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THE SMALLER BEES OF THE GENUS *ANDRENA* FOUND IN NEW MEXICO.

BY T. D. A. COCKERELL, MESILLA, NEW MEXICO.

None of the species herein described or listed are as much as 10 mm. long.

1. Marginal cell truncate.

The species of this section are not true *Andrena*, but will form a distinct genus, apparently as near to *Prosapis* as to *Andrena*. Two of the larger species, *A. asclepiadis*, Ckll., and *A. mexicanorum*, Ckll., are congeneric. I have before me also a species from Texas.*

i. Tarsi piceous in female.

Andrena trifoliata, n. sp.—♀. Length nearly 10 mm. Closely similar in all respects to *A. maurula*, but differing in being slightly smaller, the eyes dull slate colour, not at all greenish; the clypeal mark smaller, paler, and more distinctly trilobed; the front more sparsely punctured, with minute punctures between the large ones; the last 6 or 7 joints of the flagellum becoming testaceous; the wings not rufescent, but the apical half slightly smoky; the third submarginal cell more narrowed above, the first recurrent nervure entering the second submarginal cell at the end of its second third; the legs black; the abdomen with the basal white hair-bands on segments 3 and 4 entire; the hairs on venter very few, and whitish. The metathorax and postscutellum are quite black, not at all brownish. The pale, cream-coloured face-mark is shaped something like a vine leaf.

* *Andrena maurula*, n. sp.—Female. Length nearly 10 mm. Black, no more pubescent than a *Prosapis*, strongly punctured. Head broader than long, face very broad; eyes rather small, dull olive green; clypeus arcuate below, its upper half, just enclosing the black dots, and extending as a rounded lobe downwards in the median line, pale primrose yellow. A very narrow, sometimes interrupted, pale yellow supra-clypeal transverse mark. Labrum prominent, truncate, with a small longitudinal keel. Clypeus with large but rather sparse punctures, median line impunctate. Front and vertex closely punctured. Antennæ short, dark brown, scape punctured. Thorax somewhat shining, bare except the minutely pubescent hind border of prothorax, lower part of pleura, and lateral angles of metathorax. Median and parapsidal grooves distinct. Mesothorax and scutellum strongly and closely punctured; postscutellum and metathorax slightly brownish, coarsely granular, or so closely punctured as to seem so; metathorax with a deep pit, enclosure not defined, except by an impunctate band at sides, basally very obscurely wrinkled. Tubercles light yellow, tegulae testaceous with a yellow patch. Wings stained with ferruginous, nervures and stigma dark rusty brown, marginal cell truncate. Legs dark brown, the four anterior knees light yellow. Abdomen strongly and closely punctured, segments after the first with more or less distinct lateral basal white hair-bands. Anal fimbria ochreous. Hairs on venter more or less tinged with ochreous.

Habitat.—Texas; three collected by Belfrage, and now in U. S. Nat'l Museum. One bears the number 237.

Habitat.—Albuquerque, N. M.; two, on June 30th, 1895, between the town and the University [Ckll., 3254, 3256.].

ii. Tarsi rufous in the ♀; yellowish white in the ♂.

Andrena heteromorpha, n. sp.—♀. Length about 8 mm.; similar in build and general appearance to *A. trifoliata*, but rather more slender. Black, no more pubescent than a *Prosapis*, face-mark and tubercles pale primrose yellow. Head a little broader than long; eyes black; supra-clypeal mark very narrow, as in the other species of the group, forming the base of the clypeal mark, which is trilobed below, much rounder in general outline than that of *trifoliata*, decidedly longer in proportion to its breadth than in that of *maurula*. Mandibles simple, rufous, with the tips blackish and the bases becoming yellow. Face and front shining, strongly but irregularly punctured, vertex strongly and closely punctured. Antennæ black, the flagellum from the 4th joint becoming rufous beneath. Tubercles pale yellow with a black spot near the hind margin. Mesothorax shiny, closely punctured, parapsidal grooves distinct. Scutellum closely punctured. Postscutellum and metathorax coarsely granular, base of metathorax with small, ill-defined longitudinal wrinkles. Tegulæ testaceous, with a triangular pale yellow spot; wings smoky hyaline, nervures and stigma dark brown, the former ferruginous at base of wing. First recurrent nervure entering second submarginal cell at the end of its second third. Legs black, first four knees yellow, hind knees ferruginous; tarsi ferruginous, first joint of middle tarsi quite broad. Abdomen strongly and closely punctured, without distinct hair-bands or spots, but the last two segments pruinose with white pubescence. Anal fimbria pale ochreous.

♂. Smaller and more slender, the abdomen subcylindrical. Face wholly pale primrose yellow below level of antennæ, the upper margin of the yellow straight, only notched on each side of the dog-ear marks, and produced narrowly a short distance along the orbits. Basal portion of mandibles externally all pale yellow. Antennæ entirely dark, not at all rufescent. Second submarginal cell very narrow. Anterior tibiæ pale yellow in front; all the tarsi cream colour, except the darkened terminal joint. Abdomen with the last four segments primrose. Punctures of basal segment not so close.

