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New and interesting parasitic Bees (Hymenoptera, Apoidea)

by

G. A. MAVROMOUSTAKIS

(wiht 4 figures)

Most of the new bees described below were collected and kindly given to me by Mr. P. M. F. VERHOEFF, Den Dolder (Holland), and are all in my collection.

Family APIDAE

Tribe N o m a d i n i

Genus *Nomada*

Nomada lebanensis sp. nov.

F e m a l e. — Length 6.5 mm.

Reddish brown; clypeus shiny, with dense somewhat broad, shallow, irregular and mostly rugose punctures, apical margin with a broad creamy-yellow area; labrum creamy-yellow, plain, with a rough surface, subapically with three small tubercles, a median very small light brown tubercle and a similar but smaller tubercle laterally on each side; mandibles creamy-yellow, dark reddish brown at the apex; lower paraocular area with a linear stripe inside to the level of insertion of antennae, lower inner side of cheeks creamy-yellow; ocellar area and the frons except the middle as well as a little of the outer sides black; scape mostly darkened

behind; second antennal joint very short, much shorter than third; third antennal joint as long as fourth, longer than broad and also longer than fifth or sixth; fifth antennal joint as long as broad and as long as sixth or seventh (all more easily visible from the ventral aspect); pilosity on head very scanty, short, shiny white, more conspicuous near insertion of antennae and black outer side of cheeks. Mesoscutum of a dullish colour, disc with a very broad longitudinal black area in the middle from base to apex, the reddish brown disc with denser and somewhat finer punctures just below the middle; tegulae yellow-brown, paler in front; tubercles creamy-yellow at the apex; scutellum convex, very slightly concave longitudinally in middle; a small discal black area posteriorly on the fore coxae and also on the sides of the median ones; middle coxae with a small creamy-yellow mark near each inner side; hind coxae mostly black on either side; middle and hind femora with a small creamy-yellow patch at the apex; hind femora, tibia somewhat darkened on inner side; tibiae somewhat creamy-yellow on the upper side of base and apex; upper side of anterior basitarsi creamy yellow and that of middle basitarsi creamy-yellow but not extending to apex; hind basitarsi and first small tarsal joint darkened, with a small basal creamy-yellow mark; apex of hind tibiae with three similar, apically truncate, pale rufous short spines, and at each side of first and third a pale finer spine (missing in the paratype); hind spurs pale; mesepisternum and propodeum black (except for the anterior sides of the median triangle, and a broad mark at its lower sides); mesoscutum almost bare, pronotum with short sparse, shiny white hairs; postscutellum (metanotum) and the anterior part of mesepisternum with somewhat short and shiny white hairs; propodeum with dense hairs on either side of middle, which are shiny white, plumose and semidepressed; propodeum shiny, with the median triangle rather broad, very densely granular, with irregular, mostly curved, very fine striae (except the sides and posteriorly); veins dark brown; pterostigma brown with a dark brown border; fore wings slightly darkened at the apex; hind wings with eight hamuli; basal vein originating mesad of transverse median vein. Abdomen shiny; first tergite with a basal black mark and a creamy-white mark covering the sides, with the exception of the base and apical margin, inner side slightly notched; third tergite with two lateral creamy white discal small marks on either side of middle; fourth tergite with a somewhat broad and creamy white stripe not reaching the middle, which is dorsally deeply notched on either side; fifth tergite, except the base, creamy white, with reddish brown notches on either side of middle; first tergite minutely and densely coriaceous, middle of disc with a transverse and very finely punctured area; second and third tergites also minutely and densely coriaceous, with very fine dense punctures, no very fine punctures on subapical area and apical margins; subapical area and apical margins of tergites 1 to 4 very pale reddish-brown; apical margin of second and third sternites with a transverse and creamy-white stripe not extending to the middle, which is broadly notched on either side; fourth sternite with a broad creamy-white area in middle but very narrow ones on the sides; preapical fimbria dense and shiny white; tergites almost bare, tergites 3 to 5 with some extremely sparse, very fine and short, pale white hardly visible hairs.

L e b a n o n : Djezzine, 1 ♀ (type), 2.VI.1953 (G. A. MAVROMOUSTAKIS).

