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A revision of *Laphyragogus* KOHL, 1889, with description of a new species (Hymenoptera, Spheciformes)

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A b s t r a c t : The genus *Laphyragogus* is revised, an identification key for the eight described species is provided. *Laphyragogus gessi* nov.sp. from the United Arab Emirates and Oman is described in both sexes, holotype is a male. *L. ajjer orientalis* is given a new status as valid species: *Laphyragogus orientalis* stat.nov. The unknown females of *L. ajjer* and *L. strakai* are described, the female of *L. orientalis* is redescribed. A male lectotype of *L. kohli* is designated.

K e y w o r d s : Hymenoptera, Spheciformes, *Laphyragogus*, taxonomy, new species, description, Palearctic region.

Introduction

Laphyragogus is a rarely collected Spheciformes genus with six already described species and one subspecies. It occurs in arid zones in North Africa, Arabian peninsula to Central Asia and India. DE BEAUMONT (1959) reviewed the genus, and SCHMID-EGGER (2011) described an additional species from the United Arab Emirates (UAE). Identification is difficult, because DE BEAUMONT (1959) did not provide a key, and identification with the present description is not always clear. Systematic position of *Laphyragogus* is still unclear. BOHART & MENKE (1976) place it to an own subfamily Laphyragoginae between the Astatinae and the Larrinae. See this contribution for discussion, diagnostic characters and genus recognition. A conspicuous character for female recognition is the large appendix of forebasitarsus, which is in most specimens as long as second tarsal segment. Notes on biology were available only for *Laphyragogus kohlii* by KAZENAS (2001). He observed the species in Tadzhikistan nesting in the ground. In two cells in about 10 centimetres down in wet sand, he found each two and four adult Lepidoptera (Genus *Crambus*, Crambidae) as larval nutrition.

The present revision was set off by the ongoing examinations of Crabronidae from the UAE (see SCHMID-EGGER 2011 and 2014 for project details). Apart from the recently described *L. strakai*, another undescribed species from the UAE and Oman was found which is described here, together with the unknown female of *L. ajjer* from northwest Africa and the unknown female of *L. strakai* from southern Iran. This raises the number of described species to eight. As a result of examinations, I provide an identification key here. However, because of the rareness of the species further undescribed species may be expected, especially from Iran and Central Asia.

Material and methods

Morphological terms are used according to BOHART & MENKE (1976). The following abbreviations are used in the morphological descriptions:

AS.....Antennal segments, segments are counted from the first segment (scape) = AS1

S.....Metasomal sternum

TMetasomal tergum

ForetarsusTarsomeres of foreleg

Basitarsus.....First tarsal segment.

Photographs were made with different systems, partly without scale bars.

Acronyms of depositories and other institutions

AM.....Albany Museum, Rhodes University, Grahamstown, South Africa

CSE.....Personal collection Christian Schmid-Egger, Berlin, Germany

MNHN.....Muséum national d'histoire naturelle, Paris, France

MZL.....Museum Zoologie Lausanne, Switzerland

NHMUK.....The Natural History Museum, London

NMSNaturkunde Museum Stuttgart, Germany

OLLOberösterreichs Landesmuseum in Linz, Austria

SchlaeflePersonal collection Wolfgang Schlaefle, Kaiseraugst, Switzerland

Straka.....Personal collection Jakub Straka, Praha, Czech Republic

ZMHUZoological Museum, Humboldt University, Berlin, Germany.

Identification

The species are divided into two species groups for the first time. Three species, *L. ajjer* *L. orientalis* and *L. gessi*, share some unique characters: T6 (in females) and T7 (in males) bear a large basal triangular platform with rectangular or somewhat pointed tip in lateral view (figs 2, 5, 6, 9, 18). The males are additionally characterized by a lateral spine on T6 (fig. 21) and by a modified second tarsal segment of midtarsus (fig. 8). It is apically prolonged and enlarged. I unite these species as "*L. ajjer* species group", and summarize the remaining species under "*L. kohlii* species group". Species of the *L. kohlii* species group have a simple T6, resp. T7, and males have simple midtarsomeres. Male S6 lacks lateral teeth, but S7 is modified with keels, long pilosity or other structures in the *L. kohlii* species group, whereas S7 is simple in the *L. ajjer* species group. Males of the *L. kohlii* species group have a curved antennal segment III, whereas it is straight in *L. ajjer* species group.