Habitat—Las Cruces, N. M.; close to the Agricultural College, on *Verbesina encelioides*; Sept. 12th, 1895 [Ckll., 5056, ♀; 5058, ♂.].

2. Marginal cell pointed.

- i. ♀ with wings tinged yellowish, stigma pale ferruginous, abdomen impunctate; ♂ with clypeus dark; hind tarsi clear ferruginous in both sexes.

Andrena salicinella, Ckll., Psyche Suppt., 1895, p. 4. The type was taken on willow, but was unique, and among many bees collected on willow at the same place, May 2nd and 3rd, 1896, are no *salicinella*. Both sexes were, however, taken in quantity on *Sisymbrium canescens*, on the College Farm Mesilla Valley, N. M., April 12th and 16th, 1895, the males predominating.

The ♂ differs by the face being covered with dense white pubescence, the flagellum ferruginous beneath; the wings clear, not yellowish; the stigma reddish brown, darker than in the ♀; the abdomen narrower, but distinctly banded. When I published *salicinella*, Miss J. E. Casad had already described the species as new (in MS.) from the ♂, but I was not aware that her insect was the opposite sex of mine.

Miss Casad has described (in MS.) another species from a ♂ taken on *Krynitzkia* (supposed to be *K. Jamesii*), on Little Mountain, Mesilla Valley, April 1st, 1895. This is smaller than ♂ *salicinella*, and the head seems very much broader in proportion to its length; but the latter feature is probably due, at least for the most part, to the retraction of the mouthparts and the absence of the dense white clypeal pubescence, except at the sides. My present opinion is that it is probably an individual mutation of *salicinella*, but it may be a distinct but closely allied species.

- ii. Wings not tinged yellowish, hind tarsi not clear ferruginous.

- a. Clypeus dark in the ♂, abdomen tessellate but impunctate.

Andrena monilicornis, n. sp.—♂. Length about $8\frac{1}{2}$ mm. Black, with long dull white pubescence. Head broader than long, face densely covered with long white hairs, cheeks less densely; vertex bare, flattened or even slightly concave, microscopically reticulate, and with large, rather sparse punctures. Antennæ long, wholly black, the joints somewhat swollen, moniliform, first joint of flagellum not longer than the third. Mandibles wholly black. Thorax covered with long hairs; the prothorax, disk of mesothorax, scutellum, and enclosure of metathorax, bare. Mesothorax rather dull, with large, rather sparse punctures. Scutellum shiny, with sparse punctures; a small impunctate space on each side of the middle. Enclosure of metathorax dull, minutely roughened, bounded only by an impressed line. Tegulæ shining dark brown. Wings hyaline, iridescent, nervures and stigma testaceous, costal nervure black. Second

submarginal cell very broad, receiving the first recurrent nervure at its middle. Legs black, apical joints of tarsi becoming dull ferruginous. Femora with very long white hairs. Abdomen moderately broad, having a silky lustre, strongly minutely tessellate, impunctate. All the segments sparsely hairy, their hind margins with thin white hair-bands, failing in the middle. Venter with continuous white hair-bands. Apex with white hairs.

Habitat.—College Farm, Mesilla Valley, N. M.; on plum; March 25th, 1896.

b. Clypeus pale primrose yellow in the ♂, abdomen ^{state} punctate.

- (1) Larger, distance between the clypeal dots in ♂ not greater than distance from one to top of clypeus.

Andrena capricornis, Casad and Ckll, n. sp.—♀. Length, 8 mm.; stoutly built; black, with dull white pubescence; clypeus and a large mark on each side of it very pale primrose yellow. Head broader than long, face and front with rather long but thin pubescence; clypeus large, unusually high, almost bare, with scattered punctures; there are either two minute gray dots or there may be two gray bands, extending upward and laterad from the position of the dots, meeting each other at a right angle. The lateral face-marks are irregularly diamond-shaped, the upper outer margin notched. Vertex roughened, a polished, sparsely punctured area at the summit of each eye. Antennæ fairly long, black, the tip of the flagellum beneath becoming dark coffee-colour. First joint of flagellum about as long as second and third together, second not as long as broad. Mandibles wholly black; lower margin of clypeus black, arcuate; basal process of labrum emarginate. Thorax quite densely pubescent; mesothorax dull, rather closely punctured; scutellum shiny, irregularly punctured; enclosure of metathorax granular, bounded only by an impressed line. Tegulæ dark chestnut brown, wings hyaline, nervures and stigma dark reddish brown, costal nervure black; second submarginal cell narrowed above, receiving the first recurrent nervure just before its middle. Legs black, pubescent, apical joints of tarsi becoming more or less rufescent. Abdomen rather broad and short, punctured, only moderately shiny, clothed all over with thin white pubescence, which forms ill-defined bands, interrupted in the middle, on the hind margins of the segments. When the insect is viewed from the side the bands on segments 2 to 4 look very white and distinct, as, indeed, do those on 2 and 3, viewed from above.

