ANTHIDIINE BEES FROM OREGON WITH A DESCRIPTION OF A NEW SPECIES

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Through the kindness of Professor H. A. Scullen of Oregon State Agricultural College I have been privileged to examine a collection of Anthidiine bees which he made in Oregon during the summer of 1929. All of the bees reported upon in this paper with one exception (a specimen of *Anthidium sayi* from Idaho) were represented in Professor Scullen's catch, which is of special value because he has not confined the data on his labels to localities and dates but has included the elevations and in many instances also floral records. Several of the species noted have not hitherto been reported from Oregon.

Anthidium nebrascense Swenk

Anthidium nebrascense has previously been reported from California (Swenk, 1915; Cockerell, 1924) and from British Columbia (Schwarz, Sept., 1928). It is not surprising, therefore, to find it likewise in Oregon. Three specimens, 2 ♂♂, 1 ♀, were taken at Wallowa Lake, July 27, 1929, at elevations ranging from 4500 to 5500 feet, while visiting *Holodiscus discolor*. The males conform in general with the specifications for that sex of *nebrascense*, but the female departs rather decisively from the description of the allotype from Wyoming. Its assignment to *nebrascense* may be justified by the distinctive maculation of the legs and by the absence of inner maculations on tergite 1, which has merely a spot at each lateral extremity with a broad intervening immaculate area. At variance with Swenk's description, the clypeus is wholly black although the oval spots on the sides of the face are present. The mandibles, maculated in the allotype, are black in the Oregon female, which furthermore differentiates itself through its immaculate scutellum and femora.[1] The structural characters and the color of the hairs accord with those of the description, and the present specimen, notwithstand-

[1] Immaculate femora were noted in a female from British Columbia reported upon in 1928.

ing its restricted facial maculations, is doubtless to be viewed not as a valid variety but as an aberration. One of the males has a strong maculation on each tubercle, the other male lacks such a mark. The female is intermediate in this respect between the males, her tubercles being maculated, but only faintly. The maculations on her tergite 6 resemble a butterfly with wings spread. A similar figure occurs on tergite 6 of the female of *Anthidium collectum* (= *A. angelarum*), the subdivision into an upper and lower wing being effected by a hair-fine line of black, which probably has affinity with the threadlike dark lines that occur on the otherwise largely yellow tergite 6 of the female of *Anthidium mormonum* (= *blanditum*).

Anthidium brachyurum Cockerell and *Anthidium jocosum* Cresson

In a fairly large series of *Anthidium brachyurum* collected at various localities in Oregon (Grant County, Aug. 12, 1929, at 3000 feet, on *Melilotus alba;* Corvallis, July 4, 1929, in part on *Trifolium repens;* La Grande, July 20, 1929, in part on *Medicago sativa;* 5 miles east of Minam, July 21, 1929, at 2700 feet elevation; Baker, July 30, 1929, at 3400 feet; Lostine, July 28, 1929, at 3360 feet) about half of the males have either the tubercles or the posterior margin of the scutellum, or both, faintly maculated. These intergrading specimens, therefore, share some of the maculations that characterize *jocosum* and tend to render still more tenuous the distinctions that have been proposed to separate *brachyurum* from *jocosum*.

Anthidium sculleni, new species

♂. Head with the proportions and sculpturing of *tenuifloræ*. The apical margin of the clypeus with a wide curvilinear emargination at its middle, and three sub-toothlike serrations on each side. The clypeus cream-colored except for a narrow rimming of black on the apical margin (two linear spots at the base in the paratype). Cream-colored cuneiform lateral face marks fill the space between the clypeus and the inner margin of the eye and end barely above the base of the clypeus, just below the antennal sockets. The mandibles are cream-colored except for the black teeth, the basal prominences, and a narrow lateral margin of black. A small, round, cream-colored spot above each eye. The eyes steel gray with black mottling. The head densely and rather rugosely punctated, the punctures being smaller and more crowded in the region between the ocelli and the base of the antennæ.