Key to *Laphyragogus* females

- 1 T6 basally with triangular platform, with rectangular or overhanging tip (seen in lateral view) (figs 2, 5, 6, 18)..... *L. ajjer* species group 2

- T6 without platform, at most with a small elevation and then with rounded tip..... *L. kohli* species group 4
- 2 Geographic distribution: Algeria, Morocco [face above antennal socket black. Mesosternum and mesopleuron nearly all black. Mesoscutum and propodeum laterally each with yellow spots. Tip of platform of T6 rectangular] *L. ajjer* DE BEAUMONT
- Geographic distribution: Arabian peninsula and western Asia.3
- 3 Head and mesosoma black except yellow medial spot on clypeus, scutellum, mandible and others (fig. 3). Sternites all black. Apex of platform of T6 rectangular (fig. 5). United Arab Emirates, Oman. *L. gessi* SCHMID-EGGER nov.sp.
- Head and mesosoma with more yellow parts: clypeus, AS 1-2, parts of scutellum, spots on mesoscutum (extend of yellow colour variable) (fig. 17). Sternites at least with some yellow. Apex of platform of S6 pointed (fig. 18). Iran, United Arab Emirates..... *L. orientalis* DE BEAUMONT stat.rev.
- 4 Mesosoma and head in greater extend yellow (fig. 11). India, Oman, Iran, Pakistan, Tajikistan..... *L. kohlii* BINGHAM
- Mesosoma and head predominantly black (fig. 28), or, when yellow (*L. visnagae*), from northwest Africa5
- 5 Apical process of foremetatarsus shorter than remaining metatarsus (fig. 30). Abdomen black apart from narrow reddish apex of tergites. Head and mesosoma black except of yellow clypeus and some small yellow spots on mesosoma (figs 28, 29). United Arab Emirates, Iran. *L. strakai* SCHMID-EGGER
- Apical process of metatarsus longer than remaining metatarsus (fig. 24), not examined in *L. pectinata*). Abdomen predominantly yellow or reddish. Head and mesosoma with more yellow areas6
- 6 Scutellum black with red margin, clypeus and parts of abdomen reddish. T6 with pygidal area. Larger species, 11-13 mm. Israel, North Africa *L. pectinata* DE BEAUMONT
- Scutellum partly or all yellow. Head and mesosoma without red marks. T6 without pygidal area. Smaller species, 8-10 mm.7
- 7 Antenna all black. Clypeus at least partly black (fig. 23). Mesopleuron anteriorly with coarse punctation. Egypt, Israel, Morocco. *L. pictus* KOHL
- AS1 (scape) and clypeus yellow. Mesopleuron without punctation. [extension of yellow colour variable). Morocco, Algeria..... *L. visnagae* DE BEAUMONT

Key to *Laphyragogus* males

- 1 T7 basally with triangular platform, with rectangular or overhanging tip (seen in lateral view) (fig. 6). Second tarsal segment of midleg asymmetrical (fig. 8), apically with enlargement. *L. ajjer* species group 2
- T7 without platform, at most with a small elevation and rounded tip. Second tarsal segment of midleg simple..... *L. kohli* species group 4
- 2 Head and thorax markedly yellow and lateral spine of S6 short (as long as diameter of hindmetatarsus medially). Algeria, Morocco... *L. ajjer* DE BEAUMONT
- Not in this character combination. Arabian peninsula and western Asia.3
- 3 Lateral spine of S6 short, as long as diameter of hindmetatarsus medially (fig. 9). S7 and S8 simple. Mesoscutum, mesopleuron and Mesosternum black (fig. 7). United Arab Emirates, Oman. *L. gessi* SCHMID-EGGER nov.sp.
- Lateral spine of S6 twice as long as diameter of hindmetatarsus medially (fig. 21). S7 apically widely emarginated, laterally each with a tubercle. S8 medially with tubercle. Mesosternum and mesopleuron predominantly yellow, mesoscutum with two large yellow spots (fig. 20). Iran, United Arab Emirates..... *L. orientalis* DE BEAUMONT stat. rev.
- 4 Mesosoma and head in greater extend yellow (fig. 14). Last sternites with long and dense white pilosity, surpass T7 in dorsal view (figs 15, 16). India, Oman, Iran, Pakistan, Tajikistan *L. kohlii* BINGHAM

- Mesosoma and head predominantly black. Last sternites only with scattered pilosity, setae shorter or less dense (except in *L. visnagae* from NW Africa)5
- 5 T7 apically evenly triangular. S7 without keel.6
T7 apically pointed or with longitudinal apex. S7 with longitudinal keel.7
- 6 S6 mediolaterally each with a triangular tooth, directed to the side. Between tubercules and lateral margin of sternite with dense and long pilosity, directed backwards (fig. 37). Larger species, 10-11 mm. Israel, North Africa.*L. pectinata* DE BEAUMONT
- S6 only with median hollow, pilosity of S6 scattered or lacking. Smaller species, 8-10 mm. Morocco, Algeria.*L. visnagae* DE BEAUMONT
- 7 Medial keel of S7 (in lateral view) flat, apically slightly emarginated (Fig. 27). Apex of T7 short (fig. 26). Egypt, Israel, Morocco*L. pictus* KOHL
Medial keel of S7 apically elevated. Apex of T7 longer (fig. 17). United Arab Emirates, Iran.*L. strakai* SCHMID-EGGER

Taxonomy

Laphyragogus KOHL, 1889

Laphyragogus KOHL, 1889: 190. Type species: *Laphyragogus pictus* KOHL, by monotypy.

