segment, and the broad interruption of the transverse grooves on segments 2 and 3. Using these characters, our species of *Cælioxys* separate thus:

- A. Keel on last dorsal absent *Apacheorum*.
 B. Keel on last dorsal extending about half the length of the segment ;
 transverse grooves on 2 and 3 entire..... *octodentata*, *Sayi*.
 C. Keel on last dorsal extending about three-quarters the length of the
 segment.
 a. Transverse grooves on 2 and 3 interrupted in middle
 line..... *mæsta*.
 b. Transverse grooves on 2 and 3
 entire..... *deplanata*, *ribis*, *rufitarsis*, *Porteræ*.
 D. Keel on last dorsal extending practically the whole length of the
 segment.
 a. Transverse grooves on 2 and 3 entire..... *grindeliæ*.
 b. Transverse grooves on 2 and 3 broadly interrupted
 dorsally..... *menthæ*, *Gilensis*.

Cælioxys grindeliæ, n. sp.

Las Vegas, at flowers of *Grindelia squarrosa*, August 9, both sexes
 (W. Porter); August 11, ♂ (S. L. Mize).

Las Vegas, at flowers of *Solidago Canadensis*, August 11, ♂ (W.
 Porter); Las Vegas Hot Springs.

♀. Length about 11 mm.; pubescence pale with a brownish tinge,
 that along anterior margin of mesothorax (especially at sides) and a spot
 behind tegulæ, pale ferruginous; disc of mesothorax and scutellum
 nude; abdominal bands rather broad, entire and conspicuous, no short
 lateral transverse grooves or bands, but transverse grooves crossing the
 dorsum of segments 2 and 3; mandibles externally covered with
 appressed pubescence like the face (this is also the case in *ribis*);
 antennæ and tegulæ black; legs black, including tarsi; nervures and
 stigma black; wings with the outer margin broadly brown; mesothorax
 cancellate with extremely dense large punctures; lateral teeth of
 scutellum long; abdomen rather sparsely punctured; penultimate
 ventral segment punctured like the others, without the minute punctures
 interspersed; last dorsal segment densely punctured, with a strong
 raised line going as far as the articulating base; apical ventral segment
 longer than dorsal, broad, hairy at sides, with a broad apical pointed
 projection.

♂. Similar to the ♀, except in the usual sexual characters;
 pubescence often whiter than in ♀; end of abdomen with eight teeth,
 those on the fifth segment being well developed.

The punctuation of the penultimate ventral segment in the ♀ is diverse in the different species; thus in *rufitarsis*, *Portera* and *Apacheorum* there are numerous small punctures interspersed among the large ones; in *menthae*, *Gilensis* and *grindeliae* the punctures are large, on a shining surface, without little ones interspersed; in *deplanata*, *ribis* and *mæsta* the punctures are small and very dense posteriorly, and larger and well separated on the anterior part of the segment.

Cælixys ribis, n. sp.

Romeroville, April 29, 1899, at flowers of wild gooseberry (Wilmatte Porter). ♀. Length about 11 mm., rather broad, superficially like *C. grindeliae*, but the abdomen tapers more rapidly; the pubescence is white; the hair on the eyes is very long (it is very short in *grindeliae*); the inner orbital margins diverge much more above; the punctures of the mesothorax are sparser in the middle, leaving some shining surface between; the teeth of the scutellum are shorter; the apical projection of the last ventral segment is longer and narrower; the mesothorax is quite hairy, but has no distinct hair-patches; the penultimate ventral segment is dull, roughened with excessively close minute punctures posteriorly, sparsely punctured anteriorly.

SYNOPSIS OF FOOD-HABITS OF THE LARVÆ OF THE SESIIDÆ.

BY WILLIAM BEUTENMÜLLER, NEW YORK.

The larvæ are universally borers, but in the choice of food-plants there is the widest diversity; some bore through and devour solid wood, as do the larvæ of the Cossids; some prefer the pith of woody stems; others are found in the superficial woody layers; still others affect the roots of plants both woody and herbaceous, or are sometimes to be found in the borings made by other insects, as is the case with *Memythrus tricinctus*, *Sesia pictipes*, *S. scitula*, and others. The larvæ are yellowish or dirty white, beset with only a few short hairs. The head and cervical shield are chestnut brown. They hibernate in various stages of growth, but do not overwinter in the pupal stage, as far as the species of the northern States are concerned. The larvæ of *Melittia satyriniformis* hibernate fully grown in the cocoons. When fully developed they spin elongate oval cocoons composed of chips cemented together by a gummy secretion or silk. The cocoons are formed in the burrows or in contiguous places.