The mesonotum, mesopleura, and scutellum with sculpturing similar to that of the head. The base of the propodeum with a band of indistinct punctures but the apical portion of the V-shaped enclosure devoid of punctures and polished. The tubercles with a cream-colored spot (faint in the paratype); the tegulæ broadly cream-colored in front, more narrowly behind; the hind margin of the scutellum with a narrow cream-colored band, broadly interrupted in the middle. (In the paratype maculations on the scutellum are lacking, and in both type and paratype the mesonotum is immaculate.)

The legs black, the base of all the tibiæ with an abbreviated pale stripe, a supplementary stripe toward the apex of the front pair, and a subquadrangular spot at the apex of the middle pair (absent in the paratype). All of the basitarsi externally cream-colored.

The sculpturing of the abdomen much finer than that of the head and thorax, with resulting shininess. The apical rim of tergites 1–6 with rather dense, uniform, and minute puncturing compared to the sparser, more irregular, on the whole coarser and less distinct punctation on the basal portion of each tergite, but the basal portion is the more shiny. The pygidium shiny notwithstanding its rather coarse sculpturing. [The character of the pygidium and of the apical sternite is indicated in the discussion that follows this description.] The maculations on the tergites, like those of the other parts, cream-colored. Tergite 1 four-spotted, the outer spots subtriangular and relatively large compared with the small transversely linear inner spots. The bands on tergites 2–5 (in the paratype only on tergites 2–4) with a narrow median interruption, the interruption being progressively less from tergite to tergite. The lateral halves of the bands widely and subquadrangularly emarginate above, the inner element of each lateral half rather clavate, the outer subquadrangular. The outer elements of the bands on tergites 1–4 more developed than the inner; on tergite 5 this condition is reversed; on tergite 6 only the inner elements survive in the form of two comma-shaped maculations. The lateral halves of the band on tergite 2 with a tendency to subdivide; in the type this subdivision is complete, in the paratype incomplete. In both specimens the lateral spines on tergite 6 are straight.

The hair of head, thorax, legs, and dorsum of abdomen prevailingly whitish to silvery gray, except for the usual golden to copper hairs on the under side of the tarsi and a faintly ochraceous tinge on the vertex. The hair on the venter partly gray but intermixed are hairs of darker hue, giving a brownish effect.

This insect is in size and general aspect rather deceptively like *tenuiflorœ*. The structure of its pygidium and of the process on the apical sternite separates it, however, from *tenuiflorœ*, even when allowance is made for the rather variable character of the pygidium in *tenuiflorœ*. In the type speciment the lateral lobes of the pygidium are relatively wide basally but much narrowed apically, being a little suggestive of those of *collectum* although

shorter and not straight-sided, a little more angular. Indeed the curvilinear inner apical contour (if the central spine be eliminated from consideration) gives the pygidium, as in *aridum,* somewhat the appearance of a half-moon though the crescentic shape is not so perfect as in the pygidium of *palliventre* (= *californicum*). The process on the apical sternite is again much like that of *aridum.* In *tenuiflorœ* the lateral members of this structure, while in general of triangular shape, are elongated finger-like or spine-like at the apex and end on a level with the middle member. On the other hand, in the species here described the lateral members are distinctly triangular in form, without apical elongation, and end on a level distinctly below that of the middle member. This is true of the process on the last sternite of both type and paratype. The pygidium of the paratype, on the other hand, differs a little from that of the type, the lateral elements being somewhat broader and rather more angulated in the paratype than in the type.

The type was taken at Wallowa Lake, on the Aneroid Lake Trail, at an elevation of from 5000 to 6000 feet, on July 22, 1929. The paratype is from the Blue Mountains, in the northeastern part of the state, having been caught on Anthony-Dutchflat Trail, 7100–7850 feet, on Aug. 8, 1929.