Leianthrena BINGHAM in KOHL, 1897: 381. Type species: *Leianthrena kohlii* BINGHAM, 1897, by original designation.

Lianthrena BINGHAM, 1897: 212. Type species: *Lianthrena kohlii* BINGHAM, by original designation [= *Leianthrena kohlii* BINGHAM in KOHL, 1897].

Laphyragogus ajjer DE BEAUMONT, 1958 (figs 1-2)

Laphyragogus ajjer DE BEAUMONT, 1958: 63, ♂, Algeria: Tassili des Ajjer: reg between oueds Sersouf and Issandilène (MNHN). – DE BEAUMONT 1959: 732 (in revision of *Laphyragogus*).

Material examined: Morocco: 1♀ 20.v.1995 30 km S Zagora (CSE).

Discussion. The female of *L. ajjer* was not described yet. The species was only known by males from the inner Sahara. I could examine a female of the *L. ajjer* species group from southern Morocco which represent most probable the female of *L. ajjer*. It agrees with the male description, but *Laphyragogus* males and females differ markedly in colour, so the male-female association is provisional. Another hint gives the zoogeographic distribution pattern: the finding location of the female in the extrem south of Morocco close to the Algerian border belongs to the "inner Saharian" distribution pattern. Other species with a similar distribution, as *Bembecinus mhamidus* SCHMID-EGGER, 2004, described close from the present finding place of *L. ajjer* in Mhamid, as well as from Mauritania and Mali (SCHMID-EGGER 2004) also occur in this area. So, such a distribution pattern (Tassili des Ajjer – Zagora area) is not unlikely, also taken the large distance of about 1400 kilometers between the type area and Zagora into account.

D i a g n o s i s . *L. ajjer* belongs to the *L. ajjer* species group. The lateral spine of S6 of males is shorter in *L. ajjer* compared with *L. orientalis*, and similar to that of *L. gessi*. Yellow colour of mesosoma is more extended in *L. ajjer* compared with *L. gessi*. Females can only be recognized by colour pattern, see description and key.



Figs 1-6: (1) *Laphyragogus ajjer*, female, dorsal; (2) *Laphyragogus ajjer*, female, abdomen; (3) *Laphyragogus gessi*, female, dorsal; (4) *Laphyragogus gessi*, female, face; (5) *Laphyragogus gessi*, female, apex of abdomen dorsal; (6) *Laphyragogus gessi*, female, apex of abdomen lateral.

Description of female: Body length 8.1 mm. **Colour:** Black, light yellow are: clypeus, large spots of lower inner eye margin, space between clypeus and antennal sockets, mandible except reddish apex, AS1-2, pronotum except black transverse medial band, two large longitudinal spots on mesoscutum, scutellum except medial black spot, metapleural flange (sensu BOHART & MENKE 1976: 11), metanotum (colour withish-yellow), two spots on propodeal dorsum laterally behind, propodeum laterally, small spot on mesopleuron anteriorly, legs (with some darker yellow parts). Abdomen reddish, with large apical whitish bands on T1 and T5, and some indistinct pale spots on following tergites. T6 reddish-yellowish. Face and propodeum covered with long, silver pilosity, on face appressed, on propodeum semi-erect. Tegula, wing base and wing venation yellow, wings transparent. **Morphology:** Mandible basally with pointed tooth short before midpoint. Head very large, 1.4x as wide as long. Apical process of foremetatarsus 1.6x as long as remaining tarsus, tarsal segments II and III apically with small process.

Mesopleuron without any punctation, more or less smooth. Mesonotum smooth, with some large punctures laterally, and some smaller punctures mediolaterally, medially with longitudinal emargination and rugose sculpture. Scutellum and metanotum with fine, scattered punctation, punctures 1-5 diameters apart. Propodeal dorsum grainlike sculptured. T1-4 with very fine and dense grainlike sculpture, T5-6 shiny, with a few large and scattered punctures. Sternites shiny, laterally with dense punctation, medially punctless. T6 laterally concave, apically truncate-rounded. Basal triangular platform of T6 with shiny and rugulose surface.

Description of male: See DE BEAUMONT (1958, 1959).

Distribution: Algeria, Morocco.

***Laphyragogus gessi* SCHMID-EGGER nov.sp. (figs 3-10)**

Holotype: Oman: ♂ 14.iii.2022 20 km W Barka, Wadi Far 57.719N 23.760E (leg. et coll CSE).

Paratypes: United Arab Emirates: 8♂♂ 20-30.iv.2015 Dubai Desert conservation Reserve 24.821N 55.615E (leg. Gess, coll. AM and CSE); 1 ♀ 1.iv.2015 UAE; Um al-Quwain prov, Biatah, 25°25'N 57°47'E (leg. J. Halada, coll. J. Straka); Oman 1♂ 3.iii.2019 Bidljah, near industrial zone, 22.446N 58.861E (leg. et coll. Ali Al Jahdhami). 1♂ 14.iii.2022 20 km W Barka, Wadi Far 57.719N 23.760E (leg. et coll CSE).

