

Revision of *Bembecinus* (Hymenoptera, Crabronidae) of the Palaearctic region

Dr Christian Schmid-Egger ⁽¹⁾

(1) Kirchstr. 1 – 82211 Herrsching (Germany). E-Mail : christian@schmid-egger.de

The Palaearctic *Bembecinus* are revised. Fifty-one species and 2 subspecies are recognized. The revision includes keys to species identification, diagnoses, descriptions, and illustrations of important characters. Thirteen new species and 1 subspecies are described: *Bembecinus adeni* (Yemen, Oman), *asiaticus iranicus* ssp. n. (southern Palaearctic Asia), *birecikensis* (Turkey), *guichardi* (Turkey, Iran), *heinrichi* (Turkey), *henseni* (Turkey), *khuzestani* (Iran), *mhamidus* (western Sahara), *niehuisi* (Israel, Syria), *nigrolabrum* (Turkey), *priesneri* (Sudan), *remanei* (Sudan), *schlaeflei* (Morocco), *urfanensis* (Turkey). Six new synonyms are established: *touareg* de Beaumont = *argentifrons* (F. Smith); *tridens errans* de Beaumont = *tridens* (Fabricius); *dentipes* Gussakovskij = *acanthomerus* (Morice); *diacanthus* de Beaumont = *validior* Gussakovskij; *cyprius creticus* de Beaumont = *rhodius* de Beaumont; *tridens mongolicus* Tsuneki = *tridens cyanescens* (Radoszkowski).

For the following species, the status is restored or changed: *Bembecinus cyanescens* Radoszkowski = *tridens cyanescens* (Radoszkowski), *revindicatus anatolicus* de Beaumont = *anatolicus* de Beaumont, *cyprius rhodius* de Beaumont = *rhodius* de Beaumont.

A brief zoogeographic analysis is given. With 24 of 51 species, *Bembecinus* shows a remarkable share of endemic species. Turkey displays the highest species diversity with 20 species.

Key words: Hymenoptera, Sphecidae, Crabronidae, *Bembecinus*, taxonomy, systematics, identification keys.

1. INTRODUCTION

Bembecinus Costa, 1859, is a worldwide genus including 175 described species (Bohart, 1997, Bohart & Menke 1976). Menke (1997) placed it in the subfamily Bembicinae (the former Nyssoninae *sensu* Bohart & Menke 1976). The revision of *Stizus* by Handlirsch (1892) is still the basic reference for *Bembecinus*. Handlirsch included a large number of species in his monograph, which species were divided by subsequent authors into the species groups (now genera) *Stizus* Latreille, *Stizoides* Guérin-Méneville, 1844 and *Bembecinus* Costa, 1859. De Beaumont (1954) revised the genus in the Palaearctic region and was the first to recognize *Bembecinus* as a valid genus.

The knowledge of *Bembecinus* is still poor. In the western and central Palaearctic region, Handlirsch (1892, 1895) included 13 species in his revision and supplements. De Beaumont (1954) treated 26 species from the Mediterranean area and described further 10 species in later publications (1960, 1967, 1968) (Table 1). The table 2 gives a survey of the authors who described *Bembecinus* species in the Palaearctic region.

The present paper includes 51 species and 2 subspecies from the western and central Palaearctic region, 13 species and a subspecies are new (Table 1). Other new species might be expected, especially in poor examined regions as Eastern Turkey, Iran, the Arabian

Peninsula and Morocco. *B. carinatus* is included in the key, but not treated as European species.

The aim of the present paper is a revision of Palaearctic *Bembecinus* (excluding China and Japan). A final cladistic analysis and the recognition of species groups cannot be done before a complete revision of the worldwide fauna. Especially the Ethiopian fauna, revised by Arnold (1929), is rich in undescribed species. In the present paper, provisional species groups are used, a concept which was first proposed by Arnold (1929) and later used by de Beaumont (1954). Detailed information about the *Bembecinus* relationships within the Sphecidae (now Apoidea, Crabronidae) are summarized by Bohart & Menke (1976).

1.1. Study areas

The present revision treats the species from Europe, North Africa, Arabian Peninsula, temperated Asia including Mongolia, and Iran. China and Japan are not included. North African species were considered if they occur north of the Central Sahara: Egypt, Libya, Tunisia, Algeria and Morocco (including Hoggar, Tasilii n. Ajjer). Species described from Northwest Sudan or Niger will be treated in a later publication. Two species mentioned by de Beaumont (1954), *Bembecinus kotschy* (Handlirsch, 1892), described from Sudan (Sennaar) and *Bembecinus monody* (Berland, 1950), described from Niger (Aïr, Agadez)

are excluded. An exception is made for the Nile valley, from where I include two new species from the northern Sudan. These species might also occur in Egypt or in Arabia. The present key is not valid for Mauritania, Mali or Spanish Sahara, but valid for the border of the Sahara desert in southern Morocco.

Table 1. History of descriptions of *Bembecinus* species. The number of species described in a 10-year period between 1900 and 2004 is given, species names before 1900 are summarized. Dominant authors of each period are named.

Period	Number	Dominant author
1700-1799	1	
1800-1849	1	
1850-1899	11	Handlirsch
1900-1910	3	
1911-1919	3	
1920-1929	0	
1930-1939	1	
1940-1949	0	
1950-1959	10	de Beaumont
1960-1969	7	de Beaumont
1970-1979	0	
1980-1989	1	
1990-1999	0	
2000-2004	13	Schmid-Egger

Table 2. Authors who described (valid) *Bembecinus* taxa in the Palaearctic region, and number of taxa they described.

Author	Number
de Beaumont	16
Schmid-Egger	13
Handlirsch	8
Gussakovskij	2
Mercet	2
Morice	2
Smith	2
Costa	1
Fabricius	1
Frivaldzky	1
Guichard	1
Klug	1
Schulz	1

The knowledge of *Bembecinus* of the Arabian Peninsula and of Iran remains incomplete. The fauna of southern Iran is de facto unknown. Turkey is also very rich in species and further undescribed species especially from the east, might be expected.

The situation in Central Asia is much clearer because of the detailed studies of some Russian authors as Gussakovskij 1935. But in these regions also, the key must be used carefully and further undescribed species cannot be excluded.

1.2. Zoogeographical aspects

The present revision includes 51 Palaearctic species. Table 3 gives the species names and the geographic distribution of the species. Turkey has the highest species diversity with 20 species of *Bembecinus*, followed by Israel and the Arabian Peninsula with 12 species each. In northern Africa, Morocco is the most diverse country with 11 species.

The genus *Bembecinus* has a remarkable share of endemic species. Twenty four of 51 species are endemic (restricted to one country or to a very small geographic area), with 8 species known from one location. Turkey displays the highest number of endemic species (7 species), followed by Morocco (4 species) and southwest Europe (4 species).

1.3. Technical terms

The species are listed in alphabetical order within their species groups. Literature citations are taken from an unpublished catalogue of W. Pulawski. For common species such as *tridens* or *hungaricus*, only citations of nomenclatural significance are listed. Records comprise all specimens examined by the author. Geographic distribution also includes reliable literature data.

The morphological terminology employed in this paper follows Bohart & Menke (1976), Goulet & Huber (1993), Ohl (1999) and most subsequent authors. The following terms measurements used in the text require detailed description:

Clypeus: Clypeal width: shortest distance between eyes at clypeal base. Clypeal length: distance between clypeal base and apical clypeal margin.

Flagellomeres: Are measured and drawn at the dorsal side, when flagellomeres are stretched forwards. Distal flagellomeres are drawn in the lateral view.

Tergites: Tergal length: distance between anterior and posterior margin of tergites. Tergal bands: the width of a band is measured in relation to tergal length. If the apical half of the tergal surface is yellow, the band is half as wide as the tergal length.

Propodeal emargination: A U-shaped or small triangular emargination on outer edge of propodeum, best seen in lateral view.

Femora. Length and width of the male hindfemur are measured from the outside (lateral view). Length is measured along the midline, the width at its widest place. In the *peregrinus* group, the hindfemur of most species is illustrated in anterior, posterior and dorsal view. The form of the hindfemur is a valuable recognition character.

	Afr				Eur				eM				As			Out		End	1 L
	Ma	Al	Tu	Eg	S	SW	C	SE	TR	SY	IS	Ar	cA	Ir	eA	SE	E		
42. <i>peregrinus</i>								x	x	x	x	x							
43. <i>podager</i>	x																	x	
44. <i>pulchellus</i>						x												x	
45. <i>revindicatus</i>										x	x	x							
46. <i>rhodius</i>								x	x									x	
47. <i>schlaefli</i> spec. n.	x																	x	
48. <i>spinifemur</i>	x																	x	
49. <i>urfanensis</i> spec. n.										x								x	
50. <i>validior</i>									x	x	x	x	x						
51. <i>zibanensis</i>	x	x																	
Total	11	10	5	6	3	6	2	6	20	10	12	12	6	6	2	7	2	24	8
Endemic	4			2		4			7		1	1		1					

Endemic means: Recorded from a single country or a small geographic area (e.g. northern Israel and SW Syria)

1.4. Sources of material

Specimens from the following institutions were examined. The usual abbreviations of institution names are given. Persons who arranged the loans are listed in parentheses.

Amsterdam	Zoölogisch Museum Amsterdam (W. Hogenes).	Schlaefle	Germany personal coll. W. Schlaefle, Kaiseraugst/Switzerland
Arens	personal coll. W. Arens, Bayreuth, Germany	Schmidt	personal coll. K. Schmidt, Heidelberg, Germany
CAS	California Academy of Sciences, San Francisco, California, USA (W. Pulawski)	Schneider	personal coll. D. Schneider, Freiburg, Germany
DIE	Deutsches Entomologisches Institut, Eberswalde, Germany	Schwarz	personal coll. M. Schwarz, Ansfelden, Austria
ETH	Eidgenössisch-Technische Hochschule Zürich, Switzerland (A. Müller)	SE	personal coll. C. Schmid-Egger, Herrsching, Germany
Gembloux	Coll. Faculté universitaire des Sciences agronomiques de Gembloux, Belgique	SMFD	Naturkundemuseum Senckenberg Frankfurt, Germany (W. Dorow)
Genf	Muséum d'Histoire Naturelle, Genf, Switzerland (B. Merz)	SMKA	Staatliches Museum für Naturkunde in Karlsruhe, Germany (F. Brechtel)
Görlitz	Museum Görlitz, Germany	SMNS	Staatliches Museum für Naturkunde Stuttgart, Germany (T. Osten)
GUS	personal coll. J. Gusenleitner, Linz, Austria	TA	Tel Aviv University (Coll. Bytinski Salz), Israel (A. Freidberg)
Hartmann	personal coll. Peter Hartmann, Bayreuth, Germany	Vladivostok	Institute of Biology and Soil Sciences, Vladivostok, Russia.
Hauser	personal coll. M. Hauser, Univ. Illinois, Urbana, USA	ZMHB	Zoologisches Museum der Humboldt-Universität Berlin, Germany (F. Koch, M. Ohl).
Illinois	University of Illinois, Urbana, USA (M. Hauser).	ZSM	Zoologische Staatssammlung München, Germany (E. Diller).
Leiden	Nationaal Natuurhistorisch Museum, Leiden, Netherlands (K.v. Achterberg)	ZMUM	Zoological Museum of the Moscow State University (A. Antropov)
MCZL	Musée Cantonal de Zoologie, Lausanne, Switzerland (M. Sartori).		
NEU	personal coll. C. Neumann, Freiburg, Germany		
NHMW	Naturhistorisches Museum Wien, Austria (S. Schödl).		
Niehuis	personal coll. O. Niehuis, Albersweiler, Germany		
OLL	Oberoesterreichisches Landesmuseum, Linz, Austria (F. Gusenleitner)		
Paris*	Muséum National d'Histoire Naturelle, Paris, France (J. Casewitz-Weulersse)		
Risch	personal coll. S. Risch, Leverkusen,		

*In the Paris collection exist a suborder for special collections and a main collection (coll. Centrale). The exact depository of the specimens in each case is given.

1.5. Unsolved problems

1. The taxonomy of the present revision is mainly based on the male sex. Identification of the females, especially in the *peregrinus*-group, remains problematic, and it cannot be excluded that some female assignments have to be modified in future. E.g., in the eastern Mediterranean area

(southern Turkey to Israel) a high number of similar species exists which cannot be identified in female sex without doubt. The proposed key for the females is based only on male-female relationships which could be verified by findings of males and females from the same locations or other circumstantial evidence. But the range of colour variation of the species is still unknown, and females of some species remain unknown. *Bembecinus nigrolabrum* sp. n. from Turkey is the only species described only from the female sex. It is well characterized by its colour pattern, and no male from Turkey can be matched with it. Females of the following species are unknown: *remanei* new species, *hebraeus* and *schlaeflei* new species; the female of *heinrichi* new species is doubtful.

2. The fauna of some areas (Arabian Peninsula, Iran, also parts of Morocco) is not sampled satisfactorily. The situation needs further research and more material.
3. The taxonomic status of *B. acanthomerus* is not solved finally. See further comments below.

2. KEY TO SPECIES

2.1. Males

The unknown male of *nigrolabrum* is not included.

1. Flagellomere IX without spine. Flagellomere XI not curved (fig. 5). Sternite VII spoon-like (figs. 8, 17). Clypeus longer than wide ***cinguliger* group 2.**
 - Flagellomere IX with long spine. Flagellomere XI curved (fig. 27). Sternite VII and clypeus otherwise. **3.**

cinguliger species group

2. Sternite II apically with small pointed tooth (fig. 2). Labrum half as long as maximum width. Mesonotum, scutellum and propodeum black. 15-17 mm. Iran and Turkey. **1. *guichardi* Schmid-Egger spec. n.**
 - Sternite II unarmed. Labrum nearly half as long as maximum width (fig. 14). Mesonotum, scutellum and propodeum markedly yellow. 15 mm. Sudan, Kenya..... **2. *priesneri* Schmid-Egger spec. n.**
3. Sternites without tooth or tubercle..... **4.**
 - Sternites II, III or VII with tooth or tubercle (tooth might be reduced to small point) (figs. 192, 209, 293)..... ***peregrinus* group, part 25.**
4. Inner surface of hindfemur without spine..... **5.**
 - Inner surface of hindfemur with one or more spines (fig. 124), spines sometimes barely visible. ***peregrinus* group, part 39.**

5. Spiracular lobes (lateral parts) of tergite VII large, inserted between sternite VI and sternite VII, with row of bristles directed diagonally to outer side (fig. 30). Sternite VI with triangular depression and sometimes with apical point. Sternite VII spoon-like, with long stalk (fig. 30). Spine of flagellomere IX distally enlarged (fig. 27).... ***loriculatus* group 6.**
 - Spiracular lobes of tergite VII small, without bristles. Sternite VI without tooth. Spine of flagellomere IX distally pointed (fig. 57). **7.**

loriculatus species group

6. Sternite VI with small pointed tooth in apical half and with two shiny swellings near base (fig. 30). Bristles of spiracular lobes (at ventral side) thick, black. Light markings pale yellow. Mesonotum centrally black. 11-13 mm. Morocco, Algeria. **3. *discolor* Handlirsch**
 - Sternite VI without tooth in apical half. Bristles thinner, red brown or yellow brown. Light markings lemon yellow. Mesonotum centrally with two longitudinal bands. Eastern Turkey to Iran and central Asia. **4. *gracilicornis* Handlirsch**
7. Hindfemur 3x as long as its medial diameter, ventrally rounded. Tergal punctures 2-3 diameters apart. Whole body appears shiny. Smaller species, 7-9 mm (-11 mm)..... ***tridens* group 8.**
 - Hindfemur shorter than its threefold medial diameter, ventrally often hollowed out or with edge (figs. 222, 223). Tergal punctures less than 1 diameter apart. Whole body less shiny. **39.**

tridens species group

8. Northwest Africa to Libya, western and central Sahara..... **9.**
 - Europe, Palaearctic Asia, Northeast Africa (Egypt, northern Sudan)..... **12.**
9. Face above antennal base yellow (fig. 72). Propodeum, mesopleuron, tergites I and II nearly all yellow. Apical spine of barsitarsus I as long as second tarsus. Head broad (fig. 72). Southern Morocco, Mauritania, Mali. **11. *mhamidus* Schmid-Egger spec. n.**
 - Face above antennal base black. Propodeum centrally black (except some specimens of *argentifrons*). Last spinae of barsitarsus I 1.5-2x as long as second tarsus. Head narrower than in fig. 72. **10.**
10. Propodeal emargination small, triangular (figs. 113-116). Tergite VI black or with lateral yellow spots. Face above clypeus black (figs. 108-109). Mesonotum and mesopleuron black or with small yellow spots. Scutellum with small lateral yellow

- spots. Northwest Africa, southern and Central Europe, Turkey.....**16a. *tridens tridens* Fabricius**
- Propodeal emargination deep, U-shaped (figs. 39, 74). Tergite VI with complete yellow band. Face above clypeus yellow (fig. 36). Mesonotum and mesopleuron with yellow bands or large spots. Scutellum all yellow or with large lateral spots. . **11.**
 - 11.** Submarginal cell II petiolated or at least cubital veins I and II touching each other at marginal cell (fig. 38). Gonostylus without setae at outer edge. Propodeum laterally (view from above) slightly emarginated. Sahara: Hoggar (Algeria), Africa south of Sahara desert..... **5. *argentifrons* F. Smith**
 - Submarginal cell II opened (cf. fig. 94). Gonostylus with row of short setae at outer edge (fig. 55). Propodeum evenly rounded laterally. Morocco, Algeria. **7. *barbarus* de Beaumont**
 - 12.** Europe (except Caucasus, Ukraine and Turkey). **13.**
 - Palaearctic Asia (with Turkey, Ukraine and Caucasus), northeast Africa, Arabian Peninsula. **15.**
- Europe**
- 13.** Hindfemur ventrally without erect setae or setae shorter than those of midfemur. Tergal band I complete. Propodeal emargination deep, well visible (figs. 113-116). Northwest Africa, southern and central Europe, Turkey. (Compare also *B. insularis* from Mallorca, which might have reduced hindfemoral setae). ... **16a. *tridens tridens* Fabricius**
 - Hindfemur ventrally with erect setae, similar than those on midfemur (fig. 65). Tergal band I interrupted (fig. 64). Propodeal emargination small, triangular (fig. 66). **14.**
 - 14.** Light markings lemon yellow. Submarginal cell II petiolate or at least cubital veins I and II touching each other at marginal cell (figs. 67, 68). Clypeus yellow. Southern and central Europe, Syria, Turkey, Palaearctic Asia..... **9. *hungaricus* Frivaldzky**
 - Light markings pale yellow. Submarginal cell II open, cubital veins I and II separate at marginal vein. Clypeus black (yellow in specimens from Mallorca). Corsica, Sardinia, Mallorca. **10. *insulanus* de Beaumont**
- Asia, northeast Africa**
- 15.** Tergite III or IV black or with median yellow spot (figs. 59, 80). Propodeal emargination very small or lacking. Lateral corners of propodeum prolonged (fig. 61). Israel, Arabia, Iran..... **16.**
 - Tergite III and IV with complete yellow band. Propodeum otherwise..... **17.**
 - 16.** Tergite IV black, tergites I-III and V with complete band (fig. 59). Flagellomere I short, length at most twice its apical width. No propodeal emargination (fig. 62). Israel, Arabia.... **8. *bytinskii* de Beaumont**
 - Tergite III black or with median spot. Remaining tergites with distinctive colour pattern: tergal band I interrupted, tergal band II and IV complete, tergite V usually with lateral spots, tergite VI black (fig. 80). Flagellomere I longer, more than twice apical width. Propodeal emargination small, but visible. Arabia, Iran to India..... **12. *proximus* Handlirsch**
 - 17.** Flagellomere I short, at most 1.1-1.7x as long as apical width..... **18.**
 - Flagellomere I longer, 1.8-2.3x as long as apical width. (Tergite VII pointed, sometimes with small apical emargination.)..... **19.**
 - 18.** Tergite VII apically pointed. Flagellomere I very short, 1.1x as long as wide apically (fig. 97). Flagellomere XI basally without tooth. Hindtibia at most 3x as long as apical wide. Sudan..... **13. *remanei* Schmid-Egger spec. n.**
 - Tergite VII (visible part) very short, apically largely emarginated (fig. 204). Flagellomere XI basally with short tooth (or twinned teeth) (fig. 206). Hindtibia 2.6x as long as wide apically. Israel. (Belongs to the *peregrinus*-Group. Hindfemur in most specimens with small basal spine)..... **31. *hebraeus* de Beaumont**
 - 19.** Submarginal cell II petiolated (fig. 107). Gonostylus deeply emarginated at outer edge, roundly enlarged apically (fig. 106). Egypt, Sudan, Ethiopia..... **15. *tenellus* Klug**
 - Submarginal cell II closed or opened, at most shortly petiolated. Gonostylus otherwise. Asia including Israel and Arabian Peninsula. **20.**
 - 20.** Markedly pale yellow: mesopleuron, propodeum laterally, scutellum apically (fig. 99). Outer edge of gonostylus ventrally with row of setae (figs. 100, 101). Flagellomere I at most 1.8x as long as apical width (fig. 104). Southern Turkey, central Taurus mountains..... **14. *schwarzi* de Beaumont**
 - Less yellow or outer edge of gonostylus without setae. Flagellomere I at least 2x longer than apical width. **21.**
 - 21.** Tergal band I interrupted (fig. 64). Hindfemur ventrally with erect setae, similar as in erect setae on midfemur (fig. 65). Propodeal emargination small, triangular (fig. 66). Submarginal cell II petiolate or at least cubital veins I and II interstitial (figs. 67, 68). (Yellow are: labrum, clypeus, spot above clypeus, band at inner margin of eyes,

- scapebelow, pronotal lobe). Southern and central Europe, Syria, Turkey, Palaearctic Asia.....
..... **9. hungaricus Frivaldzky**
- Tergal band I complete. Hindfemur ventrally without erect setae; or setae shorter than those on midfemur. Propodeal emargination otherwise..... **22.**
- 22.** Clypeus 1.3x as long as basal wide (figs. 108, 109). Scutellum laterally with triangular spots, often connected. Apical forebasitarsal spine at least 1.5x as long as tarsomere's II apical width. Lower edge of propodeal emargination as large as upper edge (figs. 113, 119). **23.**
- Clypeus at most 1.1x as long as basal wide (figs. 41, 48). Spots on scutellum rounded or rectangular with parallel inner edge, often connected; or scutellum black. Apical forebasitarsal spine as long as tarsomere II wide at end. Lower edge of propodeal emargination larger than upper edge (figs. 43, 44) **24.**
- 23.** Space above clypeus black (figs. 108, 109). Propodeal emargination triangular, small (figs. 113-116). Turkey to Israel, Northwest Africa, southern and central western Europe.
..... **16a. tridens tridens Fabricius**
- Space above clypeus yellow (figs. 117, 118). Propodeal emargination deeply U-shaped (fig. 119, in rare cases as in fig. 120). Central Asia.
..... **16b. tridens cyanescens Radoszkowski**
- 24.** Propodeal emargination obtuse, small (figs. 43, 44). Less yellow: lateral spots on scutellum smaller than space between them or scutellum black. Propodeum black or with very small lateral yellow spots. Flagellomere XI longer, strongly curved. Tergite VI with complete yellow band. Kazakhstan, Tadjikistan, Uzbekistan.
..... **6a. asiaticus asiaticus Gussakovskij**
- Propodeal emargination deeper (fig. 49). More yellow : lateral spots on scutellum larger than space between them or scutellum all yellow. Propodeum at least with lateral spots, sometimes nearly all yellow. Flagellomere XI shorter, barely curved. Tergite VI with complete yellow band (Turkmenistan) or with two lateral yellow spots. Southern Turkey, Arabia, Iran, Turkmenistan, Pakistan.
..... **6b. asiaticus iranicus Schmid-Egger ssp. n.**
- spines. One doubt complete record from Dalmatia, probably of tropical origin.
..... **52. carinatus Lohrmann**
- Sternite VII without longitudinal keel. Sternites II or III with tubercle and hindfemur in most specimens with spines **26.**
- 26.** Sternite II with tubercle, sternite III flat (fig. 209). ..
..... **27.**
- Sternite III with tubercle, sternite II flat (fig. 192). ..
..... **35.**
- sternite II with tubercle**
- 27.** Sternite VI with pointed tooth (fig. 266)..... **28.**
 - Sternite VI flat or with two small round tubercles (fig. 279). **30.**
- 28.** Hindfemur distally with row of small spines (fig. 264). Colour pattern variable, scutellum black or with two yellow spots (sometimes connected). Metanotum apically with yellow margin or all yellow. Balkans, Turkey to Israel.
..... **42. peregrinus Smith**
- Hindfemur with single spine in distal quarter (figs. 210, 297). Metanotum black. **29.**
- 29.** Hindfemur long, 2.5-2.7x as long as its maximum width, with spine in apical quarter or fifth (figs. 210, 211). Scutellum black. Tergite VI black or slightly reddish. Southern Turkey.
..... **32. heinrichi Schmid-Egger spec. n.**
- Hindfemur short, 2-2.1x as long as its maximum width, with spine in apical third (fig. 297). Scutellum with small yellow reddish lateral spots. Tergite VI with yellow spot or band. Southern Turkey. **49. urfanensis Schmid-Egger spec. n.**
- 30.** Hindfemur rounded below, with long spines at inner surface (figs. 255, 286). **31.**
- Hindfemur apically hollowed out at inner surface, with a row of spines or small, barely visible spines (figs. 188, 237). Northwest Africa. **34.**
- 31.** Sternite VI flat, finely, densely punctured. **32.**
- Sternite VI with two lateral tubercles (fig. 279), surface of sternite between tubercles shiny, coarsely punctured. (Tubercle of sternite II dentiform. Sternite VIII normal. Body length, 10-11 mm). .. **33.**
- 32.** Tubercle of sternite II broad, hawk-beak-shaped (fig. 258). Teeth of sternite VIII largely broadened (lateral view) (fig. 261). Hindfemur curved along its whole length, apically enlarged, black, apically with yellow spot (figs. 255, 256). Israel. Syria.
..... **40. niehuisi Schmid-Egger spec. n.**
- Tubercle of sternite II small, dentiform (fig. 287). Teeth of sternite VIII smaller (fig. 288). Hindfemur
- peregrinus species group**
- sternites with tooth or tubercle**
- 25.** Sternite VII with large longitudinal keel, sternite III with small, barely visible point. Hindfemur without

- apically rounded, basally black, in apical half reddish (fig. 286). Morocco.....
**47. schlaeflei Schmid-Egger spec. n.**
- 33.** Mesonotum, metanotum and tergite VII black, tergite VI often black. Tubercles of sternite VI angular, parallel to body axis, distance between them twice as distance between tubercle and lateral edge of sternite (fig. 279). Israel, Lebanon, Syria. ...
**45. revindicatus Schulz**
- Hind corners of mesonotum, metanotum, tergite VI and VII with yellow spots. Tubercles of sternite VI rounded, diagonal (to axis), distance between them similar as in distance between tubercle and lateral edge of sternite (fig. 137). Southern Turkey.
**19. anatolicus de Beaumont**
- 34.** Hindfemur at inner surface with tubercle, including a tub-formed space (fig. 188). Hindfemur only with very short pyramidiform spine at border of emargination. Tooth on sternite II as long as its basal width, tip rounded (fig. 190). Midtooth of sternite VIII slender, apically even tapered. Algeria, Tunisia.**28. gazagnairei Handlirsch**
- Hindfemur at inner surface with small rise, barely emarginated, with row of spines inside of emargination. Tooth on sternite II smaller, tip apically curved towards apex of gaster (tooth and tergite include an U-formed space) (fig. 239). Midtooth of sternite VIII large, apically abruptly tapered (fig. 240). Algeria, Tunisia.
**37. mayri Handlirsch**

sternite III with tubercle

- 35.** Hindfemur without spines. Body markedly reddish and pale yellow. Iran.
**35. khuzestani Schmid-Egger spec. n.**
- Hindfemur with on or more spines. Body yellow and black.....**36.**
- 36.** Hindfemur with row of spines (fig. 198). Mesonotum coarsely punctured. Body length 13-16 mm. Turkey, Syria, Israel.....
**30. gynandromorphus Handlirsch**
- Hindfemur with single spine (figs. 194, 305). Mesonotum finely punctured. Body length 8-10 mm.....**37.**
- 37.** Sternite VIII with tooth, directed towards apex (figs. 306, 307). Spine of hindfemur short, in its distal fifth (fig. 305). Morocco, Algeria.
**51. zibanensis Morice**
- Sternite VIII flat, without tooth. Spine of hindfemur shorter, in its distal quarter (fig. 245).
**38.**
- 38.** Tooth at sternite III as large as its basal width, with rounded tip (fig. 192). Hindfemur ventrally

- emarginated, basally with angular projection. Hindtibia emarginated (fig. 194). Spine of hindfemur short, situated in its middle. Turkey.
**29. gusenleitneri de Beaumont**
- Tooth at sternite III smaller, mostly pointed at tip (figs. 249-251). Hindfemur and hindtibia barely emarginated (fig. 245). Spine of hindfemur long, in its distal fourth (specimens from Greece mainland and Italy have larger sternal tooth III and shorter femoral spine III). Southeast Europe, Turkey, Syria, Israel.....**38. meridionalis Costa**

sternites unarmed

- 39.** Hindfemur without spine (fig. 223). Light markings olive yellow. Face above clypeus often black or with short band at inner eye margin. Thorax black except small olive yellow stripe on pronotum and tegulae. 10-11 mm. Turkey.....
**34. innocens de Beaumont**
- Hindfemur with one or more spines, spines sometimes short and barely visible.....**40.**
- 40.** Hindfemur with two spines, at least an ocellar diameter apart (fig. 300). Body length, 10-14 mm. Sometimes with three spines at one or both femora; or with a single spine (see below). Hindfemur apically broad and enlarged. Markedly yellow: scutellum with two large yellow spots, often all yellow. Central Asia, Turkey, Israel, Arabian Peninsula.**50. validior Gussakovskij**
- Hindfemur with one spine, twinned spines (distance between them less than ocellar diameter) or row or group of spines.....**41.**
- 41.** Southwest Europe (Portugal, Spain, Southwest France).**42.**
- North Africa, Asia, southeast Europe.**44.**
- 42.** Colour lemon yellow. Bands on tergite I and II cover more than half tergal surface. Legs yellow, basally black (fig. 271). Hindfemur with very small spine or without spine. Southern and central Spain. 9-10 mm.**44. pulchellus Mercet**
- Colour olive yellow. Bands on tergite I and II cover less than half tergal surface. Legs red and black. Hindfemur with long spine (fig. 163).**43.**
- 43.** Black colour of hindfemur covers more than its half (fig. 162). Hindtibia emarginated at inner surface (view from above) (fig. 164). Clypeus basally and space above clypeus mostly black. (In direct comparison: mesonotum denser punctured and larger body length than *B. crassipes*, 10-12 mm). Southern and central Spain, Portugal.....
**23. carpetanus Mercet**
- Hindfemur all reddish or black only at basal third. Hindtibia not emarginated (fig. 162). Clypeus and

- space between clypeus and antennal base mostly yellow. Body length 8-10 mm. Southeast and southern Spain, Southwest France.....
..... **24. crassipes Handlirsch**
- 44.** Tergite VII short, apically deeply emarginated (fig. 204). Hindfemur with very short spine near base (fig. 206). Flagellomere XI basally with small spine (fig. 205), first flagellomeres very short. Mesonotum only with micropuncture. Body length 6,5-7 mm. Israel..... **31. hebraeus de Beaumont**
- Tergite VII long, apically rounded or pointed (fig. 288). Spines of hindfemur in its middle or its distal half. Flagellomere XI without tooth (fig. 291). Mesonotum often with larger punctures beside micropunctures. Larger species or first flagellomeres longer. **45.**
- 45.** Hindfemur with row of 5-7 black small spines (fig. 292), ventrally hollowed out in basal half, with ridge in distal half. Clypeus basally black, remaining face black. Thorax black except of pronotum and tegulae. Colour pattern of gaster: fig. 290. Legs orange red or darkened, Hindtibia might be yellow. Flagellomere XI very short, strongly curved (fig. 291). 9-10 mm. Morocco
..... **48. spinifemur de Beaumont**
- Hindfemur with single spine or group of spines, rounded below or with continuous ridge. **46.**
- 46.** Hindfemur with a group of at least 3 spines (figs. 269, 253). Morocco. **47.**
- Hindfemur with 1-2 spines (figs. 124, 234)..... **48.**
- 47.** Hindtibia strongly enlarged apically (fig. 269). Lemon yellow . Scutellum black. Body length 12 mm..... **43. podager de Beaumont**
- Hindtibia simple (fig. 253). Olive yellow. Scutellum with yellow spot. Body length 9 mm.
..... **39. naefi de Beaumont**
- hindfemur with a single or twinned spine**
- 48.** Northwest Africa (Morocco, Algeria, Tunisia, Western and Central Sahara). **49.**
- Eastern Mediterranean region, Arabia, Asia. **52.**
- 49.** Sternite VI apically widely emarginated. Legs reddish and black. Hindfemur with small spine or twinned spines (figs. 234, 235). Tergal bands narrow. Clypeus with median black spot or yellow. Flagellomere XI very short, strongly curved (fig. 233). Morocco, Tunisia, Libya.
..... **36. mattheyi de Beaumont**
- Sternite VI apically rounded straight. Legs yellow and black..... **50.**
- 50.** Mesopleuron and sternite II nearly all yellow. Tergite VII short, lateral sides forming an obtuse angle (fig. 148). Central and southwest Sahara.
..... **21. bernardi de Beaumont**
- Mesopleuron black, sternite II only laterally with spot. Tergite VII elongated. Mediterranean region, northern Sahara. **51.**
- 51.** Inner surface of hindtibia strongly emarginated in basal half (fig. 124). Tergite VII apically prolonged, deeply emarginated (fig. 126). Flagellomere XI long, strongly curved (fig. 127). Propodeum laterally with small yellow reddish spot. North Africa and western Sahara, eastern Mediterranean area to Iran, Central Asia, Israel and Arabia..... **17. acanthomerus Morice**
- Inner surface of hindtibia simple, rounded (fig. 184). Tergite VII apically not prolonged, barely emarginated (fig. 186). Flagellomere XI short, curved (fig. 181). Propodeum black. Algeria, eastern Mediterranean region to Central Asia.....
..... **27. fertoni Handlirsch**
- Eastern Mediterranean region**
- 52.** Clypeus and remaining face black, only inner margin of eyes and apical margin of clypeus with narrow yellow or yellow reddish band (fig. 178). (Legs reddish with black parts. Scutellum laterally with small yellow spots. Tergite VII black. Hindfemural spine very short, barely visible (fig. 176). Arabian Peninsula. ... **26. decoratus Guichard**
- Front of head between labrum and antennal socket yellow..... **53.**
- 53.** Legs and thorax all yellow except median mesonotum. Tergites I-VII with large bands, basal black part less than ¼ of tergal length. Yemen, Oman..... **18. adeni Schmid-Egger spec. n.**
- Colour pattern otherwise. At least parts of the propodeum and metapleuron black. **54.**
- 54.** Hindfemur narrow, apically at most as wide as basally and rounded (length 2.8-3.3x its apical width) (figs. 219, 282). **55.**
- Hindfemur distally enlarged, broadly angular, apically more or less square-like (length 2.2-2.4x its apical width) (figs. 156, 169). **57.**
- 55.** Scutellum all yellow, or with large lateral spots that are separated by small space. Hindfemur yellow, reddish above, basally sometimes with black spots (fig. 229). 11-13 mm. (Hindfemur 3.3x as long as its maximum width. Body colour lemon yellow. Mesopleuron yellow except narrow posterior margin). Southern Turkey.
..... **33. henseni Schmid-Egger spec. n.**

- Scutellar spots smaller than black space in between. Hindfemur yellow or with black parts. (*acanthomerus* from Morocco might have large scutellar spots, but it has small spots in eastern Mediterranean area)..... **56.**
- 56.** Western Turkey, Greek islands. Body length more than 10 mm. Hindfemur black except apical fourth or third. Hindfemoral spine short, at most half as long as ocellar diameter (figs. 282, 283). Tergite VII in most specimens with large yellow spot. **46. rhodius de Beaumont**
- North Africa to Israel, central and southern Turkey to central Asia, Iran and Oman. Body length less than 10 mm. Hindfemoral spine in most specimens longer (figs. 124, 125). Hindfemur in specimens from Turkey yellow with black spot above in basal half. Tergite VII in most specimens black..... **17. acanthomerus Morice**
- 57.** Scutellum predominantly black, scutellar spots smaller than black space in between (fig. 168). .. **58.**
- Scutellum all yellow or with large lateral spots which are separated by a small space. **59.**
- 58.** Body pale yellow. Body length 7,5 mm. Hindtibia apically with black spot. Hindfemoral spine 0,5x as long as width of femora. Mesopleuron black. Southern Israel, Jordan and Sinai. **20. asphaltites de Beaumont**
- Body lemon yellow. Body length 10-11 mm. Hindtibia all yellow. Scutellar spots small, black space between them smaller than diameter of spot, rounded. Tergite VII always, mesopleuron and propodeum in most specimens black. Greece, Turkey, Israel..... **25. cyprius de Beaumont**
- 59.** Body pale yellow. Body length 8-10 mm. Mesopleuron at most with small yellow spot in upper half. Hindfemur reddish-yellowish, with very short reddish spine (fig. 155). Southern Turkey..... **22. birecikensis Schmid-Egger spec. n.**
- Body lemon yellow. Body length 10-14 mm. Mesopleuron with large spot or all yellow. Hindfemur all yellow or black/yellow, with a black spine. (Most specimens have two hindfemoral spines (fig. 300), or one long spine, in few specimens it is short). Central Asia, Turkey, Israel, Arabian Peninsula..... **50. validior Gussakovskij**

2.2. Females

The following female taxa are undescribed and are not included in the key: *remanei*, *hebraeus*, *schlaeflei* and *heinrichi*.