Habitat. — One on plum, College Farm, Mesilla Valley, N. M., April 9th, 1895 [Casad, 161]; another on plum, same locality, March 25th, 1896 [Ckll.].

- (2) Smaller, distance between the clypeal dots in ♂ much greater than distance from one to top of clypeus.

Andrena primulifrons, Casad, n. sp. — ♂. "Black, pubescence ashy, head broader than thorax; clypeus and lateral spots somewhat triangular in shape, their longest side toward clypeus and extending a little above it on sides of face, pale lemon yellow; clypeus broader than long, with black dots about half way between upper and lower edge and separated from each other by about the length of the clypeus; rest of head black, face clothed with ashy hairs and fringed at its base, vertex bare, occiput and cheeks clothed with long hair; antennæ testaceous beneath; thorax clothed same as head, hairs longest on pleura, very sparse on metathorax; wings hyaline, iridescent, nervures piceous; legs with hairs, sparsest and longest on femora; abdomen sparsely clothed with short hairs; segments banded apically. Length about 6 mm. Its general appearance is much like that of *Halictus fasciatus*." [Jessie E. Casad.]

♀. "Black, having an oily appearance, pubescence grayish, mixed with ochraceous; head very little broader than thorax, face as long as broad, clothed sparsely with short pale ochraceous hairs, those on clypeus very scattered; antennæ pale brown from fourth joint to tip beneath; thorax clothed similarly to head, metathorax bare, punctured and fringed marginally; wings hyaline, third submarginal cell long, narrowed more than one-half toward marginal, stigma fulvous, tegulæ testaceous; legs dark brownish, clothed with pale hairs, heaviest on tibiæ and tarsi; last joints of tarsi reddish; abdomen punctured, clothed with fine, short, scattered hairs; apical marginal bands interrupted on segments one and two; bands entire on following segments." [Jessie E. Casad.]

Habitat. — Mesilla Valley, N. M.; Little Mountain, April 1st, 1895, on *Krynitzkia* (supposed to be *K. Jamesii*), a ♀ [Casad, 154]; Campus of Agricultural College, on flowers of *Biscutella Wislizenii*, April 9th, 1896, a ♀ [Ckll.]; on plum, College Farm, April 10th, 1895, a ♂ [Casad, 187]; on plum, College Farm, March 25th, 1896, a ♂ [Ckll.]; on *Sisymbrium canescens*, College Farm, April 16th, 1895 [Ckll., 2790, 2742].

Miss Casad had described the sexes as distinct species, but they are doubtless one. The stigma varies in colour, being sometimes reddish

fulvous, sometimes brown; but its margin is always conspicuously darkened below. The enclosure of the metathorax is strongly granular, contrasting with a comparatively shining area on each side of it. The nervures in the ♀ are distinctly darker than in *salicinella*.

P. S.—June 2nd, 1896. After renewed study, and an examination of the tongue and palpi, I am satisfied that the supposed species of *Andrena* described by me with the marginal cell truncate represents a valid new genus, which I will call *Protandrena*. The species are as follows: *P. asclepiadis*, *P. mexicanorum*, *P. trifoliata*, *P. maurula*, *P. heteromorpha*.

LEPYRUS ALTERNANS AND CAPUCINUS, LIXUS FOSSUS,
CREMASTOCHILUS HARRISII AND POLYPLEURUS
NITIDUS.

BY JOHN HAMILTON, M. D., ALLEGHENY, PA.

Lepyrus alternans, Casey.—In a former paper (p. 125) the form described under this name was united with *Capucinus*, Schall, owing to an error of observation in regard to the wings. The example then examined was somewhat broken and it is now evident the wings had been removed. A recent dissection of a perfect specimen exhibits a well-developed pair of wings. This form is closely related to *palustris* (perhaps not more than a geographical variety), differing in the form of the thorax, which, instead of being conical, is much wider at middle than at base (subangulate); the rostrum is perhaps stouter and the mesosternum less elevated—both characters somewhat opinionative; there is no femoral tooth in any of the examples seen; the elytral intervals are less regular, either not obviously unequal or the first and third wider, the others narrower and some of them longitudinally sulcate along the middle; the striae punctuation is usually finer and closer, and the striae seem to be acutely impressed when the elytra are perfectly denuded. In vestiture ornamentation and other characters the two forms seem identical.

All the examples seen have been from Maine and New Hampshire (Mount Washington and vicinity).

L. capucinus, Schall.—The removal of *alternans* from synonymy with this species necessitates a little change in the former description, where some of the characters peculiar to the latter form were introduced:—

Apterous, black, robust, vestiture nearly uniform. Rostrum stout, longer than the thorax, sulcate on each side of the carina which attains the frontal fovea, rather closely and not coarsely punctured, and with the head thinly clothed with squamoid hairs; scape of antennae short, not attaining the eye; first joint of funicle stout, second thinner and