Diagnosis. *L. gessi* belongs to the *L. ajjer* species group. The male is unique by the combination of short spines at S6 in combination with an all black mesonotum, mesopleuron and mesosternum. The female differs by a nearly all black face and mesosoma (only with a small spot each on clypeus, metanotum and on lateral backside of propodeum) from the markedly yellow spotted *L. ajjer* and *L. orientalis*. Body surface is in direct comparison less shiny than in *L. orientalis*.

Description of male holotype: Body length 8,1 mm. **Color:** Black, light yellow are: clypeus, large spots in lower inner eye margin, space between clypeus and antennal sockets, small median line from antennal socket to midocellus, mandible except reddish apex, AS1-2, pronotum except black transverse medial band, pronotal lobe, narrow band on lateral margin of mesoscutum, scutellum except large medial black spot, metapleural flange, metanotum, propodeum laterally (with some red below white spot), large bands on underside of fore- and midfemora (remaining part of femora reddish), tibiae and tarsi (tibiae with some red above). T1-6 reddish with whitish apical band, half as wide as tergal length. T7 whitish, apex and triangular basal platform reddish. Coxa and sternites light reddish. Clypeus, face, mesopleuron and propodeum covered with dense and long silver semiappressed pilosity, mesonotum and frons above with sparser, but also long pilosity. **Morphology:** Mandibel medially below with small tooth. Mesoscutum basally finely microsculptured, basally smooth with very fine microsculpture and indistinct scattered punctation. Mesopleuron and propodeal dorsum grainlike microsculptured. Scutellum more shiny as mesoscutum, punctured. Tergites finely grainlike microsculptured. Midtarsomeres II and III strongly lobed apically. T7 with large triangular platform basally, apically truncate-rounded. Apical margin of S2-6 widely V-like emarginate. S6 laterally each with spine, as long as median diameter of hindbasitarsus, directed downwards. S7 laterally each with a small rounded impression. Genitalia strongly modified, see fig. 10.



Figs 7-12: (7) *Laphyragogus gessi*, male, dorsal; (8) *Laphyragogus gessi*, male, midtarsus; (9) *Laphyragogus gessi*, male, apex of abdomen lateral; (10) *Laphyragogus gessi*, male, genital; (11) *Laphyragogus kohli*, female from Iran, dorsal; (12) *Laphyragogus kohli*, female from Iran, face.

Variation in paratypes: Male paratypes agree with holotype apart from minor variation in extension of yellow colour of mesosoma.

Description of female: Body length 7.9 mm. Colour: All black with the following parts whitish-yellow: small median spot in clypeus, apical two third of mandible (apex dark reddish), small band each on pronotum apically and basally, small band on mesonotum in front of tegula, tegula, wing venation (wing venation in apical half of wing darker), metapleural flange, metanotum, small spot on propodeum laterally in hind corner, band on outer side of forefemur (half as long as femur), apex of mid- and hindfemora, upper side of tibiae, tarsi. Abdomen reddish, with large apical whitish band on T1 and T5, and some indistinct pale spots on following tergites. T6 reddish-yellowish. Face and propodeum covered with long, silver pubescence, at face appressed, at propodeum semi-erect. Tegula, wing base and wing venation yellow, wings transparent.

Morphologically similar to *L. ajer*.

Life History: The holotype was collected on a flowering kapok bush (*Aerva javanica*, family Amaranthaceae) in a sandy habitat, belonging to coastal dunes.

Distribution: United Arab Emirates, Oman.

Etymology: The species is named in honour to Sarah Gess from Grahamstown, South Africa, who collected the first specimens of the species.

***Laphyragogus kohlii* (BINGHAM, 1897) (figs 11-16)**

Leianthrena kohlii BINGHAM in KOHL, 1897: 381, ♂, ♀ (as Kohlii, incorrect original capitalization). Syntypes: Pakistan: North-West Provinces, now Khyber Pakhtunkhwa Province: no specific locality, and India or Pakistan: Punjab: no specific locality (NHMUK). **Male designated as lectotype here.** – As *Laphyragogus kohlii*: DE BEAUMONT 1959: 733, KAZENAS, 2001: 25 (in checklist of Sphecidae of Kazakhstan and Central Asia); GUICHARD 1980: 226 (fauna of OMAN).

Lianthrena kohlii BINGHAM, 1897: 213, ♂, ♀. Syntypes: India or Pakistan: Punjab: no specific locality (BMNH). Objective synonym of *Leianthrena kohlii* BINGHAM, 1897.

Laphyragogus turanicus GUSSAKOVSKII, 1952: 227, ♂, ♀. Lectotype: ♀, Tajikistan: Ayvadj at Kafimigan River (ZIN), designated and synonymized with *Laphyragogus kohlii* by KAZENAS 2000: 50; DE BEAUMONT 1959: 733; KAZENAS 1985: 17.