1. Flagellum claviform (fig. 11). Clypeus longer than smallest distance between eyes. **cinguliger group 4.**

- Flagellum of equal width. Clypeus shorter than smallest distance between eyes..... **2.**
- 2. Basitarsus I obviously enlarged (fig. 35). Flagellomere I at least 2.8x as long as wide (fig. 33). (Clypeus short and large)..... **loriculatus group 5.**
- Basitarsus I not enlarged. Flagellomere I at most 2.5x as long as wide..... **3.**
- 3. Hindfemur longer than three times its diameter. Tergites with scattered punctation, shiny..... **tridens group 6.**
- Hindfemur shorter than three times its diameter. Tergites densely punctured, barely shiny..... **peregrinus group 22.**

cinguliger species group

4. Basitarsus I with a row of approximately 20 dense, short spines (fig. 10). Mesonotum and propodeum centrally black. Body length 14 mm. Iran and Turkey..... **1. guichardi Schmid-Egger spec. n.**
- Basitarsus I with appr. 8 long spines, last spine twice as long as basitarsal width. Mesonotum centrally with two longitudinal bands, propodeum at centre yellow. Body length 13-14 mm. Sudan, Kenya. **2. priesneri Schmid-Egger spec. n.**

loriculatus species group

5. Body black and yellow. Markedly yellow: mesonotum with two longitudinal stripes, propodeum and tergites nearly all yellow. 15 mm. Eastern Turkey to Iran and Central Asia..... **4. gracilicornis Handlirsch**
- Propodeum apically and tergite I reddish. Less yellow: mesonotum at centre black, yellow tergal bands narrower than black part of tergite. 15 mm. Morocco, Algeria. **3. discolor Handlirsch**

tridens species group

6. Northwest Africa (Morocco to Tunisia)..... **8.**
- Europe, Palaearctic Asia, Egypt, Libya **7.**
7. Europe (except Caucasus region, Ukraine and Turkey)..... **11.**
- Asia (Turkey to Central Asia, Near East and Israel), north-eastern Africa, Arabian Peninsula. **13.**

Northwest Africa

8. Markedly yellow. Face above antennal base yellow (fig. 71). Propodeum at centre between yellow lateral spots also yellow. Mesonotum medially with two longitudinal bands. Flagellomere I short, at

- most 1.4-1.7 as long as apical width. Scutellum, metanotum and mesopleuron nearly complete yellow. Yellow tergal bands cover all tergites surface. Gasteral base partly reddish. Southern Morocco, Mauritania. **11. mhamidus Schmid-Egger spec. n.**
- Less yellow. Face above antennal base black. Propodeum and mesonotum centrally black. **9.**
 - 9.** Clypeus all or partly black. When clypeus yellow, then space above clypeus black (figs. 110-112). Propodeal emargination small, triangular (figs. 113-116). Northwest Africa, Southern and Central Europe, Turkey. **16a. tridens tridens Fabricius**
 - Clypeus and space above clypeus yellow. Propodeal emargination deep, U-shaped. **10.**
 - 10.** Submarginal cell II closed or very shortly petiolated (fig. 38). Propodeum laterally (dorsal view) slightly emarginated. Flagellomere I longer than twice its diameter. Sahara: Hoggar (Algeria), Africa south of Sahara desert. **5. argentifrons F. Smith**
 - Submarginal cell II open (fig. 94). Propodeum laterally even rounded. Flagellomere I shorter than twice its diameter. Morocco, Algeria. **7. barbarus de Beaumont**
- Europe**
- 11.** Hindfemur ventrally without erect setae or setae shorter than those of midfemur. Complete yellow band at tergite I. Propodeal emargination large and triangular (figs. 113-116). Northwest Africa, Turkey, Europe. **16a. tridens tridens Fabricius**
 - Hindfemur ventrally with erect setae, similar than those on midfemur (fig. 65). Tergite I with interrupted yellow band (fig. 64). Propodeal emargination small, triangular (fig. 66). **12.**
 - 12.** Lemon yellow. Submarginal cell II petiolated or at least cubital veins I and II interstitial (figs. 67, 68). Clypeus and labrum yellow. Southern and Central Europe, Syria, Turkey, Palaearctic Asia. **9. hungaricus Frivaldzky**
 - Pale yellow. Submarginal cell II open (fig. 13). Clypeus and labrum black. Corsica, Sardinia, Mallorca. **10. insulanus de Beaumont**
- Palaearctic Asia, Northeast Africa**
- 13.** Tergite III or IV black or with yellow spot (or short band) (figs. 60, 81). Israel, Arabia, Iran. **14.**
 - Tergite III and IV with complete yellow band. ... **16.**
 - 14.** Tergite III black or with spot or short band at centre. Remaining tergites with distinctive colour pattern: tergal band I interrupted, tergal band II and IV complete, tergite V usually with lateral spots, tergite VI black (fig. 81). Arabia, Pakistan, India, Nepal. **12. proximus Handlirsch**
 - Tergite IV black. Tergite III with complete tergal band. Bands on tergite I and tergite V complete. **15.**
 - 15.** No propodeal emargination (fig. 62). Clypeus and labrum yellow, sometimes clypeus basally black. Tergite VI black (fig. 60). Lateral corners of propodeum (view from above) posteriorly elongated (fig. 61). Israel, Arabia. **8. bytinskii de Beaumont**
 - Propodeal emargination triangular or deeply U-shaped. Labrum with black spot, clypeus black with yellow stripe at lower margin (sometimes more yellow). Tergite IV sometimes black or with reduced band. (Flagellomere I 1.8x long as broad. Lower edge of propodeal emargination right-angled). Sudan, Mali. **13. aff. remanei Schmid-Egger spec. n.**
 - 16.** Submarginal cell II petiolated (fig. 107). (Flagellomere I 1.9x as long as broad. Labrum, clypeus and space above clypeus yellow. Scutellum with emarginated band, propodeum with lateral spots. Propodeal emargination deeply V-shaped, obtuse angled, lower edge spiniform). Egypt, Sudan, Ethiopia. **15. tenellus Klug**
 - Submarginal cell II closed or opened, at most shortly petiolated (fig. 68, cf. fig. 13). Asia (southwards to Israel and Arabian Peninsula). **17.**
 - 17.** Hindfemoral dorsum with erect setae, similar to setae of midfemur (fig. 65). Band of tergite I interrupted (fig. 64). Propodeal emargination small, triangular (fig. 66). Submarginal cell II petiolated or at least cubital veins I and II interstitial (figs. 67, 68). (Yellow are: labrum, clypeus, spot above upper margin of clypeus). Southern and Central Europe, Palaearctic Asia, southwards to Syria. **9. hungaricus Frivaldzky**
 - Hindfemoral dorsum without erect setae or, if with setae, these are shorter than setae on midfemur. Tergite I with complete band. Propodeal emargination different. **18.**
 - 18.** Clypeus black or only partly yellow (figs. 110-112). Space above clypeus black. Propodeal emargination small, rectangular or with obtuse angle (figs. 113-116). **16a. tridens tridens Fabricius**
 - Clypeus and space above it yellow (fig. 117). Propodeal emargination otherwise. **19.**
 - 19.** Propodeal emargination deeply U-shaped (fig. 119). Lateral spots on scutellum triangular, sometimes large and connected. **20.**

- Propodeal emargination small (fig. 44), rectangular or with obtuse angle. If deep, than upper edge longer than lower edge. Lateral spots on scutellum rounded or rectangular, sometimes connected by narrow basal band), or scutellum all yellow..... **21.**
- 20.** Flagellomere I 2x as long as apically wide. Light markings yellow lemon. Colour variable, mesopleuron black. Central Asia.....
..... **16b. tridens cyanescens Radoszkowski**
- Flagellomere I 1,8x as long as apical wide. Light markings pale yellow. Mesopleuron with yellow spot. Southern Turkey (Central Taurus Mountains).
..... **14. schwarzi de Beaumont**
- 21.** Less yellow: scutellum black or its lateral spots smaller than space between them. Propodeum black. Hindtibia distally at inner surface with dark spot. Kazakhstan, Tadjikistan, Uzbekistan.
..... **6a. asiaticus asiaticus Gussakovskij**
- More yellow: scutellar lateral spots larger than space between them (fig. 52). Propodeum at least with lateral spots, sometimes nearly complete yellow. Hindtibia all yellow. Southern Turkey, Arabia, Iran, Turkmenistan, Pakistan.
..... **6b. asiaticus iranicus Schmid-Egger, ssp. n.**

peregrinus species group

- 22.** South-western Europe (Spain, Portugal, SW France)..... **23.**
- Others. **24.**
- 23.** Light markings lemon yellow. Yellow bands on tergite I and II broader than half tergal length. Legs yellow, basally black. Body length 9-10 mm. Southern and central Spain.
..... **44. pulchellus Mercet**
- Light markings olive yellow . Yellow bands on tergite I and II smaller than half tergal length. Legs red and black . Body length 8-12 mm.. Females of both species are indistinguishable. South-eastern and southern Spain, south-western France
..... **23. carpetanus Mercet and**
..... **24. crassipes Handlirsch**
- 24.** Southeastern Europe, Palaearctic Asia, northeast Africa (Egypt, northern Sudan). **25.**
- Northwestern Africa (Morocco, northern Algeria, Tunisia and Libya)..... **57.**

peregrinus-Group, southeast Europe, Asia, northeast Africa

- 25.** Sternite II with tooth (fig. 203). Tergite VI with pygidial plate. Body length up to 16 mm.
..... **30. gynandromorphus Handlirsch**

- Sternite II unarmed. Tergite VI without pygidial area. Body length less than 16 mm. **26.**
- 26.** Thorax and/or gaster with reddish colour (at least tergite I basally reddish). Israel, Oman, Iran..... **27.**
- Thorax and gaster black and yellow, without reddish colour. **29.**
- 27.** Whole body yellow, frons, mesonotum and base of first tergites with reddish marks. Iran.
..... **35. khuzestani Schmid-Egger spec. n.**
- At least frons, mesonotum and apical tergites basally black. Tergite I basally (Israel) or propodeum and tergites I and II basally red (Oman).
..... **28.**
- 28.** Whole thorax (except mesonotum mesally) and first two tergites reddish-yellow (fig. 128). Flagellomere I 1.7x as long as wide. Oman, Yemen.
..... **18. adeni Schmid-Egger spec. n.**
- Thorax predominantly and base of tergite II all black. Flagellomere I 1.9x as long as maximum width. Southern Israel.
..... **17. acanthomerus Morice red form**
- 29.** Clypeus long, approximately as long as minimal distance between eyes (fig. 142). Scutellum with small triangular lateral spots. Metanotum, mesopleuron, propodeum and tergite VI black. Hindtibia apically with black spot at inner surface. Extension of face colour variable. 7.5-9 mm. Southern Israel, Jordan and Sinai (Egypt).
..... **20. asphaltites de Beaumont**
- Clypeus shorter, minimal distance between eyes at least 1.2x as long as clypeus length. Colour pattern different; or not from Israel and Jordan. **30.**
- 30.** Clypeus and labrum partly or all black (figs. 262, 274). (Tergite VI black. Hindtibia with black spots)..... **31.**
- Clypeus yellow (at most with narrow black basal band), labrum different, (figs. 144, 263)..... **34.**

clypeus black

- 31.** Clypeus with even dense, fine punctures and coarse larger punctures (two diameters apart), with shiny interspaces. Size of black spot on clypeus variable (fig. 241). (A lighter colour form of *meridionalis* occurs in the eastern Mediterranean region. *B. revindicatus* from western Turkey might in rare cases also have a basally black clypeus). Greece, Italy. **38. meridionalis Costa**
- Clypeus densely, finely punctured, without coarse larger punctures, without shiny interspaces. Turkey to Israel. **32.**

32. Legs reddish and black. Space above clypeus and basal part of clypeus yellow (clypeus varying from all black to all yellow), apical part of clypeus and labrum black (figs. 262, 263). Eastern Turkey.
..... **41. nigrolabrum Schmid-Egger spec. n.**
- Legs yellow and black. Base of clypeus and space above clypeus black, clypeus at most apically and laterally (reddish-) yellow. **33.**
33. Clypeus black with narrow apical reddish yellow band (or at most apical half yellow). Clypeus basally smooth and shiny, only with macropunctures; mesally and apically with macro- and micropunctures. Mesonotum and mesopleuron in upper half with fine scattered punctures 1.5 diameters apart. Turkey.
..... **29. gusenleitneri de Beaumont**
- Clypeus laterally with two large yellow spots which may be connected apically, or clypeus all black (fig. 274). Clypeus all microsculptured between macropunctures. Mesonotum and mesopleuron in upper half with coarse, dense punctures, 0.2-0.5 diameter apart. Syria, Israel, Jordan.
..... **45. revindicatus Schulz**
- clypeus yellow**
34. Clypeus short, minimal distance between eyes 1.7x as long as clypeus, its maximum width 3x length of clypeus (fig. 225). Apical margin of clypeus widely emarginated. (Slender species. Spines of forebarsitarsus long, spatulate). Turkey.
..... **34. innocens de Beaumont**
- Clypeus longer (minimal distance between eyes at most 1.4x clypeal length). Apical margin more or less straight. **35.**
35. Space above clypeus black, or only laterally or mesally with small yellow spot (fig. 280). Black space conspicuously larger than yellow spots. **36.**
- Space above clypeus all yellow or at most with very small, black spots (fig. 144). **43.**
36. Hindfemur reddish. Space above clypeus with large lateral yellow spots, as large as black space between them. **37.**
- Hindfemur black and yellow. Space above clypeus without such spots. **38.**
37. Propodeum laterally black. (Clypeus sometimes basally black. Mesopleuron black, tergite VI black or with yellow spot. Forefemur yellow, dorsally black. Legs II and III reddish, tibiae with yellow band. Thorax covered with silvery pilosity). Arabian Peninsula. **26. decoratus Guichard**
- Propodeum laterally with small or large yellow or yellow reddish spot. Turkey to Arabia, Iran, north Africa. **17. acanthomerus Morice**
38. Tergite VI with large yellow spot. **39.**
- Tergite VI black. **41.**
39. Clypeus long, approximately as long as minimal distance between eyes (fig. 280). Lateral spots on scutellum and band on metanotum small. Face above clypeus all black. Greek islands, western Turkey, this colour form occurs on the Greek islands (Crete, Rhodos, etc.). 11-12 mm.
..... **46. rhodius de Beaumont**
- Clypeus shorter, minimal distance between eyes at least 1.2x as long as clypeal length. Colour pattern different; or not from Greek islands or western Turkey. **40.**
40. Smaller species, less than 11 mm. Frons below midocellus sparsely punctured, punctures small. Body colour lemon yellow. Scutellum with large lateral spots. Turkey to Arabia, Iran, North Africa. ...
..... **17. acanthomerus Morice**
- Body length more than 11 mm. Frons below midocellus densely, coarsely punctured, punctures larger than in *acanthomerus*. If body colour lemon yellow, microsculpture of clypeus grain like. Scutellum in most specimens with small lateral spots. Balkans, Turkey to Israel, this colour form occurs in eastern Turkey. **42. peregrinus Smith**
41. Body length less than 10 mm. Last tergal bands short, not reaching tergal sides. Scutellum with small lateral spots, space above clypeus with small lateral spots (fig. 135). Interantennal space often with small yellow spot (fig. 134). Southern Turkey.
..... **19. anatolicus de Beaumont**
- Body length more than 10 mm. Colour pattern otherwise. **42.**
42. Clypeus and labrum lemon yellow, with very dense and fine (grain like) punctures. Tergite VI with small, but well defined pygidial plate. Markedly yellow: inner orbits of eyes with yellow band, tergite V with complete yellow band, tergite VI often with yellow spot. Balkans, Turkey to Israel, this colour form occurs in Europe, western, central and northern Turkey. (Clypeus sometimes with basal narrow black band. Scutellum and metanotum sometimes black. Tergite VI in 25% of Greek specimens with small or larger yellow spot).
..... **42. peregrinus Smith**
- Clypeus pale yellow, labrum black with reddish spots. Clypeus with double punctation: fine and regular small punctures and larger and coarse punctures in between. Labrum shiny, with well

defined and coarse double punctation. Tergite VI without pygidial plate. Less lemon: inner orbits of eyes black, tergite V black or with short central band. Eastern Europe, Turkey to Israel, this colour form occurs only in Europe and western Turkey. (Colour of face variable: specimens from Greece and Italy with black spotted clypeus or clypeus is all black, space above clypeus black, specimens from Turkey, Syria and Israel have yellow space above clypeus). **38. meridionalis** Costa

clypeus and space above it yellow

- 43.** Legs partly reddish. **44.**
- Legs yellow and black or all yellow, without reddish parts. **46.**
- 44.** Labrum and apical narrow band on clypeus black (fig. 263). Coxae and femora basally black. Scutellum with small lateral spots, metanotum black. Central and eastern Turkey.
- **41. nigrolabrum** Schmid-Egger spec. n.
 - Face up to antennal socket yellow (figs. 152, 215). Coxae pale yellow. Scutellum with large spots, often connected, metanotum yellow. Southern Turkey. **45.**
- 45.** Flagellomere I 2.4x as long as apical wide (fig. 220). Mesopleuron and propodeum laterally with large yellow spot. Lemon yellow. 11 mm.
- **33. henseni** Schmid-Egger spec. n.
 - Flagellomere I 1.8x as long as apical wide (cf. fig. 154). Mesopleuron black or with small spot, propodeum black. Pale yellow. 9-10 mm.
 - **22. birecikensis** Schmid-Egger spec. n.
- 46.** Mesopleuron and tergite VI yellow (if mesopleuron yellow and tergite VI black, cf. also 45). **47.**
- Mesopleuron black, tergite VI otherwise. (Coxae black). **48.**
- 47.** Legs all yellow. Mesopleuron with large yellow spot, spot at least as large as half surface of mesopleuron. Propodeum laterally yellow. Body length 11-12 mm. Central Asia, Turkey, Israel, Arabian Peninsula. **50. validior** Gussakovskij
- Coxae and femora partly black. Mesopleuron and propodeum with small yellow spot. Body length 9-11 mm. Eastern Mediterranean area. (The here mentioned form agrees with typical *cyprius* from Cyprus. Turkish specimens could not be examined. A female from Israel differs in colour pattern, see below). **25. cyprius** de Beaumont
- 48.** Tergite VI with yellow spot. **49.**
- Tergite VI black. **56.**
- 49.** Body length at most 9 mm. Body colour pale yellow. Mesopleuron with dense adjoining silver pilosity. Turkmenistan. ... **17. acanthomerus** Morice
- Body length more than 10 mm. Body colour lemon yellow. Mesopleuron without dense silver pilosity, with long erect setae. **50.**
- 50.** Space above clypeus laterally with two small black spots. Tergite VI nearly all yellow. Clypeus densely micropunctate, grain like. Scutellum in most specimens with small lateral spots, metanotum black or yellow. Balkans, Turkey to Israel, this colour form occurs in eastern Turkey. It has normally the space above clypeus black or only a small yellow spot. (A female from the Urfa region, Halfeti, in southern Turkey agrees well with the here described *peregrinus*. It differs in having only a small lateral spot on the scutellum, a black metanotum and body length only 10,5 mm. It might be the unknown female of *heinrichi* spec. n.).
- **42. peregrinus** Smith
 - Space above clypeus all yellow. Tergite VI with small yellow spot. Clypeus shiny. Remaining characters otherwise. **51.**
- 51.** Body length less than 8 mm. Lateral spots on scutellum large, nearly connected basally. Postscutellum with complete band. Space above clypeus mesally black. Oman and United Arab Emirates. **26. decoratus** Guichard
- Body length more than 9 mm. Lateral spots on scutellum smaller than space between them. Metanotum different, space above clypeus all yellow. Turkey to Israel. **52.**
- 52.** Hindtibia apically largely black. **53.**
- Hindtibia all yellow. (Larger than 10 mm). **56.**
- 53.** Metanotum with narrow band, that may be interrupted mesally. Body length more than 10 mm.
- **54.**
 - Metanotum black or with ill-defined reddish-pale spots. Body length less than 10 mm. **55.**
- 54.** Scutellar spots rounded at inner surface. Body length 12-13 mm. Eastern Europe, Turkey to Israel, this colour form occurs only in Rhodos and southern Turkey. Greece (Rhodos), southern Turkey. **38. meridionalis** Costa
- Scutellar spots triangular. Body length 11 mm. A colour form of *cyprius*. Greece, Turkey, Cyprus to Israel, Israel. **25. cyprius** de Beaumont
- 55.** Body colour pale. Scutellar spot rounded. Northern Israel, southern Syria.
- **40. niehuisi** Schmid-Egger spec. n.

- Body pale lemon yellow. Scutellar spots rectangular or triangular. Southern Turkey.
..... **49. *urfanensis* Schmid-Egger spec. n.**
- 56.** Metanotum with large band. Body colour dark lemon yellow. Eastern Europe, Turkey to Israel, this colour form occurs in Israel.
..... **38. *meridionalis* Costa**
- Metanotum black. Body colour pale lemon yellow. Southern Turkey. This taxon from southern Turkey belongs probably to *meridionalis*, but it may also be a colour form of *cyprius* or the female of *heinrichi*).
..... **38. aff. *meridionalis* Costa**
- Legs reddish (femora in greater part black). Clypeus basally with large triangular spot or band. Pronotal lobe black or indistinctly pale. Colour in most specimens pale yellow. Tergal bands at most half as wide as tergal length. **63.**
- 62.** Punctuation on thorax coarser, punctures larger than in *mayri*. (Band on tergites II-V narrow with large double emarginations. Last band laterally shortened). Morocco. **43. *podager* Handlirsch**
- Algeria, Tunisia. Punctuation on thorax finer, mesonotum nearly impunctate.
..... **37. *mayri* Handlirsch**

Northwest Africa

- 57.** Scutellum with yellow spots. **58.**
- Scutellum black. **61.**
- 58.** Clypeus as long as minimal distance between eyes (fig. 185). Last tergal bands often not reaching lateral margin of tergites. Algeria, Tunisia. (Propodeum sometimes laterally yellow. Space above clypeus, tergite VI and mesopleuron black)...
..... **27. *fertoni* Handlirsch**
- Clypeus shorter, minimal distance between eyes at least 1.2x as clypeal length. Tergal bands reaching lateral margin of tergites in most specimens. **59.**
- 59.** Mesopleuron and propodeum black. Clypeus with basal black band. Morocco, Algeria. (Mesonotum black except short lateral bands. Scutellum with large yellow spots, touching each other in some specimens. Metanotum yellow. Tergite VI black. Legs including femora reddish yellow).
..... **51. *zibanensis* Morice**
- Mesopleuron and / or propodeum laterally yellow. Clypeus all yellow or only mesally black. **60.**
- 60.** Hindfemur reddish. Clypeus and space above all yellow. Body length 9-10 mm. North Africa and western Sahara, eastern Mediterranean area to Iran, Central Asia, Israel and Arabia.
..... **17. *acanthomerus* Morice**
- Hindfemur black with ventral yellow band. Clypeus basally and space above apically black (fig. 150). Body length 8-9 mm. Central and southwest Sahara. (Other markedly yellow colored species occur in the western Sahara area: e.g. *monodi* Berland and *kotschyi* Handlirsch. They are not treated here). **21. *bernardi* de Beaumont**
- 61** Legs black and yellow, sometimes also with reddish parts. Clypeus all yellow. Pronotal lobe yellow. Colour lemon yellow. Tergal bands otherwise. **62.**
- 63.** Body length 7,5-8 mm. Clypeus black except apical band, as wide as 1/3 of clypeal length. Labrum black. Mountains of Morocco.
..... **48. *spinifemur* de Beaumont**
- Body length more than 8 mm. At most basal third of clypeus black. Labrum yellow. Lowlands. **64.**
- 64.** Colour lemon yellow. Algeria, Tunisia. (Colour variable: clypeus varying from all black to all yellow). **28. *gazagnairei* Handlirsch**
- Colour pale yellow. Libya to Morocco. (Two species indistinguishable in female sex. *B. naefi* is only known from Casablanca, whereas *mattheyi* is widespread in southern Morocco and is also recorded from Tunisia and Libya).
..... **36. *mattheyi* de Beaumont and**
..... **39. *naefi* de Beaumont.**

3. DESCRIPTION OF SPECIES

Bembecinus A. Costa, 1859

Bembecinus A. Costa, 1859:4. Type species: *Bembecinus meridionalis* A. Costa, 1859, by monotypy.

Stizomorphus A. Costa, 1859:7. Type species: *Vespa tridens* Fabricius, 1781, by monotypy.

Gorystizus Minkiewicz, 1934:252. Not available: type species not designated (Article 13b).

Gorystizus Pate, 1937c:29. Type species: *Vespa tridens* Fabricius, 1781, by original designation. Validation of *Gorystizus* Minkiewicz, 1934.

Lavia Rayment, 1953:23. Nomen nudum.

A full diagnosis and description of *Bembecinus* will be given in a later publication. For recent diagnosis and description of *Bembecinus*, see Bohart & Menke (1976).

Bembecinus cinguliger species group

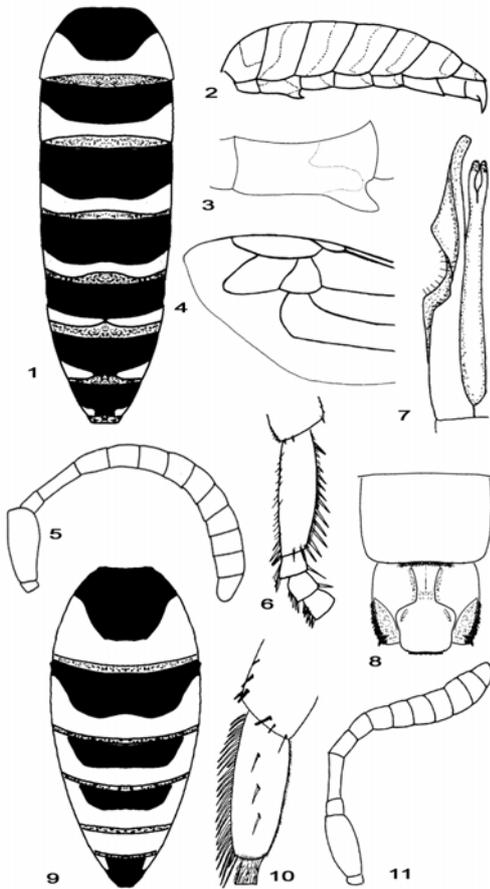
Diagnosis: The males of the *cinguliger* group are characterized by a simple flagellum, without a spine on flagellomere IX. The flagellomeres X and XI are

evenly rounded and not emarginated or curved (fig. 5). The sternite VII is spoon-like, which means that the spiracular lobes (lateral parts of the tergite VII) are enlarged and inserted between the sternites VI and VII (figs. 8, 17). Their edges are simple, whereas they have dark bristles in the related *loriculatus* species group. The eyes are strongly convergent downwards in both sexes, the clypeus is longer than its apical wide. Some males of the *cinguliger* group have a large tooth on sternite II. The females of the *cinguliger* group are characterized by their short and dense forebasitarsal spines (fig. 10). A marked propodeal emargination is present, unlike the related *rhopalocerus* species group from southern Africa without propodeal emargination.

In the Western Palaearctic region, the *cinguliger*-group is only represented by *guichardi* Schmid-Egger, spec. n., from eastern Turkey and Iran; and *priesneri* Schmid-Egger, spec. n., from Sudan. In southern Africa, the group is represented by *cinguliger* Smith 1856, *oxydorcus* Handlirsch 1900 and some undescribed species. Other species groups with simple male flagellomeres are the above mentioned *rhopalocerus* group, the *caffer* group from tropical and southern Africa and the *mirus* group from Madagascar.

1. *Bembecinus guichardi* Schmid-Egger spec. n.

(Figs. 1-11)



Figs. 1-11: *Bembecinus guichardi* male: 1 gaster; 2 gaster lateral view; 3 tubercle on sternite II, lateral view; 4 forewing; 5 flagellum; 6 forebasitarsus; 7 left half of genitalia, dorsal view; 8 sternites VI-VII and lateral parts of tergite VII; female: 9 gaster; 10 forebasitarsus; 11 flagellum.

Diagnosis: *Bembecinus guichardi* is characterized by the above mentioned group characters, the male also by its pointed tooth on sternite II and its black mesonotum. The male of *priesneri* shares the unarmed flagellomeres with *guichardi*, but has an unarmed sternite II and a markedly yellow mesonotum. The female of *guichardi* has short and thick forebasitarsal rake spines, whereas the spines in *priesneri* are long and thin.

Male: Body length 14-15 mm. Black. Pale yellow are: face until antennal base, yellow shortly extending toward ocelli at inner eye margin and between antennal base, mandibular base, scape (with black dorsal spot), narrow band at pronotum, pronotal lobe, small band at mesonotum near tegulae, tegulae, small lateral spot at propodeum, narrow bands at tergites I-VII, (bands on last tergites may be interrupted mesally). Band on tergite I laterally enlarged. Sternites II-IV (V) with lateral spots, connected by narrow band. Femur with black longitudinal dorsal spot, remaining legs pale, tarsi reddish. Pedicel and flagellomere I black, remaining flagellomeres dorsally black, ventrally and laterally reddish. Venation of wings reddish. Head and thorax covered by long silvery pubescence, setae of frons twice as long as midocellus diameter. Extension of pale colour variable. A specimen has a small yellow spot on mesopleuron.

Flagellum: Fig. 5. Thorax and gaster finely, densely punctured, whole body dull. Propodeal emargination small, barely visible, basolateral edge of propodeum large. Sternite I with longitudinal carina in apical half, sternite II apically with short pointed tooth, directed backwards. Sternite VI apically widely emarginated, sternite VII spoon-like, the spiracular lobes of tergite VII enlarged and inserted between sternite VI and VII. Spines of sternite VIII similar in length, the outer spines bent apically. Gonostylus longitudinal, with wing-like enlargement laterally. Forebasitarsus with 12-14 short white setae at outer edge, setae half as long as basitarsal width. Legs simple. Hindtibia along its dorsal edge with row of 10-12 pale, very short spines.

Female: Body length 14 mm. Head as in male. Colour of remaining body lemon yellow, more extended than in male: Large band at pronotum, pronotal lobe, lateral band at mesonotum, lateral spots at scutellum, metanotum and propodeum, upper half of mesopleuron, large bands at tergites, medially narrower than half tergite length on tergites I-III. Tergite VI laterally spotted, sternites II-V markedly yellow. Legs all yellow, with small dorsal black spots on femur. Tarsi reddish.

Flagellum: Fig. 11. Punctuation and propodeal emargination as in male. Tergite VI apically emarginated. Outer edge of forebasitarsus with 19-21 setae-like pale rake spines. Spines as long as 2/3 of

basitarsal width. Hindfemur 3,5x as long as its maximum width. Hindtibia along its dorsal edge with a double row of very short reddish spines.

Etymology: The species is dedicated to the late Kenneth M. Guichard, a specialist of Hymenoptera of London, who supported the *Bembecinus* revision.

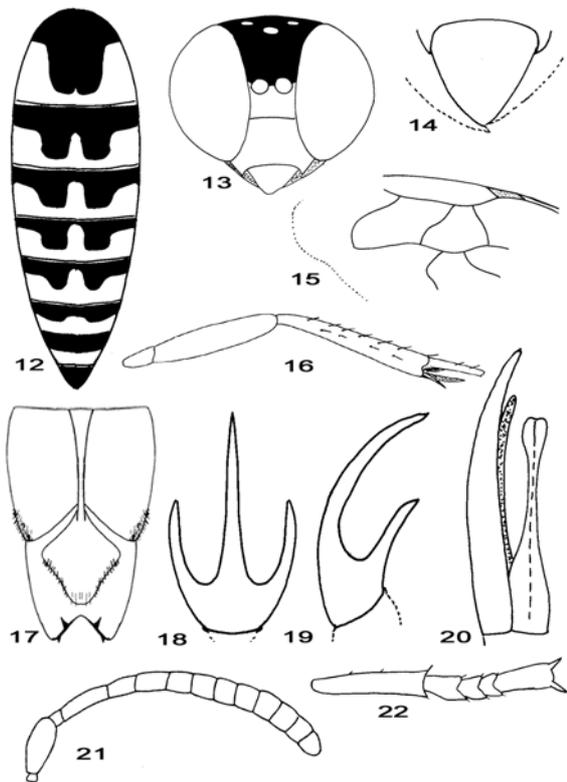
Geographic distribution: Eastern Turkey to Iran.

Records: Holotype: TURKEY male 8 July 1997, 25 km E Malatya, leg Ma. Halada (OLL).

Paratypes: TURKEY: female male 21 June 1990 23 km E Malatya (SE) - male 6 July 1975, Köniyrham-Paß (Elazig), 900m (SE) 7 females 2 July 1987 Mardin (LEIDEN). 6 males 7 females 8 July 1997 25 km E Malatya, Kopeksiz; 7 males 4 females Turkey E, 30 km W Baykan (OLL).

IRAN: female 23 May 1978 Fasciaar Abbas, Paß E Rudan, N. Minab, 570 m (SE).

2. *Bembecinus priesneri* Schmid-Egger, spec. n. (Figs. 12-22)



Figs. 12-22: *Bembecinus priesneri* male: 12 gaster; 13 head; 14 labrum; 15 forewing; 16 hindleg; 17 sternites VI-VII and lateral parts of tergite VII; 18 sternite VIII dorsal view, 19 id, lateral view; 20 left half of genitalia; 21 flagellum; 22 foretibia and foretarsi.

Diagnosis: The male is characterized by its unarmed sternites and apical flagellomeres without spines. It shares the female-like flagellomeres with *B. guichardi* from Iran and Eastern Turkey, but *B. guichardi* has a small pointed tooth on sternite I, that lacks in *B. priesneri*. The female of *B. guichardi* has short and

thick rake spines on forebasitarsus, whereas the spines in the females of *B. priesneri* are long and thin.

Discussion: *Bembecinus priesneri* is probably a member of the *cinguliger*-group, but it has also characters of the *rhopalocerus*-group, described from South Africa. This group is similar to the *cinguliger*-group, but has an apically narrowed propodeum without propodeal emargination, whereas the propodeum is apically large with a distinct propodeal emargination in the *cinguliger*-group. *Bembecinus priesneri* also differs from *B. guichardi* by the form of the antenna, which is only a little clavate as compared with *B. guichardi*. The gonostylus is not emarginated at outer margin, like in *B. guichardi* and *B. cinguliger*, the genitalia resemble those of the members of the *discolor*-group. Maybe the species is also related to the *B. caffer*-group from southern Africa (Arnold 1929). A flashy character of *B. priesneri* is the long labrum, not occurring in the other examined species of the genus. A further revision must clarify the relationship between all these species with spoon-like sternite VI. For practical reasons *B. priesneri* will be assigned to the *cinguliger*-group provisionally.

Bembecinus priesneri belongs to the Ethiopian fauna. I could examine two females from Kenya which agree well in clypeus proportions and colour pattern with the male. I assign them to the male of *B. priesneri*, but do not designate them as paratypes.

Male: Body length ca 15 mm (type is long drawn out by preparation of genitalia): Head pale yellow, body lemon yellow. Yellow are: labrum, clypeus, space above clypeus, bands at inner and outer eye margin, small spot between front ocellus and eyes, spot between front and hind ocellus, scape below, flagellomere I and II below. Remaining flagellomeres red brown, scape and flagellomeres I and II black above. Thorax black, yellow are: pronotum, pronotal lobe, T-shaped spot on mesopleuron, four short longitudinal stripes at mesonotum (two at outer edge, two in the middle, not reaching pronotum), two small spots on scutellum, interrupted band on metanotum, lateral edges of propodeum, small spots on propodeum laterally. Tergites with deeply W-shaped bands, sternites with narrower yellow bands. Legs yellow, all femur, fore and hindtibia with black spots above.

Labrum 1.1x as long as wide. Minimal distance between eyes 0.85x as long as clypeal length. Clypeus laterally with pointed corner. Flagellum slightly claviform, Flagellomere I 3.2x as long as wide. Head, thorax and tergites with long erect setae. Thorax and tergites shiny, with dense punctation, punctures less than one diameter apart. Lower lateral edge of propodeum prominent, no propodeal emargination at outer edge. Horizontal surface of propodeum longer than metanotum. Submarginal cell II open. Sternites

and femur unarmed. Sternite VII basally with long thin stalk, diamond-shaped. Sternite VIII hollowed out at base, teeth of sternites VIII strongly curved downwards. Gonostylus narrow, long, apically pointed.

Female: Body length 13-14 mm. Light lemon yellow are: Face up to antennal socket, additional marks below scape and around ocelli, band behind eyes, pronotum, pronotal lobes, thorax laterally and below all, mesonotum with four large longitudinal bands, scutellum with large lateral spots, metanotum, propodeum laterally and mesally. Tergal bands as in male, tergite VI and sternites all yellow, flagellum dark yellow, scape and flagellomere I below black. Mandible apically black. Legs yellow, forefemur with small, mid- and hindfemur and hindtibia with large black band above. Wing venation brown. Mesonotum with a few short erect and pale setae.

Labrum and clypeus as in male. Flagellum claviform. Forebasitarsus with 4 rake spines at whole length and a group of 3-4 rake spines apically. Apical spines twice as long as basitarsal width apically. Hindtibia 3.5x as long as mid-diameter.

Records: Holotype: male 01 Mar 1931 «Egypt, Gebel Elba» [probably «Jabal Ilbah» a mountain in NE SUDAN, 22°12'N 36°20'E] leg Priesner. coll. Schwarz (Condition: right eye destroyed by *Anthrenus*).

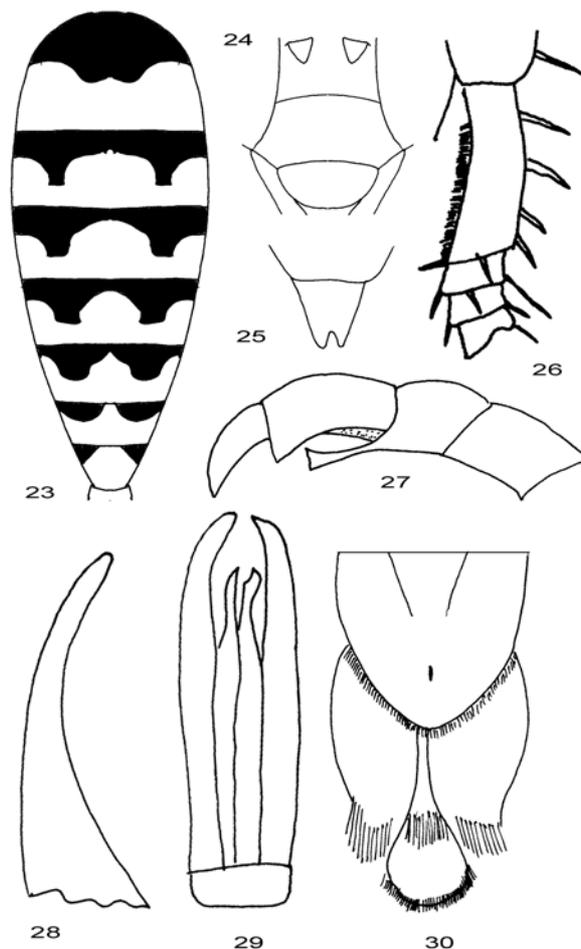
Females, not designated as paratypes: KENYA, 2 females, 12 Dec 1969 Archer's Post Uaso Nyiro river (CAS, SE).

Bembecinus loriculatus species group

Diagnosis: The males of the *loriculatus* species group sensu Arnold (1929) are well characterized by their enlarged spiracular lobes of tergite VII at ventral side of abdomen, which carry long bristles at dorso-lateral edge. Also the sternite VII is spoon-like and the gonostylus is narrow and elongate without any enlargements. Flagellomeres are typical for *Bembecinus* (flagellomere IX with spine, flagellomere X emarginated). Sternites carry tubercles or are unarmed. The spine of flagellomere IX is apically thickened or bent, probably also a group character. The female forebasitarsus is obviously broad, the only character to recognize the group in the female sex. The species of the *loriculatus* group represent the largest *Bembecinus* with maximum body length of 17 mm.

The *loriculatus* group as defined here is represented only in the Western Palaearctic region by *discolor* and *gracilicornis*. The southern African *loriculatus* (Smith 1856) and *nysae* (Turner 1912) and the western African *robustus* (Arnold 1951, described as *Stizus nysae* var. *robustus*) belong to the *loriculatus* group. A special character of the males of *discolor* and *gracilicornis* is an oval platform laterally on base of sternite VIII.

3. *Bembecinus discolor* (Handlirsch, 1892) (Figs. 23-30)



Figs. 23-30: *Bembecinus discolor* male: 23 gaster; 24 face; 25 tergite VIII; 26 forebasitarsus, 27 apex of flagellum; 28 gonostylus, lateral view, 29 genitalia, 30 sternite VI and VII, lateral parts of tergite VII.

Stizus discolor Handlirsch, 1892: 78. Syntypes Algeria (Krakow?) - de Beaumont 1950: 400 (77: Morocco, Algeria) - de Beaumont 1951: 281 (Morocco, description) - As *Bembecinus discolor*: de Beaumont 1954: 275 (key male, Algeria, Morocco).

Diagnosis: The male sternite VI has a small pointed tooth in apical half and two shiny swellings near base (sternite VI simple in *gracilicornis*). The female is characterized by its red abdominal base (yellow and black in *gracilicornis*). *Bembecinus discolor* is pale yellow whereas *gracilicornis* has light lemon yellow markings.

Male: Body length 15 mm. Pale yellow: Mandible (apically black), labrum, clypeus, space between clypeus and scape, three yellow stripes in central face reaching midocellus, scape, pronotum, tegulae, lateral bands of mesonotum, scutellum, metanotum, propodeum laterally and V-shaped spot on middle propodeum. Mesopleuron yellow spotted. Bands of tergites half as wide as length of tergites, with two

deep emarginations. Sternites laterally yellow, spots sometimes connected. Legs yellow, hindfemur reddish except apex. Flagellum ventrally reddish-yellow, dorsally black.

Flagellomere I 2.9x as long as apical wide. Thorax covered with fine silvery pubescence, mesonotum shiny with large scattered punctures, mesopleural punctures one diameter apart. Propodeal emargination large and deep. Legs simple, forebasitarsus with 4 spines on outer edge. Tergite VII widely emarginated at apex, its lateral parts large, situated between sternites VI and VII. Latero-apical edges of tergal enlargements with row of long black bristles. Sternites with fine, dense punctures, interspaces shiny. Sternite VI apically with small pointed tooth, basally with two shiny swellings. Sternite VII spoon-like, enlargement basally with medium-sized dense setae (as long as diameter of flagellum), apically with long setae (twice diameter of flagellum). Gonostylus long, apically pointed, slightly curved downwards.

Female: Body length 15 mm. Colour pattern similar as in male, but pale markings more extended. Legs, thorax laterally, first sternites and tergite I light red. Tergite II black/yellow or (in three of five specimens from Algeria/St. Maur) red/yellow. Tergite V black, apically broadly blunt, its surface grainlike. Forefemur pale yellow below. Forebasitarsus enlarged, 1.5x as long as apical wide, with 5 long spines (apical spines as long as basitarsal length). Foretarsomere II wider than long, spines longer than basitarsal length.

Geographic Distribution: Morocco and Algeria.

Records: MOROCCO: male 28 April 1995, Tissint, 70 km E Tata (OLL) - female 30 June 1995; 40 km W Ouarzazate, Tazenakht (NEU) - 2 males Asni 10 July 1932 - female 14 July 1932 Goundafa (ETH) - 2 males female 15 Apr 1947 Marrakesch/Qued Tensift (coll. Centrale/Paris) - male 14 May 1947 Marrakech, Qued Tensift (Schlaefle) (*discolor* det. de Beaumont 1948).

ALGERIA: male 28 May 1971 Hamman Salihine (SE) - 5 females 21 June /23 July 1936 St. Maur (coll. Roth/Paris).

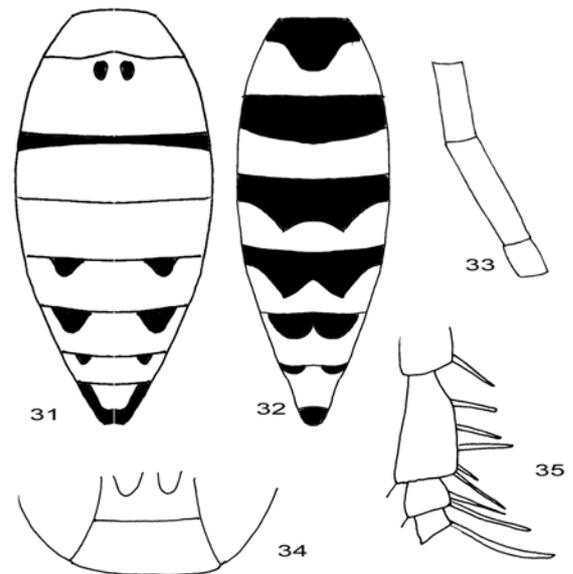
4. *Bembecinus gracilicornis* (Handlirsch, 1892) (Figs. 31-35)

Stizus gracilicornis Handlirsch, 1892: 93. Female. Syntypes Armenia or Azerbeidjan, Arax Valley (NHMW) - Handlirsch 1895: 983 (description of male, taxonomy: *Stizus barrei* Radoszkowsky, 1893 = syn. n.) - As *Bembecinus gracilicornis*: de Beaumont 1954: 274-275 - Kazenas 1978 85: (key central Asia).

Diagnosis: *Bembecinus gracilicornis* is markedly lemon yellow, without red markings.

Male: Body length 14-15 mm. Lemon yellow: Face up to antennal base, three bands until midocellus and laterally along inner eye margin, mandible except black apex, scape, flagellomeres below (dorsally

black). Body markings yellow, black are: mesonotum except two large central bands, basal band on dorsal surface of propodeum, narrow basal spots at tergites, apex of tergite VII. Body proportions similar as in those of *discolor*. Sternite VI only with small apical platform, basally with large depression (not visible without preparation of sternite). Bristles on lateral enlargement of tergite VII reddish.



Figs. 31-35: *Bembecinus gracilicornis* male: 31 gaster; female: 32 gaster; 33 pedicel (below), flagellomere I-II; 34 clypeus, 35 foretarsomeres.

Female: Body length 14-15 mm. Colour similar as in male, but yellow spots less extended. Tergal bands half to two third as wide as tergal length, mesopleuron with black parts. Femur basally sometimes black, colour variable. Body proportions like in *B. discolor*.

Geographic distribution: From Iran and Caucasus to Central Asia. Records from Turkey are doubtful.

Records: ARMENIA or AZERBAIDJAN: Lectotype female 1890, Araxesthal (= Aras Valley, leg. Reitter, NHMW, det. Handlirsch as *gracilicornis*, present designation) - a second female with same labels in ZMHB is designed as paralectotype.