Israel: Haifa, 1 ♀ (paratype), 6—8.V.1951 (P. M. VERHOEFF); in my collection. The cuticular colour is not so black on the head and thorax of the paratype, which in other respects is similar to, although older than the Lebanese female.

Nomada lebanensis sp. nov. may be compared with *Nomada sanguinicollis* Friese (*Deutsche ent. Zeitschr.*, 261—263, 1920), *Nomada leucosticta* J. Pérez (*Act. Soc. Linn. Bordeaux* 37: 337—340, 1884) and *Nomada hammarstroemii* F. Morawitz (*Hor. Soc. ent. Ross.* 22: 254, 1888), all with yellowo-white cuticular markings on their body, but very different in many details.

Nomada sanguinicollis Friese is larger (10.5 mm.) and has three black setae on the hind tibiae, while the pronotum, the tubercles and the two large maculae at the hind margin of the thorax are yellow-white. *Nomada leucosticta* J. Pérez is larger (9.0—11.0 mm.), and has the labrum with a line-like elevation in middle of apical margin, the third antennal joint as long as the two following joints, and the scutellum as well as the apex of hind tibiae are differently shaped. *Nomada hammarstroemii* F. Mor. has the "labrum edentate".

Tribe Ammobatoidini

Genus *Ammobatoides*

Ammobatoides lebanensis sp. nov. (Fig. 1)

Female. — Length 9.5 mm.

Closely related to *Ammobatoides abdominalis* (Ev.); black; labrum and its longitudinal median ridge somewhat shorter than in *Ammobatoides abdominalis*; clypeus densely rugosely punctured, with shiny white and fairly short hairs not covering the surface; disc above interantennal ridge strongly rugosely punctured, shiny, with a longitudinal polished line-like impression starting from below median ocellus and not reaching the ridge; disc between lateral ocelli and inner orbits polished on upper side and unpunctured on outer side of ocelli but somewhat densely punctured towards dorsal area of inner orbits; paraocular area extending a little beyond the level of the insertion of the antennae; supraclypeal plate with somewhat dense shiny white hairs; vertex and occiput with fine white hairs; cheeks with fine shiny white hairs. Mesoscutum moderately shiny, somewhat strongly and partly rugosely punctured, the punctures fairly sparse in middle of disc, with short, fine, erect, sparse white hairs; mesepisternum, metepisternum, postscutellum and sides of propodeum with shiny white hairs; wings subhyaline, apical margin very slightly clouded; first recurrent vein almost reaching the line of the apex of first transverse cubital vein; legs black; anterior coxae rounded in front; tarsi and hind tibiae reddish brown. Abdomen moderately shiny; first and second tergites finely, somewhat sparsely and mostly rugosely punctured, the very narrow apical margin almost unpunctured, both tinged with yellowish brown; second tergite with the very narrow basal depression irregularly and densely punctured; abdomen reddish brown; fifth tergite black; fourth tergite darkened transversely in middle of disc; first and second tergites with a transverse, apical, lateral and snowy white band of hairs not reaching the middle (that on first tergite finer), third and fourth tergites with an apical snowy white band of hairs, the pilosity absent from middle; fifth tergite with dense apical band of very short,

dense fine white hairs (better seen from the side), fifth sternite black, deeply emarginate in middle and with long apical silky hairs.

Male. — Length 9.0—9.5 mm.

Similar to the female; black; labrum and its longitudinal median ridge shorter than in *Ammobatoides abdominalis*; clypeus, supraclypeal plate, paracocular area extending to the level of the antennal insertion, with shiny white hairs; cheeks with short, fine white hairs. Mesoscutum more shiny than in the female, with fairly long white hairs; mesepisternum, metepisternum, postscutellum and sides of propodeum with shiny white hairs; legs black; small tarsal joints reddish brown. Abdomen black, apical margins of tergites pale yellowish brown; first tergite narrow, covered with erect white hairs; apical margin of tergites 2 to 6 densely covered with a shiny entire white band of hairs; pygidium elongate, rounded at the apex; sides of first sternite tinged with reddish brown; apical margin of sternites 2 to 5 pale reddish brown and densely covered with a band of white hairs. Volsellae narrower above than in *Ammobatoides abdominalis*; seventh sternite with an almost concave base, between the two branches a very deep triangular incision (fig. 1).