Material examined: India, ♀ Deesa xi.1901, coll Nurse; male «N. Ind» (= northern India), male designated as Lectotype (both NHMUK, photos examined). Iran, 2♀♀ 10.v.2019 Kerman prov., 4 km E Bam, 29.116N 58.429E, 1000 m (leg et coll CSE).

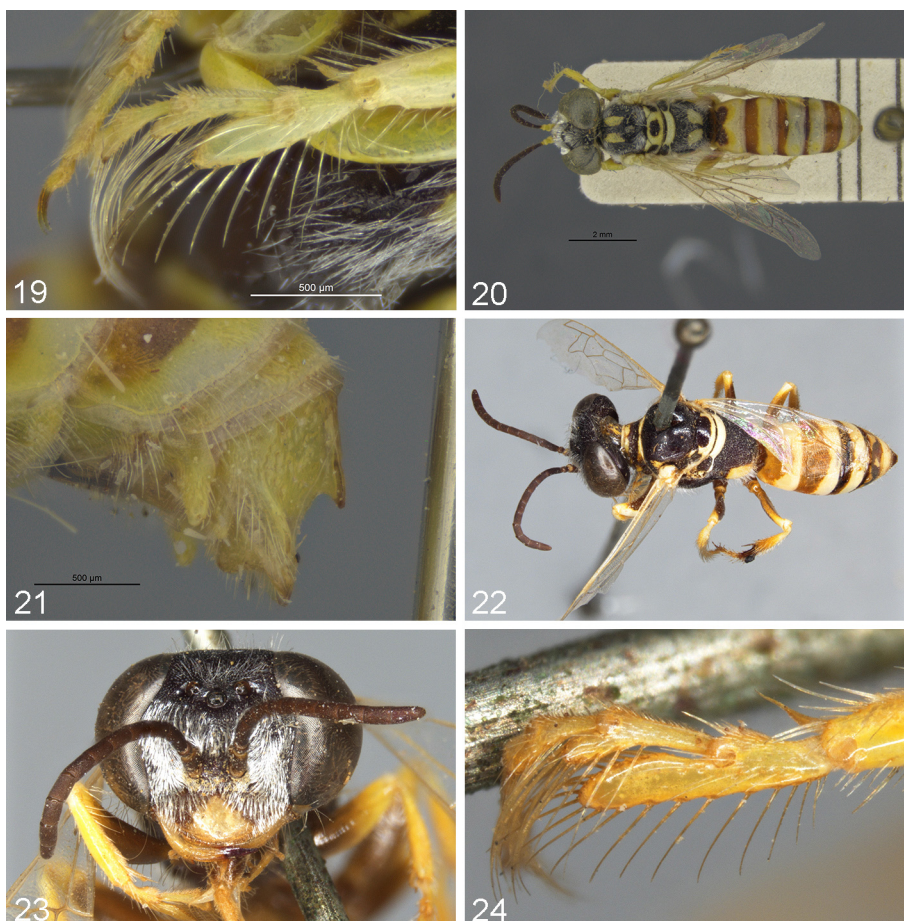
Discussion. The type species was examined by the attached figures. David Notton kindly send the following information about the types of *L. kohlii*: «Situation [in *Laphyragogus*] is complex, there are actually two available names: *Leianthrena kohlii* BINGHAM in KOHL, 1897: 381; *Lianthrena kohlii* BINGHAM 1897: 213 (NB –ii ending in both cases). They are synonyms and the valid name is *Laphyragogus kohlii* (BINGHAM in KOHL, 1897) according to PULAWSKI (2017). In both original descriptions there was no holotype designation and both sexes are described so both names have a syntype series of at least two specimens. It appears that both nominal species are based on the same type series. There is one syntype here, labelled as a female by BINGHAM, but actually a male. The head has been reglued so I cannot be 100% sure it's the original. The specimen overall agrees fairly well with the description. I'd recommend designating this syntype as the lectotype of both nominal species so as to confirm the objective synonymy». Consequently, the male is designated here as lectotype.

Diagnosis: *L. kohlii* belongs to the *L. kohlii* species group. It is characterized by the extended yellow colour. See also key for recognition.

Distribution: Northern India, Iran, Oman, Pakistan, Tajikistan.



Figs 13-18: (13) *Laphyragogus kohli*, female from Iran, foretarsus; (14) *Laphyragogus kohli*, male Lectotype, dorsal; (15) *Laphyragogus kohli*, male Lectotype, apex of abdomen dorsal; (16) *Laphyragogus kohli*, male Lectotype, apex of abdomen lateral; (17) *Laphyragogus orientalis*, female, lateral; (18) *Laphyragogus orientalis*, female, apex of abdomen.



Figs 19-24: (19) *Laphyragogus orientalis*, female, foretarsus; (20) *Laphyragogus orientalis*, male, dorsal; (21) *Laphyragogus orientalis*, male, apex of abdomen lateral; (22) *Laphyragogus pictus*, holotype female, dorsal; (23) *Laphyragogus pictus*, holotype female, face; (24) *Laphyragogus pictus*, holotype female, foretarsus.