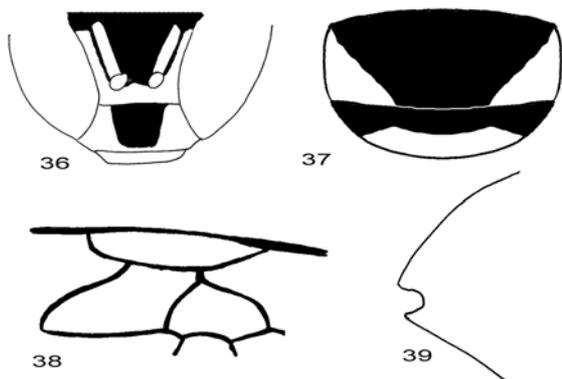
IRAN: male 2 females 26 May 1979, Kerman, 10 km W Rafsanjan, 1450 m NN (SE) - 2 males 10 July 1965 Elburz, Monti stepfici 24 km S Ab Ali (CAS).

TADJIKISTAN: female 11 June 1944, male 24 July 1979 Dushanbe (CAS).

TURKMENISTAN. male female 2 Apr 1974 Kara Kala (CAS) - female TR (Transcaspica?) Cap Saraks (det. Handlirsch, WIEN). A male and a female from ZMHB carries old yellow labels «TR-CAP Saraks», red «type» labels, «Coll. Radosz.» and «barrei». Certainly they are the types of *Stizus barrei* Radoszkowsky, 1893, a synonym of *gracilicornis*.

Bembecinus tridens species group

Diagnosis: The *tridens* group occurs worldwide. The species are characterized by their small to moderate body size (6-12 mm), their shiny integument (sparsely punctate, interspaces shiny, without microsculpture) and the hindfemur longer than three times its diameter. The males do not have any spines or tubercles on the hindfemur or on sternites. The gonostylus is often laterally broadened or has setae, emarginations or other special characters. Flagellomere IX has a spine. The propodeal emargination is large in most species.

5. *Bembecinus argentifrons* (F. Smith, 1856) (Figs. 36-39)

Figs. 36-39: *Bembecinus argentifrons*: 36 male face, 37 female scutellum; 38 male forewing; 39 male propodeum lateral view, with emargination.

Larra argentifrons F. Smith 1856, male, holotype or syntypes: South Africa, Natal (BMNH)

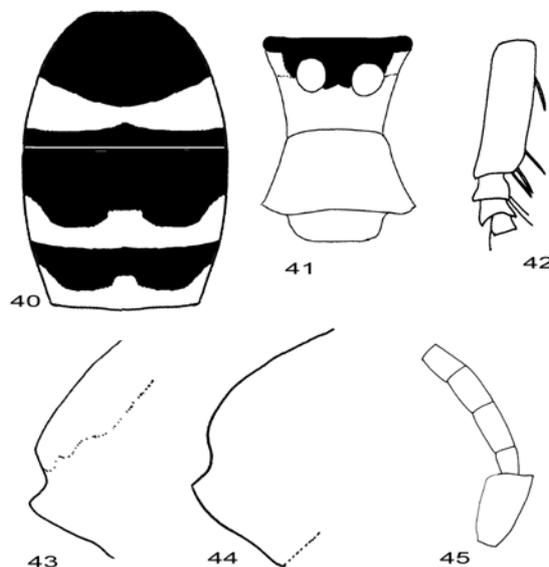
Stizus braunsii Handlirsch in Kohl 1894, males, females, Syntypes: Mozambique (NMHW), synonymised with *argentifrons* by Bohart (1997)

Bembecinus touareg de Beaumont, 1954: 253 male, female, holotype Hoggar, Idjef Melene (MCZL). Paratypes examined, **syn. n.**

Diagnosis: *Bembecinus argentifrons* is well characterized by the form of the propodeum (dorsal view): the lateral edge is slightly emarginated apically, whereas it is evenly rounded inwards in all other species of the *tridens*-group in the Palearctic region. Also the submarginal cell II is shortly petiolated, while open in most other species. The clypeus is yellow with a central black spot in most specimens, the propodeal emargination is deeply U-shaped. Otherwise the species is similar as in *tridens*. The species is widespread in Africa south of the Sahara. The specimens from the Hoggar mountains in southern Algeria, described as *touareg* de Beaumont, represent the northernmost populations of the species. A detailed description will follow in a later publication.

Geographic distribution: Africa south of Sahara, southern Algeria: Hoggar.

Records: Male, female, ALGERIA Hoggar, Idjef Melene, both: paratypes det. de Beaumont (MCZL). Examined specimens from southern Africa are not mentioned here.

6a. *Bembecinus asiaticus asiaticus* (Gussakovskij, 1935) (Figs. 40-45)

Figs. 40-45: *Bembecinus asiaticus asiaticus* male: 40 gaster; 41 face; 42 foretibia and foretarsomeres; 43 propodeum lateral view, with emargination; female: 44 id.; 45 base of flagellum.

Bembecinus asiaticus Gussakovskij, 1935:441, males, females. Syntypes: Tadjikistan: Kulab; Uzbekistan: many localities (ZIN). - Gussakovskij, 1935:443 (in key); de Beaumont, 1961:274 (Afghanistan) - 1967:301 (key, male; determination?, from Turkey, as ?*asiaticus*, male from Dörtüol examined, belongs to *tridens*). - Islamov, 1986:523 (Uzbekistan: Tashkent Oblast).

Diagnosis: The male of *asiaticus* s.str. from central Asia is well characterized by its small and obtuse propodeal emargination, its clypeal proportions (fig. 41) and its short foretarsal spines (fig. 42). The edge below the propodeal emargination is as long as or longer than the diameter of the propodeal emargination, whereas it is shorter in *tridens*. Most specimens of *asiaticus* have a black scutellum and a black mesonotum. The similar *tridens* has a shorter and larger clypeus (figs. 108-112), a triangular or deep U-shaped propodeal emargination and longer tarsal spines I. Females of *asiaticus* from Central Asia are recognizable by small triangular propodeal emargination, the yellow clypeus and the rounded spots on the scutellum. The females of *tridens* have a deeper U-shaped or triangular propodeal emargination, and triangular spots on the scutellum. The scutellum may also be all yellow in both species. Females of *tridens tridens* have a black clypeus, whereas it is yellow in the central Asian subspecies *tridens cyanescens*. The latter has a very deep U-shaped propodeal emargination. The third central Asian

species of the *tridens* group, *hungaricus*, is easily identifiable by an interrupted first tergal band and the presence of hindfemural setae (no setae in *tridens* and *asiaticus*).

Discussion: *Bembecinus asiaticus* s.str. agrees well with Gussakovskij's original description and figures of the species. I have not examined the types, but I have examined some specimens identified by Gussakovskij that agree well with his description, I have no doubt about the interpretation of the species. The species occur in Central Asia, southwards to Turkmenistan.

A markedly yellow population with a deeper propodeal emargination and - in the male - a shorter flagellomere X occurs in Turkey, Iran, Pakistan and Arabia. The males of this taxon have two lateral spots on tergite VI, and tergite V is all yellow in both sexes. It agrees with *asiaticus* (s.str.) in proportions of the clypeus and the length of the tarsal spines.

Regarding these character differences in comparison with the central Asian populations, the taxon could be treated as distinct species. However, intermediate specimens exist in Turkmenistan, Uzbekistan and Tadjikistan - those intermediate populations occur together with typical form: yellow colour is extensive, the propodeal emargination is small and like typical *asiaticus*, the male flagellomere X is longer than at typical *asiaticus*, the band on male tergite VI is complete, the band on tergite V in male and female is large. A female from Askhabad with the described character combination was identified by Gussakovskij as *asiaticus*. It has a very small propodeal emargination, a character which Gussakovskij (1935) used in his key to separate it from *tridens* and *cyanescens*.

Because of the existence of transition forms I will treat the markedly yellow taxon as subspecies of *asiaticus* s. str.: *Bembecinus asiaticus iranicus*, ssp. n. The conditions for a subspecies concept are fulfilled: the species has a different character combination in different geographic areas, specimens with characters of both subspecies occur in a transition zone. Nevertheless is the problem not solved at all. It is not excluded that the new subspecies belongs to a good species, different from *asiaticus*, and the transition forms in Turkmenistan are markedly yellow forms of the latter at the southern range of the distribution area. But the proposed solution seems the best until further material allows a more detailed study about this subject. Also no problems with nomenclature occur because I could not find any taxa-name which comes into consideration for the new subspecies.

A male and a female from ZMHU carries printed red «Type»-labels and «coll. Rad.». The male comes from «Ashabad», the female from «Transcaspia». Both locality-labels are printed on yellow paper, what makes

its origin from the Radoszkowski's collection probable. Both specimens were placed in the Berlin's collection below labels with the species name «*cyanescens*», the female carries an old handwritten label «*cyanescens*». It is certain that these specimens come from the Radoszkowski collections (the red type labels were probably added later).

Male: Body length 9-10 mm. Lemon yellow areas: labrum, clypeus, space above clypeus, stripes at inner eye margin, scape ventrally, pedicel, flagellomere I, X and XI, band on pronotum, pronotal lobe, base of tegulae, small spot on mesonotum behind tegula. Scutellum black or in some specimens with two lateral spots. Spots rounded, oval or rectangular. Tergites I-VI with narrow bands, in last tergites of some specimens as broad as visible part of tergite. Sternites I-VI with triangular lateral spots, sometimes connected with narrow band. Fore- and midfemur yellow on underside, hindfemur yellow on distal end, all tibiae and tarsi yellow.

Minimal distance between eyes as long as clypeus. Flagellomere I 2.2x as long as distal width. Flagellomere X strongly curved. Propodeal emargination small, rectangular or obtuse angled (character is variable). Sternites coarse punctured, shiny. Sternite VI emarginated, sternite VII with ridge. Genitalia as in *tridens*. Spines of forebasitarsus short, as long as foretarsomere II. Second submarginal cell opened.

Female: Body length 9-10 mm. Colour as in male. Flagellomeres yellow beneath. Scutellum black or with two lateral spots, formed as in male. Tergite VI and sternite VI black. Hindfemur with black mark at inner side distally. Minimal distance between eyes 1.3x as long as clypeus. Propodeal emargination as in male.

Variation: Specimens from Tadjikistan and Uzbekistan are markedly yellow. They represent transition forms to *iranicus* ssp. n. The propodeum is laterally largely touched with yellow, the mesopleuron may have small yellow spots. Tergal bands are large, band on tergite V may be as large as visible tergal length.

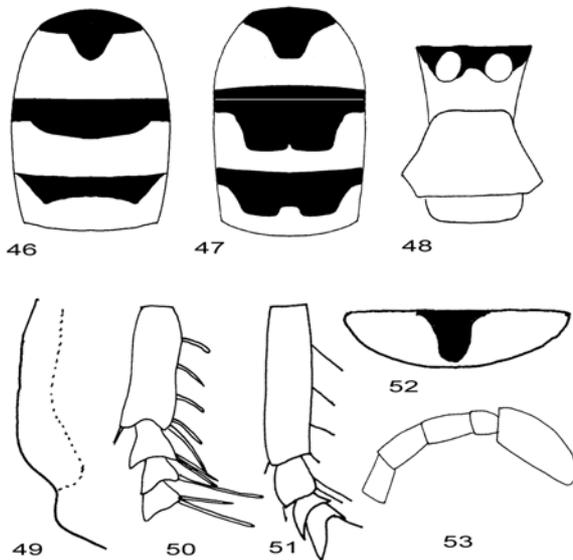
Geographic distribution: *Bembecinus asiaticus* s.str. occurs in Central Asia. It is described from Tadjikistan and Uzbekistan, and occurs also in Kazakstan.

Records (*asiaticus* s.str.): KAZAKSTAN: 3 males 4 females 14 June 1992 River Ili, Aidarli - 2 males female 25 June 1995 Matai Desert, 78,6° 6,23° - male 15 June 1992 Koktal garden (Kaz. mer.) - male 27 June 1992 Lake 50 km S Balkhash (Kaz. cent.) - male 18 June 1992 6km SE Lepsi (Kaz. cent.); male 19 July 1991 desert Kosapan/ Djambul (OLL).

UZBEKISTAN: male 23 May 1992 Buchara, Koron 15km (OLL).

TADJIKISTAN: 8 males 4 females July 2000 10 km S Dbi-Garm, Sichcar (OLL).

6b. *Bembecinus asiaticus iranicus* Schmid-Egger, ssp. n. (Figs. 46-53)



Figs. 46-53: *Bembecinus asiaticus iranicus*: 46 male gaster; 47 female gaster; 48 male face; 49 female propodeum lateral view, with emargination; 50 female foretarsomeres; 51 male id; 52 female scutellum; 53 female base of flagellum.

Diagnosis: The male of *asiaticus iranicus* can be distinguished from *asiaticus* s.str. by the lateral spots on tergite VI (complete band in *asiaticus* s.str.), and the longer flagellomeres XI. The propodeal emargination is larger than in *asiaticus* s.str., but smaller than in typical *tridens cyanescens*. The female of *asiaticus iranicus* is markedly yellow (mesonotum laterally, scutellum, metanotum, propodeum), whereas *asiaticus* s.str. has a nearly complete black thorax surface. In both sexes, the band on tergite I is large and deep U-shaped emarginated, the remaining bands are also larger than in *asiaticus* s.str. A male of *schwarzi* of an unknown origin has a similar colour pattern as *asiaticus iranicus*, it can be recognized by setae on parameres and by a deeper propodeal emargination. For distinction from other species and discussion see comments at *Bembecinus asiaticus* s.str.

Male: Holotype: Body length 8,5 mm. Light lemon yellow: face up to the upper margin of scape, flagellomere yellow beneath. Pronotum, tegulae, mesopleuron anteriorly, scutellum and propodeum posteriorly all yellow (black stripes on propodeum between lateral and central part). Mesonotum with large lateral bands and two small median spots. Band on tergite I large, deep U-shaped, bands on terga II-V narrow, double emarginated. Tergite VI with two lateral spots, tergite VII black. Sternite II with two large lateral spots, connected by a narrow distal band. Sternite III-V with triangular lateral spots, also

connected by a band. Femur, tibia and tarsi all yellow, Femur I-III with basal dark spot at upper side.

Clypeus 1.1x wider than long (in other specimens as wide as long). Flagellomere XI short, barely curved apically. Last spine of forebasitarsus as long as foretarsomere II. Propodeal emargination small and with obtuse angle (fig. 49), variable in other specimens. Sternites coarse punctured, shiny. Sternite VI emarginated, sternite VII with ridge. Genitalia as in *tridens*.

Variation: The species occurs in two forms: The typical form from Turkey to Iran, Pakistan and Arabia has two lateral yellow spots on tergite VI, the form from Turkmenistan has a complete tergal yellow band. Specimens from Arabia have only a small yellow spot in the middle of the propodeum, yellow painting on scutellum is interrupted in basal half. Specimens from Pakistan have only two lateral spots on propodeum and lateral spots on scutellum (spots on scutellum are larger than black space between them). Space above scape is black. Specimens of Turkmenistan are similar as in latter, tergite VI has a complete yellow band.

Female: Body length 9-10 mm. Colour as in holotype. Band on tergite I large, with deep U-shaped emargination. Tergites II-IV with narrow bands, tergite V with large band, tergite VI black, reddish at end. Some specimens (from all origins) have less yellow paintings: Propodeum black in the middle, spots on scutellum with black space between them, band on tergite V smaller. Femur, tibia and tarsi yellow, femora with black or reddish black spot basally. In one specimen hindtibia is nearly completely black. Morphology as in *asiaticus* s.str.

Geographic distribution: *Bembecinus asiaticus iranicus* is recorded from central southern Turkey to Pakistan and the Arabian Peninsula. The subspecies intermingle with the nominate form of *asiaticus* in Turkmenistan, Uzbekistan and Tadjikistan.

Records: Holotype: TURKEY: male 2 July 1993 Turkey mer or., Nemrut Dagi, Karadut (leg. Halada, OLL).

Paratypes:

IRAQ: female 18 Sep 1956 Mosul (ZSM).

IRAN: female 7 May 1954 Belutschistan, SW Iranshar, Bank of Bampur (*Bembecinus cyanescens* Rad det. J. de Beaumont 1969) (SMNS) - 8 males 7 July 1965 Fars, Daria Namak, 27 km E Shiraz [propodeum all yellow, tergite VI with lateral spots]; male 4 females 17 July 1965 Khorasan, Fazel 9 km W Mashad; female Khorasan, Vakjlaad, 12 km E Mashad; male 18 July 1965 Khorasan, Fathabad 38 km NW Mashad, Orto, 1000m NN, male, female 30 June 1965 Khuzestan, taft Tapeh 300 km N of Adaban (CAS).

AFGHANISTAN: female 13 Aug 1960, Doavi (Pamir de Chivah, au NE de Faizabad, 2550m) (MCZL, det. de Beaumont 1963 as ?*asiaticus*). [Colour pattern similar as in

male] - male 25 June 1956 Gulbahar, 1700 male (MCZL, det. de Beaumont 1963 as *?asiaticus*, nearly identical to male from Turkmenistan).

SAUDIA ARABIA: male 21 Apr 1980 Hofuf (SE).

PAKISTAN: 2 males 2 females 30 Sep 1972 Karachi Env. (SE) - 9 July 1989 150 km NE Karachi, Kirthar Nat. Park 25°10'N 67°10'E (CAS).

TURKEY: female 1 Aug 1988 Anamur, Kalesi (SE) - female 17 June 1997 20 km W Silifke, Eksiler - female 14 Aug 1991 30 km SW Bitlis (OLL) - 2 females 28 June 1987 Urfa, Halfeti (LEIDEN).

Transition forms to *asiaticus* s.str. not designated as paratypes:

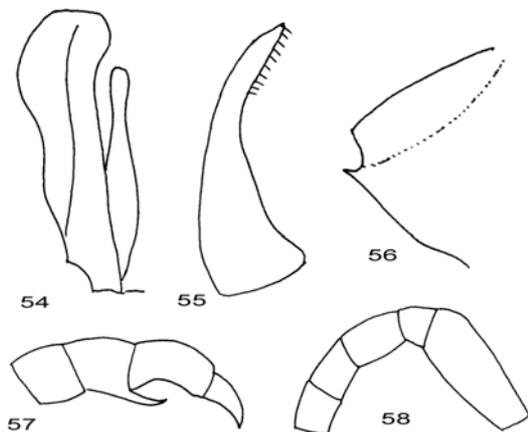
TADJIKISTAN: female June 1966 Pyandj (OLL)

TURKMENISTAN: 21 females 7 males 27 May 1964 Tedshen tugai; male 24 Apr 1917 Kazab Bucharra [band on tergite VI complete] (CAS) - 3 males 3 females 31 May 1993 Ashabad 15km N (OLL) - female 21 July 1923 Ashabad «*Bembecinus asiaticus* V. Gussakovskij det» (Pagliano). - 3 males 27 May 1960 40 km N Mary (MCZL) - female 25 May 1964 Tedshen fugai (SE) - Male «Ashabad» and female «Transcaspija» (ZMHU), see discussion.

UZBEKISTAN: male female 8 June 1932 Karabata, Kusakjin; female 4 Sep 1932 Bag-Absal, 50 km N Bukara [det. Gussakovskij as *asiaticus*] (CAS).

7. *Bembecinus barbarus* (de Beaumont, 1950)

(Figs. 54-58)



Figs. 54-58: *Bembecinus barbarus* male: 54 left half of genitalia; 55 gonostylus lateral view; 56 propodeum lateral view, with emargination; 57 apex of flagellum; female: 58 base of flagellum.

Stizus barbarus de Beaumont, 1950:398 male, female. Holotype: female: Algeria: Laghouat (BMNH).- As *Bembecinus barbarus*: de Beaumont, 1954:256 (new combination, revision), 1958:58 (Algeria: Tassili des Ajjer).

Diagnosis: *Bembecinus barbarus* belongs to a lineage which is characterized by a row of pale setae ventrally at outer edge of gonostylus. The lineage is also characterized in the male sex by a short flagellomere I, a long and barely curved flagellomere XI and a deeply

U-shaped propodeal emargination. It includes the following species: *Bembecinus barbarus* is less yellow than the similar *mhamidus* from west Africa and Morocco (space above antennal base and propodeum mesally black, yellow in *mhamidus*.) and has a smaller clypeus. The similarly *schwarzi* from Turkey has a narrower gonostylus, the body lemon yellow, and tergal bands nearly as large as tergal length (*barbarus*: body pale yellow).

The females of the lineage are also characterized by an extended yellow colour, a deeply U-shaped propodeal emargination and a short flagellomere I. *Bembecinus mhamidus* is distinguishable from the other species of the lineage by the extremely extended yellow colour (space above antennal base, large central bands at mesonotum, whole propodeum) and its wide clypeus. *Bembecinus barbarus* and *schwarzi* are indistinguishable in the female sex. *Bembecinus tenellus* from Egypt and Sudan has also setae on gonostylus beneath. The species differs from the above mentioned species by form of gonostylus, longer flagellomere I and smaller propodeal emargination.

Discussion: Both species, *barbarus* and *schwarzi* are closely related or are conspecific. Because of the isolated habitat of *schwarzi* in a large valley in the inner Taurus mountains around Mut (Southern Turkey) and the large distance to the next populations of *Bembecinus barbarus* both species will be treated as distinct species. The type-area of *schwarzi* is a very hot and dry locality isolated from other Turkey regions by mountains (own observations). The habitat includes sandy river banks and *Tamarix*-shrubs and closely resembles the habitat of *barbarus* in southern Morocco, (own observations). Perhaps *schwarzi* represents an isolated population of a ancestral *barbarus*-like taxon which was earlier widely distributed in the Mediterranean region.

Male: Body length 6-7 mm. Pale yellow: Face until antennal base, bands at inner eye margin, antennae, bands of pronotum, complete lateral fascias of mesonotum, scutellum and metanotum, large lateral spots at propodeum and mesopleuron. Tergal band mesally narrower than half tergal length, laterally enlarged, II-V deeply bi-emarginated. Sternites markedly yellow. Tergite and sternite VII black. Legs yellow, coxa and femur black, spotted above. Flagellomeres dark yellow, first flagellomeres somewhat darker. Wing venation reddish, costal and sub costal veins dark. Whole body covered with long silvery appressed pubescence and erect setae. Clypeus 1.2x as wide as long. Flagellomere I 1.8x as long as apical wide. Flagellomere XI slender, more curved than in *schwarzi*. Submarginal cell II opened. Propodeum laterally evenly rounded, propodeal emargination deeply U- or V-shaped. Forebasitarsus with long spines, apical spine 2x as long as basitarsal

apical wide. Gonostylus similar as in *tridens*, with a row of short pale setae at outer edge.

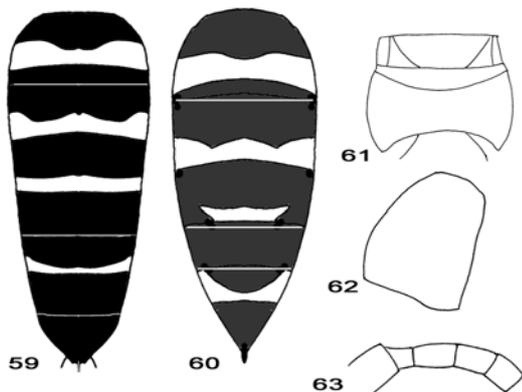
Female: Body length 6-7 mm. Colour and propodeal emargination similar to male's. Flagellomeres dark above. Propodeum with small yellow spot mesally. Tergite and sternite VI black. Clypeus 1.3x as wide as long, flagellomere I 1.8x as long as apical wide. Forebasitarsus enlarged, 2.7x as long as basal wide, its spines 1.5x as long as its basal width.

Geographic distribution: Southern Morocco and Algeria.

Records: ALGERIA: female 25 Aug 1945 Fessan/Berland leg. (paratype det. de Beaumont) (coll. Centrale/Paris) - male 31 May 1958 Biskra (paratype det. de Beaumont) (CAS) - male June 1972 Tassili des Ajjer, Djanet (OLL, female 1949 coll. Centrale/Paris).

MOROCCO 5 males 28 May 1995, 30 km SE Zagora (HS, SE) - female male 16 May 1997 100 km S Zagora, Mhamid - male 21 May 1995 Beni Bassia - female 15 May 1997 Zagora (OOL) - 2 males 11 June 1962 Zagora (Schlaefle) (*barbarus* det. de Beaumont 1963).

8. *Bembecinus bytinskii* de Beaumont, 1954 (Figs. 59-63)



Figs. 59-63: *Bembecinus bytinskii* male: 59 male gaster; 60 female gaster; 61 male propodeum dorsal view; 62 id. lateral view; 63 female base of flagellum.

Bembecinus bytinskii de Beaumont, 1954:255. male, female, Holotype: male, Israel: Naharia (H. Bytinski-Salz coll.) - de Beaumont & Bytinski-Salz 1955: 50: Israel - Guichard 1980: 229: Oman.

Diagnosis: *Bembecinus bytinskii* belongs to the *tridens*-group in a lineage with a specialized form of propodeum: it is arch-shaped without any emargination, its lateral edges overlapping the central backside (dorsal view). Also tergite IV is black, whereas the tergite V has a distinct and full band. Another species with reduced bands (on tergite III) is *proximus* from Saudi Arabia and Iran. Other members of the lineage occur in southeast Asia (e.g. *pusillus* Handlirsch).

Male: Body length 8-9 mm. Pale yellow: face up to antennal base, bands at inner eye margin, scape and flagellomeres below, narrow band on pronotum, lateral corners of mesonotum, small spots on scutellum, central band on metanotum, tegulae. Tergites I-III with complete narrow band (sometimes band not reaching lateral edge of tergite). Tergite IV black or with small median spot, in some specimens from UAE with shortened median yellow band. Tergite VI and VII black (in one specimen from UAE tergite VI with small lateral spots). Femur black (femur I and II apically yellow), tibia II and III with small black spot apically at inner side. Wing venation dark.

Clypeus 1.4x as wide as long. Flagellomere I 1.9x as long as apical wide. Flagellomere XI short, markedly curved apically. Submarginal cell II closed. Propodeum without propodeal emargination, lateral edges pointed and taller than central part of propodeum. Apical spines of forebasitarsus as long as basitarsal apical wide. Gonostylus *tridens*-like.

Female: Body length 8-9 mm. Mandible reddish black, yellow at base. Colour and colour pattern as in male. Space above clypeus black or yellow (in some specimens from UAE). A female from Yemen has a central black spot on the clypeus. Outer edge of propodeum with some yellow. Tergite IV may have a median yellow spot or small short band. Sternites II-V with lateral spots and small band apically. Femora black and yellow, tibiae yellow with black spot at inner lateral side. Tarsi dark yellow, forebasitarsus black at lateral outer edge, hindbasitarsus black above. Flagellomere I 2x as long as apical wide. Propodeum as in male. Forebasitarsus enlarged, 2.2x as long as apical wide, its spine 0.7x as long as basitarsus length.

Geographic distribution: Arabian Peninsula to Southern Israel.

Records: ISRAEL: 3 males 22 Aug 1948, 7 June 1948, 26 May 1943 Palestine, Jericho (MCZL, TA, CAS) [paratype, det. de Beaumont] - 2 males without date, Daganian Vallée du Jourdain (MCZL, CAS) [paratype, det. de Beaumont] - 2 males 13-22 May 1975 Jericho, Wadi Qilt, - 250m (SE) - 2 males 16 Apr 1970, 28 Apr 1964 En Geddi - male 9 Apr 1971 Jericho - male female 19 Sep 1967 W. Fara, 4 km Damia - female 2 Sep 1976 Hazera (TA) - 11 males 20 female 8 May 1996 135 km N Elat, Iddan (Malaise-trap) (SE, DAVIS) - 2 females 8 May 1996 50 km SE Beer Sheva, Wadi En Aqrabbim (SE) - 6 males 9 May 1996 45 km N Elat, Sand dunes E Qetura (Niehuis) - female 4 males 9 June 1996 Eilat, male 16 June 1996 En Gedi (Schlaefle), (male and female det. de Beaumont).

JORDAN: male 16 Apr 1996 W Dead Sea - 2 males 15 Apr 1996 Safi, 50 km N of Karak - female 20 May 1996 30 km N Tafila (OLL) - 8 males female 13 May 1990 Arava, 3 km S Hazeva (Amsterdam).

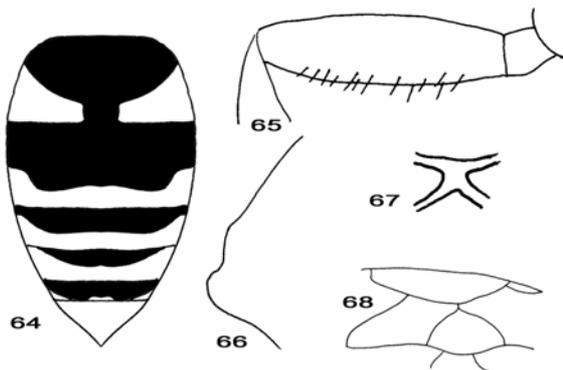
OMAN: female 20 Sep 1981 Madhabak (Roche) - male 11 Dec 2003 Wadi Ghul near Nizwa, female Hail al Gaf 3 Dec 2003 (SE)

SAUDI ARABIA: female 4 males 3 June 1959 El Riyadh (CAS) - male 20 Oct 1979 Jeddah; male Waid Shumran 12 Feb 1980; male Wadi Ilyah 20°07'N/10°57'E 11 Nov 1979 (Basel) - male female 27 April 2002 Hadasham (Gadallah).

UNITED ARAB EMIRATES: male 08 April 1993, Al Ain, Iron (SE) - female 10 April 1993 Hatta (SE) - 14 males 2 females 23 Oct-13 Nov 1981 Hatta (Roche) - 2 females 3 Dec 1981 Dhaid, Milaiha road (Roche) - female 7 Aug 1981 Wadi Uyoynah nr. Diboah (Roche) - male Awir Dubai 1984 (Ohl) - female Nakhali, Duba 1984.

YEMEN: male Jan 2001 to 9 Apr 2001; 2 females 16 Oct 2000 to 31 Dec 2000 Al Lahmia - 2 females Mai 1999 Lahj - 3 males 9 females Apr 1993, male 27 Oct to 15 Nov 1992 Kowd - male 3 Dez 1997 17 Feb 1998 Al Kadan (Amsterdam, all in malaise trap) - 5 females 15-30 June 2000 Lahj (LEIDEN, malaise trap).

9. *Bembecinus hungaricus* (Frivaldszky, 1876) (Figs. 64-68)



Figs. 64-68: *Bembecinus hungaricus* female: 64 gaster; 65 hindfemur; 66 propodeum lateral view, with emargination, 67 stalk of 2 submarginal cells; 68 forewing.

The following list includes only citations of taxonomical significance. *Bembecinus hungaricus* is also mentioned in many faunistical and other publications. See catalogue of W. Pulawski (www.calacademy.org) for the complete records. All described subspecies of *Bembecinus hungaricus* are listed here, but not treated in the present paper, because they occur only in the eastern Palaearctic Region or in Taiwan.

Larra Hungarica Frivaldszky, 1876:354, male, female, incorrect original capitalization. Syntypes: Hungary: Budapest and Temes Komitat (now Romania: Timis, District): Grebenáčz (TMB).- As *Bembecinus hungaricus*: de Beaumont, 1954:251 (new combination, redescription); nec Tsuneki, 1965:14 (= *Bembecinus posterus*); Kazenas, 1980:85 (Russia: Amur Oblast); Eiroa and Novoa, Gayubo and Borsato, 1994:218 (France: Corsica).

ssp. *amamiensis* Tsuneki: *Bembecinus hungaricus amamiensis* Tsuneki, 1965:16, male, female, Holotype: male, Japan, Ryukyu Islands: Amami Oshima Islands:

Gusuku (K. Tsuneki coll.). - As *Bembecinus hungaricus*: Tsuneki, 1962:7 (Ryukyu Islands: Amami Oshima Islands), present correction to *Bembecinus hungaricus amamiensis*..

ssp. *formosanus* (Sonan): *Stizus formosanus* Sonan, 1928:262, male, female, Holotype: male, Taiwan: Boryo = Takao-Shu (J.Sonan coll.). - Tsuneki, 1965:14 (as synonym of *Bembecinus hungaricus*). - As *Bembecinus hungaricus formosanus*: Tsuneki, 1968:6 (Taiwan; redescription), 22 (Ryukyu Islands), 25 (Korea: Seoul); *Stizus formosanus* var. *4-maculatus* Sonan, 1928:264, Holotype: Taiwan: Taihoku: Tabo (J. Sonan coll.). Synonymized with... *Stizus formosanus* var. *5-maculatus* Sonan, 1928:264, incorrect original spelling. Holotype: Taiwan: Taihoku (J. Sonan coll.)...

ssp. *japonicus* (Sonan): *Stizus japonicus* Sonan, 1934:38, male, female, (March). Holotype: female, Japan: Osaka: Ikeda (depository?). - As synonym of *Bembecinus hungaricus*: Pulawski, 1958:168. - As *Bembecinus hungaricus japonicus*: Tsuneki, 1965:16 (bibliog.), *Stizus hirsutus* Sonan, 1934:39, Japan: Osaka: Ikeda (depository?). Synonymized with *Bembecinus japonicus* by Tsuneki, 1960:239 and 1965:14. *Stizus japonicus* Yasumatsu, 1934:25. Holotype: Japan: Kyusku: Fukuoka (Kyushu Univ.). Synonymized with *Bembecinus hungaricus* by Tsuneki, 1965:14.

ssp. *sibiricus* (Mocsáry): *Stizus sibiricus* Mocsáry in Mocsáry and Szépliget, 1901:162, male, female, Syntypes: Russia: Siberia: Minussinsk (TMB). - Gussakovskij, 1935:442 (in key). - As *Bembecinus hungaricus sibiricus*: Tsuneki, 1971:199 (new status), 1971:9 (China: Inner Mongolia: Apaka), As *Bembecinus cyanescens*: Yasumatsu, 1942:110 (China: Inner Mongolia: Apaka), corrected to *Bembecinus hungaricus sibiricus* by Tsuneki, 1971:9.

ssp. *verhoeffi* Tsuneki: *Bembecinus hungaricus verhoeffi* Tsuneki, 1965:35, female. Holotype: female, China: Manchuria: Harbin (LEIDEN). - Tsuneki, 1967:2 (China: Manchuria), 1972:3 (redescription).

Diagnosis: *Bembecinus hungaricus* is well characterized by the unique character combination of an interrupted band on tergite I and erect setae on hindfemur beneath. The similar *insulanus* has pale body markings and a black clypeus, whereas both sexes of *hungaricus* are lemon yellow and have a yellow clypeus. The propodeal emargination is small, the flagellomere I longer than 2x its apical wide. Otherwise, it is similar as in *tridens*. The subspecies of *hungaricus*, described from the eastern Palaearctic Region, differs in colour pattern and some minor morphological characters from western Palaearctic *hungaricus*. Further study has to clear the state of these taxa.

Male: Body length 9-11 mm. Lemon yellow are: labrum, clypeus, spot above clypeus and bands at inner eye margin, scape below and first flagellomeres below, pronotal lobe, narrow bands on tergites I-V, lateral spots at sternites II-V. Tergal band I interrupted.

Femora apically, tibiae at outer side and tarsi yellow. Forebasitarsus with black outer margin, mid and hindbasitarsi with dorsal black band, last tarsomeres black above. A male from Slovakia has reduced tergal bands: tergites III, VI and VII black, tergite V with two lateral spots, terga II and IV with complete band. Wing venation black. Head and thorax dorsally with long and dense white setae, setae as long as flagellomere I.

Clypeus 1.4x as wide as long. Flagellomere I 2.1-2.5x as long as apical wide. Flagellomere XI markedly curved apically. Submarginal cell II closed or shortly petiolated. Propodeal emargination small, the basal edges large. Apical spines of forebasitarsus nearly 2x as long as basitarsal apical wide.

Female: Body length 9-11 mm. Colour and colour pattern as in male. Tergite V often with lateral spots or with complete narrow band. Apical-lateral corners of mesotum, scutellum and metanotum often with small lateral spots, especially in specimens from Greece. Yellow leg and clypeus colour more extended than in male. Flagellomere I 2.5x as long as apical wide. Propodeum as in male. Forebasitarsus with long dark spines. A female from France (Landes) has a black tergite III.

Geographic distribution: Widespread in Europe, Turkey, central Asia to Japan and Formosa. Not found in northern Africa and in the South-eastern Mediterranean area.

Records: BOSNIA: female 1 July 1966 Biograd (OLL).

BULGARIA: many specimens 1971 Slancev Brjag (OLL) - mouth of Ropotamo 1966 (CAS).

CROATIA: male Dubrownik (OLL). - Rab 1985 (Schlaefle).

FRANCE: 4 female male 16 July 1963 Landes, Vieux Boucau (dark specimens with reduced bands on tergites) (Gembloux) - female 29 July 1979 Agde, Rochelongue (Gembloux) - female 22 Aug 1966 Forêt de Campet, L. et G. (Roche) - male female 1956 Dax (coll. Roth, Paris) - female 22 Aug 1974 Landes, Lesperon (Amsterdam) - St Marie 1996 (Schlaefle) - FRANCE, CORSICA: male female 11 June 1978 Bravane (OLL).

GERMANY: female Rheinland-Pfalz, Mombach bei Mainz (old label, probably before 1900, handwritten 'Mombach' (SMFD)).

GREECE: male 2 June 1968, Elasson (SE) - male female 14 Sep 1990, Kavala, Keramoti, Strand (SE) - female 2 Sep 1989, NW-G ° R, Mündung des Acheron (Strand) - female 08 July 1986, Peloponnes, Loutra, Kaifa (SMNS) - 2 males 3 Sep 1992 Cephalonia - male 1 July 1996 Zaharo, Neochari (ARENS) - 3 males female 8 July 1996 Kalogria (Achaia) Felsküste/Dünen (ARENS) - 2 females 19 Aug 1985 5 km NW Servia (Amsterdam); Korfu, Korission 2001 (Stuttgart).

HUNGARIA: female, old label, without data, Hung. med. (coll. Mocsary, ZSM) - female dto. (ETH).

ITALY: 2 females Aug 1921 Riccione (ETH) - female 20 Aug 1921 Massa [Toscana] (ETH) - Rimini 24 Aug 1912 (ZMHB)- Cattolica (CAS) - 2 females 4 Aug 1999 Basilicata, 25 km W Lauria (OLL).

ITALY, SARDINIA: female 28 Aug 1982, Domusnovas (Wolf) - SPAIN: male 28 June 1980 Canas de Meca, CA (Gayubo) - female 5 July 1980 Guadiaro, CA (Gayubo) - female 14 July 1967 Huesca (Gembloux) - 3 females 30 July 1977 Toledo; 5 males 2 females 30 July 1969 Lerida, Artesa de Segre (LEIDEN).

RUSSIA (former USSR): male without date, Krasnoarmejsk bei Volgograd («Sarepta») (DEI) - 2 females Sarepta (ETH) - Sarepta 4 males female (without data, GENF); male, female Vladivostok region, Melnichnoe, 2 August 1986; 2 males, 2 females 30 June 1989 Khabarovsk region, Malmyzh; female Khabarovsk region, Smidovich, 21 July 1982; 3 females Blagoveshchensk region, Leninskii, 7 Aug 1982; 4 males, female Chita region, Zabaikalsk, 18 July 1984; 2 males, female Ulan-Ude region, Naushki, 2-4 Aug 1984; 2 males Ulan-Ude region, Khoronkhoe, 31 July 1977; male Altai mountains, mouth of Bokshauz river, 12 July 1990 (Vladivostok).

SLOVENIA: many specimens Cenkov (OLL).

SLOVAKIA: male Sturovo (OLL).

TURKEY: male 1 Aug 1996 NW-TR, Sile (SE) - Finike (CAS) - 2 females 31 July 1983 60 km N Izmit, Sile; 2 females 11 Aug 1983 Samsun, Terme (LEIDEN). - UKRAINE: 3 males 6 females 1925 Chatki d. Poltava [49°38'N 34°31'E] (ZMHB) - POLAND: 11 Aug 1954 Stare Miasto, pow Lezajsk (CAS).

10. *Bembecinus insulanus* de Beaumont, 1954 (Fig. 69)



Fig. 69: *Bembecinus insulanus* male propodeum lateral view, with emargination.

Bembecinus tridens insulanus de Beaumont, 1954:249, female, male, Holotype: male, France: Corse: Bonifacio, examined (MNHN).- Pagliano, 1990:75 (in catalog of Italian Sphecidae); Hamon, Foucart, and Fonfria, 1993:466 (diagnostic characters); Luchetti, 1993:105 (Italy: Sardinia: Maddalena archipelago). - As *Bembecinus insulanus*: Hamon, Foucart & Fonfria, 1993:468 (new status).

Diagnosis: As *hungaricus*, *insulanus* is characterized by the character combination of an interrupted band on tergite I and erect setae on hindfemur beneath. It has pale body markings and a black clypeus, whereas *hungaricus* has lemon yellow colour and a yellow clypeus. Propodeal emargination is small, flagellomere

I more than 2x as long as apical wide. The similar *tridens* has a full lemon yellow band at tergite I. The clypeus of the *tridens* female is also black. The only examined male of *insulanus* from Mallorca has a yellow clypeus and only few very short hindfemoral setae.

Discussion: *Bembecinus insulanus* was first described as a subspecies of *tridens*. Hamon et al. (1993) raised it to full species. I agree with the latter authors, because it occurs sympatrically with *tridens* and *hungaricus* in Corsica and Sardinia, the range of *Bembecinus insulanus*. Unlike Beaumont's opinion of a close relationship of *Bembecinus insulanus* and *Bembecinus tridens*, I believe that *insulanus* is related to *hungaricus* because of its similar form of the propodeum, its body colour and an interrupted band on tergite I.

Male: Body length 9-10 mm. Body pale olive-yellow. Yellow are: labrum, small spot at inner eye margin, scape below and first flagellomeres below, pronotum, apicolateral edges of mesonotum, scutellum and propodeum with very small yellow spots, bands on tergites I-V. Band on tergite I interrupted, bands III-V laterally shortened. Sternites II and III laterally spotted. Colour of legs and body proportions as in *hungaricus*.

Variation: One male from Corsica has a full band at tergite I. The male from Mallorca has a lemon yellow clypeus (with basal black margin) and the mesonotum, scutellum and tergites VI and VII are black. Its hindfemur has only few very short setae, body setae are denser and slightly longer than in *insulanus* from Sardinia.

Female: Body length 9-10 mm. Slightly darker than male: face black except scape and first flagellomeres below, thorax all black, legs with reduced yellow colour. Tergal band I interrupted, bands II-IV complete, tergite V with lateral spots. Sternites II and III laterally spotted with yellow. Body proportions as in *hungaricus*. Because of the small number of examined specimens, I cannot determine the variation of the colour pattern.

