2-1-1907

The Megachilidae of Southern Maine

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THE MEGACHILIDAE OF SOUTHERN MAINE.

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THE value of the older collections of bees, which usually consist of specimens bearing only locality labels, is greatly impaired by the absence of flower-records; and they require to be supplemented by later and more carefully collected material. It is hardly worth while to-day to make a large collection of bees without placing on record for each specimen the name of the plant species upon which it was captured, the date of visit, and the locality. It is also desirable to observe whether the insect is sucking honey or gathering pollen. As bees are chiefly dependent upon nectar for food and upon pollen for brood-rearing they are of necessity constant and diligent visitors of flowers. Monotropic and oligotropic bees confine their visits to one or a few species of plants, while in the case of polytropic bees the species may fly only a part of the season, as with some species of *Andrena*. Even when the species fly during the entire summer there may be a portion of the time when only one sex is on the wing, as with the females of *Bombus* and *Halictus* in spring. It is evident that accurate flower-records will greatly facilitate both the labor of collection and determination.

Of the nineteen species of Megachilidae enumerated in this paper none so far as is known to the authors are oligotropic. The species of *Osmia* have been taken for the most part in May or June, while the species of *Megachile* and *Coelioxys* have all been collected later than July 9th. None of the species can be said to be common; and most, as an examination of the flower-records given below will show, are rare. *Osmia atriventris* and *O. melanotricha* are most frequently found on the flowers of Rubus strigosus, while *Megachile latimanus* is usually a visitor of the Compositae. These three species are the most common local forms belonging to this family.

OSMIA.

OSMIA ATRIVENTRIS Cr.

1864 *Osmia atriventris* Cr. ♀, Proc. Ent. Soc. Phil. 3: 29.

1903 *Osmia atriventris* Robt. ♀ ♂, Trans. Am. Ent. Soc. 29: 170.

The female has been collected on Rubus strigosus and Epilobium angustifolium and several other plants from June 16th to July 23rd. Three males were taken on Salix, May 6th and 7th, 1905. This species probably occurs throughout New England and the Eastern States; the type locality is Connecticut.

OSMIA MELANOTRICHA n. sp.

♀.— Length 9 to nearly 10 mm.; similar to *O. atriventris* but is usually larger, the Maine specimens of the latter species varying from 7 to 9 mm. When the face of *O. melanotricha* is viewed from above the middle third longitudinally appears to be clothed with much coarse black hair and the other thirds are white haired. This is rather suggestive of *O. albolateralis* Ckll., which, however, has some black hairs on thorax above, black hair on second abdominal segment, etc. Dorsal abdominal segments 3 to 5 are clothed with short black hair, these segments having also a very indistinct submarginal band of short pale hair. The abdominal hair is best seen in lateral view, and is an easily recognizable character. The ventral scopa is dense and black.

Seven females; six on Rubus strigosus, June 16–18; one on Epilobium angustifolium, July 16, 1905.

O. melanotricha occurs also in Colorado; at Ward, Boulder County, altitude about 9000 feet, on flowers of Phacelia (W. P. and T. D. A. Cockerell). The Colorado specimen differs a little from the Maine ones; the flagellum is decidedly reddish beneath, and the front and mesothorax are largely black.

OSMIA GLOBOSA Cr.

1864 *Osmia globosa* Cr. ♀, Proc. Ent. Soc. Phil. 3: 36.

The female was taken on the flowers of Gaylussacia resinosa but bears no date (from my notes, however, I learn that I have collected on the flowers of the huckleberry on June 15th. J. H. L.). The specimen was compared with Cresson's type by Mr. H. L. Viereck; it is a little larger and has the pubescence paler.

The type locality is Great Slave Lake. Cresson does not mention any collector but it was probably obtained by Robert Kennicott (*cf.* Pop. Sci. Monthly, Jan. 1906, p. 70). The male which has not been described was collected on Salix, May 7th.