***Laphyragogus orientalis* DE BEAUMONT, 1970, stat. nov. (figs 17-21)**

Laphyragogus ajjer orientalis DE BEAUMONT, 1970: 17, ♂, ♀

Holotype: ♂, Iran: Baluchistan: SW Iranshar (NMS, ZMHU). Paratypes examined. **Stat.nov.**

As *Laphyragogus* spec. in SCHMID-EGGER (2011: 545).

Material examined: Iran 1♂ 2.vi.1954 Baluchistan: SW Iranshar, Dunes Rig Ispakeh (leg. Richter u. Schäuuffele, NMS). [label: "Paratype *L. ajjer orientalis* de Beaumont det."]. United Arab Emirates: 1♀ 30.xi.2008 Sharjah Desert Park 25.28N 55.70E, pitfall traps, (leg. A.v. Harten, CSE).

Discussion: DE BEAUMONT (1970) described *L. orientalis* as a subspecies of his *L. ajjer* from central Sahara. The male of *L. ajjer* could not be examined and was therefore not compared directly with *L. orientalis*. From description (DE BEAUMONT

1958, 1959), it differs from *L. orientalis* by longer lateral spines of S6 (spines are not on S5 as indicated by DE BEAUMONT (1959)) and by a more extended yellow body colour. The here described female of *L. ajjer* from southern Morocco also differs from *L. orientalis* in some colour characters (see description below) and by form of platform of T6. For these reasons and because of the long distance between both type locations (Tassili des Ajjer in southern Algeria versus eastern Iran) I treat *L. orientalis* as valid species and not as subspecies of *L. ajjer*: **stat.nov.**

A *Laphyragogus* female from United Arab Emirates agree morphologically with the paratype female of *L. orientalis*, but differ from the type female by a more extended yellow colour pattern (see figures and description). The specimen represents most probable a colour form of *L. orientalis* from UAE.

D i a g n o s i s : *L. orientalis* belongs to the *L. ajjer* species group. See comments about species group characters above. The male of *L. orientalis* can be distinguished from both other species, in this group, *L. ajjer* and *L. gessi*, by larger extend of yellow colour, by longer spines of S6 (twice as long as diameter of hindmetatarsus medially) and by each a lateral tubercle on S7 and a medial tubercle on S8. The female can be recognized by large extend of yellow colour on head and mesosoma (see description). The female is unique by having a pointed (or overhanging) apex of platform of T6, whereas the apex is more or less rectangular in *L. gessi* and *L. ajjer* females. Colour pattern is variable, see description and figures.

D e s c r i p t i o n : See DE BEAUMONT (1970), SCHMID-EGGER (2011) for female of United Arab Emirates and figures for colour pattern.

Morphology. Similar to *L. ajjer* and *L. gessi* with the following differences: Platform of S6 larger, tip overhanging (rectangular in other species). Mesosoma and head more shiny. S6 apically with triangular emargination (rounded in other species).

D i s t r i b u t i o n : Iran, United Arab Emirates.

***Laphyragogus pectinatus* DE BEAUMONT, 1959**

Laphyragogus pectinatus DE BEAUMONT, 1959: 728, ♂, ♀. **Holotype:** ♂, Israel: Revivim (Lausanne). – DE BEAUMONT 1960b: 246 (Libya); DE BEAUMONT, BYTINSKI-SALZ and PULAWSKI 1973: 18 (Israel);

D i s c u s s i o n : The species was not examined but is well characterized by the description in DE BEAUMONT (1959).

D i a g n o s i s : *L. pectinatus* belongs to the *L. kohlii* species group. The male is unique by structure of sternites: S6 has mediolaterally each a broad tooth, and a dense pilosity between tooth and tergal lateral margin. The female is larger than other species of the *L. kohlii* species group and is characterized by partly reddish colour on clypeus, scutellum and abdomen.

D i s t r i b u t i o n : Algeria, Israel, Egypt, Libya.



Figs 25-30: (25) *Laphyragogus pictus*, male, dorsal; (26) *Laphyragogus pictus*, male, apex of abdomen dorsal; (27) *Laphyragogus pictus*, male, apex of abdomen lateral; (28) *Laphyragogus strakai*, female, dorsal; (29) *Laphyragogus strakai*, female, face; (30) *Laphyragogus strakai*, female, foretarsus.

***Laphyragogus pictus* KOHL, 1889 (figs 22-27)**

Laphyragogus pictus KOHL, 1889: 190, ♀. **Holotype:** Egypt: no specific locality (ZMHU, examined); GINER Mari, 1945: 235 (Spanish Sahara); DE BEAUMONT, 1959: 724 (in revision of *Laphyragogus*); DE BEAUMONT, BYTINSKI-SALZ & PULAWSKI, 1973: 18 (Israel).