Geographic distribution: Corsica, Sardinia and Mallorca.

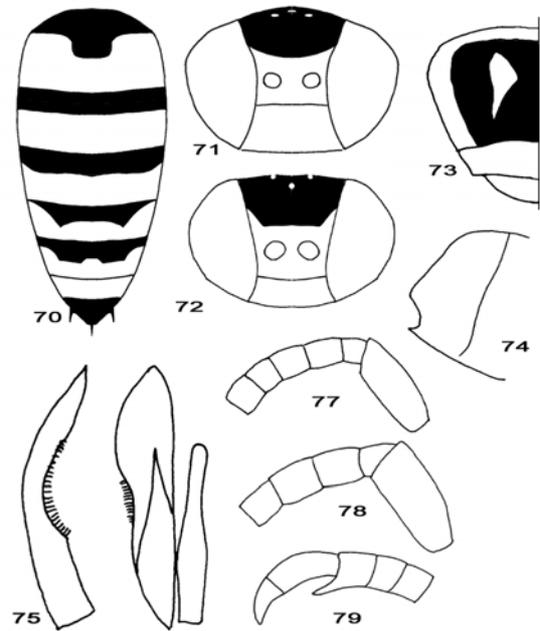
Records: FRANCE, CORSICA: male 9 June 1908 Bonifacio leg. Fertou (holotype det. de Beaumont, coll. Centrale/Paris) - male 3 females Bonifacio/paratype; female Propriano/paratype, 2 females without locality/paratype, all leg. Fertou, det. de Beaumont (coll. Centrale/Paris) - male 16 June 1996 Ajaccio - 6 males 23 June 1978 Moltifao - male 7 June 1978 Bravone - male 30 June 1996 Calvi (OLL) - 2 females 6 km E Ucciani (Amsterdam) - 15 July 1991 Aleria (Schlaefle).

ITALY, SARDINIA: 3 males 18 July 1965 Siniscola (SMFD) - male 24 Aug 1982 female 24 June 1990

Domusnuovas (SE) - Cagliari (coll. Roth, Paris) coll. Centrale/Paris - male 1 July 1991 Valledoria (Schlaefle).

SPAIN, MALLORCA: female 24 June 1954 (CAS) - male Mallorca, Porto Golom 18 May 1956 (SE).

11. *Bembecinus mhamidus* Schmid-Egger, spec. n.
(Figs. 70-79)



Figs. 70-79: *Bembecinus mhamidus* male (except 71, 77): 70 gaster; 71 female head; 72 head, 73 left side of thorax, dorsal view; 74 propodeum lateral view, with emargination; 75 gonostylus lateral view; 76 left side of genitalia; 77 female base of flagellum; 78 male id; 79 apex of flagellum.

Diagnosis: The species is similar to *schwarzi* and *barbarus*. The three species have a row of setae on outer edge of gonostylus beneath and a deep U-shaped propodeal emargination. The flagellomere I is shorter than twice its apical wide. Within this lineage, *mhamidus* is characterized by its marked yellow colour, which includes the space above antennal socket and large parts of the propodeum. The clypeus is narrower (shorter) than in related species and the flagellum is all yellow (dark above in the other species). The spines on forebasitarsus of male are markedly shorter than in related species.

Male: Body length 6,5-7,5 mm. Pale lemon yellow are: mandible except black tip, face until a waved line one midocellus diameter above antennal socket, gena until vertex, all antennae (flagellomeres dark yellow), large band on pronotum, four large bands laterally and mesally on mesonotum, most of mesopleuron, scutellum, metanotum, large lateral and median propodeal spot, all venter and legs. Hindfemur with small black spot basodorsally. Tergites I-VI with large

bands, band I mesally deeply emarginated. Tergite VII black with small yellow spot. Visible parts of sternites all yellow. Wings venation pale brown, costa darker. Whole body with silvery pubescence; and long erect setae on frons, mesonotum, propodeum and tergites. Setae as long as 1x-1.5x midocellus diameter.

Face narrow, its maximum width 1.5x the distance between apical edge of clypeus and dorsal border of midocellus. Clypeus 1.9x as wide as long. Flagellomere I 1.4x as long as apical wide. Propodeal emargination deeply V-shaped. Apical spines of forebasitarsus shorter than basitarsal width. Sternite VI widely emarginated apically, tergite VII with small V-shaped emargination. Gonostylus narrow, pointed apically, ventrally with row of pale setae at outer edge. Setae present only in middle 2/3 of gonostylus edge.

Female: Body length 6,5-7,5 mm. Colour and pattern as male. Tergite VI black or with two lateral spots. Face narrow, its maximum width 1.6x distance between apical edge of clypeus and dorsal margin of midocellus. Clypeus 1.5x as wide as long. Flagellomere I 1.4x as long as apical wide. Basitarsis 2.3x as long as apical wide, apical spine as long as basitarsus.

Variation: Dark colour of tergite I and II is red-brown in females from Mauritania and Mali.

Habitat: In Morocco, the specimens were found at flowering *Tamarix*-shrubs in oasis gardens at the northern border of the Sahara desert.

Geographic Distribution: Widespread in the western Sahara in southern Morocco, Mali and Mauritania.

Etymology: The species is named after the type area Mahmid, a small town in southern Draa valley near the Algerian border in Morocco.

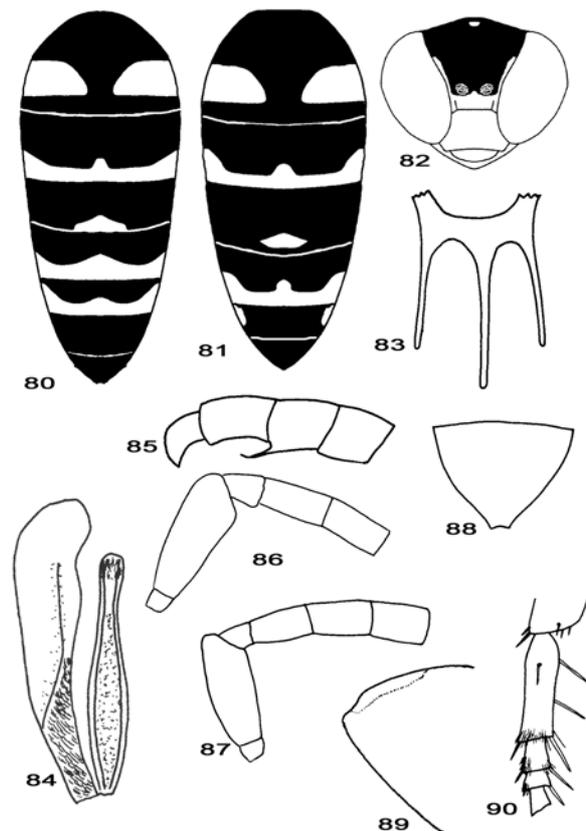
Records: Holotype: male 28 May 1995 MOROCCO/S, Val Draa, 80 km s Zagora, Mhamid, leg. et coll. SE.

Paratypes: MOROCCO: 5 males female 28 May 1995 Morocco/S, Val Draa, 80 km s Zagora, Mhamid, leg. et coll. SE, HS, NEU, SMNS.

MAURITANIA: female Oct 1992; 19,30°N 14,30°W (locality ca. 200 km NE Nawakshut) leg. Popov, (GUI) - 5 males female 21 Oct 1993 Tayart (7 km W Atar); 2 males 5 females 25 Oct 1993 20 km NE Akjoujt; 2 females 3 Nov 1993 16 km NE Nouakchott; female 29 Oct 1993 20 km NE Akjoujt; 3 females 25 km SW Moujéria; 3 females 21 Oct 1993 Terjit (15 km S Atar); female 1 Nov 1993 Rachid 40 km NW Tidjikja, female 30 Oct 1993 Tamoured Naaj (ca 30 air km NE Moujéria); leg Pulawski (CAS).

MALI: 3 males 4 females 15 Aug 1991 30 km W Gao (Schwarz).

12. *Bembecinus proximus* Handlirsch, 1892 (Figs. 80-90)



Figs. 80-90: *Bembecinus proximus*: 80 male gaster; 81 female gaster; 82 male head; 83 male sternite VIII dorsal view; 84 male left side of genitalia; 85 male apex of flagellum; 86 female base of flagellum, 87 male id.; 88 tergite VII; 89 male propodeum lateral view, with emargination; 90 male foretarsomeres.

Stizus proximus Handlirsch, 1892:45, male, female. Lectotype: male, probably India: Barrackpore near Calcutta (NHMW), designated by Krombein, 1984b:24, examined; Handlirsch, 1895:977 (country?: Carin Cheba); Dollfuss, 1989:7 (lectotype in NHMW).

As *Stizus reversus*: Cameron, 1890b:245 (new combination, listed), 246 (variation, male flagellum illustrated), corrected to *Bembecinus proximus* by Krombein, 1984b:23.

Diagnosis: *Bembecinus proximus* belongs to a species group with a unique form of propodeum: it is arch-shaped without emargination, its lateral edges are overlapping the median backside (view from above). Also the third tergal band is reduced to a median spot or missing, whereas tergite IV has a full band. The only other species with a reduced tergal band (on tergite IV) and a similar form of the propodeum in the area considered is *bytinskii* from the Arabian Peninsula and Israel. Other members of this lineage occur in Southeast Asia.

Discussion: Specimens from Saudi Arabia, Yemen and Pakistan differ from the type specimens by the colour

pattern. Tergite III has a central yellow spot, whereas the tergite is completely black in type. Also the clypeus is partly black in the female from Pakistan, whereas it is all yellow in type female. I treat these specimens as conspecific with *proximus*, described from India, because the remaining colour and morphologic characters agree well with the types. The females from Nepal are similar to the type specimen.

Male (from Arabian Peninsula): Body length 7-8 mm. Mandible reddish-black in distal half. Light lemon yellow are: face until antennal socket and bands along inner eye margin, scape and flagellomeres below, narrow band at pronotum, pronotal lobe, small lateral bands at mesonotum, tegulae, small lateral spots at scutellum and propodeum, band at metanotum. Tergite I with large band, interrupted medially. Tergites II, IV and V with double emarginated band, tergite III with central longitudinal spot (all black in type). Sternites II-V laterally spotted with yellow. Fore- and midfemur with some black below, hindfemur black except apex. Remaining legs yellow with dark spot dorso-apically at hindtibia. Wing venation dark. Body covered with long erect silvery setae.

Flagellomere I 2.1x as long as apical wide. Clypeus short, 1.2x as wide as long. Forebasitarsus with short spines, apical spines as long as apical basitarsal width. Submarginal cell II closed. Propodeum as described in diagnosis. Gonostylus as in *tridens*.

Male variation: The males from Yemen have two lateral spots on tergite V. Despite this difference, they agree with the male from Saudi Arabia. The type male is dark lemon yellow, its tergite III is all black.

Female (from Arabian Peninsula): Body length 9-10. Pale lemon. Mandible black. Inner eye margin with small band. Remaining face black. Antennae, thorax and tergites I-IV as in male. Tergite V with lateral spots. Sternites II-IV laterally spotted with yellow. Femur black, femur I and II yellow apically. Tibia I yellow beneath, tibiae II and III yellow in basal half. Forebasitarsus laterally at outer edge with black band, remaining tarsal segments yellow. Tarsi II and III black. Wing venation dark. Body covered with long erect silvery setae.

Flagellomere I 2.4x as long as apical wide. Clypeus long, 1.8x as wide as long. Forebasitarsus with long spines. Submarginal cell II closed, with very short stalk. Propodeum as described in diagnosis. The type female has an all yellow clypeus, only apically with a longitudinal spot, and all black tergite III.

Variation: The female from Pakistan has a black clypeus, with small lateral and basal yellow spots. Otherwise it agrees well with the females from Yemen. The type specimen has a complete tergal band V and is dark lemon yellow.

Geographic distribution: Southern Arabian Peninsula, Pakistan, India and Nepal.

Records: ?INDIA: male without locality, designated as lectotype by Krombein - female, without locality, labelled: «*proximus* det. Handlirsch», probably also belonging to the type series and designated as paralectotype here (NHMW).

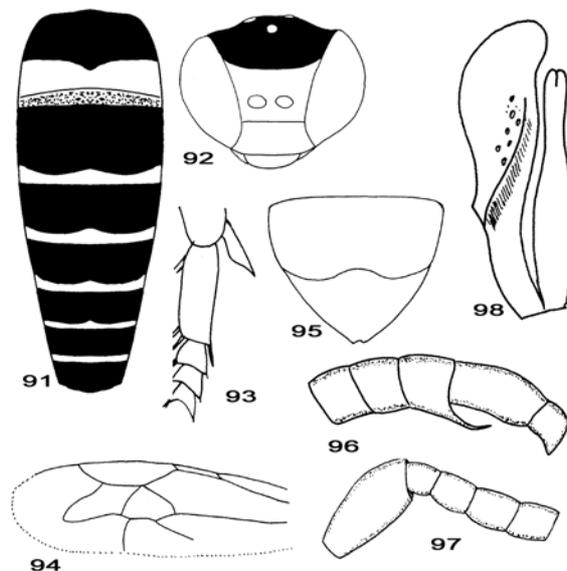
NEPAL: 2 females 22 Nov 1975 Gandanski, N Pokhara, N Phewa Valley (28°14'N/83°59'E, LEIDEN)

PAKISTAN: female 1 May 1979 Baluchistan, Karachi (SE).

SAUDI ARABIA: male 23-29 Mar 1980, Abu Arish (SE).

YEMEN: male Jan 2001 to 9 Apr 2001; female 16 Oct 2000 to 31 Dec 2000 Al Lahmia, malaise trap - 2 females 15 Jan 2001 to 9 Apr 2001 Ar Rujum, malaise trap - 3 males Apr 1993; 8 females 15 to 28 Feb 1993 male female 27 Oct to 15 Nov 1992 Kowd, malaise trap (Amsterdam) female 15-30 June 2000 Lahj (LEIDEN, malaise trap).

13. *Bembecinus remanei* Schmid-Egger, spec. n. (Figs. 91-98)



Figs. 91-98: *Bembecinus remanei* male: 91 gaster; 92 head; 93 foretarsomeres; 94 forewing; 95 sternite VI and VII; 96 apex of flagellum; 97 base of flagellum; 98 left side of genitalia.

Diagnosis: *Bembecinus remanei* is isolated within the *tridens* group. The male has a very short flagellomere I and a markedly yellow face (as in *mhamidus*). It is distinguishable from the latter by a very short flagellomere XI, a broad gonostylus without setae, a black propodeum and narrow tergal bands. This character combination is unique among the *Bembecinus* species here considered. The female is unknown.

Male: Body length 8,5 mm. Pale lemon yellow: mandible except black apex, face up to above antennal socket (two ocellar diameters apart from socket), scape and flagellomeres below, narrow band at pronotum, large spot on mesopleuron, apical corners of

mesonotum laterally, lateral spots on scutellum, short band on metanotum, narrow bands on tergites I-VI. Legs all yellow, hindfemur dorsally with black spot. Sternites with lateral spots, separated by narrow band. Abdomen paler than head and thorax. Head, thorax and first tergites with erect setae.

Face narrow, its maximum width 1.7x distance between apical edge of clypeus and dorsal margin of midocellus. Clypeus 1.6x as wide as long. Flagellomere I as long as apical wide, flagellomere XI short, strongly curved. Propodeal emargination small, triangular. Submarginal cell II closed. Apical spines of forebasitarsus slightly shorter than basitarsal width. Sternite VI widely emarginated apically, tergite VII with small V-shaped emargination. Gonostylus broad.

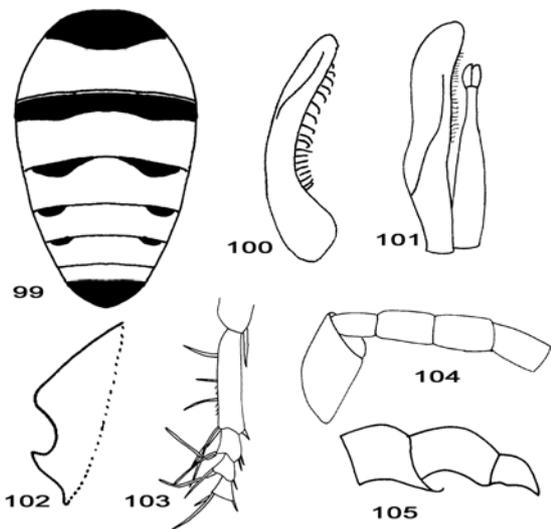
Female: unknown.

Geographic distribution: Collected at one locality in Sudan near the Nile river. The species was found in oasis gardens at the river shore.

Etymology: The species is dedicated to Prof. Dr. R. Remane, a specialist in Cicada, who collected the species.

Records: HOLOTYPE: male 3 Nov 1961 SUDAN, Ed Damar, Hudeiba (300 km NE Khartoum) leg. Remane (ZSM)

14. *Bembecinus schwarzi* de Beaumont 1967 (Figs. 99-105)



Figs. 99-105: *Bembecinus schwarzi* male: 99 gaster; 100 gonostylus lateral view; 101 left side of genitalia; 102 propodeum lateral view, with emargination; 103 foretarsomeres; 104 base of flagellum, 105 apex of flagellum.

Bembecinus schwarzi de Beaumont, 1967: 303 male, female. Holotype: female, Turkey: Mersin: Mut (M. Schwarz coll.). Examined.

Taxonomic remarks: The holotype of *schwarzi* is a male and not a female, as described in de Beaumont

(1967), probably a typographic error. The female allotype of *schwarzi* is *tridens*.

Diagnosis: The male is characterized by the long setae on the gonostylus. The species is similar to *barbarus*. See comments under that species.

Male: Body length 7-8 mm. Pale yellow, colour pattern similar as in *barbarus*: face up to antennal socket, inner eye margin, flagellum below, pronotum, lateral band on mesonotum, scutellum (except base) and metanotum, large lateral spots on propodeum and mesopleuron. Tergal bands very large, covering nearly the whole visible tergal surface. Sternites markedly yellow. Tergite and sternite VII black. Legs yellow, coxae and femur spotted with black dorsally.

Flagellomere I 1.8x as long as apical wide. Clypeus 1.2x as wide as long. Forebasitarsus with long spines, apical spines 2x as long as apical basitarsal width. Submarginal cell II closed, both submarginal veins meeting each other at radial vein. Propodeal emargination deeply U-shaped. Gonostylus with row of setae at outer margin below, setae as long as midocellus diameter. Setae somewhat longer and denser than in *barbarus*. Gonostylus long and narrow.

Variation: The male from Zafario has also a median yellow spot on the propodeum.

Female: Body length 7,5 mm. Pale yellow, colour pattern of head and thorax similar as in *barbarus*. Flagellomeres black above. Bands on tergites large, covering 2/3 of tergal length of tergites II and III. Tergite VI with yellow spot. Clypeus 1.6x as wide as long. Flagellomere I 1.7x as long as apical wide. Propodeal emargination deeply U-shaped. Basitarsus 2.3x as long as apical wide, its apical spine nearly as long as basitarsal length.

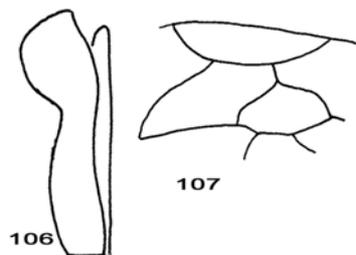
Geographic distribution: Southern Turkey, in the Taurus mountains between Mut and Silifke.

Records: TURKEY: 2 males 9 June 1965, Mut [Paratype det. de Beaumont] (GUS, CAS) - male 19 July 1998 Mut (SE) - female 16 June 2000 W Silifke 36°24'N/33°48'E (SE) - female 18 June 1998 south Eksiler/Silifke (SE).

?IRAQ: male 1 Sep 1956 Zafakario, coll. Ghalib (ZSM, old handwritten label). The location could not be found. A female of *asiaticus iranicus* with a similar label comes from Mosul (probably in Iraq)

15. *Bembecinus tenellus* (Klug, 1845) (Figs. 106-107)

Larra tenella Klug, 1845:[23], pl. 46 fig. 8, male, female. Lectotype: male Sudan: Dongola: Doebbe (ZMHU), present designation here. - In *Stizus*: Handlirsch, 1892:41 (new combination, revision), 1895:972 (type examined); - In *Bembecinus*: de Beaumont, 1954:256 (new combination, revision); Pulawski, 1964:75 (Egypt; diagnostic characters).



Figs. 106-107: *Bembecinus tenellus* male: 106 left side of genitalia; 107 central part of left forewing.

Diagnosis: The male is unique in having submarginal cell II with a long petiole and an apically broadly enlarged spoon-shaped gonostylus, which has a row of setae apico-ventrally below. It is markedly yellow with a medium sized propodeal emargination and a long flagellomere II. Spines of forebasitarsus are long. The female is also characterized by submarginal cell II with a long petiole. *Bembecinus tenellus* is the only member of the *tridens* group found in the Egyptian Nile valley.

Male: Body length 6-7 mm. Pale yellow: face up to antennal socket, scape and flagellomeres below, pronotum, lateral bands and two median spots on mesonotum, spot on mesopleuron, large band on scutellum, metanotum, lateral spots on propodeum, sometimes also propodeum yellow mesally, band on tergites I-VI (as wide as half tergal length), spot on tergite VII, sternites I-V. Legs yellow, femur black below. Head with long erect setae, tergites with appressed pubescence.

Flagellomere I 2x as long as distal wide, flagellomere XI short, barely curved. Clypeus 1.3x as wide as long. Propodeal emargination small, with obtuse angle. Apical forebasitarsal spines twice as long as basitarsal width. Submarginal cell II petiolated, (petiole as long as ocellus diameter. Parameres strongly emarginated at outer margin, apically broadly enlarged spoon-shaped, enlargement ventrally with row of dense setae.

Female: Body length 6-7 mm. Colour as in male. Mesonotum only with lateral bands. Propodeal emargination more or less deep. Submarginal cell as in male. Clypeus 1.4x as wide as long. Flagellomere I 1.8-2x as long as distal width.

Geographic distribution: Egypt, Sudan, Ethiopia?

Records: male with old blue label: »tenella Kl. XL III, 84 July, Aegypt, Ehrenb.«, red label «Type» and with printed label: 3829» in ZMHB is designed as lectotype. 3 males female without labels, except red «type» labels, one male with a label «tenellus, det. Handlirsch» are designated as paralectotypes (ZMHB).

«ABYSSINIA» 11 males (ca 1900) (SMFD)

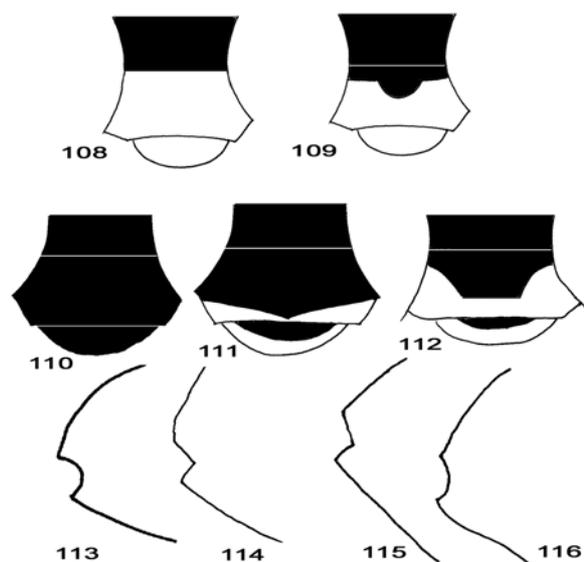
EGYPT: male 10 Mar 1910 Assuan (SMFD) - 2 males female 2 Oct 1987 El Minya (Roche) - 2 females 12 July 1991 Ismailia (Roche) - male female 23 Sep 1994 N. Luxor, Quena (Hauser) - female 16 May 1969 Giza (OLL) - 2 males female Kom Oshim/Faioum (coll. Roth/Paris, CAS) -

Assuan, Gizeh; Meadi/Cairo (CAS) - 9 males 9 Mar 1978, 1 female 27 Oct 1977 Assuan (Amsterdam) - 8 males 2 females 1 March 1988 Luxor (Schlaefle).

SUDAN: 5 females 10 Nov 1958 Quadi Halfa (CAS).

Remark: A male from Fuerteventura (Canary Islands, 3 May 1978, leg Krusemann, coll. Amsterdam) is probably mislabelled.

16a. *Bembecinus tridens tridens* (Fabricius, 1781)
(Figs. 108-116)



Figs. 108-116: *Bembecinus tridens tridens*: 108 male from Germany, face; 109 id, male from Tunisia; 110 id, female from Germany; 111, 113 id. females from Tunisia; 113 propodeum lateral view, with emargination, male from Turkey; 114 id. female from SW-Germany; 115 id. male from Tunisia; 116 id. male from NE Germany.

See comments at *Bembecinus hungaricus* about literature citations.

Vespa tridens Fabricius, 1781:464, male. Holotype (or syntypes): Italy (ZMK). - *Crabro cinctus* Rossi, 1790:890, males. Holotype (or syntypes): males, Italy (depository?). - *Mellinus repandus* Panzer, 1801:73, female. Holotype (or syntypes?): female, Germany: Erlangen (depository?). - *Stizus sinuatus* Latreille, 1805:303, sex not indicated. Syntypes: France: Bois de Boulogne near Paris and southern France (lost). - *Stizus satsumanus* Sonan, 1934:40, female. Holotype: female, Japan: s. Kyushu: Kagoshima (depository?). Synonymized with *Bembecinus tridens* by Tsuneki, 1965:14. - As *Stizus cyanescens*: Gussakovskij, 1933b:289 (Iran), corrected to *Bembecinus tridens* by Gussakovskij, 1935:441.

Stizus errans Kohl: Ferton, 1912:353. Nomen nudum.- Ferton, 1912:355 (Algeria, nesting habits, oviposition precedes hunting), 369 (list of prey). - *Stizus tridens errans* de Beaumont, 1950:397, males, females. Holotype: female, Algeria: La Calle (NHMW) - de Beaumont, 1951:274 (Morocco). **Syn. n.**

Bembecinus tridens: de Beaumont, 1954:249 (new combination, revision);

Stizus tridens var. *caesia* Compte Sart, 1959:135, male, female, incorrect original termination. Holotype: male, Spain: Majorca: Col d'en Rebassan near Palma (coll. Compte Sart).

Diagnosis: *Bembecinus tridens* is characterized by full tergal bands (except last tergites), a long flagellomere I (in most specimens longer than twice apical width), an open submarginal cell II and a dark lemon yellow body colour. Propodeal emargination is small triangular in populations from the Western Palaearctic region, and deeply U-shaped in those from the Central and Eastern Palaearctic region. Apical spines of forebasitarsus are longer than basitarsal width. Females from the Mediterranean region and Europe have a partly or all black clypeus, whereas the clypeus is yellow and the pale body colour in general more extended in specimens from Central and East Asia.

Bembecinus tridens may be confused in Asia with *asiaticus*. The latter has a longer clypeus and a different colour pattern (see above). *Bembecinus hungaricus* and *insulanus* are similar, but have erect setae on hindfemur (appressed in *tridens*) and an interrupted first tergal band. For the other similar species see the key. *Bembecinus tridens* is widespread in the whole Palaearctic region from Morocco to Europe and Japan and the most abundant species there.

Discussion: *Bembecinus tridens* varies remarkably in colour pattern and in form of propodeal emargination. Two main important forms exist:

Western Form: specimens from the Mediterranean region, Europe and Turkey with small triangular propodeal emargination, males with space above clypeus and tergite VI black, sometimes tergite VI laterally spotted with yellow (in specimens from France and Italy). Females with black clypeus, at most with apical small spots or a narrow band. This form belongs to the nominate taxon *tridens* s.str., described from Italy. The subspecies *errans*, described from northwest Africa, is similar to specimens from Spain and southern France or shows only small difference in colour, which are within the variability of the species. *Bembecinus tridens caesius* from the Spanish island Mallorca is probably also conspecific with *tridens* s. str. It is not formally synonymized because I could not examine the type.

Eastern form: with a deeply U-shaped propodeal emargination. Extension of yellow colour is greater than in the western form. Males have the space above clypeus yellow (up to antennal base), tergite VI has a full band. Females have a all yellow clypeus. This form is widely distributed in central Asia (Tadjikistan, Uzbekistan, Kazakhstan, Turkmenistan). It was described as *Stizus cyanescens* by Radoszkowski and was treated as a species by all authors until now. In my opinion *cyanescens* is conspecific with *tridens tridens*

because of the similarity of the basic characters and the occurrence of termediate forms (see below). I treat both taxa as subspecies, because both are clearly separated from each other by the above mentioned characters. *Bembecinus cyanescens* = *tridens cyanescens* **stat. n.**

Specimens from Hungary, eastern Turkey, Iran and Israel are intermediate. Some of them have deep propodeal emargination and are more yellow than the western specimens. They do not agree completely with central Asian specimens but represent an intermediate form, closer to the western form *tridens tridens*. The occurrence of such intermediate forms in the regions in between are an indication for the conspecificity of both taxa, and also an argument for their subspecies status. For the moment, I treat all intermediate specimens west of central Asia as markedly *tridens* s.str., whereas the typical *tridens cyanescens* are only specimens as defined in the key and the descriptions.

Females from Central Asia and Mongolia have a deep propodeal emargination (as in typical *cyanescens*), but a partly or all black clypeus. Tsuneki's *tridens mongolicus* (1971, not examined) represent this colour pattern. As figured by Tsuneki (1971), the female clypeus is black or has two lateral spots of varying size. I could examine specimens from Central Asia with the same colour pattern (see below). The corresponding males agree well with typical *cyanescens* (markedly yellow, space above clypeus yellow) (Tsuneki 1971, own observations).

In my opinion *tridens mongolicus* is a **syn. n.** of *tridens cyanescens*. It is a form with black clypeus, perhaps depending on climate conditions, which occur in Central Asia between typical *cyanescens* specimens. Tsuneki (1971) reported only this form from Mongolia. To recognize these females, I will label and list them as *tridens cyanescens forma mongolicus* Tsuneki 1971.

Male of *tridens tridens* (from Italy, France, Spain): Body length 9-10 mm. Flagellomeres dark yellow-reddish below. Lemon yellow are: labrum, clypeus (with narrow basal band often black), scape below, short band at inner side of eyes, narrow band on pronotum, pronotal lobe, tegula, small spots on postero-lateral corner of mesonotum, scutellum and propodeum laterally. Spots on scutellum triangular. Tergites I-V with narrow bands, apically broadened. Tergite VI laterally spotted with yellow. Sternites II-IV with small lateral triangular spots. Femur II and III yellow below, hindfemur black. Tibiae I-III yellow, with black spot apically at inner side. Tarsi reddish yellow. Extension of yellow colour variable. Wing venation dark. Whole body covered with long erect setae. Flagellomere I 2.2-2.4x as long as distal wide, flagellomere XI long. Clypeus 1.3x as wide as long.

Propodeal emargination small, with triangular or rounded angle. Apical forebasitarsal spines 1.5x as long as basitarsal width. Submarginal cell open.

Variation: Most males from **Morocco and Tunisia** have a narrow black basal band on clypeus, tergite VI is mostly black, but with lateral yellow spots. Propodeal emargination is very small, barely visible. A male from **Germany** has a full yellow band on tergite VI, propodeal emargination deep and half-round (as large as midocellus diameter). Other males are described as above. Three males from Hungary have all a yellow space above clypeus and a full band at tergite VI. Propodeal emargination is large and half rounded. Yellow colour is more extended than in specimens from France.

Specimens from **Turkey** are highly variable: In the same population occur specimens with a very large and rounded propodeal emargination (as large or larger than half midocellus), others have a very small and barely visible emargination with an obtuse angle. The clypeus is all yellow or may be black basally. Tergite VI has a full band, three spots or at least two lateral spots. Space above clypeus is black except in a male from Semdinli, south-east Turkey and a male from **Iran**. Some males from Iran, Elburs, are less yellow: band of tergite I is interrupted, tergites VI and VII are black, band at tergites III and VI are reduced, thorax except pronotal lobes is black.

Most males from **Israel** are more yellow than those from France (full band on tergite VI, large spots on thorax, space above clypeus yellow). But some are also very dark colored like European populations. Propodeal emargination is also very variable. Two males from Italy (Isola di Giglio), two from Wallis (Switzerland) and males from southern France have a shortly interrupted first tergal band.

Some males and females from **Malta** (Gozo) have a less extensive colour pattern: the first tergal band is medially interrupted or all missing, The last two or three tergites may be black. The thorax surface may be all black.

Female of *tridens tridens* (from Italy, France, Spain): Body length 9-10 mm. Face all black, sometimes with very small spots in latero-ventral corners of clypeus or inner margin of eye. Scape below and flagellomere below yellow. Thorax, legs and tergites as in male, with 6 full tergal bands. Outer lateral edge of forebasitarsus black. Flagellomere I 2.3x as long as distal width. Clypeus 1.7x as wide as long. Propodeal emargination as in male. Apical basitarsal spines I 2x as long as basitarsal width. Submarginal cell open.

Variability: Females from **Tunisia and Morocco** often have a partly or all yellow clypeus and labrum. In most specimens the apical border of the clypeus is

yellow, sometime the yellow colour is extended up to basal margin of clypeus. The space above clypeus is always black, propodeal emargination is small triangular as in male. Females from **Germany, Turkey and Iran** have always a black clypeus, in few specimens with dark yellow apical border. Propodeal emargination and extend of yellow colour is different. A female from **Israel** has a partly dark yellow clypeus, tergite VI has lateral yellow spots in most specimens. Propodeal emargination is small. Two females from the **Elba** (Italy) have a medially interrupted band on tergite I. Specimens from **Cyprus** have a yellow clypeus, propodeal emargination is deep. Females from **Crete** (Greece) are also marked yellow: tergite VI with two lateral spots, rarely reduced, sometimes covering more than half surface of tergite or touching each other. Propodeum with large lateral spots.

Geographic distribution: *Bembecinus tridens* is the most abundant and widespread *Bembecinus* species in the Palaearctic region. It is not recorded from Libya, Egypt and the Arabian Peninsula.

Records: The European records are not listed separately. Specimens from the following countries were examined: Austria, Bosnia, Bulgaria, Czech Republic, Cyprus, Helvetia, Hungary, France, Germany, Greece (including Crete), Croatia, Italy, Poland, Portugal, Romania, Slovakia, Spain.

Further records: ALGERIA: Oran/Andalouses; Oran/Route D; Oran/D18/Quad Sassel, all leg. Barbier 1960 (Paris).

ARMENIA: female 30 May 1927 Parakar prope Erivanj (ZMHB).

AZERBAIJAN: 4 males 12 June 1996 Lerik, Zuvand Gosmalian, 1300m, 38°40'N 48°20'E (Hauser) - 15 males 2 females 7 June 1996 Astara, N Astara coast, 38°25'N 48°45'E (Hauser).

GEORGIA: male 15 June 1987 Macheta pr. Tbillisi (DEI).

IRAN: female 25 May 1978, Kuh E Hazaran S Rayen/Kerman, 3800 m NN (SE) - male 25 May 1978, Iran, 10 km SE Rayen/Kerman, 2350 m (SE) - 6 June 1927 Elburs, Chalvervar? Coll. Heinrich (ZMHB).- male June 1927 Elburs, Kaspiküste (ZMHB) - male June 1927 Elburs, Meshediser? (ZMHB) - female, 3 males 9 Sept 1975 N Tabris 38°05'N/46°18'E (LEIDEN).

ISRAEL: 10 males 4 females 12 May 1996 Negev, 5 km SSE Sede Boqer, Wadi N'Agev (SE, Hauser) - male 17 May 1996 Sea of Galilee, 9 km E Tiberias, En Gev (Hauser). - 54 males 42 females (many localities from northern and central parts of the country, TA).

JORDAN: Jordan Valley, Dayr Alla 1996 (OLL) - Zarga Main (OLL) - 30 km N Tafila 1996 (OLL) - Safi 1996 (OLL) - Jordan Valley, Dayr Alla 1996 (OLL) - Zarga Main 1996 (OLL).

LEBANON: 3 females 28 Aug 1994 Monteverde (Roche) - male 26 June 1996 Al Montazah nr. Mansourieh (Roche) - 3 males 27 June 1960 Kadiska (LEIDEN).

MALTA: 9 males 12 females 30 Sep 1980 Gozo, NW Xaghra, Ramla Bay (LEIDEN) - MOLDAVIA: Tshumai, 45 km N Blogani (CAS).

MOROCCO: 2 males 08 May 1995, 70 km N Agadir, Tamn (OLL) - 2 males 08 May 1995, Tamn, 70 km N Agadir (OLL) - 8 males 26 May 1995 Morocco/S, 140 km E Agadir, Aoulouz (HS, SE) - 2 males 26 May 1995, Morocco/S, 160 km E Agadir, Taliounine (SE) - 2 females 27 May 1995, Morocco/S, Vallée Draa, 10 km E Agdz (SE) - male 26 May 1995, Morocco/S, 160 km E Agadir, Taliounine (NEU). - male 30 May 1995, Morocco/S, 40 km W Ouarzazate, Tazenakht (SMKA) - 3 females 10 males 14 July 1932 Gundafa 4 males 10 July 1932 Asni - 4 males 4 July 1932 Tanger (ETH)- Beni Bassia - 30 km N Zagora (OLL).

RUSSIA: Moscow Reg.; Prioksko-Terrasnyi; Nizhniyaya Kuriya/15 km W Perm (CAS)

SYRIA: 2 males 10 May 1996 Syria NW, Jisr ash Shugar - male 9 May 1996 Syria W, Marbi - 2 females 25 May 1996 Syria W, 20 km NE Latakia - Ras al Basit 1995 - Jisr ash Shughur 1996 (OLL)

TUNISIA: female 23 June 1994, Tunesien/N, Ain Draham - male female 18 June 1994, Tunesien/O, 35 km N Gabès, Skhira - female 21 June 1994, Tunesien/S, Gafsa (SMKA) - male 4 females 23 June 1994, Tunesien, Tabarka (SE, HS) - 3 females 26 June 1994, Tunesien/N, SW Bizerte, Lac Ichkeul (SE, HS) - female 24 June 1994, Tunesien/N, Tabarka (HS) - 4 males 3 females 18 June 1994, Tunesien/O, 35 km N Gabès, Skhira (HS, SE) - female 21 June 1994, Tunesien/S, Gafsa (SE) - 2 females 23 Aug 1994, Bou Hedma (HS) - 4 females 01 Sep 1994, Nationalpark Jebil, südl. Douz (HS) - 2 females 13-16 July 1979 Touzeur (coll. Schwarz, yellow markings: clypeus nearly complete yellow, propodeum laterally yellow, tergite VI with two lateral yellow spots) - 7 females 18 males 9 June 2000 15km W Nefta (33°50'N 07°43'E) (SE) - 2 males 8 June 2000 24km S Gabès (33°42'N 10°00'E) (SE Malaise trap)

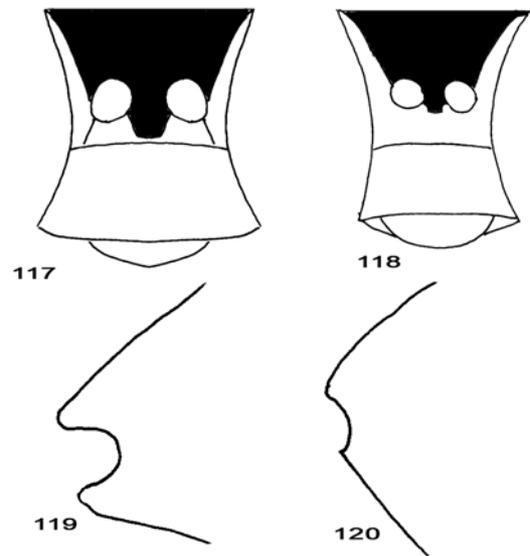
TURKEY: male female 31 July 1988, Anamur, Gülnar, 1000 m NN (SE) - male 21 July 1988, Hakkari, Esendere, 1700 m NN (SE) - 2 males 20 July 1988, Hakkari, Semdinli, 1700 m NN (SE) - 3 males female 9 July 1988, Kayseri, Göreme, 1000 (SE), 2 males 7 July 1993 Acigöl, Cardak env. (OLL) - female 13 June 1977 Birecik (SMFD) - male 1 Aug 1996 NW-TR, Sile (ZSM) - male 23 Aug 1971 Konya (ZSM) - 2f male 11 July 1996 Taurus, Mut, Göksu N Ehru, Flußufer W Straße (SMKA) - 2m 7 July 1996 S-TR, 7 km E Nizip (SMKA) - male 21 June 1985 Pr. Adiyaman, Celik Gölü, 900m (WOLF) - 25 km E Malatya - Acigöl 1993 (OLL) - female W Silife 2000 (Niehuis) - male 1998 40 km SW Antalya, 4 females 24 July 1988 Hakkari, Stadtrand 1800 m NN (SE) - 2 females 12 July 1988 Kars, Kagisman 90 m NN (SE) - 2 females 17 July 1988 Van lake, near Achtamar, mainland, 1720 m NN (SE) - female 6 June 1998 10 km W Sirnak (OLL) - female 31 May 1998 Halfeti (Birecik) (OLL) - female 2 July 1993 Nemrut Dagi, Karadut (OLL) - Van; Urrfa-Halfeti; Hakkari; Antalya-Gazipasa; 60 km NW Izmit (LEIDEN).

UKRAINE: 2 males 1925 Chatki d. Poltava [49°38'N 34°31'E] (ZMHB) - 2 females 3 Aug 1925 Crimea,

Karadagh (ZMHB) - female 10 June 1913 Poltava Ogloblin (ZMHB).

Stizus cyanescens Radoszkowski, 1887:96, male, female.

16b. *Bembecinus tridens cyanescens* (Radoszkowski, 1887) stat. n. (Figs. 117-120)



Figs. 117-120: *Bembecinus tridens cyanescens*: 117 female face; 118 male face; 119 male propodeum lateral view, with typical emargination; 120 id, female with small emargination.

Syntypes: Transcaspia: no specific locality (Krakow). - Handlirsch, 1892:39 (revision); R. Turner, 1912:337 (sw. Iran; Pakistan: Karachi); Morice, 1921:78 (Iraq: Amara); nec Gussakovskij, 1933:289 (= *Bembecinus tridens*). -In *Bembecinus*: Gussakovskij, 1935:441 (Kazakhstan, Tadjikistan, Uzbekistan), 444 (in key); de Beaumont & Bytinski-Salz 1955: 50-51 (Israel, probably a misidentification), de Beaumont, 1970:8 (Iran: Baluchistan); Tsuneki, 1971:10 (China: Peking), 1972:3 (redescription); Islamov, 1986:523 (Uzbekistan: Tashkent Oblast). As *Bembecinus* sp.: Yasumatsu, 1942:110 (China: Peking), corrected to *Bembecinus cyanescens* by Tsuneki, 1971:10.