Lebanon: Brumana, 1 ♀ (type), 1 ♂ (allotype), 8 ♂♂, 1 ♀ (paratypes), 11.V.1953; 1 ♀, 3 ♂♂ (paratypes), 23.V.1953. Ein el Arar, 1 ♂ (paratype), 24.V.1953 (G. A. MAVROMOUSTAKIS), all in my collection.

Host: *Meliturga praestans syriaca* Friese.

I found that at Brumana the ground burrows of *Meliturga praestans syriaca* Friese (a common bee visiting the flowers of *Trifolium* sp.) are regularly visited by its parasite *Ammobatoides lebanensis* sp. nov.

Ammobatoides lebanensis sp. nov. looks like *Ammobatoides abdominalis* (Ev.) but the former is smaller and has a different host, and there are several other morphological differences. The two species differ as follows:

Ammobatoides abdominalis (Ev.), female. Length 11.0—12.0 mm.

Clypeus densely rugosely and more shiny than in *A. lebanensis* sp. nov., and its punctures wider; disc above the interantennal ridge polished with very few sparse and strong punctures, with a longitudinal polished linelike impression starting from below median ocellus and reaching the ridge; disc between lateral ocelli and inner orbits polished above, with fairly strong and sparse punctures; pilosity on head as in *A. lebanensis*, but not so white and somewhat less dense. Mesoscutum shiny, partly somewhat strongly and rugosely punctured, the punctures more sparse in middle of disc than in *A. lebanensis*, with larger polished spaces; mesoscutum, postscutellum and sides of propodeum with short, fine, erect, sparse pale yellow hairs, mesepisternum with similar white hairs; wings more darkened than in *A. lebanensis*; first recurrent vein away from the line of the apex of first transverse cubital vein; fore coxae rounded anteriorly; second tergite with a very broad, finely and somewhat sparsely punctured basal depression which is more than twice as broad as in *A. lebanensis*; fourth abdominal tergite with an apical dense band of very short, fine and pale yellow hairs.

Male. Length 10.0—11.0 mm. Clypeus, supraclypeal plate and paracocular area extending to the level of antennal insertion, scape with dense, dull pale grey hairs; vertex and occiput with erect, dense, dull yellow white hairs; cheeks with

similar but finer and sparser hairs. Pilosity on thorax denser than in *A. lebanensis*, dull yellow white, that on mesepisternum dull yellowish white. Abdomen black, the narrow apical margins pale reddish brown; first tergite covered with erect, dull, yellow white hairs; apical margin of tergites 2 to 6 densely covered with a shiny entirely white band of hairs; pygidium elongate, apical margin obtuse at sides and nearly truncate in middle; sternites black; apical margin of sternites 2 to 5 pale reddish brown, densely covered with long and dull yellow white hairs. Volsellae broader above than in *A. lebanensis*; seventh sternite basally emarginate, with two distant branches between which a rounded and very shallow emargination in the middle (*Trav. Inst. Zool. Acad. Sc. URSS*, 2 (1) : 65, fig. 8 (b), 1934).

Host: *Meliturga clavicornis* Latr.

Ammobatooides lebanensis sp. nov. (see description). *Ammobatooides abdominalis rufa* Friese, female (*Arch. Naturg.*: 142, 1911) and *Ammobatooides abdominalis sanguinea* Friese, male (*ibid.*: 141—142, 1911), differ from *Ammobatooides lebanensis* sp. nov., in many details. The former (female) has the abdomen entirely red, while the pilosity of the abdomen is as in typical *Ammobatooides abdominalis* (Ev.), but the fifth tergite has reddish hairs; the latter has a nearly entirely red abdomen. *Ammobatooides rubescens* (*Deutsche ent. Z.*, 294—295, 1923), differs by having a rounded end of the labrum and by the anterior part of the body, including antennae, being black; abdomen and tarsi of all legs reddish brown, femora and tibiae blackish brown; the snowy white apical bands of hairs on abdomen as in *Ammobatooides scriptus* Gerst.

Ammobatooides abdominalis marchicus Bischoff (*Nachr. Bericht. Naturw. Mus.* 35 : 61—62, 1952), female, differs by having more numerous large polished areas on disc of mesoscutum, is larger in size and has a different pilosity and host.

Tribe A m m o b a t i n i

Genus *Ammobates*

Ammobates (*Ammobates*) *verhoeffi* sp. nov.