Material examined: ♀: «Ägypten 11803» without further information. Handwritten label «*Laphyragogus pictus* KOHL n.g. n.sp.» (ZMHU). Labelled as holotypus of *L. pictus*. Israel: ♀ 10.v.19 Palestine, Bat Yam (leg. BYTINSKI-SALZ, det. DE BEAUMONT as *L. pictus*) (ZMHU). 1 male 7.vi.1995 Beer Sheva, 1 male 10.v. Bat Jam (both coll. SCHLAEFLE).

Diagnosis: *L. pictus* belongs to the *L. kohlii* species group. The male is unique by form of S7. It has a median keel which is apically not raised as in *L. strakai*. T7 is apically pointed, and the point is shorter as in *L. strakai*. For female recognition see comments at *L. visnagae*.

Description: See DE BEAUMONT (1959).

Distribution: Egypt, Israel, Morocco.

***Laphyragogus strakai* SCHMID-EGGER, 2011 (figs 28-33)**

Laphyragogus strakai SCHMID-EGGER, 2011: 543, ♂. Holotype: United Arab Emirates: Um al-Quwain (CSE). Examined.

Material examined: United Arab Emirates: 2♂♂ 19.ii.2009 Um al-Quwain at 25°32'N 55°32'E (holotype and paratype, CSE); 1♂ 19.iii.2015 Biatah 25°26'N 55°44'E (Straka). Iran: 1♀ 2.iv.1972 Bandar Abbas, Col river (CSE).

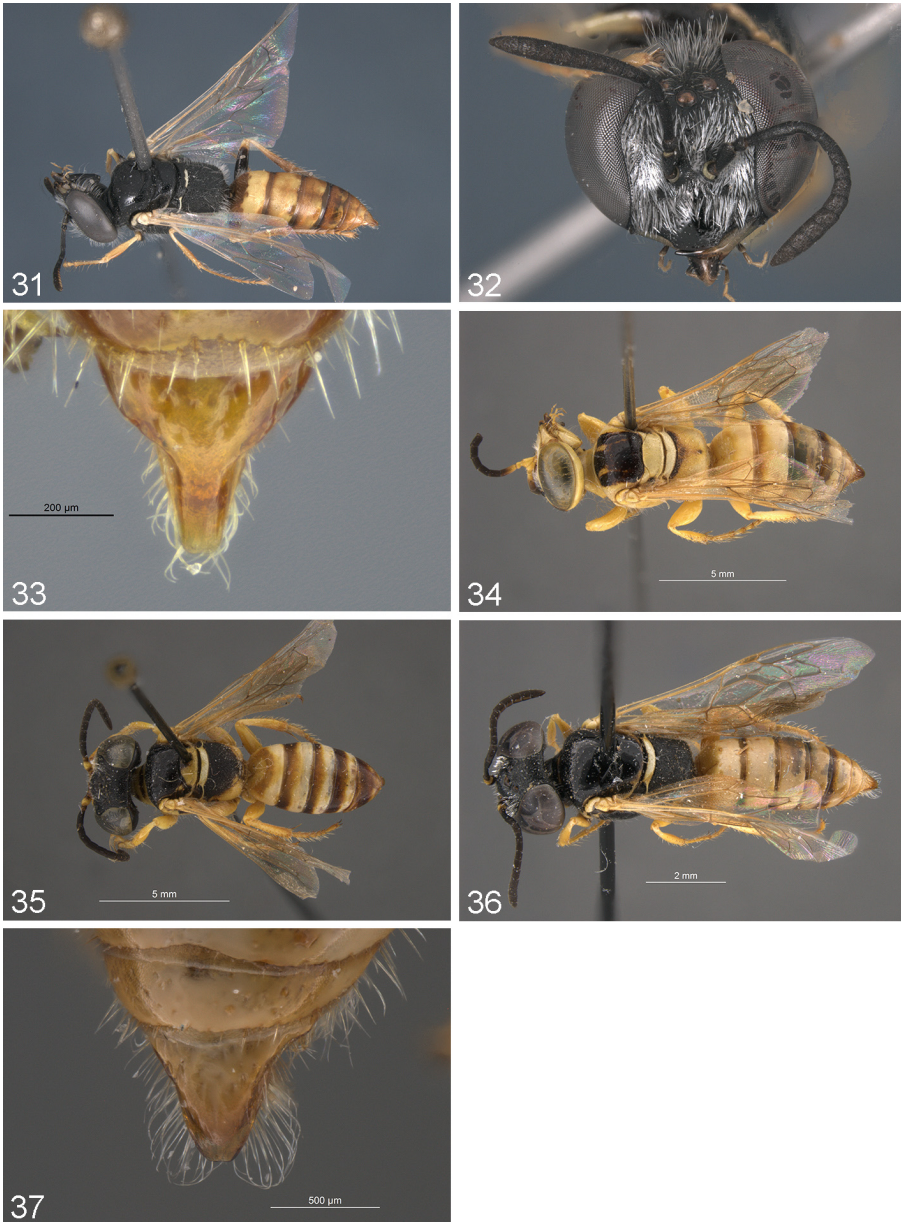
Discussion: *L. strakai* was described by two males from northern UAE. In the meantime, I could examine a female from southern Iran which may be the matching female. It shares a strongly reduced yellow colour pattern (head, mesosoma, and in case of female also abdomen are nearly all black) and the shiny interspaces on mesonotum with the male. The assignment is provisional as in other species (see above), until males and females from one location only can confirm the affiliation of both sexes. The distance between Bandar Abbas in Iran (finding place of the female) and the type area in UAE is only about 100 kilometers, and the smallest diameter of the Persian Gulf between both countries is about 60 kilometers, what makes a species spread to both regions possible. The fauna of southern Iran includes also some other similarities to that of UAE (pers. observation). See also *L. orientalis* with a similar distribution pattern.