♂.— Length 7 mm. Black, resembles the female, face densely clothed with long white pubescence; antennae wholly dark, extending back as far as the tegulae; pubescence on thorax as in the female long and pale ochraceous. Abdomen subglobose, rather coarsely but shallowly punctured, except on apical margins; basal segment clothed with long white hair; sixth segment concave in lateral view, with thin but long white pubescence, its edge with a feeble hardly noticeable emargination; seventh deeply notched, the points obtuse; stipites large, yellowish, touching at tips, clothed above with very long dull white hair; spurs black.

Closely related to *O. frigida* Sm., separable in the female by the large amount of black hair on face; in the male by the total absence of a fringe of reddish hair on apical margin of fifth abdominal segment, and the black ventral surface of abdo-

men. The globose abdomen separates it at a glance from *O. objecta* Cr. *O. globosa* is easily known from all the Maine species by the entirely black color of the teguments.

OSMIA (LEUCOSMIA) ALBIVENTRIS Cr.

1864 *Osmia albiventris* Cr. ♀ ♂, Proc. Ent. Soc. Phil. 3:31.

One female specimen taken on Rubus strigosus, June 16, 1905. The male was found on the flowers of the blackberry, June 15.

OSMIA INSPERGENS n. sp.

♀.— Length 8 mm., rather stout with globose abdomen. Bluish-green, the head wider than the distance between the wings, densely and finely punctured, clothed with white pubescence; lower part of the clypeus produced, black, covered with very dark brown pubescence; from beneath the edge project two tufts of short stiff red hairs; mandibles deeply punctured, black, tridentate; antennae nearly black. Mesothorax densely and finely punctured, more sparsely in the middle; clothed with long hoary pubescence except upon the dorsum, which is nearly bare; there are no black hairs on vertex or thorax. Wings subhyaline or tinged with dusky, a dark shade in the marginal cell, nervures dark, basal nervure before transverse medial, tegulae rufo-piceous. Legs normal, black, with light hair, fuscous on inner side of tarsi, and at apex of middle tibiae beneath. Abdomen subglobose, greenish-blue, with a bright steely lustre, minutely punctured, 1st segment clothed with white pubescence at base, apical segment with fine white tomentum; ventral scopa dense, silvery-white, black at apex.

One specimen, taken on Vaccinium macrocarpon probably in July. Easily known from *O. albiventris* by the larger size, and dark hair at apex of clypeus, and at apex of abdomen beneath. In the venation it resembles *O. canadensis*, but the clypeus is not at all as in that species.

OSMIA (CENTROSMIA) BUCEPHALA Cr.

1864 *Osmia bucephala* Cr. ♀, Proc. Ent. Soc. Phil. 3:17.

1864 *Osmia latitarsus* Cr. ♂, Proc. Ent. Soc. Phil. 3:20.

1895 *Osmia bucephala* Robt. Trans. Am. Ent. Soc. 22:125.

One male taken May 11, 1905, on the inflorescence of Acer saccharinum. A remarkable species, easily known in the male by the very large hind spurs and peculiar middle tarsi.

HERIADES.

HERIADES CARINATUS Cr.

1864 *Heriades carinatus* Cr. ♀ ♂, Proc. Ent. Soc. Phil. 2:383.

Three males; two taken July 28th, the third on the flowers of Kalmia angustifolia which blooms here in July.

Alcidamea.

Alcidamea simplex Cr.

1864 *Heriades simplex* Cr. ♀, Proc. Ent. Soc. Phil. 2: 384.

1864 *Alcidamea producta* Cr. ♂, Proc. Ent. Soc. Phil. 2: 386.

1903 *Alcidamea producta* Robt. ♀ ♂, Trans. Am. Ent. Soc. 29: 171.

One female on Epilobium angustifolium, July 30th; two females on cultivated blackberry, June 15th; two males collected on blackberry, June 24th and 25th.

Megachile.

Megachile melanophaea Sm.

1853 *Megachile melanophaea* Sm. ♀ ♂, Cat. Hym. Brit. Mus. 1: 191.