Bembecinus tridens mongolicus Tsuneki, 1971:199, male, female. Holotype: male, Mongolia: Bayanhongor Aymag: Ehingol oasis (TMB) not examined. **Syn. n.**

Discussion: See discussion under *tridens tridens* about the status of the taxon and its subspecies, and under *asiaticus* for separation of both species. *Bembecinus tridens cyanescens* is well characterized by the key of Gussakovskij (1935). Nevertheless the taxon was not recognized by previous authors (de Beaumont 1967 and others), probably because of lack of identified specimens from Central Asia in European collections. The female allotype of *schwarzi* de Beaumont and some males published by de Beaumont (1967) as cf. *asiaticus* belong to *tridens cyanescens*. The females published by de Beaumont (1970) from Iran belong also to the same subspecies. Further records are from Saudi Arabia and Central Asia. The subspecies is defined here by its form of the propodeal emargination (deeply U-shaped), the big yellow spot at the

mesopleuron, the smaller band on tergites 2-4 and a wide band on tergite 5, two lateral spots at tergite VI of male and other characters given in the key.

Male: Body length 9-10 mm. Colour of head and thorax lemon yellow. Yellow are: Labrum, clypeus, face up to upper margin of antennal socket, stripes at inner eye margin, mandible in basal half. Tip of mandible red-brown. Scape and flagellomeres below yellow, flagellomere above blackish. Tegulae, collare, pronotum and pronotal lobe nearly complete yellow. Mesonotum with large lateral stripes. Scutellum with large lateral spots, that may touch each other apically. Metanotum yellow. Propodeum laterally with large yellow spots. Mesopleuron in upper half and mesosternite (except in front of coxa II) yellow. Tergal fasciae pale yellow. Tergal fascia I deeply emarginated, tergal fascia V nearly as large as tergal length. Tergite VI with small lateral spots, tergite VII black. Sternites II-V with large lateral spots, apically connected by a narrow band. Legs all yellow, hindfemur blackish above.

Head, mesonotum and mesopleuron with appressed silvery pubescence, in between with long erect setae. Flagellomere I 2x as long as apical wide, 1.4x as long as flagellomere III. Flagellomere XI short, barely curved. Minimal distance between eyes 1.25x as long as clypeus. Mesonotum and propodeum shiny, finely punctured. Spines of forebasitarsus slightly longer than tarsomere II.

Female: Body length 9-10 mm. Labrum, clypeus space above clypeus and stripes at inner eye margin yellow. Pronotum nearly complete yellow. Mesonotum laterally with wide bands. Mesopleuron with big yellow spot. Scutellum with band extending margin to margin, with small triangular emargination at middle. Metanotum yellow, sides and middle of propodeum with big yellow spot. Sternites II-V laterally with spots, connected by narrow band. Sternite VI and tergite VI black. Setae silvery.

Variation: Some females from Central Asia and all females from Mongolia have a partly or all black clypeus (described as *tridens mongolicus* Tsuenki 1971). Extension of yellow on clypeus is variable: only narrow apical band, or lateral small or large spots, or clypeus yellow with basal and apical black band, or two median spots. Also the space above clypeus is more or less yellow. Small or large spots below scape, short or long band at inner side of eyes. In most specimens, the band does not reach the clypeus, whereas it is continuous in typical *cyanescens*. The remaining body colour is as in *cyanescens* (propodeum laterally and band on tergite VI yellow etc.).

Records (female with yellow clypeus):

KAZAKSTAN: male female 14 June 1992 River Ili, Aidarli (OLL) - male 19 June 1992 20 km SE Aksay (OLL) -

Kaptzagi, 100 km N Alma Ata 1995; River Ili, Aidarli 1992; Alma Ata 1992; Aksay 1992; female male 12 June 2000 Sand desert 4km N Bakanas; female 5 Aug. 2000 Talas Mt. 42°26'N/69°58'E (OLL).

KIRGHIZIA: 7 males 2 females 30 May 1995, KIRGHIZIA/West, Chamaldi-Sai, 41.2°N, 71.8°E, female 9 males July 1999 30 km E Os, Taldyk riv.; 2 females male July 2000 Ala-Archa riv., Kashka-Suu.; Katta-Karakoir 2500m NN 39°52'N 73°22'E - 3 females 2 males June 2000 Dzahal-Abad area; 2 females 29 July 2000 Ferghari, Mt. R. Toskool Ata (OLL).

TADJIKISTAN: male 19 June 1956 Pamir, Env. Chorag 2100m (text in Russian) «*Bembecinus cyanescens* Guss. det. A.V. Antropov 1985» - male 16 July 1960 Pamir, Env. Chorag 2800) «*Bembecinus asiaticus* Guss. det. A.V. Antropov 1985» -Taschkent, 40 km vych. Cirkik 1981; Nurek 1990, Karatag 1966 - 3 males female 4 July 1961, Taskent, 40 km vych. Cirkik; 5 males July 2000 10 km S Dbi-Garm (OLL) - male 26 July 1960 Pamir, Chawos?. 2300 male (Pagliano) - 2 males 16 July 1960 Chorag 2800 m NN, (SE).

TURKMENISTAN: Aschabat, 40 km W Firyuza 1993 - Turkmenistan: male 6 May 1993, Tzarschanga, 45 km NE Kartyuk (OLL).

UZBEKISTIAN: 5km W Ddjizak 1994; Aktas, 70 km NO Taschkent 1994; Navbakhor, 30 km N Kokand 1994; male 22 July 1999 Kaskadaria 39°03'N / 66°50'E (OLL).

Records: (clypeus partly black, only females)

IRAN: female 6 Mai 1999 Iran centr., Yazd env. (clypeus black except apical margin, propodeum laterally with large and mesally with two small spots, tergite VI with two lateral spots, mesopleuron black, propodeal emargination smaller than typical *cyanescens*, as large as midocellus) (SE).

KAZAKSTAN: female 18 June 1995 Kapchagai, 100 km N Alma-Ata; female 25 June 1992 Alma Ata; female 22 June 1992 Issi 3 km S; female 27 Aug 1992 Taldi-Kurgan 200 km NE Tcherkaskoe (OLL).

KIRGHIZIA: female 30 Mai 1995 Chamaldi Sai 71°8'N 41°2'E (OLL).

TADJIKISTAN: 4 females 4 July 1981 Taschkent, 40 km vych. Cirkik 1981; female June 1966 Nurek (OLL).

TURKMENISTAN: female 6 June 1993 Aschabat 40 km W Firyuza (clypeus all black) (OLL).

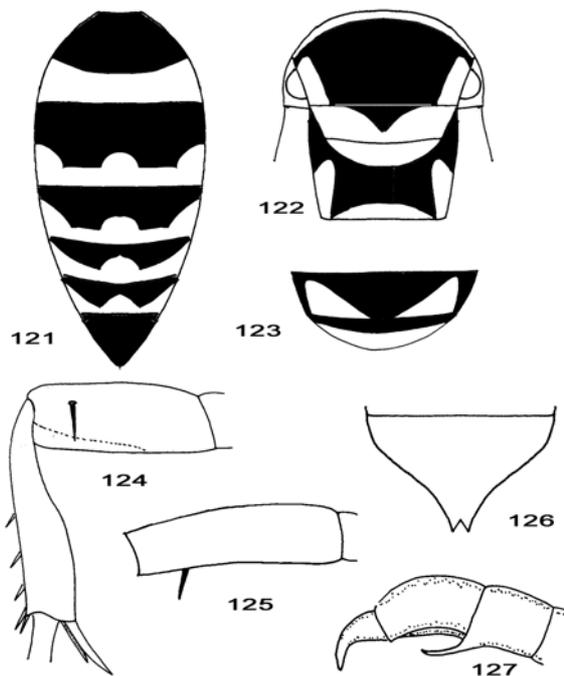
***Bembecinus peregrinus* group**

Diagnosis and discussion: The tergal punctation of the species of the *peregrinus* group is denser than in the species of the *tridens* group. The tergites appear less shiny, compared with the *tridens* group. The hindfemur is shorter than in the *tridens* group, it measures less than its threefold diameter. Most males have spines on the inner side of the hindfemur and tubercles on sternites II, III, VI or VII. Form and position of these spines and tubercles allow an easy identification of most species, but they have to be used very carefully for any phylogenetical analysis in my

opinion (see Bohart 1997). Except from these spines and tubercles, the species are very similar in colour and morphology. The females are mainly distinguishable by colour characters, some species remain unidentifiable in female sex.

The *peregrinus* species group occur in Europe, western Asia (south-eastwards to India), and in Africa. It lacks in America, southeast Asia and Australia, based on literature data.

17. *Bembecinus acanthomerus* (Morice, 1911) (Figs. 121-127)



Figs. 121-127: *Bembecinus acanthomerus* female: 121 gaster; 122 color pattern of thorax, dorsal view; male: 123: color pattern of scutellum and metanotum, male from Morocco; 124 hindfemur and hindtibia, inner side; 125 hindfemur, dorsal view; 126 tergite VII; 127 apex of flagellum.

Stizus acanthomerus Morice, 1911:116, male, female. Syntypes: Algeria: Biskra (OUM). - de Beaumont, 1950:400 (Algeria: Tadjemout), 1951:274 (Algeria, Morocco; redescription).- In *Bembecinus*: de Beaumont, 1954:267 (new combination, revision), 1958:58 (Algeria: Tassili des Ajjer). - As *Stizus cyanescens*: W. Schulz, 1905:42 (Algeria: Biskra), corrected to *Stizus acanthomerus* by de Beaumont, 1950:400. As *Stizus cyprius* de Beaumont (1960, 1961, 1967): de Beaumont confused *Bembecinus cyprius* with *Bembecinus acanthomerus*, some of his mentioned «*cyprius*»- records from Turkey and Syria belong to the latter.

Stizus dentipes Gussakovskij, 1933b:289, male. Holotype: male, Iran: Kerman: Kucha: Kambil (ZIN).- Type not examined, not yet synonymized, belongs probably to *acanthomerus*. - Gussakovskij, 1935:442 (in key). In *Bembecinus*: de Beaumont, 1970c:9 (Iran: Kerman, examined, is a male of *acanthomerus*).

Diagnosis: The male of *acanthomerus* is characterized by its unarmed sternites, its single hindfemoral spine, its slender and apically rounded hindfemur, and the unique form of tergite VII (see figure). It is similar to *cyprius* and related species and can be distinguished from them by its smaller body length (8-11 mm) and by the form of the hindfemur. *Bembecinus cyprius* has an apically enlarged hindfemur, but because of variation of hindfemoral form this character is not easy to recognize in some specimens. The hindfemoral spine of *cyprius* is in most specimens longer and thicker than in *acanthomerus*. *Bembecinus bernardi* and *fertoni* are similar, but have a shorter tergite VII (apically prolonged and bifurcated in *acanthomerus*)

The female occurs in different colour forms. In north Africa it can be distinguished from the similar *fertoni* by its narrower clypeus and by its colour pattern from the remaining species. For recognition of females from other localities see the key. The female recognition remains problematic. As a rule the space above clypeus is black or only laterally yellow, but it may be all yellow in specimens of southern origin. The base of the first tergites is red in specimens from Israel and the Arabian Peninsula.

Discussion: *Bembecinus acanthomerus* occurs around the eastern and southern Mediterranean Sea, in Central Asia, Iran and Arabia in different colour forms. In spite of the high variability I assign all these forms to *acanthomerus* because they lack good species level differences. Most forms are based only on colour characters. I define *acanthomerus* here as described in the diagnosis, mainly characterized by the form of the male hindfemur and its small body size and narrow body shape. The species was previously not recorded outside of Northwest Africa. De Beaumont (1960, 1961, 1967) described the apically narrowed hindfemur among some specimens of his *cyprius* from Turkey and Syria, which are *acanthomerus* in my opinion.

The above mentioned forms of *acanthomerus* are geographic and hence represent local forms or subspecies. Because of lack of good subspecies distinction characters, I decided to combine all the forms under the species name *acanthomerus* and to describe them without naming them.

A problem remains with *dentipes* Gussakovskij from Iran. I was not able to examine the types, and the description does not allow to recognize the species. I could examine a male from the type area of *dentipes*, which is a markedly yellow form of *acanthomerus*. De Beaumont (1970) identified this specimen as *dentipes* and compared it with the type, but it is not clear if he had seen the type really. De Beaumont put *dentipes* near *cyprius*. I treat *dentipes* as a form of *acanthomerus*, but I will not synonymize it formally.

Only a study of the type can clarify the real identity of Gussakovskij's *dentipes*.

Another problem concerns dark and pale olive-whitish yellow specimens with reduced pale markings from Turkmenistan. They agree morphologically well with *acanthomerus*. I treat them also as form of *acanthomerus*, because a change to a whitish yellow colour in eastern populations of species is a common phenomenon in Sphecidae (e.g. *Cerceris*, Schmidt 2000, *Gorytes*, Schmid-Egger 2001).

A third and more fundamental problem remains with the females. Outside of northwest Africa I could only examine a single specimen from Israel and one from Turkey with the typical colour pattern (space above clypeus more or less black, tergites with mesally prolonged bands versus tergal base) and a smaller body size. In all probability these are associated with the males of *acanthomerus*. Further research has to confirm this hypothesis.

The status of a red form is problematic. In southern Israel there occur females with the base of the first tergites reddish. A single female from Oman is markedly red. It is not clear if these forms represent an undescribed species or only a colour form of *acanthomerus*. The case is complicated by the presence of normally yellow females in both countries. Also males from the same localities as the red females in Israel do not have any peculiarities and are similar to other males of *acanthomerus*. Provisionally I treat both, the red form and the yellow form, as belonging to *acanthomerus*. Perhaps the species changes rapidly and without transition forms to the red form in the desert areas in southern Israel.

Male: Body length 8-11 mm. A smaller and slender species compared with the remaining members of the *peregrinus* species group.

Description of typical males from **Morocco and Algeria**, which represent also the largest specimens: 10-11 mm. Pale lemon yellow are: Face up to upper edge of antennal socket, inner eye margin, flagellum below, pronotum, pronotal lobes, lateral bands on mesonotum, large triangular spots on scutellum (sometimes connected apically), sometimes small spots on mesopleuron and propodeum laterally, bands on tergites I-VI (bands are half as large as tergal length, bands II-VI are twice emarginated), lateral triangular spots on sternites, legs (coxa and femur black above). Sternite VII reddish apically.

Parts of head, whole thorax, especially mesopleuron, and tergite I covered with dense, silvery and appressed pilosity and a few pale setae. Minimal distance between eyes 1.2x as long as clypeal length. Flagellomere XI short, curved, pointed at end. Tergite VII apically prolonged, pointed, deeply bifurcate.

Sternites unarmed. Spines of sternite VIII relatively thick. Hindfemur narrow, apically as wide as in the middle or narrower, more or less rounded (hindfemur is less rounded in populations from Morocco than from other origins), with long black spine at upper edge on distal third or quarter. Hindtibia abruptly narrowed basally, more evenly narrowed in specimens from other origins.

Variability:

Morocco: Some specimens from Agdz (8 males and 30 females, 13 May 2003 OLL) are smaller than other specimens in this area (7-9 mm).

Turkey and Jordan: Colour lemon yellow, integument more shiny. Scutellar spots not triangular, more or less square-like. Tergite VII sometimes with yellow spot. Hindfemur apically slender and more rounded.

Iran (the only examined specimen was identified by de Beaumont as *dentipes*): colour as pale as in specimens from Morocco, body markedly yellow: mesopleuron, scutellum and first sternites nearly all yellow, large lateral spots on propodeum, legs all yellow. Emargination of tergal bands triangular. Flagellomere XI apically somewhat prolonged. Hindfemoral spine very short.

Oman: Small or large spot on mesopleuron, spots on scutellum triangular, connected in some specimens. Propodeum laterally yellow in some specimens. Femur with only a small black spot above. Hindfemoral spine smaller than in specimens from Turkey or Morocco. Somewhat smaller than *acanthomerus* from Morocco (below 10 mm).

Israel (specimens from southern Israel, Iddan): Smaller and slenderer (body length 8-9 mm), pale yellow. Space above clypeus black, in one male laterally yellow. Scutellar spots triangular, large. Propodeum laterally with small yellow spot. Tergal and sternal bands narrow, posterior margin of tergal bands darker than remaining band. Femur all black except yellow apex. Silver pilosity on thorax more dense as than other specimens.

Mali, Mauritania: Markedly (pale lemon) yellow form: mesopleuron and scutellum laterally with large yellow spot. Somewhat smaller than males from Morocco (8-10 mm).

Turkmenistan: Body length 8,5 mm. Pale olive yellow. Scutellum mesally and space above clypeus mesally with indistinct dark spot. Pronotal band narrow, mesonotal spots small, remaining thorax black (except pronotal lobes and tegulae). Tergal bands narrow (mid-tergites: a third of tergal length), shallowly double emarginated. Tergite VII, sternites I and IV-VII black. Femur black except apex, tibia black

below. Thorax covered with dense silvery pilosity. Erect setae longer and denser than in males from north Africa. Propodeum apically slenderer than in specimens from western origin. Tergite VII extremely elongate apically, bifurcate. Hindfemoral spine short (half ocellar diameter).

Female:

Morocco, Algeria (typical form): Body length 9-11 mm. Pale lemon yellow are: labrum, clypeus, space above clypeus laterally, inner eye margin, antenna below, pronotum, mesonotum laterally, small spot on upper part of mesopleuron, triangular and mostly connected spots on scutellum, metanotum. Propodeum laterally with large reddish-yellow spot. Femur reddish-yellow, remaining legs yellow. Tergal bands as in male. Tergite VI often with yellow spot. Sternites II-V with small lateral triangular spots. Pilosity as in male, morphology as in females of *peregrinus*. Minimal distance between eyes 1.3x as long as clypeus.

Female variation:

Mali, Mauritania: Body length 9-10 mm. Markedly yellow: Space above clypeus all yellow, upper half of mesopleuron yellow, spots on propodeum yellow, sternites II with large, deeply emarginated band. Tergite VI black or with yellow spot. Legs all yellow, femur slightly reddish above. Minimal distance between eyes 1.3x as long as clypeus.

Israel (Dishon) and Turkey (Siirt): Body length 10 mm. Lemon yellow. Space above clypeus, mesopleuron, propodeum black, scutellum with large square-like lateral spots, tergal bands large, double emarginated, tergite VI with yellow touch. Femur with black band in basal half above. Clypeus as in *acanthomerus* from Morocco.

Turkmenistan: Body length 8,5 mm. Light lemon yellow. Mesonotum with narrow lateral stripe. Scutellum with lateral triangular spots, separated by narrow black space. Metanotum black. Bands on tergites narrow, tergite VI with large lateral spot. Legs yellow, foretibia, midtibia, forefemur and midfemur with small, hindfemur with large black band above. Clypeus 1.4x as wide as maximum distance between eyes. Form of propodeum and setae as in male.

Red female forms:

Israel (southern Israel, Iddan): Body length 7,5-9 mm. Base of tergite I reddish, remaining space pale yellow. Pale tergal band comprises apical third of tergal length. Tergal bands II-V deeply double emarginated, apically also pale yellow. Their central part, which is arched to tergal base, lemon yellow. Propodeum laterally with dark orange-yellow spot, yellow triangular scutellar spots apically connected. Legs reddish-yellow,

remaining colour pattern similar as in corresponding males. Two specimens from Hazeva have a black base of tergite I, with narrow reddish margin between base and yellow band.

Geographic distribution: Northern Africa and western Sahara, eastern Mediterranean area to Iran, Central Asia, Israel and Arabia.

Records:

ALGERIA: 2 males 22 May 1948 Biskra (WOLF, CAS) - Biskra 1891-1954 12 males 5 females (coll. Roth, Paris) - male 1949 Tassili n Aijer (coll. Centrale/Paris) - 25 May 1992 Hamman Salihine - male Biskra 8 June 1971 (OLL) - female 12 May 1948 Biskra (Schlaefle) (det. de Beaumont 1966).

IRAN: «male 21-30 Apr 1956 S.O Iran (Djiroft), Anbar-Abad, («det. de Beaumont 1969 as *dentipes*», de Beaumont 1970) (SMNS).

ISRAEL: male 30 Mar 1995 Iddan (30°49'N/35°17'E) (SE) - male 8 June 1995 Arava Valley (30°43'N 35°11'E) (SE) - 17 females 13 May 1990 Arava, 3 km S Hazeva (Amsterdam) (2 females with black base of tergite I, remaining with red tergal base) - female 6 July 19?? Palestine, Dishon (leg. Bytinsky-Salz, Tel Aviv, yellow).

LEBANON: male 8 July 1995, Monteverde, nr Mansourieh - male 9 June 1966 N. Bekaa, Deir Mar Maroun (Roche).

MALI: 3 males 13 Aug 1991 130 km NE Mopti - male female 14 Aug 1991 Gao - 18 Aug 1991 10 km E Hombori - male 15 Aug 1991 30 km W Gao (Schwarz) - male female 13 Aug 1991 158 km SW Gao (CAS).

MAURITANIA: male female 26 Oct 1993 153 km NE Nouakchott - female 14 Oct 1993 30 km S Nouakchott - female 3 Nov 1993 20 km NE Aleg (CAS).

MOROCCO: male 4 May 1995 Icht, 100 km E Bouzakame (OLL) - 5 males 28 May 1995, Tissint, 70 km E Tata (OLL) - 12 males 27 May 1995, 10 km s Ouarzazate (SMKA, NEU, SE) - male 26 May 1995, 140 km E Agadir, Aoulouz (NEU) - male 26 May 1995, 160 km E Agadir, Taliounine (NEU) - 19 males, 19 females 27 May 1995, 30 km NW Zagora (SMKA, SE) - 20 males, 20 females, 28 May 1995, Morocco/S, 30 km SE Zagora (HS, NEU, SMKA, SE) - male 30 May 1995, Morocco/S, 40 km W Ouarzazate, Tazenakht (SE) - 3 males 29 May 1995, Morocco/S, 80 km S Zagora, Mhamid (NEU, SMKA, SE) - female 21 May 1995 Morocco/S, E Agadir, Quad Aissa (NEU) - 18 males 11 females 27 May 1995, Morocco/S, Vallée Draa, 10 km E Agdz (HS, SE) - 16 June 1947 Marrakech (TA) - 2 females 4 Apr 1996 80 km S Er Rachidia, 20 km W Rissani (Niehuis) - 2 males 14 July 1932 Gundafa (ETH) - 7 males 2 females 21 May 1995 Beni Bassia, 60 km En Boudnib (OLL) - male 29 Apr 1995 20 km N Foum Zquid (OLL) - Marrakech (coll. Centrale/Paris) female 3 June 1947 Goulmina, Ksar es Souk, Quarzazate (det. de Beaumont 1966), male 11 females 30 May 1990 Zagora, male 3 females 30 May 1990 Ait Saoun; female 30 May 1990 Agdz (Schlaefle).

OMAN: 5 males 4 April 1995, 40 km NE Nizwa (Hauser, SE) - male 8 April 1983 W Agron (SE) - male 16/18 April 1987 S. Huwayyah (SE).

SYRIA: male 7 Aug 2000 Syria Centr., Homa/ al Muhaman env. (OLL).

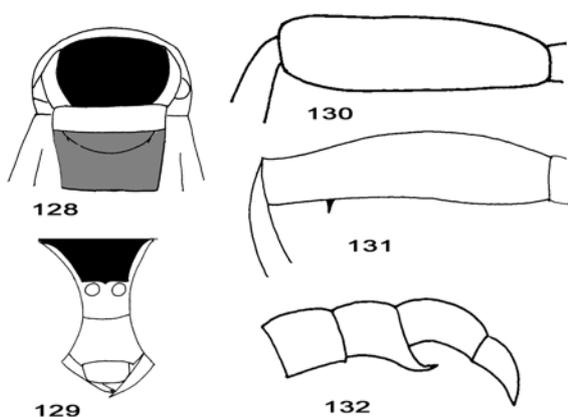
TURKEY: 4 males 2 July 1993 TR mer. or. Nemrut Dagi, Karadut (OLL)- male 17 June 1981 40 km E Midyat, Mardin (SE); male 26 June 1985 Turkey, Hakkari: Beytisebap 19 km S. 1200m (Schwarz); male 13 June 1965 Turkey, Mut (*Bembecinus cyprius* det. de Beaumont 1965, de Beaumont 1967; coll. Schwarz); male Zelve 91 (OLL); male 20 km WS Bitlis 23 June 1997 (OLL); male 9 July 1962 Konya; male 25 May 1978 Urfa, Halfeti (CAS); female 13 Aug 1991 SE Erüh/Siirt (SE) - male 13 July 1987 Van; 5 males 2 July 1987 Mardin; 3 males 28 June 1997 Urfa, Halfeti; male 27 June Urfa, Birecik (LEIDEN).

TURKMENISTAN: male female 22 May 1991 Southern Turkmenistan, near Kushka, leg. Kazenas, «*Bembecinus validior* Guss. 1992, det. Kazenas» (CAS); 17 males 3 females Kushka 27 May 1985 19, 23 May 1990 20-23 May 1990; male female Tashkepri 20 May 1976 (Vladivostok).

Red females:

ISRAEL: 3 females 28 June 1996 Arava Valley, near Iddan, 30°47'N/35°16'E (SE).

18. *Bembecinus adeni* Schmid-Egger spec. n. (Figs. 128-132)



Figs. 128-132: *Bembecinus adeni* female: 128 color patten of thorax, dorsal view (grey = red color); male: 129 face; 130 hindfemur, outside; 131 hindfemur, dorsal view; 132 apex of flagellum.

Diagnosis and discussion: *Bembecinus adeni* is easy to recognize by its nearly complete yellow body. Morphologically it resembles *acanthomerus* (sternites unarmed, hindfemur slender, single hindfemoral spine), but the clypeus is markedly longer. Differing color and the longer clypeus justify the recognition of the taxon as a valid species. A female, probably belonging to the same species, is characterized by its intensive reddish yellow body and its basally red tergites I and II. Because of these differences, the female will not be designed as a paratype.

Male: 10 mm. Body pale lemon yellow except mandibular apex, frons above antennal socket, head behind eyes, central mesonotum (bands on inner eye margin and two longitudinal mesal bands on mesonotum yellow), small bands at tergal base (at most 1/3 as long as tergal length). Transition zone between black and yellow part of tergites reddish. Sternites III-VII with large black parts.

Minimal distance between eyes as long as clypeal length. Hindfemur slender, apically slightly enlarged, but rounded (similar as in or slightly larger than in *acanthomerus*), 2.5x as long as maximum width; with a small pale short spine near apex. Tergite VII apically prolonged, emarginated at apex.

Female: Body length 9 mm. Head and thorax pale reddish-yellow except mandibular apex, frons above antennal socket, head behind eyes, central mesonotum (bands on inner eye margin yellow). Basal two third of tergites I and II reddish, remaining space pale yellow. Tergites III-V with narrow pale band, mesally prolonged versus tergal base. Tergite VI black. Sternites I-IV predominantly reddish with pale spots, remaining tergites dark. Legs pale yellow, femur mostly reddish,

Body covered with fine, dense silvery pilosity. Flagellomere I 1.7x as long as maximum width. Minimal distance between eyes 1.2x as long as clypeal length.

Records: Holotype: male, YEMEN: Aden 1930 leg. H. Strengers (remaining locality unreadable) (LEIDEN). - Paratypes: two males, data as in holotype. A male without head.

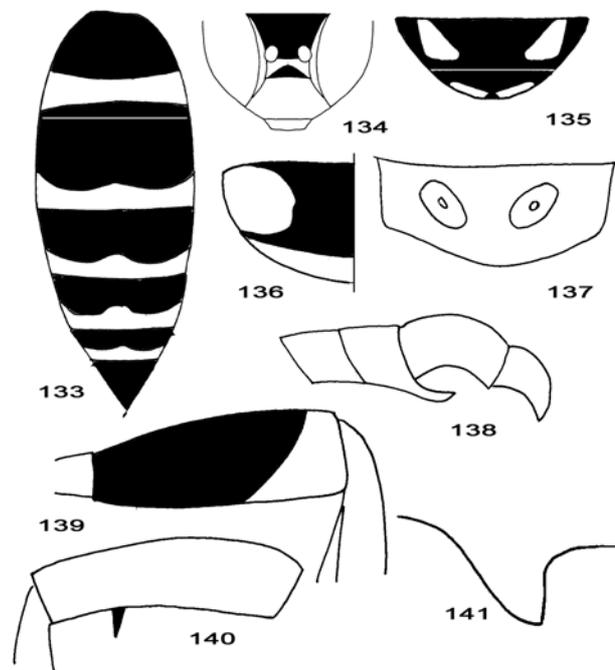
OMAN: female 19 June 1981 Suyh Huwayyha near Burumi (SE, not designated as paratype).

19. *Bembecinus anatolicus* de Beaumont, 1968, stat. n. (Figs. 133-141)

Bembecinus revindicatus anatolicus de Beaumont, 1968:156, male. Holotype: male, Turkey: Beysehir (M. Schwarz coll.). -de Beaumont, 1969:83 (Turkey).

Diagnosis: The male of *Bembecinus anatolicus* is characterized by two lateral rounded tubercles on sternite VI and a large tubercle on sternite II. It belongs to the subgroup with a single spine on the hindfemur. The similar *niehuisi* has a flat sternite VII and *revindicatus* has angular sternal tubercles. Also the mesonotum, the metanotum and the tergite VII in *anatolicus* are marked with yellow, whereas they are black in *revindicatus*. The female of *anatolicus* has a yellow clypeus, the space above is mostly black. It is relatively small and can be distinguished from similar species by its colour pattern (see key). The female of *revindicatus* has a partly black clypeus.

Discussion: De Beaumont (1968) described *Bembecinus anatolicus* as a subspecies of *revindicatus*. The morphological and colour characters in males and in females colour pattern represent characters on species level and justify recognition of *anatolicus* as a valid species. *Bembecinus anatolicus* is only known from western and southern Turkey, whereas *revindicatus* occurs in Syria, Jordan and Israel.



Figs. 133-141: *Bembecinus anatolicus* female: 133 gaster; 134 face; 135 color pattern of scutellum and metanotum; male: 136 color pattern of scutellum and metanotum, left side; 137 tubercles on sternite VI; 138 apex of flagellum; 139 hindfemur, outside; 140 hindfemur, dorsal view; 141 tubercle on sternite II, lateral view.

Male: Body length 9-11 mm. Differs from typical *peregrinus* by the following: mesonotum with rectangular large lateral spots. Band on tergite VI shortened laterally, tergite VII with yellow spot. Tibia with black spot at inner side. Sternite II with pointed tubercle, sometimes broadened, rounded at apex. Tubercles on tergite VI rounded (sometimes with edge), diagonal (to axis), distance between tubercles as distance between tubercle and lateral edge of sternite. Hindfemur with spine in distal quarter at upper edge.

Female: Body length 8-10 mm. Pale lemon yellow are: labrum, clypeus, small triangular spots between antennal socket and eye, inner margin of eye, flagellum below, pronotum, pronotal lobe, small lateral rectangular or triangular spots on scutellum, lateral spots or band on metanotum, bands on tergites I-IV, mesal spot on tergite V, small lateral triangular spots on sternites II and III. Legs yellow, femur above

(hindfemur all) and tibia apically at inner side black. Clypeus long, minimal distance between eyes as long or slightly longer (1-1.1x) as clypeus length.

Geographic distribution: Southern Turkey.

Records: TURKEY: 2 males 10 June 1977, Mut (SMFD) - male female 15 June 1985, Side - male 7 July 1988 Antalya, Termessos - female 4 July 1996 Taurus, 20 km N Tarsus near Tasobasi (SE) - 2 males 15 June 1987 Side (Schmidt) - male 24 June 1998 Konya, 30 km S of Aksehir - male 17 June 1998 30 km N Erdemli, Aslanli - male 3 females 20 June 1997 10 km W Gaziantep - male 3 May 1994 - 3 males 2 females 5 May 1994, 30 Aug 1998 Halfeti env./Birecik - male 25km E Golbasi 7 June 1998 (OLL) - 2 males 19 June 1966 Beyshir - male 28 May 1967 Mut (CAS) - male 17 June 1987 Antalya, Side (LEIDEN).

20. *Bembecinus asphaltites* de Beaumont, 1968 (Fig. 142)

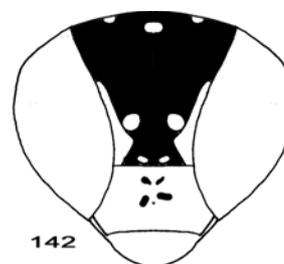


Fig. 142: *Bembecinus asphaltites* female, head.

Bembecinus asphaltites de Beaumont, 1968:157, male, female. Holotype: male, Israel: Ein Gedi (LEIDEN). Examined.

Diagnosis The male resembles *cyprius* by an apically enlarged hindfemur, flat sternites and a single hindfemoral spine. The species is markedly smaller than *cyprius*, the hindfemur has a dark spot apically at inner side. The female differs easily from the similar *cyprius*. The clypeus of *asphaltites* is only as large as minimal distance between eyes, whereas it is larger in most other species (including *cyprius*). The species can also be recognized by its colour pattern (e.g. tergite VI black), whereas the colour of the face is variable. The clypeus may be partly black or all yellow.

Discussion: The male of *asphaltites* is similar to *cyprius*, and the two may be synonymous. Until now, only one male of *asphaltites* is known. Beaumont (1968) mentioned the less developed hindtibial spines as a distinction character, but the number and size of spines is variable in similar species, so this character is not reliable in recognition. Nevertheless I retain its species status because of the differences between the female. The problem needs further research. It is noteworthy that the species was mostly found in female sex.

Male: Body length 7,5 mm. Morphologically and in main colour pattern similar to *cyprius*'. Body colour pale yellow. Thorax black except narrow band on pronotum, pronotal lobes, small spots in outer posterior corner of mesonotum, small lateral spots on scutellum, short bands on metanotum. Tergite VII black. Femur above black, hindfemur black except apex. Tibia and tarsi all yellow except dark spot at inner side of apex of hindtibia. Hindfemur apically enlarged (like *cyprius*), curved along whole length. Spine somewhat longer than hindfemoral diameter (from above), located in distal fourth of hindfemur. Hindtibia strongly curved and deformed, apically narrow. Its outer side medially with three short spines, apically without spines (except a row of 5 spines at upper edge of tibia).

Female: Body length 8-9 mm. Pale lemon yellow are: labrum, clypeus, space above, inner eye margin, flagellum below, narrow band on pronotum, pronotal lobes, small triangular spots on scutellum, complete tergal bands I-V, small triangular lateral bands on sternite II, mid- and hindfemur below, tibiae and tarsi. All tibiae with large apical black spot at inner side. Minimal distance between eyes as long as clypeus.

Variation: Basal parts of clypeus and space above may be black, or clypeus may have a central black spot. Two females have a large square-like spot at clypeal base. The female paratype has an all black clypeus (de Beaumont 1968).

Geographic distribution: Southern Israel, Jordan and Sinai (Egypt).

Records: ISRAEL: male 13-14 June 1964 Ein Gedi, Dead Sea, P.M.F. Verhoeff (LEIDEN) (Holotype J. de Beaumont det. 1967) - 2 females 13-14 Apr 1964 Ein Gedi, Dead Sea (MCZL, Paratype, det. de Beaumont) - 2 females 7 May 1996 SW shore of Dead Sea, 5 km N Massada, En Zeelim (SE, Niehuis) - 2 females 8 May 1996 45 km SE Beer Sheva, Mezad Aqrabbim (SE) - female 9 May 19?? Ein Gedi (leg Bytinski-Salz) - female 24 Apr 1986 Boker w (Tel Aviv).

JORDAN: female 9 May 1975 Jord. mer, Zarga Main (OLL).

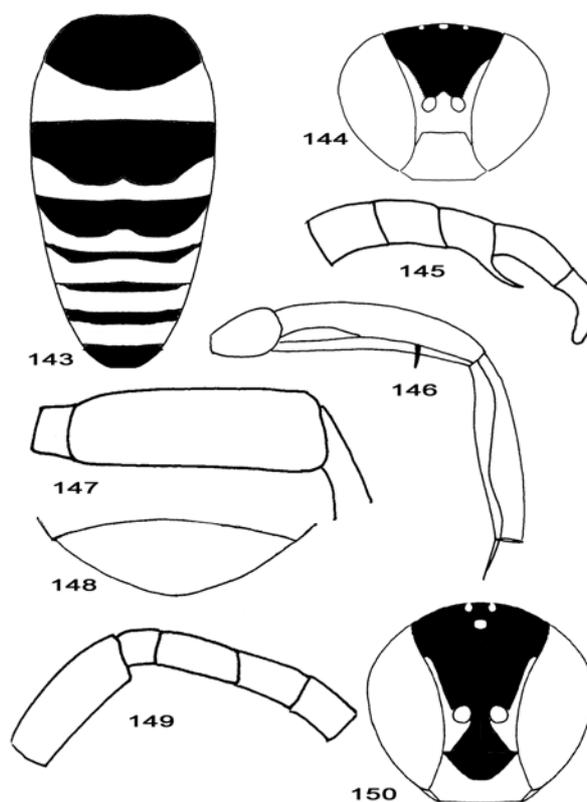
EGYPT: female May 1937 Sinai, Wadi Feiran (Wien)

21. *Bembecinus bernardi* de Beaumont, 1954 (Figs. 143-150)

Bembecinus bernardi de Beaumont, 1954:268, male, female. Holotype: sex not indicated; Algeria: Tassili des Ajjer: Adrar (type is a male; examined, Paris collection) - de Beaumont, 1958:58 (Algeria: Tassili des Ajjer); Bohart and Menke, 1976:530 (incorrectly listed from Egypt).

Diagnosis and Discussion: The male is similar to *fertoni* and *acanthomerus* in having the single hindfemoral spine and flat sternites. It is characterized by the very short tergite VII and the yellow

mesopleuron and mesosternite. All other similar species have an elongated sternite VII. Also the form of the flagellomere XI is different than in these species: it is long, barely curved and apically not pointed. The female can be recognized by its yellow mesopleuron and sternite II. The propodeum is black in the type series, but marked with yellow in specimens from Mauritania. In central and western Sahara, *bernardi* can be confused with *monodi* and other species. These species will be treated in a later revision of the African *Bembecinus*.



Figs. 143-150: *Bembecinus bernardi* male: 143 gaster; 144 head; 145 apex of flagellum; 146 hindfemur and hindtibia, dorsal view; 147 hindfemur, outside; 148 tergite VII; female: base of flagellum; 150 head.

Male (type): Body length 7.8 mm. Differs from *peregrinus* in colour. Pale yellow are: mesopleuron nearly all, mesosternite, propodeum laterally. Tergal bands I-VI narrow. Legs all yellow. Sternites without tubercles, hindfemur apically broadened, with long black spine in distal third at upper edge. Tergite VII apically large, broadly rounded. Flagellomere XI long, barely curved, not pointed apically. Body without erect setae. The males from Mauritania are similar, the tergite VII is somewhat reddish.

Female: (type, from original description): Body length 6.5-7.5 mm. Marked pale yellow: face with small black spot below and above median clypeal base, inner eye margin, pronotum, pronotal lobes, lateral spots on

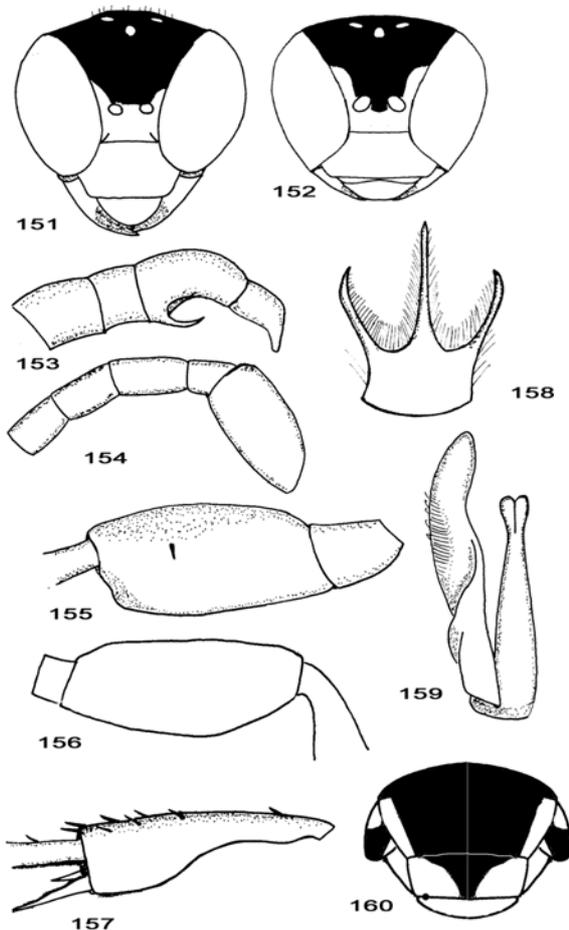
scutellum, metanotum, large spot on upper mesopleuron, and narrow bands on tergites I-V and sternites, sternite II all yellow. Legs yellow and reddish, femur basally black, scape and flagellomeres reddish yellow below. The females from Mauritania have the propodeum marked with yellow laterally, legs (except femur above) and flagellomeres are yellow. A female has a median yellow spot on tergite VI. Minimal distance between eyes 1.2x - 1.3x as long as clypeus.

Geographic distribution: Tassili des Ajjer in southern Algeria, Mauritania. De Beaumont (1954) mentions a single female from Biskra/Algeria, but the identification seems doubtful because of the larger body size (8.5 mm) and the more extended yellow body.

Records. ALGERIA: male Tassili des Ajjer, St. 81. leg. Bernard 1949/ (Type det. de Beaumont) - 2 males female same locality/ Paratype det. de Beaumont (coll. Centrale/Paris) - male dto., St. 63 (CAS).

MAURITANIA: 2 males 2 females Qued Segellit (25km S Atar) 23 Oct 1993 (CAS).

22. *Bembecinus birecikensis* Schmid-Egger, spec. n. (Figs. 151-160)



Figs. 151-160: *Bembecinus birecikensis*: 151 male head; 152 female head; male: 153: apex of flagellum; 154 base of flagellum; 155 hindfemur, inner side; 156 hindfemur, outside; 157 hindtibia; 158 sternite VIII; 159 left side of genitalia; 160 thorax, dorsal view.