Diagnosis: *L. strakai* belongs to the *L. kohlii* species group. The male of *L. strakai* is unique by an apically elevated keel of S7 and by the prolonged tip of T2. The female can be recognized by the nearly complete black body (see description) and by larger size.

Description of female: Body length 11 mm. Colour: Black with the following parts yellow: mandible except dark red apex, clypeus, AS1-2, pronotal lobe, scape, unclear spot on mesopleuron below scape and on propodeum apico-laterally, femora, tibiae and tarsi with some brownish parts. Wing venation basally yellow, apically brown. Apex of tergites and sternites yellowish, T6 reddish-brown. Lower face laterally with large silver spots of semi-appressed silver pilosity, covers some parts of clypeus laterally. Remaining head and mesosoma with some erect setae. Morphology: Clypeus and face shiny, clypeus with scattered (1-4 diameters apart), face with very dense punctation (0.2-0.5 diameters apart). Frons above ocelli with punctless shiny area, as large as foreocellus. Mesonotum shiny, anteriorly with dense, posteriorly with scattered punctation, scutellum and mesonotum also with scattered punctation. Metapleuron and propodeum with fine net-like sculpture, interspaces dull and grainlike. T1-5 with very dense and fine micropunctation. T6 shiny, with some rugae and puncture. Apical process of foremetatarsus somewhat shorter than remaining metatarsus, tarsal segments 2-4 apically also prolonged. Hindbasitarsus somewhat curved downwards.

Description of male: See SCHMID-EGGER (2011).

Distribution: United Arab Emirates, southern Iran.



Figs 31-37: (31) *Laphyragogus strakai*, male holotype, dorsal; (32) *Laphyragogus strakai*, male holotype, face; (33) *Laphyragogus strakai*, male holotype, T7; (34) *Laphyragogus visnagae*, pale female from Algeria, dorsal; (35) *Laphyragogus visnagae*, dark female from Morocco, dorsal; (36) *Laphyragogus visnagae*, male dorsal; (37) *Laphyragogus visnagae*, male S7.

***Laphyragogus visnagae* DE BEAUMONT, 1959 (figs 34-37)**

Laphyragogus visnagae DE BEAUMONT, 1959: 730, ♂, ♀. Holotype: ♂, Algeria: Biskra (Lausanne). Examined.

M a t e r i a l e x a m i n e d: Algeria: 1♀ 30.v.1971 Biskra (CSE). Morocco: 1♀ 27.v.1990 Erfoud (Schlaefle); 2♂♂ 1.v.1995 20 km N Foum Zguid (OLL); 1♂ 1♀ 28.v.1995 30 km SE Zagora (CSE).

D i a g n o s i s: *L. visnagae* belongs to the *L. kohlii* species group. The male is unique by structure of sternites: S6 has a median impression, S7 is medially formed like a fish-tail. Apical margin of S6-8 has long white setae. Apex of T7 is long and broad. Female recognition is more difficult, because the species is variable in colour. See key characters for recognition. Apart from colour characters can the females also be recognized by structure of mesopleuron. It is finely rugose without punctation in *L. visnagae*, and with marked punctures in the similar *L. pictus*.

D e s c r i p t i o n: See DE BEAUMONT (1959).

D i s t r i b u t i o n: Algeria, Morocco.

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Zusammenfassung

Die Grabwespengattung *Laphyragogus* wird revidiert, ein Bestimmungsschlüssel für die acht bekannten Arten wird erstellt, *Laphyragogus gessi* nov.sp. aus dem Oman und den Vereinigten Arabischen Emiraten wird in beiden Geschlechtern beschrieben, der Holotypus ist ein Männchen. *L. ajjer orientalis* wird in einen neuen Status als valide Art erhoben: *Laphyragogus orientalis* stat.nov. Die unbekannten Weibchen von *L. ajjer* und *L. strakai* werden beschrieben, das Weibchen von *L. orientalis* wird wiederbeschrieben. Ein männlicher Lectotypus von *L. kohlii* wird festgelegt.

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