The female visits Epilobium angustifolium from July 19th to 30th, and has also been collected on Vicia Cracca and Apocymum androsaemifolium. The male has been taken on Rubus strigosus, June 16th, and Vicia Cracca about July 20th. It is related to the western *M. wootoni* Ckll., and to the European *M. circumcincta* Kirby. Friese puts *circumcincta* in *Megachile*, s. str.; Titus refers *melanophaea* to *Xanthosarus*, where it seems rather out of place.

Megachile (Xanthosarus) latimanus Say.

1823 *Megachile latimanus* Say, ♂, West. Quart. Rep. Cin. 2: 81.

1853 *Megachile acuta* Sm. ♀, Cat. Hym. Brit. Mus. 1: 192.

The male has not been taken in this locality. The female which is rather common, has been found from July 30th on Carduus odoratus to Sept. 7th on Solidago; also on Inula Nelenium and Aralia hispida.

Megachile (Xanthosarus) vidua Sm.

1853 *Megachile vidua* Sm. ♀, Cat. Hym. Brit. Mus. 1: 192.

1853 *Megachile frigida* Sm. ♂, Cat. Hym. Brit. Mus. 1: 193.

The female was collected on Carduus odoratus, July 30th; also on Epilobium angustifolium.

Megachile albula n. sp.

♂.— Length 10–12 mm. Black, abdomen parallel-sided, head and thorax densely and finely punctured; face, clypeus, cheeks below, mesothorax, pleurae and sides of metathorax clothed with long white pubescence, some fuscous on vertex, and on each side of middle of mesothorax, separating the lateral white hair from the central bare space. Head broad, clypeus deeply emarginate, mandibles black, 4-dentate varying to 3-dentate, (the third tooth absent), with a large basal tooth

below, middle of lower margin presenting a slight angle; cheeks beneath with a strong but obtuse tooth, hairy without, concave and shining within; antennae black, flagellum slender, obscure reddish beneath, last joint not discoid. Mesothorax densely punctured in front, more sparsely in the middle. Legs black, coxae with strong but only moderately large spines; anterior femora keeled beneath, posteriorly with much white hair, anteriorly except the broad upper margin, yellowish-ferruginous; their tibiae ferruginous beneath, black above; their tarsi flattened and somewhat dilated; the first joint narrowly concave beneath, the concavity light ferruginous and fringed on either margin with short black hair; second joint reddish, cordate; a dense fringe of long white hair behind, from the apical two-fifths of the tibia to the third joint of the tarsus; middle and hind legs ordinary; claws bidentate, without a basal tooth. Wings dusky hyaline, margins not clouded, tegulae brownish-black. Abdomen broad with numerous small shallow punctures; 1st segment clothed with long hoary pubescence; 2nd, 3rd and 4th segments with obscure white fasciae on the extreme sides in apical grooves, but in general effect the abdomen is black and bandless; 6th segment with carina strongly notched, apical margin with two median and two lateral teeth; and in addition a median prominence, all of these being short and relatively inconspicuous; ventral segments four.

Two males on Epilobium angustifolium, July 30th. A very distinct species, superficially like *M. melanophaea.*

MEGACHILE DECIPIENS n. sp.

♂.— Length a little over 12 mm.; width of abdomen about 4 mm.; black, moderately shining; hair of head and thorax long and white, dark fuscous on vertex, middle of mesothorax, and partly on scutellum; mandibles coarsely striato-punctate, the apical tooth large, the second small, the third rudimentary; antennae black, flagellum faintly reddish beneath, last joint not flattened; vertex broad, shining, with scattered punctures, Mesothorax with close and distinct but rather shallow punctures; tegulae black, wings dusky, quite dark; legs black, with white hair, yellowish on inner side of tarsi; anterior coxae with a strong dentiform angle but no spine; anterior tarsi slender and quite simple with a fringe of white hair behind; anterior femora entirely black; claws strongly bifid with no basal tooth. Abdomen rather short, the first two segments with white hair, the others with black hair; hind margins of second and following segments with dense pure white hair bands, on 2nd only at sides, on 3rd and 4th very weak in the middle; 6th segment vertical, with a prominent transverse keel, which is not at all dentate or crenulate, but is very broadly truncate, the truncation concave; beneath there is a median transverse gently rounded elevation, and a very small tooth on each side easily overlooked; ventral segments four.