Diagnosis: *Bembecinus birecikensis* belongs to the *cyprius* subgroup, which is characterized in male sex by flat sternites, a single hindfemoral spine and an apically enlarged hindfemur. *Bembecinus birecikensis* is similar to *guichardi* in having a short, reddish femoral spine. It can be distinguished from the latter by its apically obtusely angled tergite VI and its markedly yellow face. *Bembecinus decoratus* has a pointed tergite VI and a black clypeus. The remaining species of the *cyprius* subgroup have a longer hindfemoral spine. Both species, *guichardi* and *decoratus*, resembles *cyprius* and *asphaltites* by their apically enlarged hindfemur. The remaining species have a slender hindfemur. The female of *birecikensis* can be identified by its colour pattern (face markedly yellow, scutellum with large lateral spots, mesopleuron with small yellow spot) and its reddish femur.

Male: Body length 9-10 mm. Pale lemon yellow are: mandible (distal third black), labrum, clypeus, space between clypeus and upper margin of antennal base, band at inner eye margin at 2/3 length of eye, flagellum (flagellomere I-VI darkened above), large band on pronotum, pronotal lobe, band along lateral of pronotum, spot on tegulae, large lateral band on mesonotum (not reaching pronotum), spot on mesopleuron, large lateral spots on scutellum, which are connected in most specimens, and metanotum. Propodeum sometimes with spot near emargination. Tergites I-VI with yellow band, 1/3 as large as tergal length, band on tergite VI as large as tergal length. Band on tergite I widely emarginated, other bands double emarginated. Tergite VII black, apex reddish. Sternites II-V with lateral spots (large at sternite II), connected with a narrow band. Mesosternite with spot. Femora black, with reddish dark spot above (at hindfemur in full length), underside with yellow band on whole length. Coxa with yellow spot. Tibia and tarsi yellow.

Whole body covered with fine silvery pilosity, with no erect setae visible. Minimal distance between eyes 1.4x as long as clypeus. Flagellomere I 1.8x as long as distal width. Whole body shiny, tergites with small punctures, 2-3 diameters apart. Propodeal emargination deep, U-shaped. Sternites without tubercles. Tergite VII broad, lateral edges concave, apex emarginated. Hindfemur apically enlarged, with rectangular edge, 2.2x as long as its maximum width. Hindfemoral spine located in its distal third, very small, barely visible, reddish. Hindtibia emarginated at basal two thirds.

Female: Body length 9-10 mm. Colour pattern as in male. Space above clypeus yellow up to lower edges of scape base. Spots on scutellum mostly connected. Spot on mesopleuron small, reddish, or mesopleuron black. Legs as in male. Minimal distance between eyes

1.3x as long as clypeus. Mesonotum without punctures. Flagellomere I 1.8x as long as apical wide.

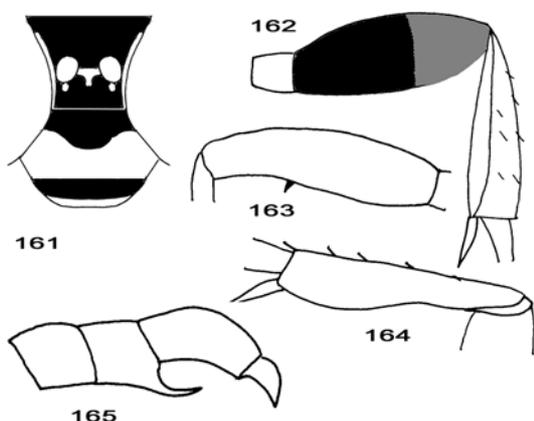
Etymology: The species is named after Birecik, a town in southern Turkey, where the holotype was collected.

Geographic distribution: Southern Turkey.

Records. Holotype: male 13 June 1977 TURKEY, Birecik, leg. Heinrich [labelled as *diacanthus* de Beaum. det. J. Heinrich 1977]) (SMFD).

Paratypes: TURKEY: Birecik, female 4 males 13 June 1977 (SMFD) - Urfa, male 14-17 June 1977 (SMFD) [labelled as *diacanthus* de Beaum. det. J. Heinrich 1977] - Zerikey 600m, 19 June 1988 male (SE) - female 2 males 6 June 1998 10 km SW Sirnak - male 21 June 1997 20 km N Mardin (OLL) - female 30 May 1979 Urfa env. (CAS) - 2 males, female 28 June 1987 Urfa, Halfeti (LEIDEN).

23. *Bembecinus carpetanus* (Mercet, 1906) (Figs. 161-165)



Figs. 161-165: *Bembecinus carpetanus* male: 161 face, 162 hindfemur, outside; 163 hindfemur, dorsal view; 164 hindtibia; 165 apex of flagellum.

Stizus Carpetanus Mercet, 1906:144, male, female. Incorrect original capitalization. Syntypes: Spain: Madrid: Escorial and Los Molinos (IEE, Madrid).- In *Bembecinus*: de Beaumont, 1954:265 (new combination, revision); Also mentioned in faunal papers from Spain, which are not listed here.

Diagnosis and Discussion: *Bembecinus carpetanus* is a less yellow species with (in male sex) flat sternites, an enlarged hindfemur with a single small spine at inner side. All femur are red and black. The species is similar to *crassipes*. The males of both species can only be identified by colour and form of hindfemur and hindtibia. Females cannot be distinguished. Two males (Sorbas, GUI, Grazalema, GAY) have a different colour pattern on face, what indicates the variability of this character.

Male: Body length 9-10 mm. Differs from typical *peregrinus* by the following: clypeus with black spot or black band basally, space above clypeus black with small yellow spots near scapal base, yellow in few specimens. Scapae yellow beneath, flagellomeres

reddish beneath. Thorax black except narrow band on pronotum and spot on pronotal lobe. Bands on tergites I-V narrow, last bands laterally shortened. Tergite VI with median spot. Legs black, apical half of femur and underside of tibia reddish.

Flagellomere XI small. Tergite VII at apex broadly rounded. Hindfemur barely broadened at apex. Spine of hindfemur small, barely visible, placed in distal third. Hindtibia twice emarginated: mesally and basally (view from above).

Female: Colour as in male. Clypeus black in basal half, space above clypeus black. Flagellum yellow below. Not distinguishable from *crassipes*.

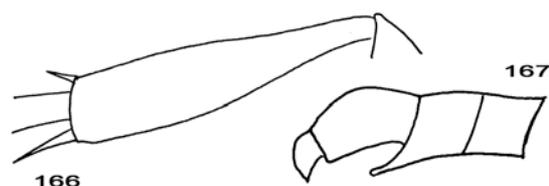
Geographic distribution: Spain and Portugal.

Records (only males): SPAIN: 2 males 14 June 1982 El Losar de la V., CC - 13 June 1982 Feria (BA) - 20 June 1985 Jerez de los C., BA - 14 June 1982 Guijo de St. Bembecinus, CC - 15 June 1985 Puebla del M., BA (all Gayubo) - 17-30 May 1974 Algeciras, near Ho. Solimar - 21 May 1992 S.Spain, Sorbas 500m (SE) - 3 males 08 May 1983, Granada, Salobrena, (SE) - 2 males Montarco; Escorial (ETH) - 3 males Montarco (leg. Dusmet, coll. Roth, Paris) - Vaciamadrid (leg. Dusmet, coll. Roth, Paris) - 2 males Escorial; Alberche (coll. Centrale/Paris) - 14 males 5 females Almeria prov., 8 km SE Gergal, 37°04'N 02°29'W (Illinois) - male Aranjuez; Cadiz, Guadiago, Escorial (CAS).

PORTUGAL: 4 June 1996 Algarve, 15km NL Vila do Bispo - 30 May 1996 Algarve, 40 km N Faro, Feiteira (OLL).

Further 35 females belong to *crassipes* or *carpetanus*: SPAIN: Gargantilla (CC), Merida (BA), La Calzada de Bembecinus (SA), Fermoselle (ZA), Puebla del male (BA), Valvengo (BA), La Chardenchosa (BA), Branca (GR), Oliva del la F. (BA), Jarandilla de la V (CC), Rioja (AL), Gracalenia (CA) (all Gayubo, captured from 1978-1989) - 1964 Huesca, Sabina Nigo - 1964 Canet de Mar - 1971 Cuneca, Ciudad Encantada - 1970 Alicante, Benidorm - 1960 Malaga, Marbella (Gembloux). - female 21 May 1983, Granada, Salobrena, 240 m NN - female 25 June 1988, Granada, Sierra Nevada Süd (SE) - female Vaciamadrid (ETH) - 2 females Toledo 9 June, 23 July 1968 (Roche) - 4 females 23. June 1961 La Aligeda/Avila (LEIDEN) - 8 females from southern Spain (Granada, Malaga, Toledo) (Amsterdam).

24. *Bembecinus crassipes* (Handlirsch, 1895) (Figs. 166-167)



Figs. 166-167: *Bembecinus crassipes* male: 166 hindtibia; 167 apex of flagellum.

Stizus crassipes Handlirsch, 1895:971, male. Lectotypes: Spain: Barcelona (NHMW).- In *Bembecinus*: de Beaumont,

1954:265 (new combination, revision), Hamon, Foucart & Fonfria, 1993:468 (diagnostic characters), 469 (new to France: Banyuls-sur-Mer). Also mentioned in many faunal papers from Spain, not listed here.

Diagnosis and discussion: See *Bembecinus carpetanus*.

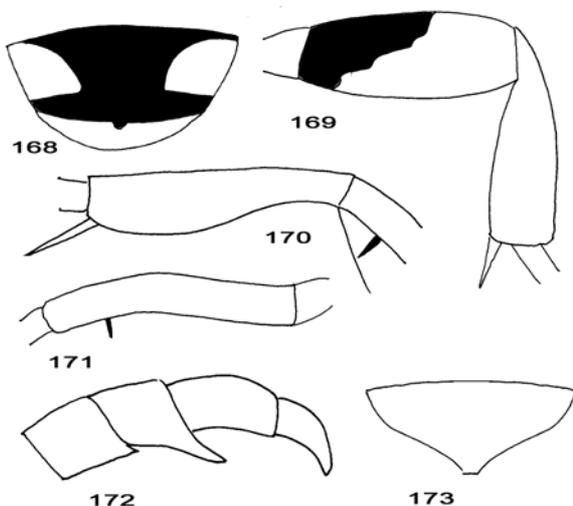
Male: 8-9 mm. Similar to *carpetanus*. Femur reddish, basally black. Hindtibia not emarginated, tapered basally. Mesonotal punctures sparser than in *carpetanus*.

Female: not distinguishable from *carpetanus*.

Geographic distribution: Spain and southwest France.

Records: SPAIN: 2 males Barcelona (leg. Antigua, det. Handlirsch as *crassipes*, one male designated as lectotype) - male 07 July 1980 Grazalema (space above clypeus with yellow spot) - male 29 July 1990 Villaverde del Monte, SO - 2 males 16 Aug 1988 C. Cortada, SO (all. Gayubo) - male 20 June 1973 Murcia, Sra. de Espuna nr. Totana (SE) - male 28 May 1968 Jaen, Carzola (60 km n Granada) (Gembloux) - 3 males 6 June 1991 Almeria, Sa. Cabrera, Turre (OLL) - male 30 May 1963 Canet de Mar (coll. Roth, Paris) - male 24 June 1974 Tarragona, Barbararostro (Amsterdam).

25. *Bembecinus cyprius* de Beaumont, 1954 (Figs. 168-173)



Figs. 168-173: *Bembecinus cyprius* male: 168 scutellum and metanotum; 169 hindfemur, outside; 170 hindtibia; 171 hindfemur, dorsal view; 172 apex of flagellum; 173 tergite VII.

Bembecinus cyprius de Beaumont, 1954:266, male, female. Holotype: male, Cyprus: Polemidia Hills (MCZL), examined. - de Beaumont, 1967:301 (key), 306 (Turkey; variation). Some specimens mentioned by de Beaumont from Turkey as *cyprius* probably are *acanthomerus*.

Diagnosis and discussion: The male of *cyprius* is characterized by its flat sternites, its long single spine at inner side of the hindfemur and its apically enlarged and rectangular hindfemur. The members of the

acanthomerus species-subgroup have a slender hindfemur, *asphaltites* from Israel is smaller (about 8 mm), but not separated by reliable characters (see above). *Bembecinus rhodius*, described as a subspecies of *cyprius*, is a valid species because of the different form of the hindfemur (see below). The subspecies *cyprius creticus* is a synonym of *rhodius*.

Bembecinus cyprius is similar to *validior*, which has two spines at inner side of the hindfemur and is markedly yellow (scutellum with large and nearly connected spots, whereas spots in *cyprius* are smaller than the black space in between). The species distinction in Turkey is easy, but some specimens from Arabian Peninsula with smaller femoral spines remain problematic.

I could not examine the type females. According to de Beaumont (1954), they belong to the species subgroup with a yellow space above the clypeus. The female of *cyprius* is probably similar to *validior*. *Bembecinus rhodius* from Greece Islands and western Turkey and *meridionalis* have either a black space above the clypeus, or a black tergite VI. An examined female from southern Turkey agrees with this description.

Male: Body length 9-11 mm. Differs from typical *peregrinus* by the following: pale yellow. Space above clypeus yellow up to upper margin of antennal base. Scutellum with very small lateral spot, metanotum black. Flagellomere XI long, barely curved. Sternites without tubercles. Hindfemur apically enlarged, rectangular. Upper edge of inner side of hindfemur with long, black spine in distal third. Hindtibia emarginated in basal half.

Colour variation: Males from southern Turkey have a large yellow spot on the mesopleuron, a yellow metanotum and lateral spots on the propodeum. A male from Israel has a yellow band on the metanotum, the propodeum and the mesopleuron are black.

Female: (according to de Beaumont 1954, specimens from Cyprus): Body length 10-11 mm. Face yellow up to antennal socket, mesopleuron and propodeum with small yellow spots, large spots on scutellum, metanotum nearly complete yellow. Tergite VI with yellow spot, legs yellow, upper femur reddish-black; remaining colour pattern as in *peregrinus*.

Geographic distribution: Eastern Mediterranean area from Greece to Israel.

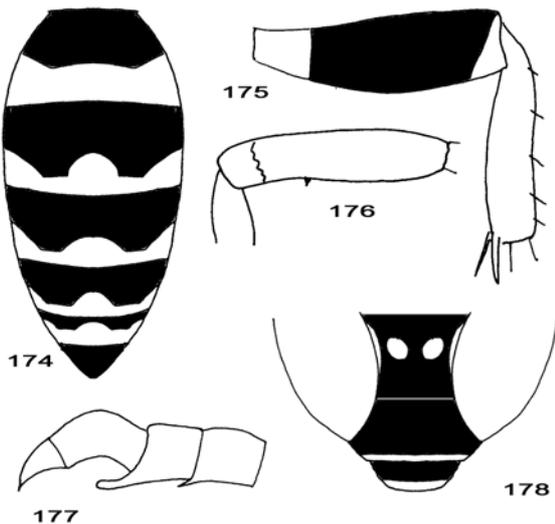
Records: GREECE: 2 males 20 June 1994 Samos, Mauritia E Kamara (SE).

ISRAEL: male 17 May 1996 Jordan Valley, 8 km SSW Bet Shean (SE).

TURKEY: (Mesopleuron black:) male 12 June 1985, Side (SE) - male 7 July 1993 Acigöl, Cardak env. (OLL) - male 6 July 1996 Amanus/Nur Dagi, 22 km N Kirikhan (SMKA) - (Mesopleuron yellow.) 3 males 15 June 1977, Turkey, Urfa

(SMFD) - male 2 July 1993 TK, mer. or. Nemrut Dagi, Karadut (OLL) - male 10 June 1977 Mut (SMFD). - female 22-26 May 1975 Urfa (SMFD) - male 21 July 1998 Gaziantep, 10 km E Islahiya (SE) - male 12 June 2000 Halfeti 37°12'N/37°52'E (Niehuis) - 5 males 28. June 1987 Urfa, Halfeti; male 30 June 1986 Mugla, 30 km NW Dalaman, Köycegiz (LEIDEN) - male 30 June 1993 Anamur, male 30 June 1993 Silifke (Schlaefle) - female 14 July 2001 Agais, Bodrum, Salmakis, Polygenum (SE).

26. *Bembecinus decoratus* Guichard, 1980 (Figs. 174-178)



Figs. 174-178: *Bembecinus decoratus*: 174 female gaster; male: 175 hindfemur, outside; 176 hindfemur, dorsal view; 177 apex of flagellum; 178 face.

Bembecinus decoratus Guichard, 1980:229: male, female. Syntypes: Northern Oman (BMNH) - Guichard 1991:339 (fauna of Jordan).

Diagnosis and discussion: The species belongs to the *cyprius* subgroup with unarmed sternites and a spine at the inner side of the hindfemur of males. By form of the male hindfemur (large, but apically not rectangular) and its very short femoral spine it resembles *birecikensis*. The male is characterized by the black face and reddish legs. The similar *acanthomerus* has a longer hindfemoral spine and is markedly yellow (face yellow up to antennal socket, legs yellow and black).

A female from the type area (det. Guichard) can be recognized by the black space above the clypeus and its reddish legs. I assign it as female to the male of *decoratus* because of its relatively less extended yellow colour (as in male). The pattern of tergal bands is typical for the species, but *decoratus* shares this character with *acanthomerus* and other species: the bands II-V are double emarginated and mesally half-round prolonged to tergal base. A second female from UAE has all femur black and yellow. I assigned it to *decoratus* because of its colour pattern, which is similar as in the typical female of *decoratus*, but it has

a nearly complete yellow space above clypeus. The similar female of *acanthomerus* has a markedly red body in the Arabian Peninsula.

Male: Body length 9 mm. Differs from typical *peregrinus* by the following: face black except narrow band at apex of labrum and clypeus. Scutellum with small triangular lateral spot, metanotum with narrow band. Tergites and sternites as in *peregrinus*. Femur black, with large (forefemur) or small yellow or reddish yellow bands. Tibiae black and reddish yellow. Body, especially mesopleuron and propodeum, with dense silvery pubescence, thorax with erect pale setae. Hindfemur slender with a very small, barely visible spine in distal third. Hindtibia basally barely emarginated.

Female: Body length 9 mm: Space above clypeus black, inner band of eye margin broadened below. Scutellum with large triangular spots (smaller than space in between), not connected. Metanotum with apical band. Tergites I-VI with double emarginated bands, median part large. Flagellum and legs reddish-yellow, forefemur blackish above. Scape and first flagellomeres black below. Pubescence and setae of thorax as in male. Flagellomere I 1.7x as long as apical wide and 1.2x as long as flagellomere II. Minimal distance between eyes 1.3x as long as clypeus.

Variation: The female from Hatta has yellow legs, all tibia are black above, hindtibia is black except apex, space above clypeus is yellow except black median spot.

Geographic distribution: Oman and United Arab Emirates, the records from Jordan have to be confirmed.

Records: OMAN: male 2 females 21-31 Mar 1976 Rostaq, 350m (*Bembecinus decoratus* det. Guichard, Syntype, SE, CAS) - male 5 Mar 1976 Wadi Quryat, Ag. Stn. 500m (*Bembecinus decoratus*, det. Guichard, Syntype, SE).

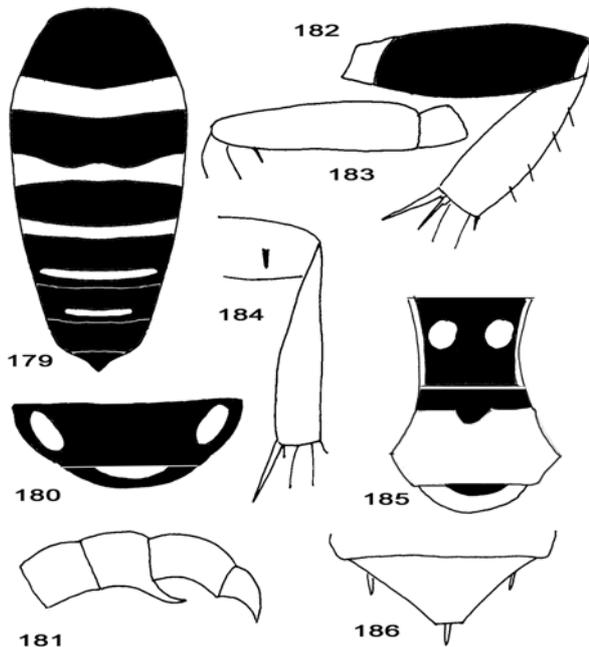
UNITED ARAB EMIRATES: female 27 Mar 1981 Hatta (SE)

27. *Bembecinus fertoni* (Handlirsch, 1908) (Figs. 179-186)

Stizus fertoni Handlirsch, 1908:242, male, female, incorrect original capitalization. Lectotype: Algeria: Tébessa (MNHN, present designation). - de Beaumont, 1951:274 (member of *crassipes* species group). - In *Bembecinus*: de Beaumont, 1954:267 (new combination, revision).

Diagnosis: The male of *fertoni* is characterized by its unarmed sternites, its single hindfemoral spine and its slender and apically rounded hindfemur. The female can be separated by its long clypeus from *acanthomerus*, *bernardi* and other species with a similar colour pattern. Both sexes of *fertoni* can also be distinguished from *acanthomerus* and the central

Saharan *bernardi* by its less extended yellow colour (mesopleuron and propodeum black) and the short male tergite VII.



Figs. 179-186: *Bembecinus fertoni* male: 179 gaster; 180 scutellum and metanotum; 181 apex of flagellum; 182 hindfemur, outside; 183 hindfemur, dorsal view; 184 hindfemur and hindtibia; 185 female face; 186 male tergite VII.

Type designation: Handlirsch (1908) described *fertoni* from several specimens that he had received from Ch. Ferton. The author indicated the Vienna collection as type depository, but I could not find any types there. Also Dollfuss (1989) did not mention the species from the collection in Vienna. However, four males and three females are present at the Paris Museum, and I designate a male as lectotype. The other specimens are designated as paralectotypes.

Male: Body length 10-11 mm. Pale yellow: face yellow up to antennal socket, pronotum, mesonotum apicolaterally and scutellum with small spots, metanotum partly yellow, mesopleuron and propodeum black. Tergites I-V with narrow apical bands, band III-V laterally shortened, tergite VI with median spot. Sternites black. Femur yellow, black above, hindfemur black except apex. Tibia whitish, tarsi reddish. Head and thorax covered with dense silvery pilosity and long erect setae. Flagellomere XI short. Hindfemur narrow, apically not enlarged, rounded, with long black spine in apical third. Tergite VII short, broadly rounded.

Female: Body length 9-10 mm. Labrum and clypeus yellow or clypeus basally black. Space above clypeus black or with small median spot. Inner eye margin with band, that may be connected with antennal socket. Scape and flagellomeres dark yellow below.

Thorax and sternites as in male, tergites I-IV with band, last bands laterally shortened, tergite V with median spot or black. Colour of legs variable, black and reddish or femur whitish-yellow below. Minimal distance between eyes as long as clypeus.

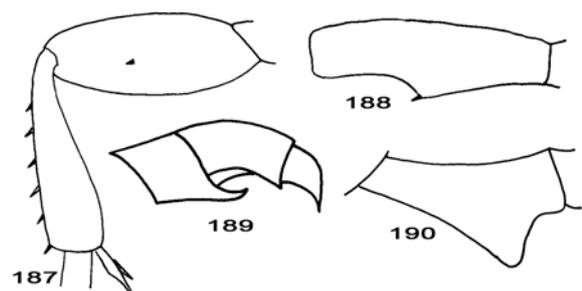
Variation: Extension of light colour variable: Two females from Tunisia and the female from Ain Sefra have large mesonotal lateral bands, large and nearly connected scutellar spots, and a large lateral spot on the propodeum. Tergal bands half as large as tergal length, last bands do not reach lateral tergal margin. Space above clypeus laterally yellow, femur all reddish or black and reddish. Mesopleuron and tergite VI black in all specimens examined.

Geographic distribution: Algeria and Tunisia.

Records: ALGERIA: male 7 July 1906 Tebessa «*St. Fertoni* Handl.» (coll. Ferton/Paris); lectotype of *fertoni*. - 3 males 3 females, all from Tebessa; July 1906, with the same old labels as the lectotype, 2 males without labels, but with the same pins (coll. Ferton/Paris); all designed as paralectotypes - male 28 May 1960 Oran, Misserghir (coll. Barbier/Paris) - male 15 June 1898, Constantine (SMFD); female 1846 Mecheria, Imilla [33°31'N/0°20'W] (leg. Chopart, coll. Roth/Paris); female May 1846 Ain Sefra [45°N/0°35'W] (leg. Chopart, coll. Roth/Paris); the following locations, probably from Algeria, could not be identified: female 14 July 25 Boghari, P. Roth (leg. (coll. Roth/Paris), (?Boghar 35°46'N/2°44'E); female 2 July 50 (1850) Bou Megueur (coll. Roth/Paris).

TUNISIA: 2 females, 8 June 2000, 12km W Matmata, 33°32'N/9°50'E (SE).

28. *Bembecinus gazagnairei* (Handlirsch, 1892) (Figs. 187-190)



Figs. 187-190: *Bembecinus gazagnairei* male: 187 hindfemur, outside; 188 hindfemur, dorsal view; 189 apex of flagellum; 190 tubercle on sternite II, lateral view.

Stizus gazagnairei Handlirsch, 1892:86, male, female, incorrect original capitalization. Syntypes: Algeria: Nemours (NHMW). - Handlirsch, 1898:489 (Algeria); de Beaumont, 1950:400 (Algeria). - In *Bembecinus*: de Beaumont, 1954:272 (new combination, revision).

Diagnosis: The male of *gazagnairei* is unique in having a large, broad square-like or triangular tubercle on sternite II and its hindfemur which is apically strongly hollowed out. The related *mayri* has a narrow

and long sternal tubercle which is apically strongly curved. Also its hindfemoral emargination is smaller and the yellow colour more extended (scutellum nearly completely yellow) in *mayri*. Other species with a tubercle on sternite II do not occur in northwest Africa.

The female belongs to a lineage which combines red and black legs with an all black thorax (see key). Within this group, *Bembecinus gazagnairei* is characterized by the large body length and the lemon yellow tergal bands. It may be confused with *mayri*, but the latter has yellow legs and often larger tergal bands.

Male: Body length 11-12 mm. Lemon yellow. Differs from typical *peregrinus* by the following: scutellum with small or large triangular lateral spots, metanotum yellow or black. Bands on tergites III-VI laterally shortened, tergite VII with yellow spot or black. Sternites black. Sternite II with large and broad tubercle, broad square-like or triangular. Hindfemur emarginated at distal third, with small spiniform tubercle at beginning of emargination.

Female: Body length 11-12 mm. Lemon yellow. Differs from typical *peregrinus* by the following: base of clypeus and space above black (black clypeal spot triangular). Thorax and sternites black, tegulae, pronotal lobes and very small mesonotal posteriolateral spot may be yellow. Bands on tergites II-V laterally shortened, tergite V black with apex reddish. Legs reddish, basal half of femur black. See also description of *podager*.

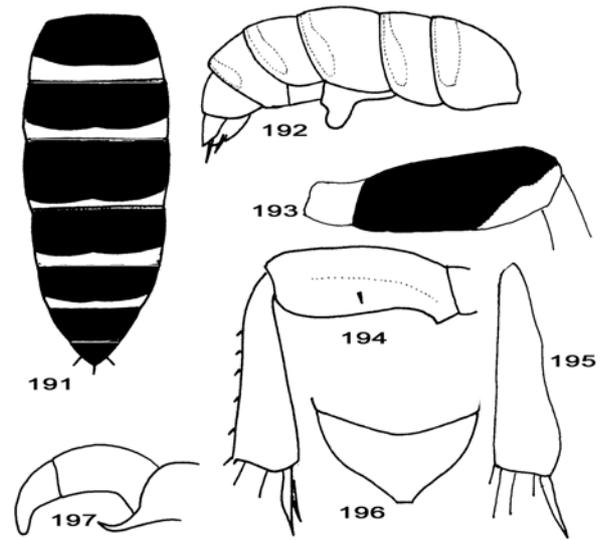
Variation: A female from Oran is nearly all black, with the following being yellow: very short narrow band at inner eye margin, flagellomeres and scape below, very narrow band on tergite II, short band on tergite III and median spot on tergite IV. Legs dark brown reddish. A female from Gafsa is somewhat smaller than remaining specimens and its clypeus is all yellow.

Geographic distribution: Algeria, Tunisia.

Records: ALGERIA: male Oran, Haman Bou Hatjar (ca 1910) (ZSM) - 6 males, female Haman Bou Hatjar, April 1910 (leg. Schmiedeknecht, SMFD), 2 females same locality (ZMHU) - male female Oran (leg. Schmiedeknecht, SMFD) - male Oran (ETH) - male 16 May 1961 Alger (OLL) - female 23 June 1971 Yacouren (OLL) - Haman Bou Hatjar 1910; Tleman (coll. Centrale/Paris) - Near Oran: 2 males 24 May 1960 Route D 91; male 28 Mar 1961 ferme Giraud; 3 females 27 May 1961 Sidi ben Chouiref (coll. Barbier/Paris) - Oran (coll. Ernest André/Paris, dark female).

TUNISIA: 4 males female 15 May 1973, 15 km S Jendouba (GUS, CAS) - Gafsa (coll. Granger, Paris) - 6 males, female 19 Apr 2001 Jendouba (OLL).

29. *Bembecinus gusenleitneri* de Beaumont, 1967
(Figs. 191-197)



Figs. 191-197: *Bembecinus gusenleitneri* male: 191 gaster; 192 gaster lateral view; 193 hindfemur, outside; 194 hindfemur, inner side; 195 hindtibia; 196 tergite VII; 197 apex of flagellum.

Bembecinus gusenleitneri de Beaumont, 1967:309, male, female. Holotype: male, Turkey: Konya: Beysehir (J. Gusenleitner coll.). - de Beaumont, 1967:301 (key, male), 1969:84 (Turkey; female, discussion).

Diagnosis: The male of *gusenleitneri* is similar to *meridionalis*. The tubercle on sternite III is large and apically rounded, whereas it is small and pointed in *meridionalis*. Also, the hindfemoral spine is small and in the femoral middle, and not in femoral distal third as in most other species of the *peregrinus* group. The female is unique in having a black clypeus with a very narrow apical reddish band and short bands on last tergites. The female of *revindicatus* from Israel and Syria is similar, but often has lateral spots on the clypeus. The female of *nigrolabrum* is also similar, but the labrum is black, and tibiae are all reddish.

Male: Body length 10 mm. Pale yellow. Colour of head and thorax as in *peregrinus*, scutellum with small rectangular lateral spots, metanotum black. Bands on tergites II-V laterally shortened, tergite VI, VII and sternites black. Femur black with yellow band at apical underside, tibia black an inner side. Sternite III with large tubercle, nearly rectangular. Hindfemur with median small spine.

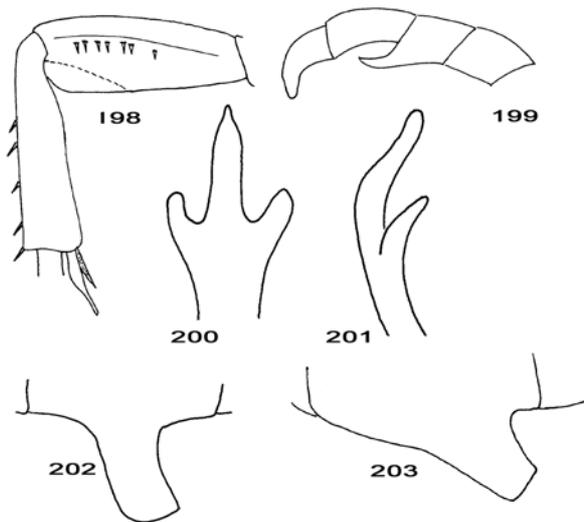
Female: Body length 10-11 mm. Pale yellow. Face black, labrum and clypeus with narrow reddish-yellow band at apex. Underside of flagellomere, band on pronotum, epimere and lateral spots on scutellum yellow. Bands on tergites I-VI laterally shortened, tergites V-VI and sternites black. Femur black (forefemur with apical yellow band), tibiae basally lemon yellow, apically black, tarsi lemon yellow.

Variation: The female from Nigde has the labrum and apical half of the clypeus yellow. The females from Kutahya have partly reddish legs.

Geographic distribution: Turkey.

Records: TURKEY: male female 12 June 1968, Mut, Sertuval, 1300m (det. de Beaumont, GUS, ZSM,) - male 19 June 1998 N. of Akseki (SE) - 2 males 20 June 1996 Karaman; male 12 June 1978 20 km W Konya (CAS) - female 10 Aug 1991 Camardi, Nigde (SE) - male female 15 June 1997 30 km N Kutahya, Porsuk Braaji - female 18 June 1997 40 km E Mut, Cornelek; 3 males 4 females 16 June 2000 30 km N Kuthaya (OLL).

30. *Bembecinus gynandromorphus* (Handlirsch, 1892) (Figs. 198-203)



Figs. 198-203: *Bembecinus gynandromorphus* male: 198 hindfemur, inner side; 199 apex of flagellum; 200 sternite VIII, ventral view; 201 id, lateral view; 202 tubercle on sternite III, lateral view; 203 female tubercle on sternite II, lateral view.

Stizus gynandromorphus Handlirsch, 1892:89, male, female. Syntypes: Syria: no specific locality (NHMW).-- In *Bembecinus*: de Beaumont, 1954:274 (new combination, revision), 1967:301 (key, male), 310 (Turkey), 1969:84 (Turkey).

Diagnosis: *Bembecinus gynandromorphus* is the largest species in the *peregrinus*-group (maximum 16 mm). The male is unique in having a large curved tubercle on sternite III and a row of spines at the inner side of the hindfemur. The female of *gynandromorphus* is the only Palaearctic species with a tubercle on a sternite (sternite II) and a pygidial plate on tergite VI.

Male: Body length 11-16 mm. Lemon yellow, markings of head, tergites and legs as in *peregrinus*. Thorax black except band on pronotum, pronotal lobe and spot on tegulae. Tergite VII with median spot. Sternites black or with small lateral spots. Flagellomere I 2.6x as long as distal width. Thorax and mesopleuron densely, coarsely punctured. Sternite III

with tubercle, that is small and plump, pointed at apex, or larger and with parallel sides and apically hawk-beak like. Sternite VI emarginated at end, sternite VII with ridge in basal half. Edges of inner side of hindfemur angular, upper edge with row of 6-9 short spines in distal half.

Variability: Some smaller males from Turkey have reduced pale yellow markings. The clypeus has a median black spot, band on tergite I is interrupted, tergite VI black. These specimens have a small dentiform tubercle on sternite III.

Female: Body length 13-16 mm. Lemon yellow. Clypeus with black basal band or rectangular spot. Space above clypeus with lateral spots. Band at inner eye margin, pronotum, pronotal lobe, large lateral spots on scutellum and bands on tergite I-V yellow. Legs yellow reddish, basal half of femur black. Flagellomere XI 2.1x as long as distal width. Sternite II with large tubercle (tilted rectangle or pyramidiform). Lower edge of hindfemur rectangular, as in male. Tergite VI with angular pygidial plate, apical surface with dense reddish pubescence.

Geographic distribution: Southern Turkey, Syria, Israel and Jordan.

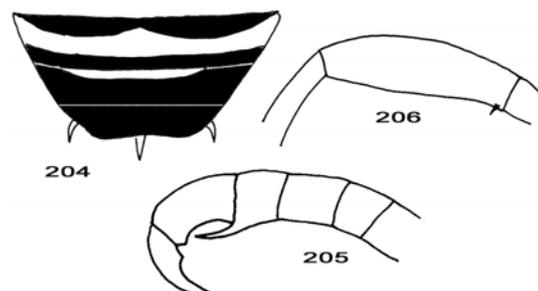
Records: ISRAEL: male 5 May 1943 Palestine, Jerusalem, (MCZL, det. de Beaumont) - male 14 May 1996 10 km S Haifa, Har Karmel, Bet Oren (SE) - male 15 May 1996 40 km NE Haifa, 1 km E Hurfeish (Hauser) - 2 females 17 May 1996 Jordan Valley, 8 km SSW Bet Shean (Hauser, Niehuis) - female 15 May 1940 Benjamina (TA) - male Sichron Jaokob (CAS) - 3 females 15. June 1965 Akko (Schlaefle, det. de Beaumont 1966).

JORDAN: 2 males female 25 Apr 1996 Jordan west, Jordan valley, S. Shuna (OLL).

LEBANON: female 22 June 1945 Hasbaya (MCZL) - 4 males 6 females 12 May 1995 N. Bekaa, Jdeide, 1000 m NN (Roche).

TURKEY: 2 males 5 May 1994, 21 May 1998 Halfeti, Birecik; male 20 June 1998 Turkey W, 30 km E Manisa; 5 males female 24 June 1998 Konya, 30 km S of Aksehir; female 22 June 1997 15km N Midyat (OLL) - 3 males female 14 June 1966 Beysehir (CAS).

31. *Bembecinus hebraeus* de Beaumont, 1968 (Figs. 204-206)



Figs. 204-206: *Bembecinus hebraeus* male: 204 tergites V-VII; 205 hindfemur, dorsal view; 206 apex of flagellum.

Bembecinus hebraeus de Beaumont, 1968:160, male. Holotype: male, Israel: Ein Gedi (W. Schlaefle coll.) Examined.

Diagnosis and discussion: The male of *hebraeus* is unique in having a basal hindfemoral spine and a short and apically emarginated tergite VII.

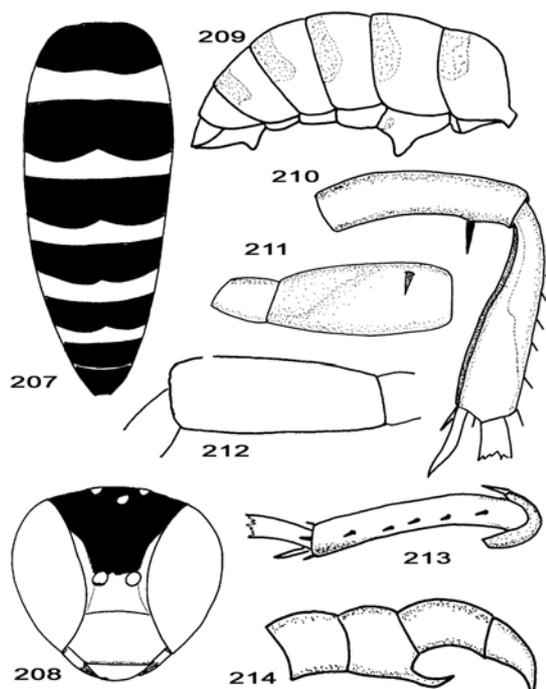
Male: Body length 7 mm. Pale yellow. Colour pattern as in *peregrinus*. Tergite VI with median spot. Flagellomere I 1.6x as long as apical wide. Flagellomere X strongly curved, flagellomere XI curved downwards. Propodeal emargination small or absent. Tergite VII 3.8x as wide as its visible length, shallowly emarginated apically. Sternite VII also short and shallowly emarginated apically, with row of white lash-like setae. Hindfemur rounded at inner side, with small spine basally at lower edge or twinned teeth. Hindtibia evenly enlarged to apex.

Female: Unknown.

Geographic distribution: Known only from the type area En Gedi and Mezada (Masada) in the desert of eastern Israel.

Records: ISRAEL: 2 males 2 June 1965 En Gedi (paratypes, det. de Beaumont) (MCZL) - 4 males 16 May 1971, 17 May 1960, 28 Apr 1964, 28 May 1964 En Gedi (TA) - 15 males 2 June and 16 June En Gedi; 4 males 17 June 1965 Mezada (Schlaefle) (6 males are paratypes det. de Beaumont).

32. *Bembecinus heinrichi* Schmid-Egger, spec. n.
(Figs. 207-214)



Figs. 207-214: *Bembecinus heinrichi* male: 207 gaster; 208 head; 209 gaster, lateral view; 210 hindfemur, dorsal view; 211 hindfemur, inner side; 212 hindfemur, outside; 213 hindtibia; 214 apex of flagellum.

Diagnosis: The male of *heinrichi* is easily recognized by the pointed, pyramid-like tubercle on the sternites II and VI and the long and narrow hindfemur with a long single spine near apex. The scutellum is black. The similar *urfanensis* has a markedly shorter and larger hindfemur, the inner spine shorter and located in the distal third of the hindfemur, and the scutellum laterally spotted.

Discussion: *Bembecinus heinrichi* is similar to *urfanensis*. Both species differ only by their different proportions of the hindfemur and the colour pattern. Both are found in southern Turkey. The female is unknown and probably similar to the female of *peregrinus* (see description below), or to *meridionalis* or *urfanensis*.

Male: Body length 10-12 mm. Pale lemon yellow are: basal half of mandible (distal half reddish black), labrum, clypeus, space above clypeus, band at inner eye margin at 2/3 length of eye, underside of scape and flagellomeres (distal flagellomeres reddish, flagellomere X darkened at inner side), band on pronotum, pronotal lobe, tegulae. Tergites I-V with narrow band, 1/3 as large as tergite length, band on tergite II-V laterally shortened. Tergite VI-VII black. Sternites black or sternite II with small lateral spots. Midcoxa with yellow spot. Femur black, underside of forefemur with yellow band on whole length, midemora with band in basal half, hindfemur only with apical spot. Tibiae with dark spot at inner side. Tarsi yellow. Whole body covered with fine silvery pubescence and erect pale setae.

Minimal distance between eyes 1.1x as long as clypeus. Flagellomere I 2x as long as distally wide. Flagellomere XI long, rectangularly curved. Thorax smooth, with scattered punctures. Propodeal emargination small. Tergites shiny, with dense coarse puncture, punctures 1-2 diameters apart. Lateral edges of tergite VII slightly emarginated, apex rounded. Hindfemur with parallel sides, apically right-angled, 2.5-2.8x as long as maximum width. Inner side of hindfemur with long black spine in distal quarter, as long as flagellomere III. Hindtibia curved, emarginated at base. Sternite II with long pointed tubercle, sternite VI with pyramid-form point, sternite VII with median ridge (similar as in *peregrinus*).

Female: I could examine a female from the type area of *heinrichi* (Halfeti 31 May 1998, coll. SE), which agree well with *peregrinus*. It differs in the following characters: 11 mm, space above clypeus nearly complete yellow, with two lateral black spots, scutellum with two very small lateral band-like spots, tergite VI nearly completely yellow, apex reddish. Femur and tibiae black and yellow, hindtibia all yellow. Perhaps is it the female of *heinrichi*, but it may belong also to *cypricus* or another species.