From the same locality as the type and taken on the same day, although at a higher elevation (6400 feet), is a female which is not separable from *tenuiflorœ.* Nevertheless, I am inclined to believe that it is the female of *sculleni* and that in this sex *tenuiflorœ* and *sculleni* may be indistinguishable. Cockerell in describing *tenuiflorœ* noted that the abdominal bands of the female were slightly interrupted medianly and he again alluded to this character (Sept. 5, 1925) in discussing the Pacific Coast representatives of *tenuiflorœ.* This is the condition also in the putative female of *sculleni,* although in Rocky Mountains specimens of what I have included in *tenuiflorœ* the two halves of the band not infrequently coalesce.

In his paper on the Anthidiine Bees in the Collection of the California Academy of Sciences (Sept. 5, 1925) Cockerell provides a key (p. 359) for males having the "abdominal bands whitish or very pale." Of these the description of *hamatum*

applies more nearly than do the others to the insect under discussion. There are, however, the following differences: the male specimens of *sculleni* are about 10 mm. in length not "about or nearly 13" as indicated for *hamatum;* there is in the specimens of *sculleni* no "spot at end of scape." While the relative narrowness of the lateral lobes of the pygidium may be much the same in *hamatum* and *sculleni,* the lobes are not obtuse in *sculleni* but instead slightly angular. The presence of brownish hairs on the venter may also be cited as a distinguishing character of *sculleni.* Great reliance cannot, however, be placed on the color of the hairs, for in other species of the Anthidiinæ it has been found that considerable variability in this respect may be found in a single series.

Dianthidium sayi Cockerell

Dianthidium sayi is a species of wide distribution, having been recorded from Missouri, Nebraska, Kansas, Colorado, Utah, Montana, and Alberta. It has not hitherto been reported—so far as I am aware—from any of the Pacific Coast states. Its occurrence in Oregon is, therefore, of interest. There is a large series from Ontario, Oregon, near the border of Idaho, that was collected August 1, 1929, at an elevation of 2155 feet. Some of the specimens in this series were taken on *Grindelia nana.* In addition to Oregon yet another state, Idaho, can be added to the known range of *sayi,* for in the material kindly supplied by Professor Scullen is a specimen collected by J. F. Bock at Parma, Idaho, on July 16, 1929.

Dianthidium pudicum Cresson

As *Dianthidium pudicum* has been recorded from the neighboring states of Washington and California, and from near-by Montana, it occasions no surprise to find it represented also in Oregon. Several females were collected at Hereford, Aug. 10, 1929, at an elevation of 3660 feet, and a single male at Wallowa Lake, July 27, 1929, at an elevation of from 4500 to 5500 feet. One of the females is exceptional in having abdominal tergites 2–4 four-spotted. The male, like some specimens of *pudicum* var. *provancheri* from Riverside, California, previously reported upon (Schwarz, Dec. 1928), has the hind tibiæ completely maculated externally.

Dianthidium subparvum Swenk

This species, described from Washington (type) and British Columbia (allotype), occurs also in Oregon, being represented in the collection here reported upon by a single female taken at Wallowa Lake on the Aneroid Lake Trail, 5000 to 6000 feet, July 24, 1929. Like some of the specimens reported upon (Sept., 1928) from Canada it is not stabilized in its maculations, offering in this respect an intergrading condition between *subparvum* as described by Swenk and true *parvum*. The present specimen aligns itself with *subparvum* in respect to its immaculate scutellum; with *parvum*, however, in respect to the maculation on each side of the anterior margin of the mesonotum.

Anthidiellum robertsoni Cockerell

Cockerell, 1925, in reporting *robertsoni* from Colestin, Jackson County, near the southern boundary of the state, expressed surprise "to find it extending its range to Oregon." The range is, however, still further north into Oregon, for in the material here reported upon are several specimens from Baker County in the northeastern part of the state. The localities in Baker County are as follows:—

Hereford, 3660 feet elevation, Aug. 10, 1929; Baker, 3450 feet elevation, Aug. 10, 1929.

A. robertsoni is also represented in Crook County in the center of the state, having been taken ten miles west of Prinevill, Oregon, 3100 feet elevation, Aug. 13, 1929.

In several of the males the inverted T-shaped figure on tergite 6 is more or less distorted or reduced to fragments by an expansion of the surrounding yellow area.