Two males collected on Rhus typhina, July 10th; and Epilobium angustifolium, July 30th. This is a *Cyphopyga* closely related to *M. montivaga,* but differing in the structure of the apex of the abdomen, and to a considerable extent in the color of the pubescence. *M. decipiens* has been confused with *M. (Anthemois) infragilis* Cr., but that differs in the color (yellow) of the pubescence, the wings dusky only apically, the smaller size, the dentiform angles on the front coxae, and the structure of the apex of the abdomen.

MEGACHILE RELATIVA Cr.

1878 *Megachile relativa* Cr. ♀, Trans. Am. Ent. Soc. 7: 126.

Female taken on Epilobium angustifolium, July 23rd; Solidago, Aug. 21; Inula Helenium, Aug. 7th; male on Epilobium angustifolium, July 23rd; Solidago, August 21st.

MEGACHILE BREVIS Say.

1837 *Megachile brevis* Say, ♀ ♂, Bost. Jour. Nat. Hist. 1: 407.

Two females; Spiraea salicifolia, August 4th; Solidago, August 28th.

COELIOXYS.

COELIOXYS RUFITARSIS Sm.

1854 *Coelioxys rufitarsus* Sm. ♂, Cat. Hym. Brit. Mus. 2: 271.

1854 *Coelioxys dubitata* Sm. ♀, Cat. Hym. Brit. Mus. 2: 272.

1864 *Coelioxys rufitarsus* Cr. ♂, Proc. Ent. Soc. Phil. 2: 400.

1864 *Coelioxys dubitata* Cr. ♀, Proc. Ent. Soc. Phil. 2: 400.

1897 *Coelioxys rufitarsis* Robt., Trans. Ac. Sci. St. Louis, 7: 345.

Female taken on Carduus arvensis, Aug. 7th; Solidago, Aug. 19: male on Solidago, July 27th.

COELIOXYS SAYI Robt.

1824 *Coelioxys octodentata* Say, ♂, var. a, Long's 2nd Exp. 2: 353.

1837 *Coelioxys octodentata* Say, ♀, Bost. Jour. Nat. Hist. 1: 400.

1864 *Coelioxys octodentata* Cr. ♀ ♂, Proc. Ent. Soc. Phil. 2: 401.

1897 *Coelioxys sayi* Robt. ♀ ♂, Trans. Ac. Sci. St. Louis, 7: 346.

Male collected on Aralia hispida, July 19th; and Epilobium angustifolium, July 30th.

COELIOXYS OCTODENTATA Say.

1824 *Coelioxys octodentata* Say, ♂, (ex. var. a), Long's 2nd Exp. 2: 358.

1864 *Coelioxys brevis* Cr. (not Ev.), ♀ ♂, Proc. Ent. Soc. Phil. 2: 402.

1897 *Coelioxys octodentata* Robt., Trans. Ac. Sci. St. Louis, 7: 345.

One male taken Aug. 11th, on Solidago. These species as commonly recognized have a wide range, and it is not impossible that there are more distinct forms than the nomenclature indicates.

STELIS.

STELIS (MICROSTELIS) FOEDERALIS Sm.

1854 *Stelis foederalis* Sm. ♀ ♂, Cat. Hym. Brit. Mus. 2: 275.

1864 *Stelis foederalis* Cr. ♀ ♂, Proc. Ent. Soc. Phil. 2: 410.

Two females taken on Epilobium angustifolium, July 23rd. A rare species in this locality, also found at Montreal, Canada.