Etymology: The taxon is named after the late J. Heinrich from Aschaffenburg/Germany. He collected the specimens and recognized it as a valid species.

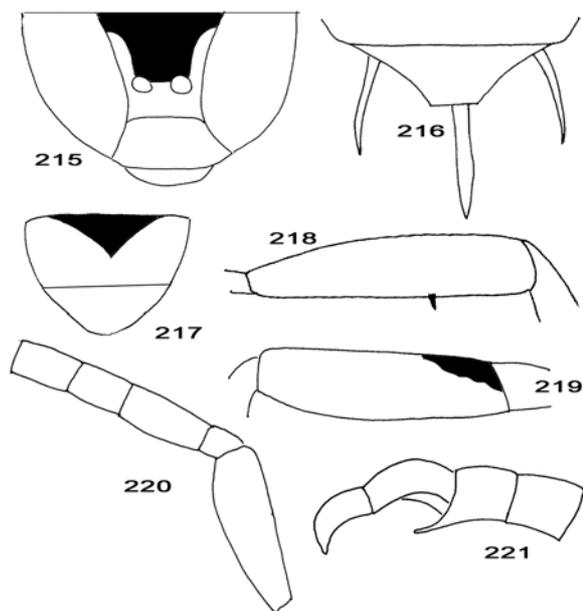
Geographic distribution: Southern Turkey and Lebanon.

Records: Holotype: TURKEY: male 3.-7 June 1976 As. Turkey, Urfa, leg. Heinrich, (SMFD) (labelled as *femorata* n. spec. det. J. Heinrich 1977 = manuscript name). Registration number: SMFH 2347.

Paratypes: TURKEY: 10 males 3.-7 June 1976; 9 males 21 May -28 May 1972; male 22.-26 May 1975 As. Turkey, Urfa - 2 males 17.-19 May 1972 Birecik; all leg. Heinrich labelled as *femorata* n. spec. det. J. Heinrich 1977. Registration number: SMFH 2348 a-g. (SMFD) - male 31 May 1998 Halfeti, Birecik - male 2 June 1998 70 km N Urfa, Caylarbasi - male 10 June 1998 40 km SE Karaman Maras - male 6 June 1998 Mardin, Hop Gecidi (OLL).

LEBANON: male 12 May 1995 N. Bekaa Jdeide, 1000 m NN (Roche).

33. *Bembecinus henseni* Schmid-Egger spec. n.
(Figs. 215-221)



Figs. 215-221: *Bembecinus henseni*: 215 female face; 216 male tergite VII; 217 male scutellum and metanotum, 218 hindfemur, dorsal view; 219 hindfemur, outside; 220 female base of flagellum; 221 male apex of flagellum.

Diagnosis: The male of *henseni* belongs to the closer *acanthomerus* group with unarmed sternites and a single hindfemoral spine. It is characterized by the small and narrow hindtibia, which is markedly smaller than in similar species. By the extensive yellow colour pattern, the species resembles *validior*. The latter has a markedly enlarged hindtibia and in most cases two hindfemoral spines. Also, the last tergite of *validior* is shiny with large interspaces, its apical border is reddish and widely emarginated. *Bembecinus henseni* has a dull and densely punctured last tergite with black apical margin. The remaining species of the mentioned

subgroup have a black mesopleuron, at most two lateral spots on the scutellum (all yellow in *henseni*) or a larger hindtibia.

The female has a partly yellow mesopleuron, yellow lateral spots on the propodeum, a reddish-yellow femur, and in contrast to the markedly yellow colour, a black tergite VI. The scutellum is yellow except a small basal part. The species is markedly larger than *acanthomerus*.

Male: Body length 11-13 mm. Lemon yellow are: face up to antennal socket, large bands at inner eye margin, a spot above antennal socket, scape, flagellomeres below, large band on pronotum and on mesonotum laterally. Scutellum and metanotum all yellow, propodeum laterally with large spots, in some specimens somewhat yellow mesally. Mesopleuron and mesosternite yellow except narrow black margin. Tergites and sternites I-VI with yellow bands, bands on tergites II-VI double emarginated. Tergite and sternite VII black. Legs all yellow except small basal dark spot on mid- and hindfemur. Apical half of mandible black. Hindfemur 3.3x as long as wide. Tergite VII with prolonged apex, apically emarginated. Mesonotum smooth, with some scattered macropunctures. Propodeum and tergites densely macropunctured. Minimal distance between eyes 1.1x as long as clypeus.

Female: Body length 11 mm. Colour as in male. Spot on mesopleuron half as large as mesopleural surface. Scutellum basally with black triangular spot. Spots on propodeum laterally and first tergal band smaller than in male. Mesosternite black except small spot in front of midcoxa. Tergite and sternite VI black. Midfemur above and hindfemur all reddish-yellow.

Propodeum densely macropunctured, punctures near propodeal base smaller than lateral and apical punctures. Clypeus 0.85x as long as minimal distance between eyes. Flagellomere I 2.4x as long as apical wide.

Etymology: The species is named after R. Hensen, a Dutch scientist, who collected the specimens.

Geographic distribution: Southern Turkey.

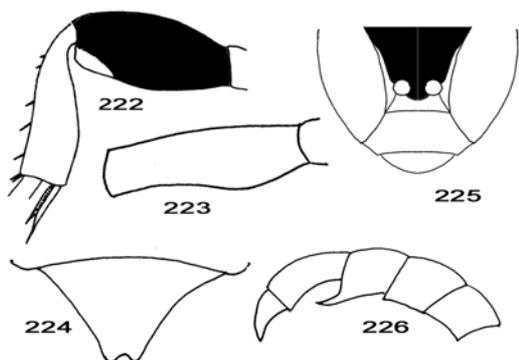
Records: Holotype: TURKEY: male 3 Aug 1987 (Mardin), Midyat 1000m, leg. R. Hensen (LEIDEN). Paratypes: 13 males, 1 female, same data as holotype.

34. *Bembecinus innocens* de Beaumont, 1967 (Figs. 222-226)

Bembecinus innocens de Beaumont, 1967:305, male, female. Holotype: male, Turkey: Ankara: Kirikkale (BMNH). - de Beaumont, 1967:301 (key, male).

Diagnosis and discussion: The male of *innocens* is unique in combining unarmed sternites with the

hindfemur without any spine, whereas the remaining species of the *peregrinus*-group (except *khuzestani* spec. n.) have a hindfemoral spine. *Bembecinus innocens* is obviously a member of the *peregrinus*-group because of the enlarged hindfemur, the basally narrowed hindtibia and the - compared with *tridens* - less shiny and densely punctured integument. The female is characterized by a short and large clypeus, the minimal distance between the eyes is 1.6x as long as the clypeus.



Figs. 222-226: *Bembecinus innocens* male (except 225): 222 hindfemur, outside; 223 hindfemur, dorsal view; 224 tergite VII; 225 female face; 226 apex of flagellum.

Male: Body length 10-14 mm. Pale olive-yellow: Apical half of labrum, clypeus (with central black spot), space above clypeus (black in some specimens), band at inner eye margin, underside of scape, narrow band on pronotum, pronotal lobe, narrow bands on tergites I-VI, triangular lateral spots on sternites II-V. Underside of flagellomere brownish. Femur black, apex with longitudinal spot at underside (only apex light at hindfemur). Tibiae and tarsi black, with light band at whole upper side. Body covered with silvery pubescence, erect setae only at frons.

Slender species. Minimal distance between eyes 1.4x as long as clypeus. Flagellomere I 2.5x as long as distal wide. Tergite VII elongated, emarginated apically (similar as in *acanthomerus*). Sternites without tubercles. Hindfemur apically enlarged and slightly hollowed out, without spine. Hindtibia basally narrowed.

Female: Body length 10-11 mm. Pale lemon-yellow: labrum, clypeus, space above clypeus up to lower edge of scapal base, band at inner eye margin, pronotum, pronotal lobe, small lateral spots on scutellum, narrow bands on tergites I-V, triangular spots on sternites II-V. Femur black with yellow bands on underside, tibiae and tarsi yellow. A female from Mut has a black space above clypeus.

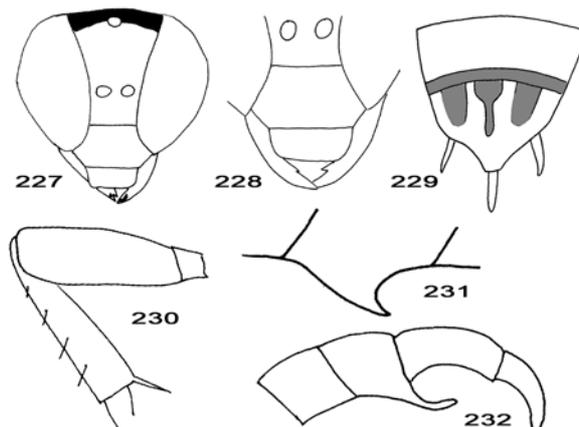
Slender species. Minimal distance between eyes 1.6x as long as clypeus (maximum width of clypeus 3x its length). Apical margin of clypeus widely emarginated. Flagellomere I 2x as long as distal width. Thorax

without punctures. Spines of forebasitarsus as long as scape, apically spatulate

Geographic distribution: Turkey.

Records: TURKEY: female 30 June 1960 Ankara, 16 km W. of Kirikkale, 2700m Guichard & Harvey leg. (MCZL, paratype, det. de Beaumont). - male 06 June 1980, 15 km W Siirt, 650 mm NN (SE) - 3 males female 8 July 1997 25 km E Malatya, Kopekziz; female 14 June 2000 20 km W Mut (OLL) - female 4 males 15km W Siirt (CAS).

35. *Bembecinus khuzestani* Schmid-Egger, spec. n. (Figs. 227-232)



Figs. 227-232: *Bembecinus khuzestani*: 227 male face; 228 female face; male: 229 tergite VI and VII; 230 hindfemur, outside; 231 tubercle on sternite III, lateral view; 232 apex of flagellum.

Diagnosis: The male is characterized by a pointed tubercle on sternite III, and an unarmed hindfemur. The species has a nearly complete pale reddish and yellow body. *Bembecinus khuzestani* shares the unarmed hindfemur with *innocens* from Turkey, but the latter has also unarmed sternites and is markedly dark. The female of *khuzestani* has no specific morphological characters. It is easily recognizable by its pale markedly yellow and reddish colour.

Male: Body length 11 mm. Body pale yellow. Black are: mandible apically, two marks at frons, a large band between eyes which includes ocelli, back side of head, mesonotum except large lateral and two median yellow bands. Base of tergites, sternite VI and VII reddish or dark reddish, sternite VI with yellow band. Flagellum reddish at upper side, yellow at under side.

Clypeus as wide as its maximum length, upper margin curved downward. Propodeal emargination large, lower margin spin-like. Hindfemur slender, rounded at apex. Hindtibia not emarginated. Sternite III with small pointed tooth near apex. Tergite and sternite VII apically with deep V-like emargination. Wings hyaline, venation light brown reddish. Body without erect setae, only with scattered silvery pubescence.

Female: Body length 10 mm. Body lemon yellow, darker than in male. Brown reddish are: large zone between eyes which includes ocelli and which is triangularly enlarged to median frons, three longitudinal bands on mesonotum, base of tergites II and III, apex and sides of tergite VI and sternite VI. Apical third of mandible black, upper side of flagellum reddish. Propodeal emargination deep, lower margin spiniform. Wings and setae as in male. Minimal distance between eyes as long as clypeal length. Hindfemur 2.8x as long as maximum width.

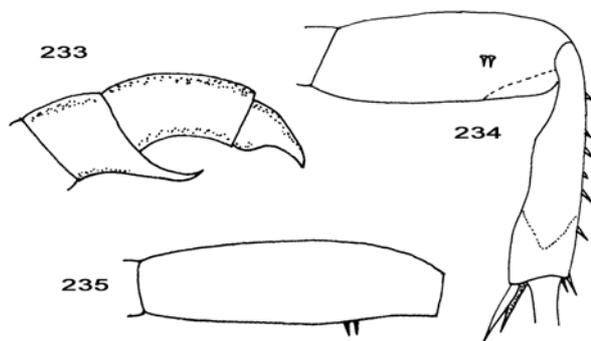
Etymology: The species is named after Khuzestan, a province in western Iran, where the holotype was collected.

Geographic distribution: Western Iran.

Records: Holotype: male IRAN, Khuzestan, Haft Tapeh 300 km N di Abadan, Rive fiume Dez 29 June-1 July 1965 Giordani Soika-Mavromoustakis [probably 33°3'N 48°12'E] (CAS).

Paratypes: male female data like holotype - male IRAN, Khuzestan, Haft Tapeh 300 km N di Abadan, Choca Zambil Dez 29 June-1 July 1965 Giordani Soika-Mavromoustakis leg (CAS, SE) - male 12 May 1999 Iran southwest, Susla env. K. Denes leg (OLL).

36. *Bembecinus mattheyi* de Beaumont, 1951 (Figs. 233-235)



Figs. 233-235: *Bembecinus mattheyi* male: 233 apex of flagellum, 234 hindfemur, inner side; 235 hindfemur, dorsal view.

Stizus mattheyi de Beaumont, 1951:276, female, male. Holotype: male, Morocco: Tafraout (MCZL). - In *Bembecinus*: de Beaumont, 1954:270 (new combination, revision, Tunisia), 1956:190 (Libya).

Diagnosis: *Bembecinus mattheyi* belongs to a species subgroup with unarmed sternites and a single (or twinned) hindfemoral spine in males. It is unique in having red and black legs and an apically widely emarginated sternite VI. The female has a black thorax. It is characterized by red and black legs, pale tergal bands and a black basal band on the clypeus. It cannot be distinguished from *naefi*, which is only recorded from the type area near Casablanca in Morocco.

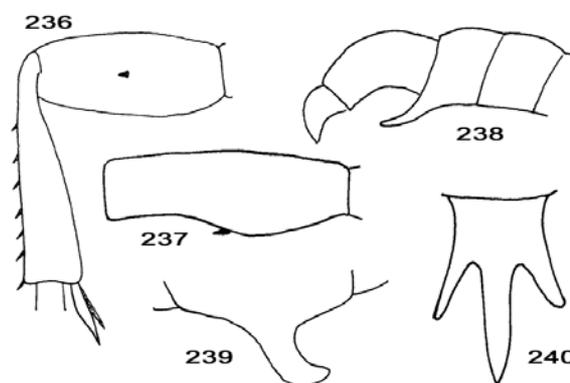
Male: Body length 9-10 mm. Pale lemon-yellow. Colour pattern of head and thorax as in *peregrinus*, clypeus in some specimens with black basomedian spot, scutellum and metanotum black. Bands on tergites I-V narrow, laterally shortened, band on tergite V reduced to triangular median spot. Sternites black. Legs reddish, base of femur black. Flagellomere XI short. Sternites without tubercles. Tergite VII short, obtusely angled apically. Sternite VI emarginated. Hindfemur with small spine (or two, very close spines) at distal third at upper hindfemoral margin. Hindtibia with central emargination at inner side.

Female: Body length 9-10 mm. Pale lemon-yellow: labrum, apical half of clypeus, band at eye margin, underside of antenna, pronotal lobe, bands on tergite I-IV (last band laterally shortened), median spot on tergite V or tergite VI black. Legs red, basal half of femur, apical half of tibiae and basitarsi I-III black. Tarsi I and II yellow. Minimal distance between eyes 1.15x as long as clypeus.

Geographic distribution: Morocco, Tunisia, Libya.

Records: MOROCCO: male Bou Tazzert près Mogador/leg. Benoist 1928 (paratype det. de Beaumont) (coll. Centrale/Paris) - male female 5 Apr 1996 20 km S Aoulouz (K. Schmidt) - 13 males 6 females 20 Apr 1996 10 km SE Ait Baha 9°05'W 30°02'N; female 15 Apr 1996 Imi n'Knem, 50 km E Agdz 5°58'W 30°52'N (Schwarz) - male 9 Apr 1996 70 km ENE Taroudannt, Env. Aoulouz; male 10 Apr 1996 40 km S Agadir, Qued Massa, Sidi Rabat; female 4 Apr 1996 80 km S Er Rachidia, 20 km W Rissani (Niehuis) - female 15 Mar 1997 11 km NW Taliouine 30°34'N 8°00'W (Hauser) - male female 8 May 1995 70 km N Agadir, Tamri; male 23 May 1995 10 km N Rich; female 11 May 1995, 10 km E Yousouffia; male 9 Apr 1999 Aoulouz; 9 males 2 females 20 Apr 1996 60 km SE Agadir, 10 km SE Ait Baha (OLL).

37. *Bembecinus mayri* (Handlirsch, 1892) (Figs. 236-240)



Figs. 236-240: *Bembecinus mayri* male: 236 hindfemur, inner side; 237 hindfemur, dorsal view; 238 apex of flagellum; 239 tubercle on sternite II; lateral view; 240 sternite VIII, dorsal view.

Stizus mayri Handlirsch, 1892:85, male, incorrect original capitalization. Syntypes: male, Algeria: Sétif (NHMW). - In *Bembecinus*: de Beaumont, 1954:273 (new combination, revision).

Diagnosis: The male of *mayri* is unique in having a narrow, long sternal tubercle that is strongly curved apically, and the hindfemur that is strongly hollowed out apically. The similar *gazagnairei* has a large, broad square-like or triangular tubercle on sternite II. Also the hindfemoral emargination is deeper and yellow markings less extended in *gazagnairei*. Other species with a tubercle on sternite II do not occur in northwest Africa. The female has a nearly all black thorax and yellow legs. The similar female of *gazagnairei* has red legs. The female of *podager* from Morocco is also similar to *mayri*. It has a coarse and dense mesonotal punctation, whereas the mesonotum is nearly smooth in *mayri*.

Male: Body length 12-14 mm. Lemon yellow, colour pattern of head, thorax and legs similar as in *peregrinus*. Scutellum with large lateral spots or all yellow, propodeum with large lateral yellow spots. Bands on tergites I-VII large, covering three quarters or more of tergal surface, tergite VII with yellow spot, sternites II-III (sometimes also IV) with small lateral yellow spot. Flagellomere XI short. Tergite VII triangular. Sternite II with large tubercle, hook-formed, curved backwards. Lateral teeth of sternite VIII thickened. Hindfemur with apical emargination and small spine at base of emargination.

Female: Body length 11-13 mm. Lemon yellow. Labrum, clypeus, band at inner eye margin, underside of antenna, some very small spots on thorax (scutellum, pronotum), bands on tergite I-V (width of bands variable), underside of femur, tibiae and tarsi. Tergite VI with reddish spot at apex. See also description of *podager*. Minimal distance between eyes 1.3x as long as clypeus. Variation: The females from Algeria have larger bands than the females from Tunisia (2/3 as wide as tergal length).

Geographic distribution: Algeria and Tunisia.

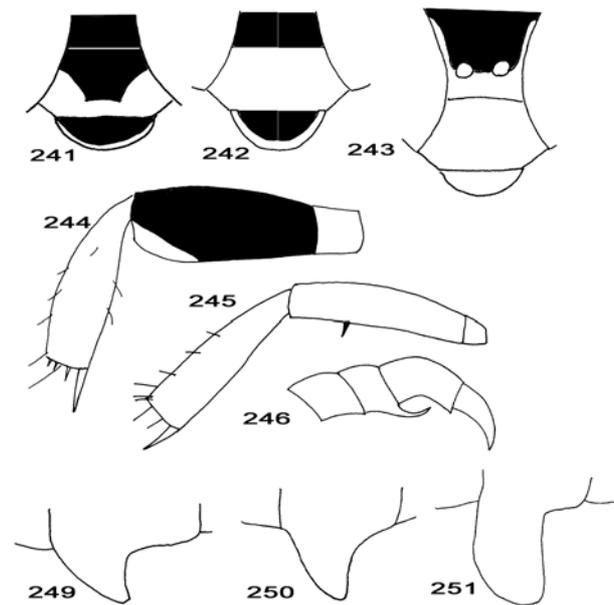
Records: ALGERIA: 15 males 2 females 23 June 1971, Yacouren (Park National) - female 23 June 1971 Yacouren (OLL) - male Setif (GENF).

TUNISIA: 7 males 5 females 25 June 1994, 40 km W Jendouba, Ain Soltane (HS, SE, SMKA) - male 6 females 23 June 1994, Ain Draham (SE) - male 26 June 1994, SW Bizerte, Lac Ichkeul (SE).

38. *Bembecinus meridionalis* Costa, 1859 (Figs. 241-251)

Bembecinus meridionalis A. Costa, 1859:5, male, female. Lectotype: male, Italy: Canello near Napoli (Napoli), designated by de Beaumont, 1953:2. - de Beaumont, 1954:271 (revision), 1959:19 (Italy), 1960:10 (Greece:

Rhodes Island), 1965:26 (Greece; female recognition features), 1967:301 (key,), 308 (Turkey), 1969:83 (Turkey); In *Stizus*: Handlirsch, 1892:87 (new combination, revision).



Figs. 241-251: *Bembecinus meridionalis* female: 241 face, female from Italy; 242 id. from Greece; 243 id. from Israel; male: 244 hindfemur, outside; 245 hindfemur and hindtibia, dorsal view; 246 apex of flagellum; 249 tubercle on sternite III; lateral view; male from Israel; 250 id. from Greece; 251 id. from Southern Turkey.

Diagnosis and discussions: The male is unique in having a pointed tubercle on sternite II, an unarmed sternite VI and a single hindfemoral spine. The similar *gusenleitneri* from Turkey has a large, apically rounded sternal tubercle and an emarginated hindtibia. The female exists in various colour forms and can easily be confused with *peregrinus* and other species (see key and description).

Male: Body length 10-13 mm. Pale yellow markings similar as in *peregrinus*, band on metanotum interrupted. Sternite III with tubercle of variable dimensions, pointed or rounded at apex, curved backwards in most specimens. Hindfemur enlarged at apex, with long spine at distal quarter of inner side. Colour pattern variable: last tergal bands laterally all shortened, sometimes tergal band VI reduced to a median spot.

Female: Body length 10-13 mm (Greece): Pale yellow are: clypeus (sometimes basally black), flagellum below, pronotum, pronotal lobes, small lateral spots on scutellum, band on tergites I-IV which do not reach tergal sides, median spot on tergite V, fore- and midfemur below, tibia except apex. Minimal distance between eyes 1.1x as long as clypeus.

Variation: The females of *meridionalis* vary in colour and surface of clypeus. Specimens from Greece and Italy have a partly black or complete yellow clypeus,

the space above clypeus is black. Specimens from Rhodes, Turkey, Syria and Israel have always the space above the clypeus yellow. In western specimens the colour of the body is pale yellow, the surface of the clypeus shiny and with coarse punctures (about two diameters apart). Specimens from Israel are lemon yellow and have a grainlike surface of the clypeus without visible coarse punctures (but not as grainlike as in *peregrinus*). Tergite VI may have a small yellow spot in specimens from Israel.

Some smaller females from southern Turkey (Gaziantep, Urfa) remain problematic. They measure 10-11 mm, the scutellum has two lateral rounded spots, the metanotum is pale or black, tergal band V is long. I assign these females to *meridionalis*, because I examined some males from the same localities.

Geographic distribution: Eastern Mediterranean area from southern Italy to southern Turkey and Israel.

Records: ALBANIA: male 29 May 1961 Uji Ftohte, südl. Tepelena (DEI).

CROATIA: female 16 June 2000 Makaraska riv, Drvenik (OLL) (clypeus black except narrow apical band).

GREECE: **Rhodes:** male 4 females 15 June 1971 (ZSM) - male female 29 April 1990, Rhodes, Monolithos (SMNS) - female Rhodes Archangelos 14 June 1996 (OLL) - 7 females 19 males 16 May 1971 SW Lindos (LEIDEN) - **Mainland:** female 29 May 1994 Peleponnes, Kosta, Porto Heli (OHL) - 25 male 10 females 1995-1997 Peleponnes: Monemvasia, Neapoli-Kap Malea; Agros near Larissa, Stymphalia; Kalamata-Avia; Kap Kenero near Mani; Kalogria; Alt-Kornith, Lira; Voidokilia; Samikon; Epidauros; Troizen; Sikyon. male: 16 May-30 June, female: 3 June-8 July (ARENS) - 2 males female 8 July 1996 Peloponnes, 20 km N Pilos Marathopoli (OLL) - female 23 July 1954 Corfou (coll. Roth/Paris) - female 4 Aug 1954 Corfou (CAS) - female 14 July 1965 Athens; male Corfu; male 11 June 1986 10 km N Kerkyra, Ipsos; male 16 June 1966 ancient Corinth (LEIDEN) - further 4 males and 7 females from Greece mainland in coll. Amsterdam.

ISRAEL: male 14 May 1996 10 km S Haifa, Har Karmel, Bet Oren (Hauser) - 13 males 2 females 15 May 1996 15 km S Qiryat Shemona, 1 km W Hula Reserve (SE, Niehuis) - 3 males female 17 May 1996 Jordan Valley, 8 km SSW Bet Shean (SE, Hauser, Niehuis) - 13 males 3 females (leg. Bytinski Salz, in de Beaumont & Bytinski-Salz 1955) - male 30 Apr 1971 Cesavea - 2 males 15 May 1973 Ram Naftali - male 15 May 1973 Dishon (TA).

ITALY: female May 1923 Sicilia, Taormina (ETH) - female 30 July 1995 Pugila, Mt. Gargano, S. Giovanni (Merz, ETH) - male female «Sizilien [leg] Trautmann» (MNHU) - female 29 July 1999 Calabria, 40 km S Cosenza, Atilia (OLL) (clypeus black except narrow apical band).

JORDAN: male 25 Apr 1996 Jordan valley, S. Shuna - female 4 males 27 Apr 1996 Jordan Valley, Dary Alla - male 30 Apr 1996 North Shuna 2 (OLL).

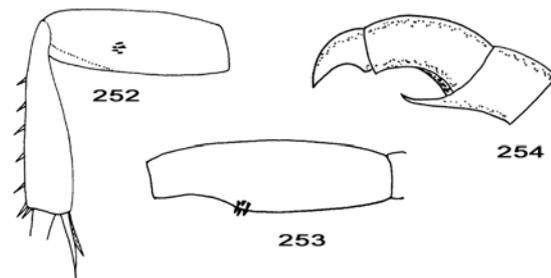
CROATIA: male female 27 May 1962 Srd/Dubrovnik (LEIDEN).

LEBANON: 3 males female 12 May 1995 N. Bekaa, Jdeide, 1000 m NN (Roche).

SYRIA: 5 males 9 females 25 May 1996 Syria NW, 20 km NE Latakia - male 24 May 1996 Syria west, 50 km S Hons - female 25 May 1996 20 km NE Latakia - female Lyrie, Ras al Bnsait 35°32'N 35°53'E 2 July 1998 - female W Tartus 25 May 1996 - 4 female 10 km SE Suwayda, Kafr 19 May 1996 (OLL).

TURKEY: 2 males 25 May 1990, Anamur, Anamurium (SE) - female 24 May 1967, male 25 May 1970, Antakya (GUS) - male 1907, Turkey, Syrakus (=Izmir); female 15 June 1979 Mersin, Ulas, 500 m NN (SE) - male 22 May 1975, 2 males 3 July 1976 Urfa (SMFD); 40 km SE Aksaray; Beysehir (CAS) male, 2 females 17 June 1987 Antalya, 5km W Manavgat, Side (LEIDEN) - male 25 May 2001 6 km SE Marlik 36°54'N/56°26'E; female 30 June 2000 30 km W Baykan; male 1 June 2001 Karadut (OLL); many males from OLL leg. 1998: Tuzlagozu/Baylan; Halfeti/Birecik; 20 km N Mardin; 30 km S of Aksehir; 10 km W Gaziantep - many females: Siirt; Urfa; Urfa-Halfeti.

39. *Bembecinus naefi* (de Beaumont, 1951) (Figs. 252-254)



Figs. 252-254: *Bembecinus naefi* male: 252 hindfemur, inner side; 253 hindfemur, dorsal view; 254 apex of flagellum.

Stizus naefi de Beaumont, 1951:277, female, male. Holotype: male, Morocco: Casablanca: Aïn Diab (MCZL). - In *Bembecinus*: de Beaumont, 1954:270 (new combination).

Diagnosis: The male of *naefi* is similar to *mattheyi*. It can be recognized by the hindfemoral group of spines (1-2 spines in *mattheyi*) and its markedly yellow colour on the thorax. The female is also similar to *mattheyi*.

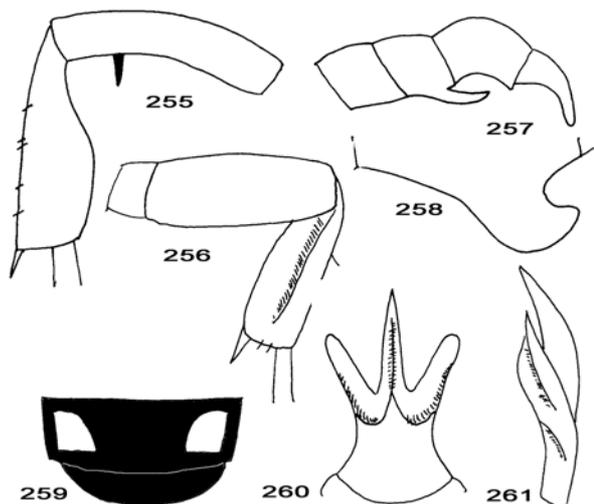
Male: (according to de Beaumont 1951): Body length 9 mm. Similar to the male of *mattheyi*. Body with pale lemon markings. Colour pattern on head and thorax more extended than in *mattheyi*, scutellum with large triangular spots, metanotum all yellow. Tergal bands reduced: tergite V with median spot, tergite VI black. Tergite VII with obtuse angle (more rounded in *mattheyi*), hindfemur with group of small spines at inner side (1-2 spines in *mattheyi*).

Female (according to de Beaumont 1951): Body length 9 mm. Similar to the female of *mattheyi*. Long setae on last tergites black (pale in *mattheyi*).

Geographic distribution: Morocco.

Records: The species was not examined. It is only known by two type specimens.

40. *Bembecinus niehuisi* Schmid-Egger, spec. n. (Figs. 255-261)



Figs. 255-261: *Bembecinus niehuisi* male (except 259): 255 hindfemur, dorsal view; 256 hindfemur, outside; 257 apex of flagellum, 258 tubercle on sternite II, lateral view; 259 female scutellum and metanotum; 260 sternite VIII, dorsal view; 261, id. lateral view.

Diagnosis and discussion: The species is characterized by the form of the sternal tubercle II and the form of sternite VIII (see fig.); by the narrowed hindtibia and by these characters it resembles *mayri* from Tunisia and Algeria. The topotypical females are characterized by their colour pattern (face yellow up to antennal socket, metanotum black, hindtibia black and yellow). The female is similar to that of *urfanensis* from southern Turkey and differs only in the form of the scutellar spot and its paler body colour.

Male: Body length 8-11 mm. Mandible reddish black. Body pale yellow: Labrum, clypeus, space above clypeus up to middle of scape base, band at inner eye margin, underside of flagellum (last flagellomeres reddish yellow), band on pronotum, pronotal lobe, tegulae, small lateral spots on scutellum, narrow bands on tergites I-VI (last bands reduced), triangular lateral spots on sternites II-IV. Coxae with yellow spot. Femur black, underside with yellow band (on forefemur complete, on hindfemur only at apex), tibiae yellow with central black spot at inner side, hindtibia also at outside.

Clypeus and flagellomeres as in *peregrinus*. Sternite II with large, hawk-beak like tubercle. Teeth of sternite VIII broadened (lateral view), lateral teeth apically

pointed. Hindfemur apically enlarged, with long black spine at inner distal quarter. Hindtibia strongly narrowed at base.

Female: Body length 8-10 mm. Pale yellow are: Face up to antennal socket, inner margin of eye, flagellum below, pronotum, pronotal lobe, small rounded spots on scutellum, bands on tergites I-IV (last bands do not reach tergal sides), median spot on tergite V. Fore- and midfemur below, tibiae and tarsi above yellow. Minimal distance between eyes 1.2x - 1.3x as long as clypeus length.

Etymology: The species is named after Oliver Niehuis, a colleague, who supported the trip to Israel and who collected a type specimen.

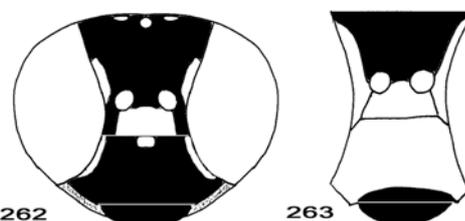
Geographic distribution: Northern Israel and Syria.

Records: Holotype: male 14 May 1996 SYRIA, 60 km S Damascus, Khabab, leg Mi. Halada ing. (OLL).

Paratypes: (females not designated as paratypes): SYRIA: 2 males 15.-17 May 1996 Dibbin, 30 km S of Suwayda leg. Halada (OLL); female 21 June 2000 Kaft, Suwayda - female 19 May 1996 southern Syria, 10 m S Suwayda, Kaft. (OLL).

ISRAEL: 3 males female 16 May 1996 17 km E Qirat Shemona, Golan, 2km SE Zomet (33°13'N/35°45'E) (Se, Niehuis).

41. *Bembecinus nigrolabrum* Schmid-Egger spec. n. (Figs. 262-263)



Figs. 262-263: *Bembecinus nigrolabrum* female: 262 head, female with black clypeus; 263 face, female with yellow clypeus.

Diagnosis: The female of *nigrolabrum* is unique among the eastern mediterranean species in having reddish legs and a black labrum in combination with a partly or all yellow clypeus. The space above the clypeus is yellow. The thorax is black except the pronotal lobes and two large, rounded spots on the scutellum laterally. The last tergal bands are reduced to median spots. *Bembecinus nigrolabrum* resembles some species from the western mediterranean area as *carpetanus* or *mattheyi*. The male is unknown.

Apart from the mentioned characters, the species is similar to *gusenleitneri*. The latter has also a dark face, but the lower part is yellow, at least partly. The legs are black, yellow and partly reddish, but the hindtibia is black apically at inner side (all red in *nigrolabrum*).

Discussion: It was not possible to associate *nigrolabrum* with any male from Turkey. Probably the male has also partly red legs and short tergal bands. Only *heinrichi* from southern Turkey has pale red legs, but its female is known. *Bembecinus nigrolabrum* is also characterized by the distribution pattern. All records come from central and eastern Turkey, whereas most remaining species of the *peregrinus* group occur in southern or south-eastern Turkey. Because of the unique character combination and the distribution pattern, I describe the species based on females only.

Male: Unknown.

Female: Body length 9-10 mm. Pale lemon yellow are: clypeus except narrow apical band, space above clypeus, band at inner eye margin, scape and flagellum below, band on pronotum, pronotal lobes, lateral round spots on scutellum, narrow bands on tergites I-III, median short bands or spots on tergites IV-V, small lateral spots on sternite II. Tergite VI apically reddish. Femur, tibiae and tarsi light reddish, femur basally black, forefemur yellow below. Mesonotum nearly smooth, with barely visible punctures. Propodeum and tergites with dense and coarse punctures, punctures less than one diameter apart.

Variability: Both females from Muradye have a less extended face colour. Clypeus is yellow only in basal half in one female, and all black except a very small basal spot and two short and narrow lateral bands in the other female. The females from Nevsehir agree with the holotype.

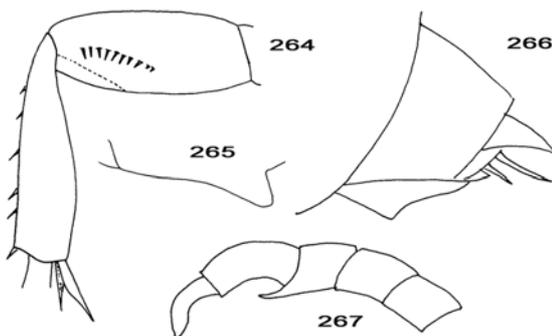
Etymology: A typical character of the species is the black labrum: *nigrolabrum*.

Geographic distribution: Central and Eastern Turkey.

Records: Holotype: TURKEY: female 2-8 July 1985 Agri, Ararat Südhang, 1800 m NN (OLL)

Paratypes: TURKEY: 2 females 27 June 1997 Turkey east, 10 km N Muradya (OLL, SE) - 3 females 23 June 1987 20 km S Nevsehir, Kaymakli (LEIDEN, SE).

42. *Bembecinus peregrinus* (Smith, 1856) (Figs. 264-267)



Figs. 264-267: *Bembecinus peregrinus* male: 264 hindfemur and hindtibia inner side; 265 tubercle on sternite II; lateral view; 266 gastral segments VI and VII, lateral view; 267 apex of flagellum.

Larra peregrina F. Smith, 1856:347, male. Holotype: male, Albania: Privesa (BMNH). - As *Stizus peregrinus*: Handlirsch, 1892:80 (new combination, revision). - As *Bembecinus peregrinus*: de Beaumont, 1954:272 (new combination, revision), 1967:301 (key, males), 310 (Turkey), 1969:84 (Turkey); Guichard 1991:339 (Jordan).

Bembecinus Erberi Mocsáry, 1881b:329, male, female, incorrect original capitalization. Syntypes: Greece: Epirus and Corfu Island (TMB). Synonymized with *Stizus peregrinus* by Handlirsch, 1892:80.

Bembecinus biarmatus Mocsáry, 1883:45, male. Holotype or syntypes: male, Turkey: Brussa, now Bursa (TMB). Synonymized with *Bembecinus peregrinus* by de Beaumont, 1954:272.

Stizus peregrinus var. *biarmatus*: Handlirsch, 1892:83 (revision); - As *Bembecinus peregrinus biarmatus*: Bohart and Menke, 1976:531 (listed).

Diagnosis: The male is unique in having sternal tubercles II and VI, a row of spines at the inner side of the hindfemur and the large size (12-15 mm). The males differ in extension of colour. The females are also characterized by their large body size (12-14 mm) and the dense, grainlike punctation of the clypeus. The space above the clypeus is in most specimens partly or all black, the hindtibia is in most specimens all yellow. Specimens from Europe to Israel have a less extended pale yellow colour, specimens from eastern Turkey are markedly lemon yellow. The females may be confused with *meridionalis*, which has smooth and shiny interspaces on clypeus. The relationship to similar species as *cyprius* remains unsolved.

Male: Body length 12-15 mm. Pale lemon yellow are: mandible (distal third reddish black), labrum, clypeus, space between clypeus and upper margin of antennal base (space above clypeus), band at inner eye margin at 2/3 length of eye, underside of scape and flagellomere (distal flagellomeres reddish), band on pronotum, pronotal lobe, tegulae, spot on back of outer edge of mesonotum, small triangular lateral spots on scutellum, large band on metanotum. Tergites I-VI with yellow band, 1/3 as large as tergite length, band on tergite VI as large as tergite length. Band on tergite I widely emarginated, other bands double emarginated. Tergite VII black. Sternite II-V with triangular lateral spots. Coxae with yellow spot. Femur black, underside with yellow band on whole length. Tibiae and tarsi yellow.

Whole body covered with fine silvery pubescence and erect pale setae. Minimal distance between eyes 1.1x as long as clypeus. Flagellomere I 2.1x as long as distal width. Flagellomere XI long, rectangularly curved. Thorax fine microsculptured, on mesopleuron and propodeum also with punctation. Propodeal emargination indistinct, lower edge pointed. Tergites shiny, with dense coarse punctures, that are 0.5-1 diameters apart. Lateral edges of tergite VII slightly

emarginated, apex rounded. Spines of forebasitarsus as long as foretarsomere II. Hindfemur with parallel sides, rectangular apically. Inner side of hindfemur with row of fine spines in distal third. Hindtibia evenly broadened toward apex. Sternite II with long pointed tubercle, sternite VI with pyramid-form small tubercle, sternite VII with median ridge.

Variability: The species is variable in colour pattern. Males from Greece are markedly lemon yellow. Lateral spots on scutellum are often connected, band on tergites large and not emarginated. Specimens from Bulgaria have less extended colour. Males from southern and central Turkey are pale yellow. A male from Urfa (southern Turkey) with large bands on scutellum and tergites is exceptional. The male from Hakkari (eastern Turkey) is similar to males from Greece, but it has narrow and emarginated bands on tergites. Specimens from Israel are extensively lemon yellow colour, their propodeum is markedly yellow (also in the middle), and the mesonotum is sometimes lemon.

Female: The description refers to specimens from Bulgaria and Greece. Body length 12-14 mm. Pale lemon yellow are: mandible (distal third reddish black), labrum, clypeus, band at inner eye margin at 2/3 length of eye, scape and flagellomeres below, narrow band or lateral spots on pronotum, pronotal lobes, spot on tegulae, small triangular lateral spots on scutellum or scutellum all black. Tergites I-V with narrow yellow bands. Band on tergite I widely emarginated, other bands double emarginated. Tergite VI black or with small yellow spot. Sternite II-II with small triangular lateral spots or black. Coxae with small yellow spot. Femora black, fore- and midfemur below with yellow band on whole length. Tibiae and tarsi reddish-yellow, fore- and midtibia with black band at inner side.

Clypeus, flagellomere I and body surface as in male. Forebasitarsus broadened, spines long. Tergite VI reddish at apex. Clypeus finely microsculptured, grain-like. Minimal distance between eyes 1.2x - 1.3x as long as clypeus length.

Variation: In females from western and central Turkey the colour pattern is less extensive: clypeus with basal black band or spot, hindtibia apically at inner side black. Specimens from southeast Turkey are markedly dark lemon yellow: Space above clypeus is partly yellow, two lateral spots are black, tergite VI is nearly completely yellow, scutellum and metanotum have large lateral spots, the hindtibia is all yellow. The female from Jordan is as dark as the females from western and central Turkey. The female from Erzurum (northeast Turkey) is also very dark, the scutellum has only two very small spots, the tergite VI and the space

above the clypeus is black, the tergal bands are as narrow as length of metanotum.

Geographic distribution: Eastern Mediterranean area from Albania and Bulgaria to eastern Turkey and Armenia, southwards to Israel and Jordan. A more or less common species.

Records: ALBANIA: male 17 June 1961 Iba near Krraba (DEI).

ARMENIA: male 18. June.1982 Vedi env. Chosrov Reserv. (ZSM).

BULGARIA: male 28 June 1978, Biser-Harmanli (OLL) - male 25 June 1978 Melnik (OLL) - female 25 July 1970; Arkutino S Burgas (DEI) - 3 males female 5 June 1995; S Primorsko (DEI) - male 26 June 1988 Micuria, Dl poljana (mer-or.) (OLL) - many males and females: June 1969 Sandanski (OLL).