F e m a l e. Length 6 mm.

Black; labrum light reddish brown, long, longer than broad, not carinate, shiny, its basal half with fine punctures; mandibles light reddish brown, dark reddish brown at the apex; clypeus flat, densely covered with short shiny white hairs; antennal joints 1 to 4 light reddish brown; remaining antennal joints very dark brown; third antennal joint longer than broad and longer than second or fourth; fourth antennal joint as long as broad and somewhat shorter than fifth (all more easily visible from below); in a frontal view the head is a little convergent below; the whole of the paraocular area and the supraclypeal plate densely covered with short depressed shiny white hairs; frons, vertex and occiput with short depressed pale hairs; cheeks densely covered with depressed, very short shiny white hairs. Mesoscutum shiny, somewhat finely punctured, with thin, fine and semidepressed pale hairs nearly covering the surface; mesepisternum densely covered with short depressed shiny white hairs covering the surface; scutellum and propodeum unmodified, densely covered with long pale hairs, those on postscutellum somewhat longer and denser in the middle; tubercles light reddish brown and covered with very short, thin white hairs; tegulae light orange; wings subhyaline, base of veins

light reddish brown; remaining veins and pterostigma deep brown; basal vein originating a little basad of transverse median vein; first and second recurrent veins enclosed in second cubital cell, but these veins are distant from the line of the apex of the first and second transverse cubital veins; legs light reddish brown, claws dark ferruginous; all basitarsi similarly shaped, linear, and posteriorly thicker, covered with very thin and short, shiny white hairs on outer side; the upper side of the tibiae covered with very short and thin depressed shiny hairs (denser on the posterior tibiae). Abdomen shiny; tergites 1 to 5 light reddish brown, the broad apical margins tinged with yellowish brown; first and second tergites sparsely and somewhat minutely punctured, sixth tergite black brown, not longitudinally carinate in middle; first tergite with very short, thin and shiny white hairs, denser at base and apex; second tergite with similar pilosity but basally sparse, and denser at sides and at the apical margin; tergites 3 to 5 covered with very short, thin shiny white hairs, denser on the broad apical margins and forming transverse unbroken broad bands of hairs; sternites light reddish brown; sixth sternite longitudinally strongly and sharply carinate, but the carina not extending beyond the apical margin in the middle.

Morocco: Marakech, 1 ♀ (type), V.1950 (P. M. F. VERHOEFF), in my collection.

This species belongs to typical *Ammobates*, and may be compared with *Ammobates rostratus* Friese from Jordan. I possess 1 ♀ *Ammobates rostratus* Friese from Jericho, 19—26.IV.1934, collected and kindly presented to me by Dr. E. ENSLIN, Fürth (Germany). The two species differ as follows:

Ammobates rostratus Friese, female, length 6.5 mm. Clypeus convex, almost entirely reddish brown; labrum reddish brown, somewhat shorter than in *Ammobates verhoeffi* sp. nov., its basal half fairly strongly punctured and the apical half plain and bordered laterally by very fine carina; femora and trochanters deep reddish brown; hind spurs dark; first and second tergites very finely and somewhat densely punctured; sixth sternite with sharp longitudinal carina extending a good deal beyond the apical margin in the middle.

Ammobates verhoeffi sp. nov., female. Length 6 mm. Clypeus plain, black; labrum light reddish brown, basal half with fine punctures, apical half convex, not bordered by a carina at sides; femora, trochanters and hind spurs light reddish brown; sixth sternite with sharp longitudinal carina not reaching the apical margin in the middle.

Ammobates mavromoustakisi Popov, of the same group, differs in being larger (7.5 mm.) and by having the antennae, legs and abdomen light reddish brown and tergites without the very fine discal short pilosity; tergites more strongly and densely punctured and less shiny.

Ammobates niveatus Spinola, female, from Egypt and Israel, differs by having the labrum longer, shiny, basally sparsely punctured, the longitudinal carina of the fifth sternite extending well beyond the end of the apical margin in the middle, and by the body being densely covered with very short depressed snowy white hairs. *Ammobates minor* J. Pérez, female, from France, differs in being larger (7.0 mm.) and having a bicarinate labrum (labrum fortemment bicaréné), an obtusely carinate sixth tergite and a strong abdominal punctation.

(to be concluded)