GREECE: female 3 Aug 1963, Altkorinth (GUS) - male 15 June 1973, Korfu (ZSM) - male 30 June 1970, Olympia (SMFD) - 5 males 2 females before 1900, Olympia (SMFD) - female 9 June 1963, Patras (SE) - female 25 May 1970, Sikyon (SE) - 4 females 19 June 1964 Kalavryta (SMFD) - male 6 Sep 1963 Patras (SMFD) 3 females 26 May 1994 Peleponnes, Ajia Marina, 10 km SW Neapoli (OHL) - female 29 May 1994 Peleponnes, Kosta, Porto Heli (OHL) - female 24 May 1994 Peleponnes, Nomia, 5 km S Monemvassia (OHL) - male 2 females Olympia, Corfu, Epirus (ETH, without date) - 32 males 26 females 1995-1997 Peleponnes: Kalamata; Mani-Vathia; Sparta-Amyklai; Mistras-Parori, Neapoli-Kap Malea; Geraki, Sparta-Menelaion; Midas; Alt Korinth; Kalogria; Olympia; Diavolitsi; Stymph. See-Kateri; Samikon-Krouni; Kap Tenaro; Epidauros-Limera; Lira; Examila near Korinth; Mykene. male: 14 May -7 June, female: 15 May -21 June (ARENS) - 6 males Makedonien, W-Kassandra, Kalandra 21 May 1999 (Görlitz) - Mistras 1971, Lerna n. Miloi 1971; Ancient Corinth 1966; Kerkyra 1971; Mycenae 1971 (LEIDEN) - further 14 males and 20 females from Greece mainland and Samos in coll. Amsterdam and coll. Schlaefle.

ISRAEL: 8 males female 4 Apr 1942 Palestine, Ein Geb (TA).

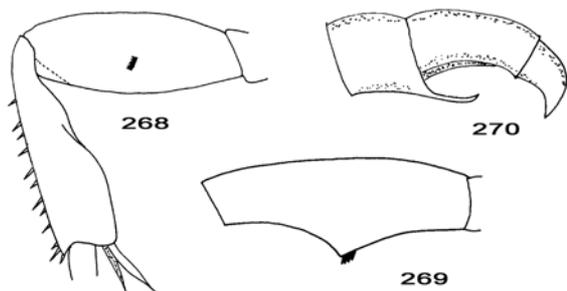
JORDAN: 3 females aff. *peregrinus*: 20 Apr 1996 Jordan west, Jordan valley, S. Shuna - female 27 Apr 1996 Jordan Valley, Dary Alla (OLL).

MACEDONIA: female 4 June 1974 St. Dorjan (OLL) - female 8 June 1965 Stobi (LEIDEN).

TURKEY: 2 males 18 May 1972, Birecik (SMFD) - male 16 June 1981, Hakkari, 10 km W Uludere, 1000 m NN (SE) - male female 1907 Izmir (Syracus) (SMFD)- male 25 July 1963, Mut (GUS) - male 26 June 1987, Dogubayazit (SMNS) - female 15 June 1985, Side (Risch) - 2 males 22 May 1975 Urfa (SMFD) - male 2f 26 June 1977, Ürgüp (SMFD) - male Amasia (WIEN, det. Handlirsch as *biarmatus*, very dark form, scutellum black) - female 8 July 1997 25 km E Malatya; male 14 Aug 1997 Osmaneli; male 20 May 1995 Samandagi; many males 31 May 1998 Halfeti/Birecik (OLL) - many males 4 June 1998 Tuzlagozu/Baykan; male 7 June 1998 25km E Golbasi - male 5 June 1998 10 km N Gercus; male, many female

Eksiler/Silifke; male 14 June 1967 Osmani; male 23 June 1997 20 km S Bitlis; male 24 June 1998 Konya, 30 km S of Aksehir; female 19 June 1998 N of Akseki, female 21 June 1998 Izmir, female 16 June 1997 20 km E Alanya; 2 female 2 males Taskesigi/100 km E Antalya 1998; male female Feke/100 km N Adana 12 June 1998; 4 females Halfeti/Birecik 30 May 1998; male 29 June 2000 SE of Elazig, Hazar Gölü, male female 7 July 2000 15km W Refahye, W of Ercincan; male female 13 Aug 2000 30 km N Kutahya, female 2 July 2000 Gevas, Van Gölü, female 30 June 2000 30 km W Baykan; 2 males 5 May 1996 Beldibi/30 km SW Antalya (Kuhlmann) - female Birecik 17 May 1972; female Adiyaman, Kukucak env. (OLL) - female Agäis, Güvercinlik 1999 (Görlitz) - male 12 June 2000 Halfeti 37°12'N/37°52'E (Niehuis) - female 9 July 1987 Hakkari 1750 m NN; 4 females 28. June 1987 Urfa, Halfeti; female 16. July 1987 Erzurum, Tortum 1700 m NN (LEIDEN) - 3 females 30 June 1993 Anamur (Schlaefle) - 22 females 22 June 1998 SSO Milas, Camköy; SW Milas, env. Akjol; SW Selcuk, Kusadasi (Niehuis).

43. *Bembecinus podager* de Beaumont, 1951 (Figs. 268-270)



Figs. 268-270: *Bembecinus podager* male: 268 hindfemur, inner side; 269 hindfemur, dorsal view; 270 apex of flagellum.

Stizus podager de Beaumont, 1951:279, male, female. Holotype: male, Morocco: Immouzer (MCZL).--In *Bembecinus*: de Beaumont, 1954:270 (new combination, revision).

Diagnosis: *Bembecinus podager* is unique in males by having unarmed sternites and the hindtibia strongly enlarged apically. The hindfemur has at the innerside a group of 3 small black spines and is strongly hollowed out behind these spines. The male is lemon yellow, tergal bands are large. The female has a black mesonotum, scutellum and metanotum and is characterized by its extended lemon colour on tergites and legs. It resembles *mayri*, which often has small reddish black spots on scutellum, where it is black in *podager*. Also the mesonotal punctuation in *podager* is coarser and denser than in *mayri*. *Bembecinus podager* is only recorded from Morocco, *mayri* only from Algeria and Tunisia.

Male: Body length 11 mm. Differ from *peregrinus* by the following: scutellum, metanotum and sternites black. Band on last tergites laterally shortened. Flagellomere XI short. Thorax with dense and coarse

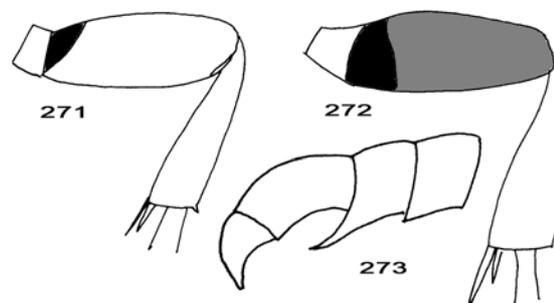
punctures. Sternite VI with triangular emargination at apex. Hindfemur emarginated in apical half, with a group of three spines at base of emargination. Spines in a vertical row (not horizontal as in most other species of *peregrinus* group). Hindtibia strongly enlarged apically.

Female: Body length 9,5 mm. Lemon yellow: labrum, clypeus, band at inner eye margin, two small spots below base of scape, underside of antenna, narrow band on pronotum and pronotal lobe. Band on tergites narrow (1/3 of tergite length) and double emarginated, tergite VI black with reddish apex. Space between emarginations on tergite III-V narrow (as wide as length of flagellomere I), these bands laterally shortened (gap between band and edge of tergite as long as basitarsi II+III). Legs reddish yellow, femur black except apex, tibia II black at inner side, femur I with yellow band ventrally. Mesonotum with coarse punctures (1-2 diameters apart). Minimal distance between eyes 1.13x as long as clypeus.

Geographic distribution: Morocco.

Records: MOROCCO: female 25-28 June 1918 Meknes (Paris, coll Centrale) (paratype det. de Beaumont) - male 2 May 1990 La Racne (coll. Pagliano/Torino) - male female 26 May 1996 15 km SE Sefrou (SE).

44. *Bembecinus pulchellus* Mercet, 1906 (Figs. 271-273)



Figs. 271-273: *Bembecinus pulchellus*: 271 male hindfemur, outside; 272 female hindfemur, outside (grey = reddish color); 273 apex of flagellum.

Stizus pulchellus Mercet, 1906:146, male, female. Syntypes: Spain: Madrid: Montarco (IEE, Madrid).- In *Bembecinus*: de Beaumont, 1954:266 (new combination, revision); Diniz, 1973:47 (Portugal). Also mentioned in many faunal papers from Spain, which are not listed here.

Diagnosis: The male is characterized by unarmed sternites, a very short hindfemoral spine (which lack sometimes) and an extended yellow body colour. The female can be distinguished from the remaining *Bembecinus* of the *peregrinus*-group (*carpetanus* and *crassipes*) on the Iberian Peninsula by its strongly lemon yellow body colour.

Male: Body length 10 mm. Body colour dark lemon yellow. Yellow are: face up to antennal socket, Scutellum with large triangular spots, metanotum with

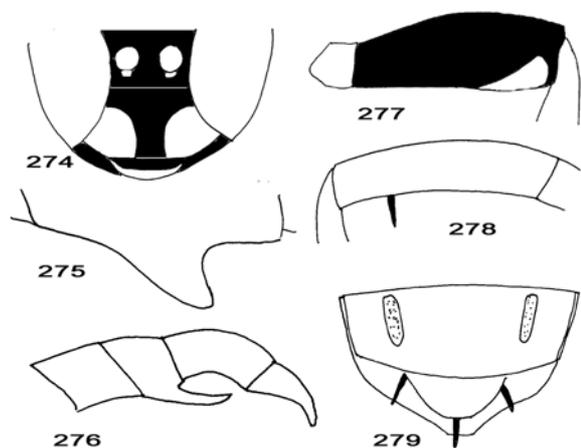
very small lateral spots, propodeum laterally with large spots. Mesopleuron with small spot in lower half. Bands on tergites large, tergite VII with median spot. Sternites II-IV with triangular lateral spots. Legs yellow, forefemur at upper side, mid- and hindfemur basally black. Hindtibia at inner side with very small spine or without spine.

Female: Body length 10-11 mm. Base of clypeus black. Space above clypeus only with small spots below base of scape. Scutellum with small lateral triangular spots. Band on tergites II-V narrow, double emarginated, space between emarginations narrow. Tergite VI and sternites black. Coxae and base of femur black, other parts of legs reddish yellow, tibia II with yellow band at underside.

Geographic distribution: Spain and Portugal.

Records: SPAIN: 7 males 14 June 1920 Montarco (Pagliano, coll. Roth & coll. Centrale/Paris, ETH) - male female 30 June 1995 Villarino, Salamanca (Gayubo, SE) - 5 females 28 June 1995 Prov. Salamanca, Aldea del Obispo (SMNS) - male 1 July 1968 2 females 28 July 1967 Caceres, Guadalupe (Roche) - female Pt. de St. Me/La Piedad (leg. Junco, coll. Roth, Paris) - Sevilla (coll. Centrale/Paris) - Madrid; Caceres Guadalupe; Montarco (CAS) - 1 male 4 females 28 July 1987 Caceres Guadalupe (Amsterdam).

45. *Bembecinus revindicatus* Schulz, 1911 (Figs. 274-279)



Figs. 274-279: *Bembecinus revindicatus* female: 274 face; male: 275 tubercle on sternite II; lateral view; 276 apex of flagellum; 277 hindfemur, outside; 278 hindfemur, dorsal view; 279 tubercles on sternite VI, ventral view.

Stizus Schmiedeknechti Handlirsch, 1900a:449, male, incorrect original capitalization. Holotype: male, Syria: Damascus (NHMW). Nec Handlirsch, 1898.

Stizus revindicatus W. Schulz, 1906:199, new name for *Stizus schmiedeknechti* Handlirsch, 1900. -In *Bembecinus*: de Beaumont, 1954:271 (new combination, revision).

Stizus houskai Balthasar, 1954:274, males. Holotype: males, Israel: Jerusalem (V. Balthasar coll.). Synonymized with *Bembecinus revindicatus* by de Beaumont, 1954:271.

Diagnosis: The male of *revindicatus* shares a pointed tubercle on sternite II and two small lateral tubercles on sternite VI with *anatolicus* from Turkey. It can be distinguished from the latter by the form and position of the tubercles on sternite VI and by colour pattern. The female can be recognized by its partly black clypeus and its black and yellow legs. It is similar to the female of *gusenleitneri* from Turkey, which has a basally black clypeus, whereas the clypeus is only laterally yellow in *revindicatus*.

Discussion: Beaumont (1967) described *anatolicus* as a subspecies of *revindicatus*. I treat both taxa as valid species (see discussion under *anatolicus*).

Male: Body length 11-13 mm. Pale yellow: differs from *peregrinus* by the following: scutellum, metanotum, tergites VI-VII and sternites black. Tergal bands narrow (1/3-1/4 of tergal length), laterally shortened. Sternite II with small pointed tubercle, directed backwards. Sternite VI with two oblong lateral tubercles, parallel to body axis, and located near lateral edge of sternite (separated by length of flagellomere I). Space between tubercles shiny, with punctures. Hindfemur with long spine in distal quarter of upper femoral margin.

Female: Body length 8-10 mm. Labrum basally black. Clypeus black or with basomedian black spot. Pale yellow: Small band at inner eye margin, spot below base of scape, pronotum, pronotal lobe and rounded lateral spots on scutellum. Band on tergites narrow, tergites V-VI black. Femora and tibiae black, tibiae with yellow bands at outer surface (sometimes reduced). Clypeus with granular microsculpture, mesopleuron with punctures.

Geographic distribution: Syria, Israel and Jordan.

Records: ISRAEL: 8 males female 15 May 1996 40 km NE Haifa, 1 km NE Hurfeish - 2 males 2 females 14 May 1996 10 km S Haifa, Har Karmel, Bet Oren (SE, Hauser, Niehuis) - 5 males female 9 July 1942, 6 May 1943, 29 Apr 1942 Jerusalem - male 15 Aug 1973 Dishon - male 15 May 1973 Ram Naftali (TA) - female 15 May 1996 15 km S Qiryat Shemona, 1 km W Hula Reserve (SE) - male Jerusalem (CAS) - 1 male 22 May 1987 Rosh Pinna (Amsterdam).

JORDAN: female 1 May 1996 Jarash (west.sept J.); 7 females 7 males 20 Apr 1996 N. Shuna ; male female 20 Apr 2002 10 km N Jerash (OLL).

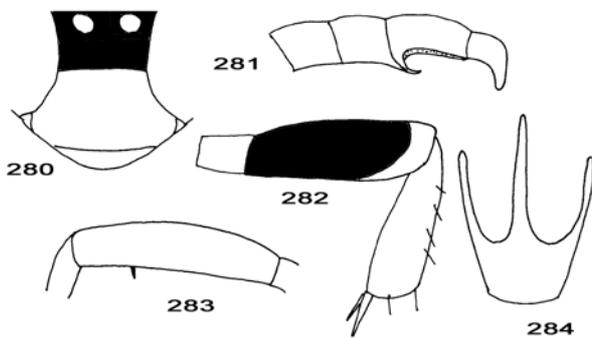
SYRIA: female 13 May 1989 Env. Damaskus, Nab al Barada (SE) - male 22 May 1996 40 km NE Damascus (OLL) -

46. *Bembecinus rhodius* de Beaumont, 1960, status restored (Figs. 280-284)

Bembecinus rhodius de Beaumont, 1960:10, male, female. Holotype: male, Greece: Rhodes Island: Kremasti (MCZL). -As *Bembecinus cyprius rhodius*: de Beaumont, 1961:48 (new status). **Status restored.**

As *Bembecinus cyprius creticus* de Beaumont, 1961:48, male, female. Holotype: male, Greece: Crete Island (LEIDEN). examined, **syn. n.** -de Beaumont, 1965:28 (Greece, Crete Island).

Diagnosis: The male of *rhodius* is similar to *acanthomerus* in having unarmed sternites, a single hindfemoral spine and the hindfemur apically narrowed. The male is markedly larger than typical *acanthomerus* and has less extended yellow colour at hindfemur. The hindfemoral spine is markedly shorter than in *acanthomerus*. *Bembecinus cyprius* and *validior* both have an apically larger hindfemur than *rhodius*; *validior* is markedly yellow. The female of *rhodius* belongs to the species subgroup with the space above the clypeus black (see description).



Figs. 280-284: *Bembecinus rhodius* female: 280 face; male: 281 apex of flagellum; 282 hindfemur, outside; 283 hindfemur, dorsal view; 284 sternite VIII; dorsal view.

Discussion: From an examination of males of *rhodius* results that the species is similar to *acanthomerus* by the form of the hindfemur. So its status as subspecies of *cyprius* is not justified (*cyprius* has an apically large hindfemur). *Bembecinus rhodius* is close to *acanthomerus*, but it differs from it (compared with *acanthomerus* from southern and eastern Turkey) by size - it is 1-2 mm larger than *acanthomerus* - by a shorter hindfemoral spine and by a mostly black hindfemur. So I hesitate to synonymize it with *acanthomerus* and put it to the rank of a species. It is restricted in his distribution to some Greece islands and to western and southern Turkey, whereas *acanthomerus* occurs eastwards and southwards of this area.

Bembecinus cyprius creticus is similar to *rhodius* by size, colour pattern and the form of the hindtibia (only basal two third of hindfemur are black in the type of *cyprius creticus*, whereas three fourth of hindfemur are black in males of *rhodius* from Turkey). In my opinion it is conspecific with *rhodius* and not a subspecies of *cyprius*. Also de Beaumont (1961) discussed the possibility that *creticus* belongs to the same species as *rhodius* and pointed out that *rhodius* and *creticus* differ in form of the hindfemur from *cyprius*.

The examined specimens from Crete agree well with the description of de Beaumont (1961). De Beaumont mentioned the same colour pattern for the females from Rhodes. The female of *rhodius* differs from *mediterraneus* and *cyprius* by the space above clypeus black, whereas it is yellow in *mediterraneus* from Rhodes and *cyprius* from central Turkey and Cyprus (according to the description of de Beaumont 1954). I could not examine any females of *rhodius* from western Turkey.

Male: Body length 9-10 mm. Lemon yellow are: face up to antennal socket, inner eye margin, scape below, pronotum, pronotal lobes, small posterolateral mesonotal spots, medium sized spots on scutellum, band on metanotum, medium sized bands on tergites I-VI, sometimes tergite VII also with spot, triangular lateral spots on sternites II-V, fore- and midfemur below, hindfemur at apex only, tibiae, tarsi. Flagellomeres brown below. Flagellomere XI long, apically curved. Tergite VII apically prolonged and bifurcate. Hindfemur slender, also apically, with small spine at inner side in apical fourth. Spine as long as 2/3 of ocellar diameter.

Female: Body length 9-10 mm. Colour as in male, but space below clypeus and inner eye margin black, or with some indistinct small yellow spots below clypeus. Tergite VI black (Rhodes) or with large yellow spot (Crete). Minimal distance between eyes as long as clypeus length (1.03x, measured in female from Crete only).

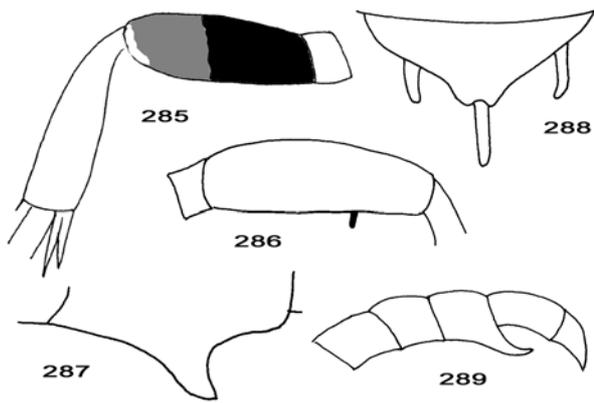
Geographic distribution: Greek islands (Crete, Rhodes, Samos), western Turkey, eastwards to Silifke.

Records: GREECE: male 20 June 1984 Samos, Mauritia E Kamara - CRETE ISLAND: male 12 June 1959, Karteros (*Bembecinus cyprius creticus* de Beaumont det. 1960, holotype) (LEIDEN). female 3 July 1942 Messaraebene, Ampelisis (SE) - 4 males female 21 June 2002 Kreta, Kolymban (OLL) - male 7 June 2003 Pl. Gramvousa, Balos-Beach (SE).

TURKEY: male 12 June 1985, Side (SE) - 3 males 7 July 1993 Acigöl, Cardak env - male 4 July 1993 Silifke (OLL) - 2 males 14 July 1996 Taurus, Antalya, 22 km E Kumluca, Strand bei Olympia (SMKA) - 6 males 17 June 1987 Antalya, Side; male 18 June 1987 Konya, Beysehir (LEIDEN) - 2 males 30 June 1993 Anamur (Schlaefle).

47. *Bembecinus schlaeflei* Schmid-Egger spec. n. (Figs. 285-289)

Diagnosis: *Bembecinus schlaeflei* has a unique character combination: a small tubercle on sternite II, a flat sternite VII and a short single or twinned spine on the hindfemur. The hindfemur and sternite VIII are not modified.



Figs. 285-289: *Bembecinus schlaeflei* male: 285 hindfemur, outside (grey = reddish color); 286 hindfemur, dorsal view; 287 tubercle on sternite II; lateral view; 288 tergite VII. 289 apex of flagellum.

The species resembles *niehuisi* from Israel and Syria (*Bembecinus niehuisi* has a large sternal tubercle and modified sternite VII). By colour pattern and sternal tubercle, it resembles *gazagnairei* and *mayri* from northern Africa. Both species have a modified hindfemur (apically hollowed out, with very small spines) and a broader sternal tubercle. *Bembecinus revindicatus* and *anatolicus* from the eastern Mediterranean area have a similar form of hindfemur and form of second sternal tubercle. Both have swellings on sternite VII, whereas it is flat in *schlaeflei*.

Male: Body length 10 mm. Pale yellow are: face up to antennal socket, small band on inner eye margin, scape and first flagellomeres beneath (remaining flagellomeres are pale reddish-yellow beneath), band on pronotum, pronotal tubercles, small mesonotal bands next to tegulae, small lateral triangular spots on scutellum, small band on metanotum, tegulae basally, small bands on tergites I-VI (bands 1/3 as large as tergal length). Tergals bands do not reach tergal lateral border, becoming shorter at apical tergites, last band as long as metanotum. Legs dark yellow, partly reddish-yellow. Black are: forefemur above, midfemur above in basal half, hindfemur all in basal half. Coxae and trochanters black, fore- and midcoxae with pale spots.

Clypeus 0.85x as long as minimum distance between eyes. Sternite II with ridge-like tubercle in apical third, tubercle as long as length of hindtarsomere II. Hindfemur apically slender, rounded, with short black spine on upper edge in its distal fourth. Spine as long as hindocellar diameter, left spine consists of twinned, but closely related and touched spines. Silver pubescence on the thorax dense.

Female: Unknown.

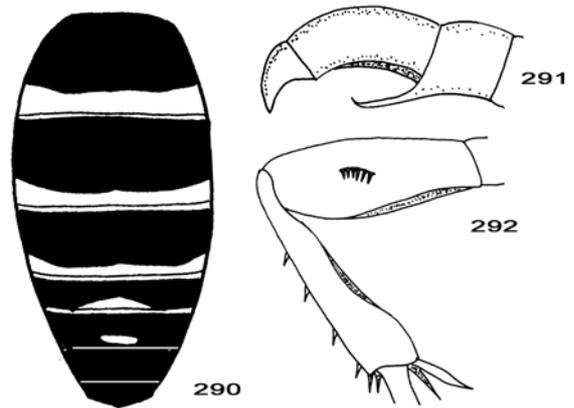
Etymology: The species is named after Wolfgang Schlaefle, who collected the holotype. W. Schlaefle

contributed significantly to the knowledge of Sphecidae by his collecting activities. Some new species descriptions by de Beaumont are based on his specimens.

Geographic distribution: Southern Morocco.

Records. Holotype: MOROCCO, male 27 Aug 1990 Erfoud, Source bleu (leg. et coll. Schlaefle).

48. *Bembecinus spinifemur* de Beaumont, 1951 (Figs. 290-292)



Figs. 290-292: *Bembecinus spinifemur* male: 290 gaster; 291 apex of flagellum, 292 hindfemur, inner side.

Stizus spinifemur de Beaumont, 1951:278, male, females. Syntypes: male, females, Morocco: Moyen Atlas: Timadit (MCZL). - In *Bembecinus*: de Beaumont, 1954:270 (new combination, revision).

Diagnosis: The male of *spinifemur* is distinctive by its unarmed sternites and a row of 5-7 spines at the inner side of the hindfemur. The thorax and the clypeus basally are black. The female belongs to a species subgroup occurring in northern Africa only with black thorax surface and red/black legs (see key). It measures less than 8 mm and is the smallest member of this subgroup. It is also characterized by its mostly black clypeus. The species is only recorded from the Atlas mountains in Morocco, whereas the remaining north African members of the *peregrinus* group occur in the lowlands.

Male: Body length 8 mm. Pale yellow are: clypeus except basal black band, scape below, pronotal lobe, narrow bands on tergites I-III (not reaching lateral tergal margin), short central bands on tergite IV and V. Labrum and flagellomeres below dark brownish-yellow. Sternites VI and VII apically reddish. All femur, tibiae and tarsi reddish. Flagellomere XI very short. Tergite VII short, apically with very obtuse angle. Hindfemur apically at lower edge enlarged, at inner side in the middle with row of 5-7 black short spines.

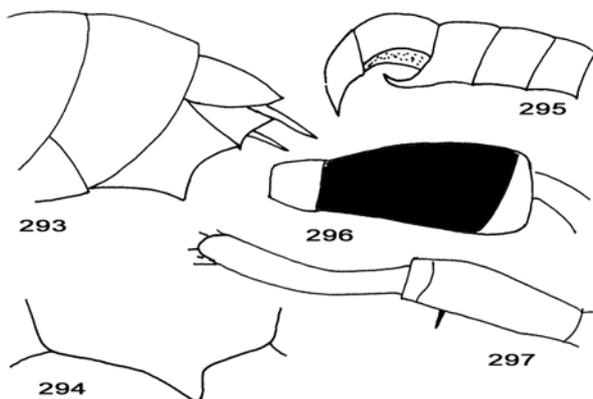
Female: Body length 7,5 mm. Pale yellow are: Apical band on labrum and on clypeus (1/3 of clypeal length),

scape below, pronotal lobe, narrow bands on tergites I-III (not reaching lateral tergal margin), short median bands on tergite IV, median spot on tergite V. Flagellomeres below dark brownish-yellow. Forefemur, foretibia above and forebasitarsus above black, remaining legs yellow. Mid- and hindfemur and -tibia black and reddish. Clypeus 1.25 as long as minimum distance between eyes.

Geographic distribution: Morocco, Atlas mountains.

Records: MOROCCO: male 28 May 1947 Timadit (paratype det. de Beaumont) (CAS) - male 21 June 1988, Timahdite, M. Atlas (GUS) - male 8 July 1975 Hoher Atlas, Oukaimeden [legs darkened: hindfemur black, hindtibia black and yellow] (CAS) - female 25 June 1988 Oukaimeden (SE).

49. *Bembecinus urfanensis* Schmid-Egger, spec. n. (Figs. 293-297)



Figs. 293-297: *Bembecinus urfanensis* male: 293 apex of gaster with tubercle on sternite VI; lateral view; 294 tubercle on sternite II; lateral view; 295 apex of flagellum; 296 hindfemur, outside; 297 hindfemur and hindtibia, dorsal view.

Diagnosis and discussion: *Bembecinus urfanensis* is similar to the male of *heinrichi* spec. n. Both species differ only by different proportions of the hindfemur and by the colour pattern. See discussion under *heinrichi*. Some females from southern Turkey agree well with the male of *urfanensis* in the thoracic colour pattern and in size. They come from the same localities as some males and belong in all probability to *urfanensis*, but I will not designate them as paratypes. These females are similar to those of *niehuisi* spec. n.

Male: The species is similar to *heinrichi* (see description above). It can be distinguished from *heinrichi* by the following characters: Hindfemoral spine located in its apical third (*heinrichi*: in its apical fifth), scutellum with small lateral yellow spots (*heinrichi*: scutellum black), tergite VI with apical yellow spot (*heinrichi*: tergite VI reddish or dark). Hindfemur 2x as long as its maximum width. (*heinrichi*: 2.5-2.7x its maximum width). Sternite VI

with large triangular tooth, sternite VII with small tooth. Tibia III curved as seen from above.

Female: Body length 8-10 mm. Pale lemon yellow are: Face up to antennal socket, inner margin of eye, flagellum below, pronotum, pronotal lobe, small rounded spots on scutellum, bands on tergites I-IV, last bands do not reach tergal sides, median spot on tergite V. Fore -and midfemur below, tibiae and tarsi above yellow. Minimal distance between eyes 1.2x - 1.3x as long as clypeus length.

Etymology: Named after Urfa, a town in southern Turkey, where the holotype was collected.

Geographic distribution: Southern Turkey.

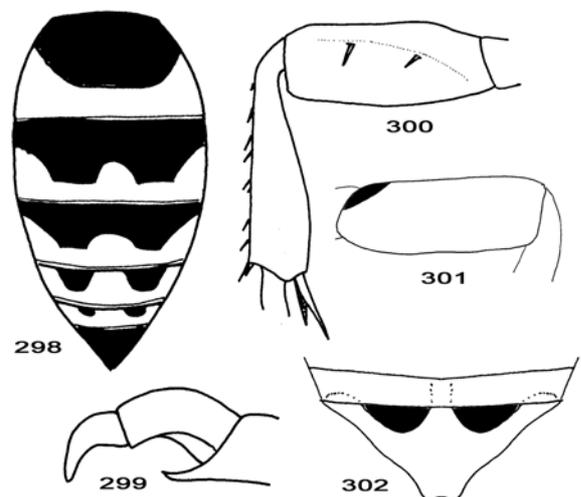
Records: Holotype: male 21-28 May 1972 As. TURKEY, Urfa; leg. Heinrich, coll SMFD (labelled as *femorata* n. spec. det. J. Heinrich 1977 = manuscript name).

Paratypes: TURKEY 2 males 21 May -28 May 1972, 2 males 22-26 May 1975, Urfa, leg. Heinrich, coll SMFD (labelled as *femorata* n. spec. det. J. Heinrich 1977) - 3 males 28 May 1978 Urfa, Halfeti, leg Schwarz (Schwarz) - male 30 May 1998 30 km W Gaziantep (OLL).

Females, not designed as paratypes:

TURKEY: 2 females 28 May 1978; 31 May 1988 Urfa, Halfeti (Schwarz, SE) - female 20 June 1997 20 km W Gaziantep (SE).

50. *Bembecinus validior* Gussakovskij, 1952 (Figs. 298-302)



Figs. 298-302: *Bembecinus validior* female: 298: gaster; male: 299: apex of flagellum; 300: hindfemur, inner side; 301: hindfemur, outside; 302: tergite VII.

Bembecinus validior Gussakovskij, 1952:271, male, female. Syntypes: Tadjikistan: Koy-Pyaz-Tau near Mikoyanabad, now Kabadian; and Hissar Mts. (ZIN).

As *Bembecinus diacanthus* de Beaumont, 1967:307, male, female. Holotype: male, Turkey: Mersin: Mut (M. Schwarz coll.). - de Beaumont, 1967:301 (key, male); (listed);

Dollfuss, 1989:7 (paratype in NHMW). Paratypes examined, **syn. n.**

Diagnosis: The male of *validior* is characterized in most specimens by two spines at the inner side of the hindfemur, which are separated by about the length of flagellomere II; the extended yellow colour and the large body size. Some males have approached hindfemoral spines, which are an ocellar diameter apart, or only a single, small spine.

The unarmed sternites and the apically broadened hindfemur placed *validior* near *cyprius*. It can be distinguished from *cyprius* by its larger body size (10-14 mm) and its colour pattern. The spots on the scutellum are triangular and nearly connected apically, whereas the scutellar spots in *cyprius* are smaller (in all specimens examined the black space between lateral spots is larger than the diameter of a spot) and rounded. Some males of *validior* from Oman have also a yellow spot on the tergite VII (black in *cyprius*). The hindfemoral spines (or single spine) are shorter than in *cyprius*. *Bembecinus acanthomerus* and the similar species have a slender and apically rounded hindfemur (length = 2.8-3.0x apical diameter), whereas it is larger and apically enlarged in *cyprius* and *validior* (length = 2.2-2.4x apical diameter). *Bembecinus asphaltites* is also similar to *validior*. It is smaller (8.5 mm) and has small spines on the hindtibia. Also similar is *henseni* from southern Turkey. It can be distinguished by its narrower hindtibia and its duller and dark last tergite.

The female of *validior* can be recognized by its extensive yellow colour (face up to antennal socket, large lateral spot on scutellum or scutellum all yellow, mesopleuron predominantly yellow, tergite VI with yellow spot).

Discussion: I could not examine the types of *validior*, but I have studied a couple of *validior* from Tadjikistan, the type area, which were compared by W. Pulawski with the types of Gussakovskij and which agree perfectly with the description of the author. De Beaumont's *diacanthus* from Turkey belongs without doubt to the same species. The Turkish specimens are less yellow, and the inner hindfemoral spine is large, whereas it is short and barely visible in the male from Tadjikistan.

Male (Turkey): Body length 10-14 mm. Face above clypeus yellow up to upper margin of antennal socket. Yellow are: large lateral bands on mesonotum, spot on mesoscutum, large lateral spots on scutellum (which are rounded inwards; or scutellum all yellow), metanotum, lateral spots on propodeum. Bands on tergites large, double triangularly emarginated. Sternite II nearly all yellow, spots on other sternites large. Legs all yellow or small black spots on upper femur. Sternites flat. Hindfemur apically broadened (similar as in *cypriacus*), with a large black spine in its first

third and a second spine in its second third at the upper edge (one specimen with twinned first spines at one leg). Proximal spine may be very small. Hindtibia basally evenly slandered.

Variation: In the males from Israel and Oman the hindfemoral spines are closer to each other (distance between them an ocellar diameter) and located in distal third of the hindfemur. Two males (from Oman and from Turkey) have only one (the distal) hindfemoral spine, but they agree well with the typical specimens of *validior*. The male from Tadjikistan has the inner (proximal) hindfemoral spine very small (twice as long as its diameter), the outer spine is shorter than the inner spine in specimens from Turkey. A third spinelike point is visible between both spines. A male from Israel and the male from Tadjikistan have the scutellum and legs all yellow. Another male from Turkey has the hindleg all black.

Female: Body length 11-14 mm. Yellow are: face above clypeus, mesopleuron, large lateral spots on scutellum (that may be connected), large spots on propodeum, sternite VI. Legs yellow, femur reddish at upper side.

Variation: The female from Tadjikistan has the scutellum and the legs all yellow, tergal bands II-IV are double triangularly emarginated as in male.

Geographic distribution: Central Asia, Turkey, Israel, Egypt, Oman.

Records: EGYPT: female 23 Mai 1971 Sinai, Oasis Feiran (SE).

ISRAEL: male 11 May 1996 Arava Valley, near Iddan, 30°47'N/35°16'E (SE) - female Bor Mashash 21 July 1986 (SE) - 2 females 30 June 1965 Jerusalem, Mishor Rotam - male, 10 km s of Beershebab, leg. Bytinski-Salz (TA) - 2 males 1 female 15 Jan, 24 May, 20 June 1990 Arava, 4 km W Hazeva - 2 males 3 females 7 July 1990 Arava, 6 km S Hazeva, Wadi Shezal (Amsterdam).

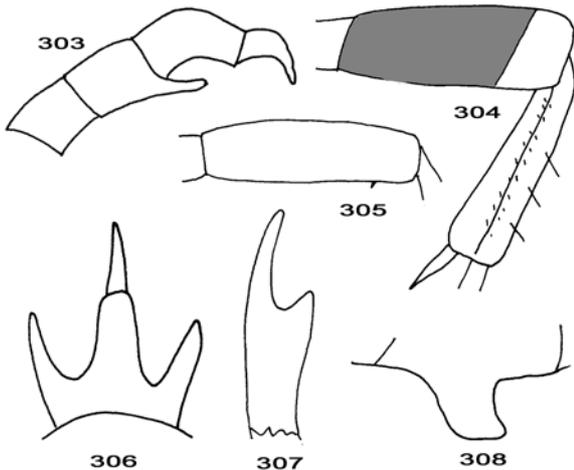
TADJIKISTAN: male female, Dushanbe, 26 July 1979 (CAS). [as *validior* Guss., det. by Pulawski 1980, compared with type specimens by Pulawski, pers. comm.].

TURKEY: 15 males 09-13 June 1965 Mut (*Bembecinus diacanthus*, paratype det. de Beaumont, coll Schwarz)- 2 females 10 June 1977, 06 June 1968, Mut (GUS, ZSM) - 2 males 2 females 10 June 1977 Mut - female 14 June 1977 Urfa - female Urfa 14 June 1977 (SMFD) - female 2 Aug 1987 Mardin (LEIDEN) - 5 males 29 June 2000 SE of Elazig, Hazar Golü; male female 30 June 2000 30 km W Baykan (OLL) - male 15 June 2000 Silifke, Mut (SE).

TURKMENISTAN: male 17 Mai 1990 Badkhyz reserve (Vladivostok).

OMAN: 2 males 16/18 April 1987, S Huwayyah (first male: hindfemur with 2 spines, tergite VII black, second male: hindfemur with 1 spine, tergite VII with yellow spot) (SE)

51. *Bembecinus zibanensis* Morice, 1911 (Figs. 303-308)



Figs. 303-308: *Bembecinus zibanensis* male: 303 apex of flagellum; 304 hindfemur, outside (grey = reddish color); 305 hindfemur, dorsal view; 306 sternite VIII, ventral view; 307 id. lateral view; 308 tubercle on sternite III; lateral view.

Stizus zibanensis Morice, 1911:117, male, female. Syntypes: Algeria: Biskra (OUM). - de Beaumont, 1951:280 (Morocco). - In *Bembecinus*: de Beaumont, 1954:271 (new combination, revision).

Diagnosis: The male is unique in having a hawk-beak formed tubercle on sternite III and a large additional tooth at the underside of sternite VIII. The female is characterized by its partly black clypeus and its colour pattern.

Male: Body length 10-12 mm. Pale yellow. Differs from typical *peregrinus* by the following: mesonotum with lateral band. Scutellum and sternites II-VI with lateral triangular spots, metanotum yellow. All tergites with narrow yellow band. Mid- and hindfemur light reddish, apex and tibia yellow.

Sternite III with hawk-beak shaped tubercle. Sternite VIII with large rounded tooth at underside, directed backwards. Hindfemoral spine (or twinned spines) short, in distal quarter.

Female: Body length 9-11 mm. Clypeus basally with black band. Space above clypeus yellow. Thorax, tergites and legs as in male, tergite VI black. Sternite II-IV with triangular yellow spots. Sternite II with large punctures between fine punctures.

Geographic distribution: Morocco and Algeria. Common at the northern border of the Sahara.

Records: ALGERIA: male female 1956 Biskra (coll. Roth, Paris).

MOROCCO: 6 males 3 females 30 April 1995, 20 km N Foug-Zguid - female 3 May 1995, 5 km S Tata - 9 males 4 May 1995, Icht, 100 km E Bouzakame - female 28 April 1995, Tissint, 70 km E Tata; 17 males 9 female 21 May 1995 Beni Bassia, 60 km EN Boudnib - male 10 May 1992 55 km vor Agdz, Ait Saou - 3 female 20 Apr 1995 20 km E

Agdz - 30 Apr 1995 many specimens 20 km N Foug Zguid - 24 Apr 1995 5km S Zagora -22 Apr 1990 Taroundant - 10 Aug 1995 Talmest - 20 Apr 1995 20 km E Agdz; 6 females 5 males Quauzagour, 30 km E Agdz (OLL) - 10 males 16 females 27 May 1995, Morocco /S, 10 km s Ouarzazate (NEU, SMKA, SE, HS) - male 26 May 1995, Morocco /S, 140 km E Agadir, Aoulouz (SE) - 2 males 2 females 27 May 1995, Morocco/S, 30 km NW Zagora (SMKA, SE) - male 7 females 27 May 1995, Morocco/S, 30 km SE Zagora (SMKA) - male 3 females 30 May 1995, Morocco/S, 30 km w Ouarzazate, Anezal (SE) - female 31 May 1995, Morocco/S, 40 km S Agadir, Sidi Rabat (SMKA) - female 20 May 1995, Morocco/S, E Agadir, Oulad-Teima (HS) - male 21 May 1995, Morocco/S, E Agadir, Quad Aissa (HS) - male 27 May 1995, Morocco/S, Vallée Draa, 10 km E Agdz (HS) - 13 males 5 females 15 Apr 1996 Quauzagour, 30 km E Agdz, 6°08'E 30°41'N (Schwarz) - male 14 May 1996 Imi-n'Knem 50 km E Agdz 5°58'E 30°52'N (Schwarz). Tata (coll. Centrale/Paris) - male 29 Mai 1990 Boumalne (Schlaefle).

Doubtful species

52. *Bembecinus carinatus* Lohrmann, 1942

Bembecinus carinatus Lohrmann, 1942:212. Holotype: male, Croatia: Dalmatia: no specific locality (NHMW). -de Beaumont, 1954:257 (revision; probably not an European species); Dollfuss, 1989:7 (type material in NHMW). Examined.

Diagnosis: The species is easy to recognize by its large ridge form tubercle on sternite VII.

Discussion: *Bembecinus carinatus* was described by Lohrmann from a single specimen, labelled «?Dalmatia coll. Leber», which comes probably from Dalmatia. De Beaumont (1954) believes that the species is coming from an exotic origin. The species was never found again in the Palaearctic Region, related species are known from South America. *Bembecinus carinatus* is not regarded as belonging to the European fauna here.

Description: Lemon yellow are: Clypeus except apical margin and median spot, inner orbit of eyes, scape and flagellomeres below (central flagellomeres barely yellow), narrow band on pronotum, very small spots in lateral hindcorner of mesonotum, narrow apical bands on tergites and sternites I-VI. Legs black except narrow band at inner side of foretibia and foretarsi (forefemur with apical spot) and midtibia. Propodeal emargination large but not deep, under margin projected. Sternite II basally swollen, sternite III mesally with very short, barely visible point, sternite VII with large ridge-like tubercle (as high as ocellar diameter) that reaches nearly apical sternal edge, anteriorly slightly enlarged. Hindfemur 3.1x as long as its mid diameter, without spines.

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